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Substance Related Disorders in Children and Adolescents

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Work submitted by Contract # 4600016732 from the Division of Medical Services, Arkansas Department of Human Services

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Substance Related Disorders in Children and Adolescents

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1. Epidemiology

- Substance abuse continues to be one of the most common and serious mental health disorders, with 35% lifetime prevalence in American society (NCS-R, 2007).
- 30-50% of Substance Use Disorders (SUD) begin in childhood or adolescence (Kandel, 1992).
- 47% of all 12th graders have already used at least one illicit substance in their lifetime (Monitoring the future, MTF study, 2008).
- Substance abuse is reported more commonly than substance dependence by a ratio of approximately 2:1 in adolescents (Harrison et al., 1998).
- Most commonly used substances among adolescents are alcohol, tobacco, and marijuana (Johnston et al., 2005).
- The lifetime diagnosis of alcohol dependence ranged from 0.6% (Costello et al., 1996) to 4.3% in the Oregon Adolescent Depression Project (Lewinsohn et al., 1996).
- The lifetime prevalence of drug abuse or dependence ranges from 3.3% in 15-year-olds to 9.8% in 17- to 19-year-olds (Kashani et al., 1987; Reinherz et al., 1993).
- 60% of 14-18 year-olds with Substance Use Disorders had another psychiatric disorder (Lewinsohn et al., 1993).

2. Symptomatology of Substance Related Disorders in Children & Adolescent

The continuum of adolescent substance use ranges from non-users, through experimental and casual users, to substance use and induced disorder.

Virtually any change in emotional state, behavior, social activities, or academic performance can signal a problem with substance use.

Friends and family may be among the first to recognize the signs of substance abuse/dependence. Early recognition increases the chance for successful treatment. ***The key is change***; it is important to watch for any significant changes in the child's physical appearance, personality, attitude or behavior. Signs and symptoms to watch for include the following:

Behavioral/Cognitive Signs

- Change in overall attitude/personality with no other identifiable cause.

- Changes in friends; new hang-outs; sudden avoidance of old crowd; doesn't want to talk about new friends; friends are known drug users.
- Change in activities or hobbies (e.g., giving up sports).
- Drop in grades at school or performance at work; skips school; late for school; school suspension.
- Change in habits at home; loss of interest in family and family activities.
- Difficulty in paying attention; forgetfulness; blackouts.
- General lack of motivation, energy, self-esteem, "I don't care" attitude.
- Sudden oversensitivity, temper tantrums, or resentful behavior.
- Moodiness, irritability, nervousness, aggressiveness, depression or suicidality.
- Silliness or giddiness.
- Paranoia; confusion; hallucinations.
- Excessive need for privacy; unreachable.
- Secretive or suspicious behavior.
- Car accidents; taking risks including sexual risks; legal involvement.
- Chronic dishonesty.
- Unexplained need for money, stealing money or items.
- Change in personal grooming habits.
- Possession of drug paraphernalia.
- Use of room deodorizers and incense.

Physical Signs

- Loss of appetite, increase in appetite, any changes in eating habits, unexplained weight loss or gain.
- Slowed or staggering walk; poor physical coordination; lightheadedness; numbness; weakness.
- Inability to sleep, awake at unusual times, unusual laziness.
- Red, watery eyes; pupils larger or smaller than usual; blank stare; jaundice (yellow eyes and skin).
- Puffy face, blushing or paleness.
- Smell of substance on breath, body or clothes.
- Extreme hyperactivity; excessive talkativeness.
- Runny nose; persistent hacking cough.
- Needle marks on lower arm, leg or bottom of feet.
- Nausea, vomiting or excessive sweating.
- Tremors or shakes of hands, feet or head.
- Irregular heartbeat; rapid heartbeat; chest pain.
- Severe abdominal pain; increasing abdominal girth.
- Recurrent seizures; headaches; visual changes.
- Difficulty breathing.
- Difficulty speaking.
- Leg swelling; fever; dark, cola-colored urine.

See the ***Substance Specific Clinical Features Table (Appendix I)*** for substance specific intoxication or withdrawal signs and symptoms.

3. Diagnostic Criteria -- Highlights of Changes from DSM-IV TR to DSM 5

The diagnosis of substance related disorder is made primarily through the clinical interview with the adolescent, as well as through obtaining collateral information from parents and teachers based on DSM-5 criteria for substance use disorder and substance induced disorder (see below).

The substance-related disorders are divided into two groups:

1. Substance use disorders
2. Substance-induced disorders -- intoxication, withdrawal, and other substance/medication-induced mental disorders (psychotic disorders, bipolar and related disorders, depressive disorders, anxiety disorders, obsessive-compulsive and related disorders, sleep disorders, sexual dysfunctions, delirium, and neurocognitive disorders).

The substance-related disorders encompass 10 separate classes of drugs: alcohol; caffeine; cannabis; hallucinogens (with separate categories for phencyclidine [or similarly acting arylcyclohexylamines] and other hallucinogens); inhalants; opioids; sedatives, hypnotics, and anxiolytics; stimulants (amphetamine-type substances, cocaine, and other stimulants); tobacco; and other (or unknown) substances.

Following are the changes from DSM IV-TR to DSM 5

- DSM-5 does not separate the diagnoses of substance abuse and dependence as in DSM-IV TRTR.

- Rather, criteria are provided for substance use disorder, accompanied by criteria for intoxication, withdrawal, substance/medication-induced disorders, and unspecified substance-induced disorders, where relevant.

- The DSM-5 substance use disorder criteria are nearly identical to the DSM-IV TR substance abuse and dependence criteria combined into a single list, with two exceptions.

    - The DSM-IV TR recurrent legal problems criterion for substance abuse has been deleted from DSM-5.
    - A new criterion, craving or a strong desire or urge to use a substance, has been added.

- The threshold for substance use disorder diagnosis in DSM-5 is set at two or more criteria, in contrast to a threshold of one or more criteria for a diagnosis of DSM-IV TR substance abuse and three or more for DSM-IV TR substance dependence.

- Cannabis and caffeine withdrawal is new for DSM-5.

- The criteria for DSM-5 tobacco use disorder are the same as those for other substance use disorders. DSM-IV TR did not have a category for tobacco abuse.

- Severity of the DSM-5 substance use disorders is based on the number of criteria endorsed: 2–3 criteria indicate a mild disorder; 4–5 criteria, a moderate disorder; and 6 or more, a severe disorder.

- The DSM-IV TR specifier for a physiological subtype has been eliminated in DSM-5.

- DSM-IV TR diagnosis of polysubstance dependence has been eliminated in DSM-5.

- Early remission from a DSM-5 substance use disorder is defined as at least 3 but less than 12 months without substance use disorder criteria (except craving).

- Sustained remission is defined as at least 12 months without criteria (except craving).

- Additional new DSM-5 specifiers include “in a controlled environment” and “on maintenance therapy” as the situation warrants.

- Substance-related disorders have been expanded to include gambling disorder as the sole condition in a new category on behavioral addictions.

3.1 Substance Use Disorder

Diagnostic Criteria

A. A problematic pattern of substance use leading to clinically significant impairment or distress, as manifested by at least two of the following, occurring within a 12-month period:

   1. Substance is often taken in larger amounts or over a longer period than was intended.
   2. There is a persistent desire or unsuccessful efforts to cut down or control substance use.
   3. A great deal of time is spent in activities necessary to obtain substance, use substance, or recover from its effects.
   4. Craving, or a strong desire or urge to use substance.
   5. Recurrent substance use resulting in a failure to fulfill major role obligations at work, school, or home.

6. Continued substance use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of substance.
7. Important social, occupational, or recreational activities are given up or reduced because of substance use.
8. Recurrent substance use in situations in which it is physically hazardous.
9. Substance use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the substance.
10. Tolerance, as defined by either of the following:
    a. A need for markedly increased amounts of substance to achieve intoxication or desired effect.
    b. A markedly diminished effect with continued use of the same amount of substance.
11. Withdrawal, as manifested by either of the following:
    a. The characteristic withdrawal syndrome for specific substance.
    b. Substance (or a closely related substance, such as a benzodiazepine in case of alcohol) is taken to relieve or avoid withdrawal symptoms.

Specifier

1. ***In early remission:*** After full criteria for substance use disorder were previously met, none of the criteria for substance use disorder have been met for at least 3 months but for less than 12 months (with the exception that Criterion A4, "Craving, or a strong desire or urge to use," may be met).
2. ***In sustained remission:*** After full criteria for substance use disorder were previously met, none of the criteria for substance use disorder have been met at any time during a period of 12 months or longer (with the exception that Criterion A4, "Craving, or a strong desire or urge to use," may be met).

Specifier

1. ***In a controlled environment:*** if the individual is in an environment where access to substance is restricted.
2. ***on maintenance therapy***

Severity Specifier

1. **Mild:** Presence of 2–3 symptoms.
2. **Moderate:** Presence of 4–5 symptoms.
3. **Severe:** Presence of 6 or more symptoms.

3.2 Substance-Induced Disorders

3.2.1 Substance Intoxication

Diagnostic Criteria

A. Recent ingestion of substance.

B. Clinically significant problematic behavioral or psychological changes (e.g., inappropriate sexual or aggressive behavior, mood lability, impaired judgment) that developed during, or shortly after, substance ingestion.

C. One (or more) of the specific signs or symptoms developing during, or shortly after, substance use e.g., for alcohol:
    1. Slurred speech.
    2. Incoordination.
    3. Unsteady gait.
    4. Nystagmus.
    5. Impairment in attention or memory.
    6. Stupor or coma.

D. The signs or symptoms are not attributable to another medical condition and are not better explained by another mental disorder, including intoxication with another substance

3.2.2 Substance Withdrawal

Diagnostic Criteria

A. Cessation of (or reduction in) substance use that has been heavy and prolonged.

B. Two (or more) of the substance-specific symptoms, developing within several hours to a few days after the cessation of (or reduction in) substance use described in Criterion A e.g. for alcohol:
    1. Autonomic hyperactivity (e.g., sweating or pulse rate greater than 100 bpm).
    2. Increased hand tremor.
    3. Insomnia.
    4. Nausea or vomiting.
    5. Transient visual, tactile, or auditory hallucinations or illusions.
    6. Psychomotor agitation.
    7. Anxiety.
    8. Generalized tonic-clonic seizures.

C. The signs or symptoms in Criterion B cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

D. The signs or symptoms are not attributable to another medical condition and are not better explained by another mental disorder, including intoxication or withdrawal from another substance.

Specifier if applicable e.g., in alcohol: **With perceptual disturbances:** This specifier applies in the rare instance when hallucinations (usually visual or tactile) occur with intact reality testing, or auditory, visual, or tactile illusions occur in the absence of a delirium.

3.2.3 Substance/Medication-Induced Mental Disorders

A. The disorder represents a clinically significant symptomatic presentation of a relevant mental disorder.
B. There is evidence from the history, physical examination, or laboratory findings of both of the following:
    1. The disorder developed during or within 1 month of a substance intoxication or withdrawal or taking a medication; and
    2. The involved substance/medication is capable of producing the mental disorder.
C. The disorder is not better explained by an independent mental disorder (i.e., one that is not substance- or medication-induced). Such evidence of an independent mental disorder could include the following:
        1. The disorder preceded the onset of severe intoxication or withdrawal or exposure to the medication; or
    2. The full mental disorder persisted for a substantial period of time (e.g., at least 1 month) after the cessation of acute withdrawal or severe intoxication or taking the medication. This criterion does not apply to substance-induced neurocognitive disorders or hallucinogen persisting perception disorder, which persist beyond the cessation of acute intoxication or withdrawal.
D. The disorder does not occur exclusively during the course of a delirium.
E. The disorder causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

4 Etiology, Risk Factors & Protective Factors

4.1 Etiology

Etiology of Substance related disorders lies in those factors that predispose an individual to experiment with substances, and to progress to the development of substance related disorder

- Genetic Influence -- Children of substance abusers appear to be particularly vulnerable to adolescent drug use, likely resulting from genetic and family dynamic factors with learned attitudes toward substance use.

- Peer influence -- mediates avoidance of drugs, as well as both initiation and maintenance of substance use.

- Psychological Factors -- Substances may be used to produce positive feelings and avoid unpleasant ones, relieve tension and stress, reduce disturbing emotions, alleviate depression or anxiety, and gain peer acceptance.

- Cognitive Factors -- Determinants of use are often specific to each drug, related to some extent to the perceived risks and benefits of the substance.

- Age -- Early onset of substance use has been shown to be a strong predictor for the development of substance use disorders over the lifetime (Grant et al., 1997).

4.2 Risk Factors & Protective Factors

Risk and protective factors can affect children at different stages of their lives. At each stage, risks occur that can be changed through prevention intervention. The more risks a child is exposed to, the more likely the child will abuse drugs. An important goal of prevention is to change the balance between risk and protective factors so that protective factors outweigh risk factors (Robertson et. al, 2003).

Risk Factors--

- Infancy or early childhood -- aggressive behavior; lack of self-control; difficult temperament.

- Older children -- interactions with family, school, and community (Robertson et. al, 2003).

- Family situations -- lack of attachment and nurturing by parents or caregivers; ineffective parenting; and a caregiver who abuses drugs.

- Interactions outside the family -- poor classroom behavior or social skills; academic failure; and association with drug-abusing peers (Robertson et. al, 2003). ***Association with drug-abusing peers is often the most immediate risk for exposing adolescents to drug abuse and delinquent behavior (Robertson et. al, 2003).***

- Developmental Stages -- some risk factors may be more powerful than others at certain stages in development, such as peer pressure during the teenage years and parent-child bond during the early years.

- Community Factors -- drug availability; trafficking patterns; and beliefs that drug abuse is generally tolerated (Robertson et. al, 2003).

- Stressors -- major transitions in children's lives: entering school; advancing from elementary school to middle school; entering high school; and when young adults leave home for college or work (Robertson et. al, 2003).

- Other Factors -- history of physical or sexual abuse; low self-esteem; absence of strong religious convictions; aggression and externalizing disorders such as Conduct Disorder, ODD, or ADHD; and specific substances and routes - Some substances such as cocaine are characterized by a rapid onset of the development of dependence (O'Brien et al., 2005; Wagner et al., 2002).

Protective Factors--

- Early intervention in a child's development to strengthen protective factors before problem behaviors develops.

- Programs that strengthen protective factors at each stage of development and transition (Robertson et. al, 2003).

- Family, school, and community interventions that focus on helping children develop appropriate, positive behaviors and hence reducing further risks such as academic failure and social difficulties, which put children at further risk for later drug abuse (Robertson et. al, 2003).

- A strong bond between children and parents; parental involvement in the child's life; and clear limits and consistent enforcement of discipline.

- The table below describes how risk and protective factors affect people in five domains, or settings, where interventions can take place (Robertson et. al, 2003).

Risk Factors	Domain	Protective Factors
Early Aggressive Behavior	***Individual***	*Self-Control*
Lack of Parental Supervision	***Family***	*Parental Monitoring*
Substance Abuse	***Peer***	*Academic Competence*
Drug Availability	***School***	*Anti-drug Policies*
Poverty	***Community***	*Strong Neighborhood Attachment*

5 Untreated Sequelae

Substance use disorders are complex conditions that tend to be progressive in nature and negatively impact all facets of an individual, families, communities, businesses and the public at large. All spheres of development and functioning can be ravaged. The systemic burden of untreated substance use disorders is costly. Untreated sequelae of substance use include:

- Death and disability; risk of death from intentional or accidental overdose; dangerous behavior while intoxicated (motor vehicle accidents), and homicide related to drug dealing
- Interference with developing neurological, cognitive, emotional, social and physical abilities. The developing brain is particularly sensitive and vulnerable to harmful substances.
- Arrest of academic development; repeated school absences; poor academic performance; an inability to finish school.
- Arrest of social development; impaired relations with peers, family and others.
- Other mental health disorders such as anxiety, depression, apathy, cognitive decline, memory problems, suicidal ideations, self-injurious behavior, etc.
- Physical health problems such as HIV and STD exposures, hepatitis, liver damage, kidney damage, cardiac problems, pulmonary issues, seizures, etc.

6 Differential Diagnosis & Comorbidities

- The primary differential diagnosis is establishing whether substance use or induced disorder exists for each substance and to what extent relevant comorbid conditions are present.
- ***Comorbidity is the rule rather than the exception among adolescents with substance related disorders*** (Aarons et al., 2001).
- Virtually any psychiatric disorder may occur in association with substance use as a cause, an effect, or a correlate. Substance use disorders often occur with:
  - Attention-Deficit/Hyperactivity Disorder
  - Oppositional Defiant Disorder (ODD)
  - Conduct Disorder (CD)
  - Depression
  - Anxiety Disorders
  - Post-Traumatic Stress Disorder
  - Specific Developmental Disorders (e.g., learning disabilities)

- Bipolar Disorder
- Psychotic Disorder

- The presence of ADHD, especially when accompanied by ODD or CD is associated with early onset of substance use.

- 30–70 % of children and adolescents with Anxiety Disorders have a Depressive Disorder.

- 15–25 % of children and adolescents with Anxiety Disorders meet criteria for ADHD.

7. Assessment & Treatment Recommendations in Primary Care Settings *(Substance Use Screening, Brief Intervention, and Referral to Treatment)*

The Substance Abuse and Mental Health Services Administration (SAMHSA) recommends that universal screening for substance use, brief intervention, and/or referral to treatment (SBIRT) become a part of routine health care (Rockville, 2009), (See SBIRT algorithm, Appendix II).

7.1 Recommendations for Pediatricians by the American Academy of Pediatrics (AAP)

The AAP recommends that pediatricians:

1. Become knowledgeable about all aspects of SBIRT through training program curricula or continuing medical education that provides current best practices training.

2. Become knowledgeable about the spectrum of substance use and the patterns of nicotine, alcohol, and other drug use, particularly by the pediatric population in their practice area.

3. Ensure appropriate confidentiality in care by becoming familiar and complying with state and federal regulations that govern health information privacy, including the confidential exchange of substance use and treatment information.

4. Screen all adolescent patients for tobacco, alcohol, and other drug use with a formal, validated screening tool, such as the CRAFFT screen (see below), at every health supervision visit and appropriate acute care visits, and respond to screening results with the appropriate brief intervention.

5. Augment interpersonal communication and patient care skills by becoming familiar with motivational interviewing techniques.

6. Develop close working relationships with qualified and licensed professionals and programs that provide the range of substance use prevention and treatment services, including tobacco cessation, that are necessary for comprehensive patient care.

7. Facilitate patient referrals through familiarity with the levels of treatment available in the area and application of the multidimensional assessment criteria to determine the intensity of services needed.

8. Make referrals to adolescent appropriate treatment for youth with problematic use or a substance related disorder.

9. Consider throughout the SBIRT process that psychiatric disorders can co-occur in adolescents who use psychoactive substances.

10. Stay abreast of coding regulations, strategies, and updates to bill for tobacco, alcohol, and other drug use SBIRT services.

11. Advocate that healthcare institutions and payment organizations provide mental health and substance use services across the pediatric/adolescent ages and developmental stages while ensuring parity, quality, and integration with primary care and other health services.

Of note these recommendations still uses DSM IV criteria for substance related disorders (Refer to DSM IV criteria, Appendix V) .

7.2 Substance Use Spectrum and Goals for Office Intervention

Stage	Description	Office Intervention Goals
Abstinence	The time before an individual has ever used drugs or alcohol (more than a few sips)	Prevent or delay initiation of substance use through positive reinforcement and patient/parent education
Experimentation	The first 1–2 times that a substance is used and the adolescent wants to know how intoxication from using a certain drug(s) feels	Promote patient strengths; encourage abstinence and cessation through brief, clear medical advice and educational counseling
Limited Use	Use together with friends in relatively low-risk situations and without related problems; typically, use occurs at predictable times such as on weekends	Promote patient strengths; further encourage cessation through brief, clear medical advice and educational counseling

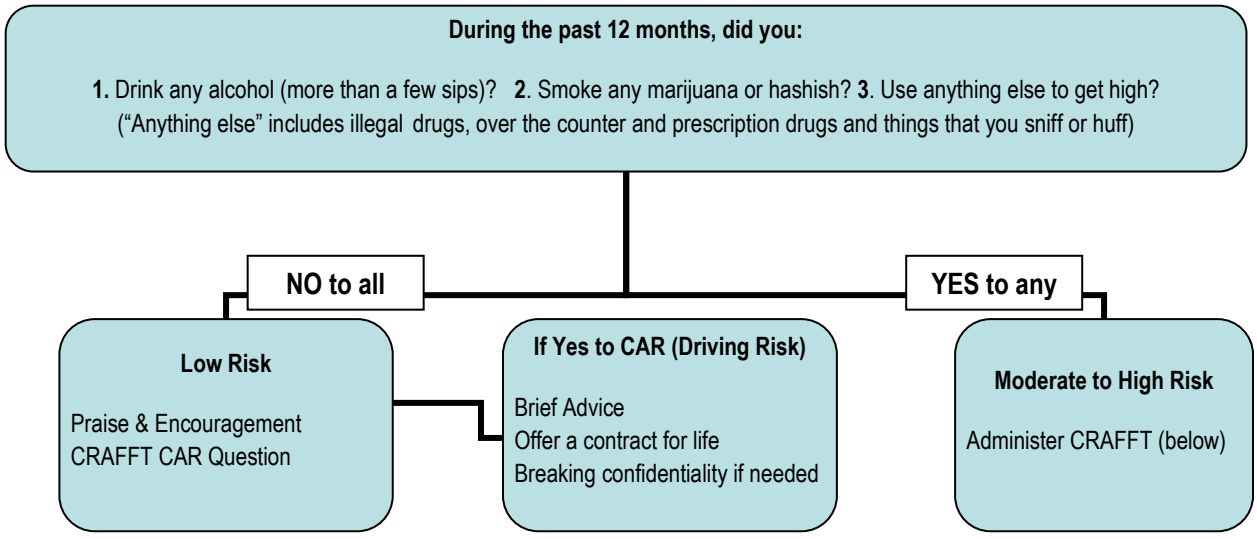
Stage	Description	Office Intervention Goals
Problematic Use	Use in a high-risk situation, such as when driving or babysitting; use associated with a problem such as a fight, arrest, or school suspension; or use for emotional regulation such as to relieve stress or depression	As stated above, plus initiate office visits or referral for brief intervention to enhance motivation to make behavioral changes; provide close patient follow-up; consider breaking confidentiality
Abuse Drug	Use associated with recurrent problems or that interferes with functioning, as defined in the *DSM-IV-TR as 'abuse'*	Continue as stated above, plus enhance motivation to make behavioral changes by exploring ambivalence and triggering preparation for action; monitor closely for progression to alcohol and other drug addiction; refer for comprehensive assessment and treatment; consider breaking confidentiality
Addiction (Dependence)	Loss of control or compulsive drug use, as defined in the *DSM-IV-TR* as 'dependence'	As stated above, plus enhance motivation to accept referral to subspecialty treatment if necessary; consider breaking confidentiality; encourage parental involvement whenever possible

7.3 Screening

- Screening an adolescent for substance use is designed to determine if the adolescent has used alcohol or other drugs in the previous 12 months and, if so, to delineate the associated level of risk and further intervention accordingly.

- The ***CRAFFT Screening Tool*** is a validated, developmentally appropriate, brief, easy-to-use screen with good discriminative properties for determining high risk of substance related disorders in the adolescent age group treated in primary care (Knight et al., 2002).

The 2-Step CRAFFT Screening Tool



CRAFFT
(1 point for each Yes answer)

C Have you ever ridden in a **CAR** driven by someone (including yourself) who had been using alcohol or drugs?

R Do you ever use alcohol or drugs to **RELAX**, to feel better about yourself, or to fit in?

A Do you ever drink alcohol or use drugs while you are by yourself **(ALONE)?**

F Do you ever **FORGET** things you did while using alcohol or drugs?

F Do your **FAMILY** or **FRIENDS** ever tell you that you should cut down on your drinking or drug use?

T Have you ever gotten into **TROUBLE** while you were using alcohol or drugs?

Score 0-6

- The clinician ***should question all patients older than 9 years*** about substance use and younger patients about any accidental use, in a nonjudgmental manner using the 2-step method of the CRAFFT Screening Tool (see the flow diagram above).

- This 2-step screening may be accomplished by interview with the physician or office staff or by self-administered written or electronic survey.

  - First, the clinician asks 3 specific opening questions to determine if the adolescent has used alcohol or other drugs in the previous 12 months, and the answers to these questions determine what portion of the CRAFFT is indicated.

  - Adolescents who answer “no” to all 3 opening questions are still asked the “C” (or “car”) question of the CRAFFT to determine if they have placed themselves at risk by riding with an alcohol- or drug-“influenced” or intoxicated driver.

  - Those who answer “yes” to any of the opening questions are asked all 6 CRAFFT questions.

- As with all psychosocial interviews, screening for substance use is most informative when conducted confidentially without a parent or guardian present (Weddle et al., 2002).

- Before screening, both patients and parents should be well informed about the confidentiality policy followed in that practice setting, including the safety related limits that justify whether to continue or break confidentiality.

7.4 Brief Intervention

- In primary care pediatrics, the term “brief intervention” encompasses a spectrum of responses’ that includes:

  - Providing patients who report no substance use with brief positive feedback about their ability to make healthy choices.

  - Brief advice, medical education and psychoeducation when the screening process reveals alcohol or other drug use but the problem is relatively minor. Providers can also obtain a signed contract whenever appropriate.

  - Using a ***Brief Negotiated Interview (BNI)*** based on motivational techniques to encourage the desired behavior change or acceptance of a referral for treatment for adolescents who have had relatively minor consequences associated with their substance use.

  - Urgent intervention against patient’s wishes and breaking of confidentiality if the patient is in acute crisis.

- The clinicians performing a BNI in primary care should:

  - Summarize information from the assessment.

  - Repeat for emphasis any problems associated with substance use identified by the adolescent.

  - Ask the adolescent whether he or she would like to make changes in the future (e.g., “I understand that you really enjoy smoking marijuana with your friends. On the other hand, you were suspended from the basketball team after the coach caught you with marijuana, and you are worried that having a ‘record’ of marijuana use might be bad for your college applications. What are your plans regarding marijuana use in the future?”)

- In contrast to brief advice, a ***BNI involves a negotiation that attempts to reduce substance use*** and related risk behaviors by using the negative aspects of substance use as reported by the adolescent.

- Telling adolescents who are invested in their substance use to stop using substances can trigger resistance, whereas asking about their own plans might present an opportunity for positive feedback and to build rapport for further work (e.g., “It sounds as if you have already thought this through. I fully support your decision to quit using for now”).

- The ***BNI is based on the principles of motivational interviewing***, which is a counseling approach in which a clinician encourages a patient to explore the effects (both positive and negative) in a non-judgmental way of his/her current behavior on personal interests or goals.

- These principles align well with established pediatric medical home practices of providing confidential care and building a trusting relationship and rapport.

- Motivational-interviewing or BNI techniques are particularly useful for adolescents who have experienced problems associated with alcohol or drug use but remain ambivalent about continued use or have not yet considered the possibility of changing their behavior.

Steps of Brief Intervention depending upon the determined Level of Risk (please refer to the flow chart at the end of each section for a snapshot):

7.4.1 Low Risk (Abstinence): Adolescents who report no use of tobacco, alcohol, or other drugs and answer "no" to the "CAR" question of the CRAFFT screen are at low risk of having a substance use disorder.

Brief Intervention

- Praise and encourage for making smart decisions and healthy choices.

7.4.2 Driving Risk: Adolescents who stated "yes" to the CAR Question (have you ever ridden in a CAR driven by someone including yourself who was "high" or has been using alcohol or drugs) are at driving risk.

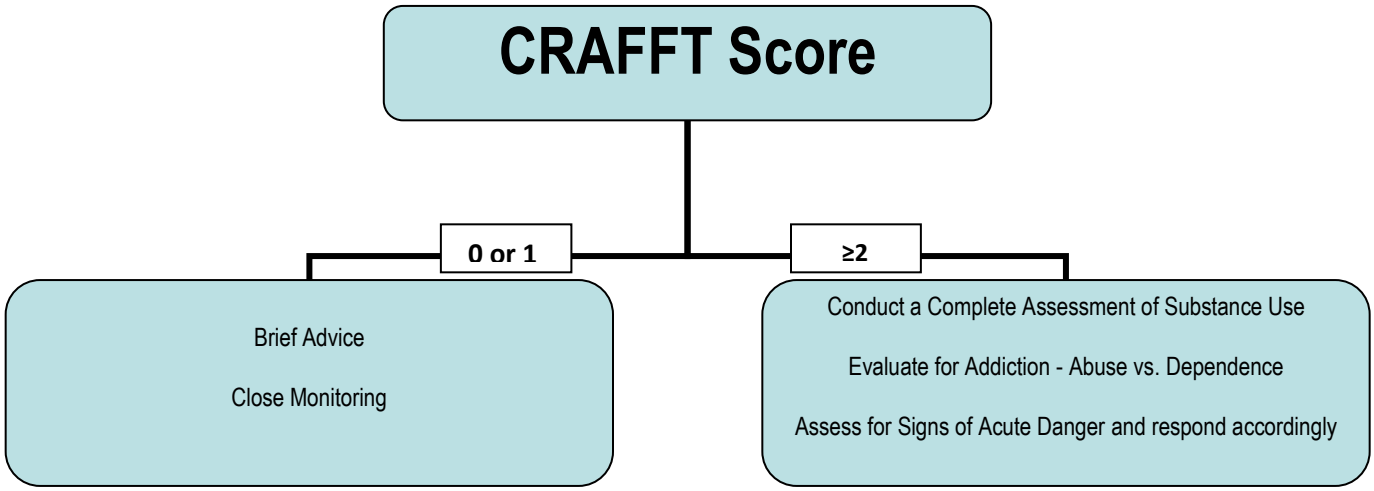
Brief Intervention

- Educational counseling regarding the associated danger.
- Ask adolescents to make a safety plan and commit to avoiding future driving/riding risks.
- The Contract for Life developed by Students Against Destructive Decisions (SADD) is a short, thought provoking statement that can be used to facilitate development of a safety plan between an adolescent and a parent or other responsible adult. (This contract can be downloaded from the SADD Web site: www.saddonline.com/contract.htm).
- Consider breaking confidentiality if the adolescent cannot or will not commit to avoiding riding with a driver who has been using alcohol and/or drugs or avoiding their own alcohol or other drug use and driving (the basis for their positive response to the "car" question).

7.4.3 Moderate Risk (CRAFFT-Negative): Adolescents who have begun using alcohol or drugs and score 0 or 1 on the CRAFFT screen are considered at moderate risk of having substance related–associated problems.

Brief intervention

- Explore the details of substance use.
- Provide clear advice to stop alcohol and other drug use.
- Provide educational counseling about the health effects of drug use (e.g., “Recent research has confirmed that brain growth continues into at least the 20s, and alcohol poisons developing brain cells”).
- Reflect strengths and positive personal and family attributes (e.g., “You are such a good student; it would be a shame to let alcohol interfere with your education”).
- Use BNI techniques as discussed in brief intervention section above.
- Close monitoring.



7.4.4 High Risk (CRAFFT-Positive): Adolescents who test positive on the CRAFFT screen, defined as having a CRAFFT score of 2 or greater, are at high risk of having a substance related disorder.

The first step for a high risk patient is to provide an urgent assessment to determine the extent of the problem and ensure the intervention is conducted accordingly. **The Complete Substance Use Assessment should include:**

- **Safety Assessment:** A further assessment to detect whether the alcohol and/or other drug use indicates acute danger or “red flags” for addiction and to reveal the level of conviction the adolescent has for engaging in behavior change.

- **Substance Use History:** An evaluation of every category of substance, including details of age of onset of first use, age of progression to regular use, peak use, current use, amount, frequency, impairment, and social and emotional context of use. Verify by parents, teachers and other professionals if required.

- **Psychosocial Functioning:** A determination about the effects substance use has on various domains of the adolescent’s psychosocial functioning? (See section 4)

- **Symptoms/Untreated Sequelae:** Evaluate for a pattern of increasing alcohol or other drug use, intoxication/withdrawal symptoms, any drug-associated legal troubles, and whether any attempts to quit were made and why? (See section 5)

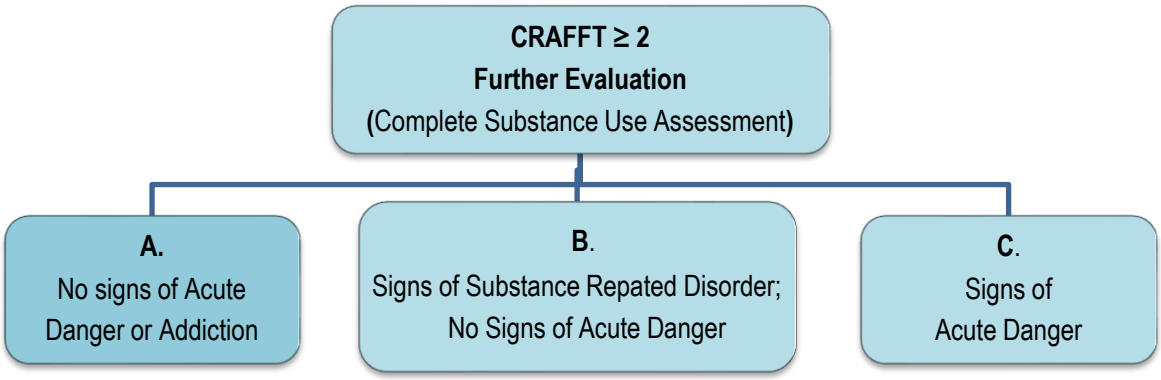
- **Diagnosis:** Assess whether the youth meets DSM 5 or DSM-IV-TR (as transitional tool) diagnostic criteria for substance related disorder. (See sections 2 for DSM 5 criteria and Appendix V for DSM IV TR criteria)

- **Comorbid Psychiatric Disorders:** Conduct a brief screening for any other comorbid psychiatric disorders. (See section 6).If there is any history of any other psychiatric disorder, it is helpful to establish the chronology of substance use and the emotional and behavioral symptoms.

- **Physical Exam:** Conduct a physical examination and assess for signs of medical problems due to substance use.

- **Labs:** (Of note, false positive and false negative results exist)
  - Urine toxicology (doesn’t include alcohol and inhalant).
  - Breath analyzer or Blood Alcohol Levels for alcohol levels.
  - Labs for medical complications (e.g., LFTs, CBC, etc.).

Based on the results of the Complete Substance Use Assessment (as detailed above), patients can be separated into three groups which direct further specific intervention:



A. No Signs of Acute Danger or Addiction: Adolescents who have had relatively minor consequences associated with their substance use.

Brief intervention

- Conduct a Brief Negotiated Interview (BNI) based on motivational principles to encourage abstinence or risk reduction. (See above)
- When an adolescent professes interest in making a behavior change, praise the decision, support, encourage and consider asking for a signed commitment not to use alcohol or other drugs for a defined time period (Appendix IV).
- Patients who are not willing to try complete abstinence might agree to risk reduction. In these cases, discuss concrete parameters for tracking progress.
- All patients who have had a BNI need follow-up to ensure patient compliance and safety.
- Adolescents who have met their goals can benefit from both a discussion of the pros and cons of their decreased substance use and reinforced motivation toward sustained behavior change.
- Those who were unable to meet their own goals might benefit from more extensive and individual counseling targeted specifically at substance use provided by an allied mental health professional such as a social worker or psychologist.
- Referral to interdisciplinary mental health professionals within the same practice setting often optimizes patient compliance.

B. Signs of Addiction: Probable substance related disorder as indicated by findings.

Brief intervention (assuming the patient is not in acute danger at this stage)

- An adolescent with substance related signs/symptoms should be referred for detailed evaluation and subspecialty treatment that is as specific to adolescents with substance related disorders (see section 7.5).

- Breaking confidentiality to protect patient safety is a key consideration.

- Parents should be involved in this process whenever possible, because most adolescents will not follow through with a referral on their own. In most cases, parents will already be highly suspicious or aware of their adolescent's drug use, although they might underestimate the extent or severity.

C. Signs of Acute Danger: An adolescent who reports experience with certain risk behaviors, such as:

- Having a drug-related hospital visit
- Using intravenous drugs, combining sedatives (including alcohol, benzodiazepines, barbiturates, or opioids), or consuming a potentially lethal volume of alcohol (14 drinks)
- Driving or engaging in other potentially dangerous activity after alcohol or drug use
- Acute suicidal or violence risk
- Medical decompensation or any other clear signs of acute danger that warrant immediate intervention

Brief intervention

- Urgent need for intervention:
  - Immediate medical or psychiatric evaluation including urgent inpatient admission or ER referral based on clinical judgment.
  - Breaking confidentiality if required. Consider a discussion with the adolescent before breaking confidentiality about exactly what you will disclose and what you can keep confidential. Often, teens are most concerned about protecting small details (i.e., which friends are involved, where they obtained substances, etc.) that would have minimal impact on their immediate safety plan and can be kept confidential.

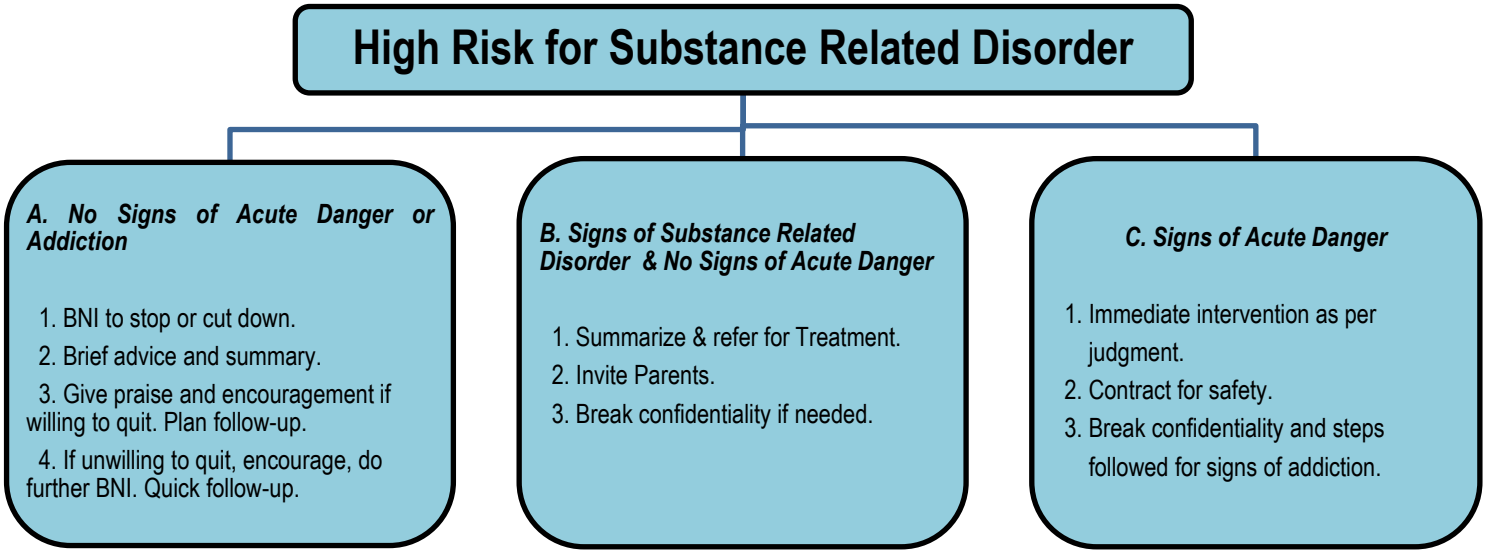
- In case there is no urgent need for immediate intervention and addiction is not yet a concern:
  - Ask the adolescent to commit to avoiding the behavior(s) and consider using a simple written contract to document this commitment (Appendix IV).
  - Design a plan that involves the parent(s) or other responsible adult, professional counselors, and other substance abuse-related services.

- If the adolescent is unwilling or unable to commit or seems to underestimate the significance of alcohol or other drug use, consider breaking confidentiality to protect patient safety.

- No urgent need for immediate intervention but concern about addiction: follow steps as discussion in section of "signs of addiction."

- Schedule close follow-up to ensure patient compliance and safety in all the situations mentioned above.

Flow Diagram of the Interventions for High Risk for Substance Related Disorders



7.5 Referral to Treatment:

- For referral help, call ***Psych TLC: 501-526-7425 or 1-866-273-3835.***

- Any adolescent who meets the DSM 5 or *DSM-IV-TR (Transitional tool)* criteria for substance related disorder should be assessed by a professional experienced with adolescent addiction.

- In accordance with the SBIRT algorithm (Appendix II), signs of acute danger or red flags for addiction usually indicate the need for referral to adolescent specific specialty care.

- Deciding where to refer an adolescent in need of treatment is often complicated by limited treatment availability and insurance-coverage complexities.

- In most cases, pediatricians refer adolescent patients to a mental health or addiction specialist to conduct a comprehensive biopsychosocial assessment and determine the appropriate level of care from the treatment spectrum, which ranges from outpatient substance abuse counseling to long-term residential treatment programs.

- See the Appendix II for different treatment referral options.

7.6 Relapse Prevention

- The primary goal of the treatment of adolescents with SUDs is achieving and maintaining abstinence from substance use. While abstinence should remain the explicit, long-term goal of treatment, a realistic view recognizes relapse as a part of the recovery process.
- Relapse can be prevented, but because it often occurs, it should be anticipated as a potential part of the recovery process. Relapse should be viewed not as failure but as a learning opportunity.
- Ongoing assessment of substance use as discussed above in every visit is important.
- Periodic urine testing - toxicology, through the collection of bodily fluids or specimens, should be a routine part of follow-up of an adolescent with a substance use history.
- Relapse should be detected early and the same flowchart as discussed at length above needs to be followed.

8. Family Resources

- American Academy of Child and Adolescent Psychiatry (AACAP) Substance Abuse Resource Center: http://www.aacap.org/cs/SubstanceAbuse.ResourceCenter

- AACAP's books: *Your Child* and *Your Adolescent* offer easy-to-understand and comprehensive information on the emotional development and behavior of children from infancy through the teen years.

- **Arkansas Division of Behavioral Health Services (DBHS):** (501) 686-9465 http://humanservices.arkansas.gov/dbhs/Pages/default.aspx

- **Arkansas Teen Crisis Hotline:** (888) 798-8336 or (479) 872-8336

- **Government Sponsored Websites**

- For information on drugs and their effects, as well as one perspective on how to talk to your teen about drugs: http://www.theantidrug.com/
- For useful tips related to children and drugs, including a quiz to test your drug knowledge: http://www.drugfree.org/
- A very useful website, sponsored by the National Institute on Drug Abuse, that emphasizes the science behind drug abuse: http://teens.drugabuse.gov/

- **Support Services:** Alcoholics Anonymous, Al-anon, Alateen, & Co-Dependents Anonymous:

  - www.alcoholics-anonymous.org/
    How to find an AA Meeting: http://www.alcoholics-anonymous.org/en_find_meeting.cfm
  - http://www.al-anon.alateen.org/
    How to find an Al-anon or Alateen Meeting:
    http://www.al-anon.alateen.org/meetings/meeting.html
  - How to find a Co-Dependents Anonymous meeting:
    http://www.codependents.org/meeting-search-english.php

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10. Appendix

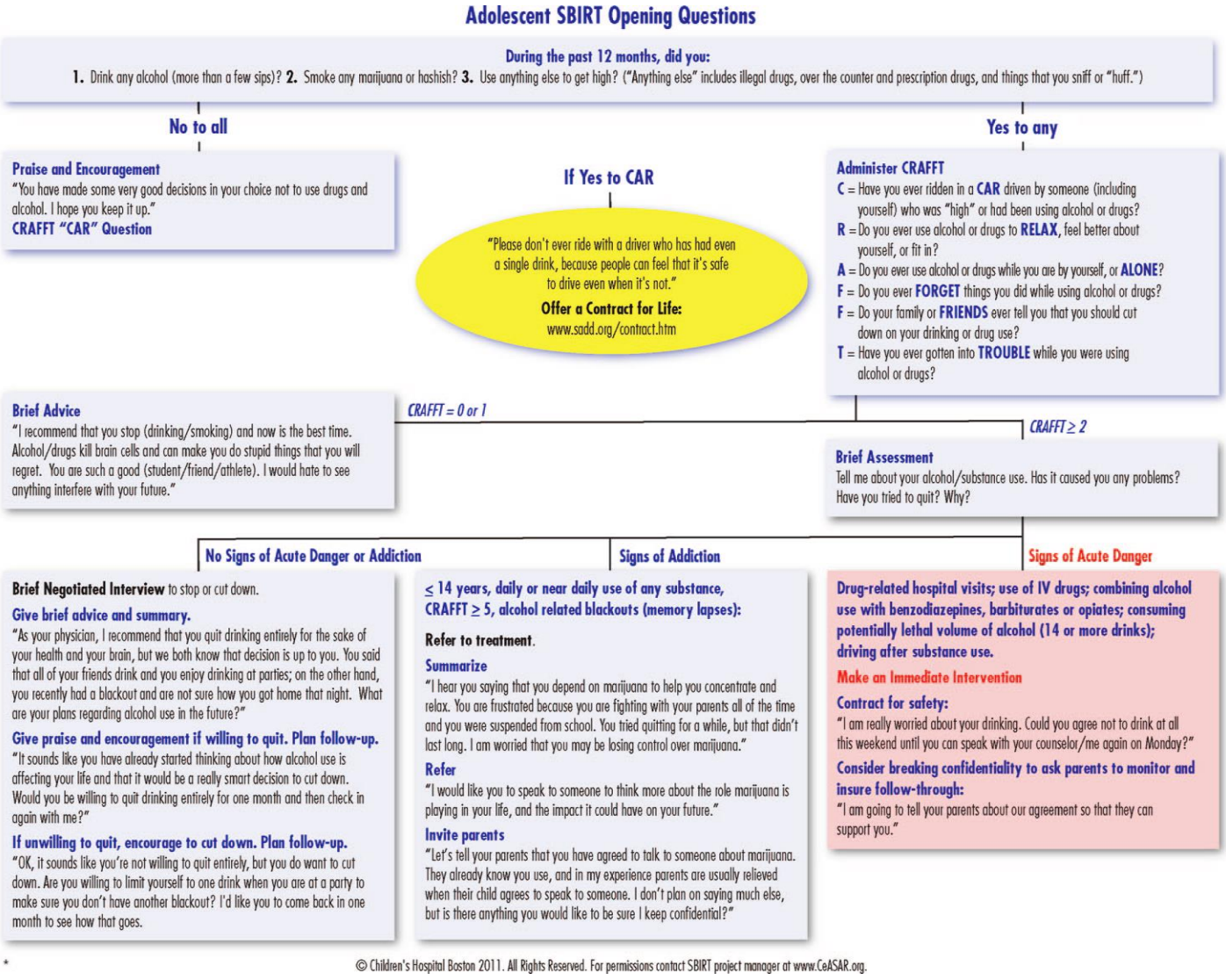
Appendix I. Substance Specific Clinical Features Table

Substance	Route of use/ % use in last year/ Any other comment	Intoxication symptoms/signs Other Effects	Withdrawal symptoms/signs
Alcohol	Ingestion 6% of 12-17 year-olds met criteria for past year alcohol abuse or dependence (SAMSA survey, 2004).	Slurred speech; incoordination; unsteady gait; nystagmus; attention/ memory impairment; stupor/ coma; Depresses the brain; lessens inhibitions; fatal MVA; liver disease; heart enlargement; esophagus/ pancreas/ stomach cancer.	Anxiety; tremor; irregular heartbeat; nausea/vomiting; agitation; seizures; and hallucinations. **Delirium tremens (DTs)—life threatening severe withdrawal.**
Tobacco (Nicotine)	Smoking/Chewed	Euphoria; improved performance/ vigilance, decreased hunger; heart disease; lung cancer and emphysema; peptic ulcer disease; and stroke.	Anxiety; hunger; sleep disturbances; and depression.
Marijuana (Cannabis)	Smoking/Ingestion 4% of 12-17 year-olds met criteria for past year abuse or dependence (SAMSA survey, 2004).	Euphoria; anxiolytic effects; impaired coordination/memory; sedation; analgesia; hallucinations; psychosis; dry mouth; tachycardia; conjunctival injection and increased appetite.	Irritability; depression; aggression; anxiety; sleep problems; decreased appetite; weight loss; somatic symptoms; restlessness
Opiates Heroin	Smoking/Snorting/Ingesting pills/IV 0.1% (for heroin) and 1.5% (for opiates) of 12-17 year-olds met criteria for past year abuse or dependence (SAMSA survey, 2004).	Drowsiness/coma; slurred speech; attention/memory impairment; pupillary constriction; euphoria; slowed breathing **(Overdose may result in death from decreased breathing);** HIV/AIDS; infection; rapid psychosocial decline.	Vomiting; painful abdominal cramps; diarrhea; confusion; sweating; cold chills, goose bumps; muscle aches/ cramp/ twitching; dysphoria; lacrimation/rhinorrhea; pupillary dilation; yawning; fever; insomnia
Cocaine	Smoking/Ingestion/Snorting/Injection 0.4% of 12-17 year-olds met criteria for past year abuse or dependence (SAMSA survey, 2004).	Euphoria; increased alertness; paranoia; blood vessels constriction-- HTN, heart damage or stroke; irregular heartbeat; death; dilated pupils; increased temperature; weight loss; agitation; confusion; seizure.	Severe depression; reduced energy; nightmares; sleep problems; increased appetite

Substance	Route of use/ % use in last year/ Any other comment	Intoxication symptoms/signs Other Effects	Withdrawal symptoms/signs
Stimulants (AKA meth, crank, ice, speed, crystal, glass, cranks)	Injected/Snorted/Smoked/Ingestion 2% (for stimulants) and 0.6% (for meth) of 12-17 year-olds met criteria for past year abuse or dependence (SAMSA survey, 2004).	Same effects as cocaine -- increases alertness; decreases appetite; euphoria; heart attacks; dangerously high blood pressure; stroke; seizures; memory loss; violence; psychosis.	Depression; abdominal cramps; and increased appetite; reduced energy.
Ecstasy (AKA MDMA, Adam, and STP)	Ingestion/Snorted/Injected 1.2% of 12-17 year-olds report that they have used MDMA within the past year (Johnston et al., 1998). Synthetic drug (that has stimulant and hallucinogen properties).	Euphoria; increased energy; confusion; depression; anxiety; paranoia; muscle tension; involuntary teeth clenching; blurred vision; tremors; rapid eye movements; sweating; **rarely severe hyperthermia;** long-term use may cause damage to the brain's ability to regulate sleep, pain, memory, and emotions	None specific.
Sedative/Hypnotic Benzodiazapine Gamma-Hydroxybutyric acid (GHB AKA Liquid ecstasy, G, and blue nitro) **Rohypnol** (AKA roofies, roche)	Ingestion/Snorting/Injection 2% of 12-17 year-olds report that they have used GHB within the past year (Johnston et al., 1998). GHB and Rohypnol often used as a date-rape drug (tasteless, colorless, and powerful sedative).	Effects are similar to alcohol except that periods of unconsciousness appear to be more frequent and more unpredictable Relaxation; altered cognition; coma or death; slurred speech; incoordination; unsteady gait; nystagmus; low blood pressure; dizziness	Similar to alcohol withdrawal-- Anxiety; tremor; irregular heartbeat; nausea/vomiting; agitation; seizures; and hallucinations
Hallucinogen Ketamine (AKA Special K and K)	Ketamine is an anesthetic that can be taken orally or injected.	Memory/attention impairment; amnesia at higher doses; paranoia; hallucinations; depression, and difficulty breathing.	None specific.
Hallucinogen LSD/Mushrooms (AKA acid, buttons microdot; magic mushrooms, peyote)	Ingestion	Numbness; nausea; tremors; abnormal heart rhythm; pupillary dilation; sweating; blurred vision; incoordination; psychosis (hallucinations, delusions, paranoia); mood disturbances.	None specific.
Hallucinogen Phencyclidine (PCP AKA angel dust, hog, love boat)	Smoking Powerful anesthetic used in medicine.	Vertical or horizontal nystagmus; high blood pressure; abnormal heart rhythm; numbness; decreased pain; incoordination; muscle rigidity; hyperacusis; seizures; coma.	None specific.
Inhalants	Spraying in mouth/huffed/bagged 1 in 6 US high school students reported having tried inhalants at least once (Johnston et al.,1998) but rates of abuse and dependence are much lower	Resembles alcohol intoxication; acute euphoria; disorientation; drowsiness; blurred vision; dizziness; nystagmus; incoordination; slurred speech; steady gait; lethargy; depressed reflexes; tremors; stupor/coma	None specific.
Steroids	Taken to build muscles/improve body image (not for an immediate effect). 3% of male U.S. High Schoolers report using anabolic steroids within the past year (Johnston et al., 1998).	Premature growth stoppage; mood swings; and psychosis.	None specific
Caffeine	Ingestion	Restlessness; nervousness; excitement; insomnia; flushed face; diuresis; GI disturbance; muscle twitching; increased thoughts/speech; abnormal heart rhythm; high energy; agitation	Headache; fatigue; depressed mood; irritability; concentration problems; flulike symptoms

Appendix II. SBIRT Algorithm (Substance use, Brief Intervention, and/or Referral to Treatment)

Figure - Adolescent SBIRT algorithm. (Reprinted with permission from the Center for Adolescent Substance Abuse Research, Children's Hospital Boston.)



Appendix III. Treatment Referral Options

Substance Related Disorder Specific Outpatient Treatment

- **Group Therapy***:* Group therapy is a mainstay of substance abuse treatment for adolescents with substance use disorders. It is a particularly attractive option, because it is cost-effective and takes advantage of the developmental preference for congregating with peers. However, group therapy has not been extensively evaluated as a therapeutic modality in this age group, and existing research has produced mixed results (Bukstein et al., 2005; Vaughan et al., 2009). Group therapy also includes self-help "12-Step" programs such as Alcoholics Anonymous (AA) and Narcotics Anonymous (NA).

- ***Family Therapy*:** Family-directed therapies are the best validated approach for treating adolescent substance abuse. A number of modalities have been demonstrated to be effective. Family counseling typically targets domains that figure prominently in the etiology of substance use disorders in adolescents: family conflict, communication, parental monitoring, discipline, child abuse/neglect, and parental substance use disorders (Bukstein et al., 2005).

- ***Individual Therapy:*** Performed by a counselor or specialist in the field of substance use disorder. Therapists teach problem solving and coping strategies, social skills training are integral part of therapy. Other therapy strategies include behavioral strategies, CBT, motivational interviewing techniques.

- ***Psychiatry Follow-up*:** For treatment of comorbid psychiatric disorders. Also, specific medications for addiction like suboxone, naltrexone, methadone, etc. can be started. The patient might be referred to these specific medication management clinics if needed.

- **Intensive Outpatient Program:** IOPs serve as an intermediate level of care for patients who have needs that are too complex for outpatient treatment but do not require inpatient services. These programs allow people to continue with their daily routine and practice newly acquired recovery skills both at home and at work. IOPs generally comprise a combination of supportive group therapy, educational groups, family therapy, individual therapy, relapse prevention and life skills, 12-step recovery, case management services,

and aftercare planning. The programs range from 2 to 3 hours/day, 2–5 days/week, and last 1–3 months. These programs are appealing because they provide a plethora of services in a relatively short period of time.

- **Partial Hospitalization Program:** Partial hospitalization is a short-term, comprehensive outpatient program in affiliation with a hospital that is designed to provide support and treatment for patients with substance use disorders. The services offered at these programs are more concentrated and intensive than regular outpatient treatment; they are structured throughout the entire day and offer medical monitoring in addition to individual and group therapy. Participants typically attend sessions for 7 or 8 hours/day, at least 5 days/week, for 1–3 weeks. As with IOPs, patients return home in the evenings and have a chance to practice newly acquired recovery skills.

Substance Related Disorder Specific Inpatient/Residential Treatment

- **Detoxification:** Detoxification refers to the medical management of symptoms of withdrawal. Medically supervised detoxification is indicated for any adolescent who is at risk of withdrawing from alcohol or benzodiazepines and might also be helpful for adolescents withdrawing from opioids, cocaine, or other substances. Detoxification may be an important first step but is not considered definitive treatment. Patients who are discharged from a detoxification program should then begin either an outpatient or residential substance abuse treatment program (Fournier et al., 2006; Vaughan et al., 2009).

- **Acute Residential Treatment:** ART is a short-term (days to weeks) residential placement designed to stabilize patients in crisis, often before entering a longer-term residential treatment program (Fournier et al., 2006). ART programs typically target adolescents with co-occurring mental health disorders.

- **Residential Treatment:** Residential treatment programs are highly structured live-in environments that provide therapy for those with severe substance abuse, mental illness, or behavioral problems that require 24-hour care. The goal of residential treatment is to promote the achievement and subsequent maintenance of long-term abstinence and equip

each patient with both the social and coping skills necessary for a successful transition back into society. Residential programs are classified as short-term (<30 days) or long-term (≥30 days). Residential programs generally comprise individual and group-therapy sessions plus medical, psychological, clinical, nutritional, and educational components. Residential facilities aim to simulate real living environments with added structure and routine to prepare patients with the framework necessary for their lives to continue drug and alcohol-free after completion of the program.

- **Therapeutic Boarding School:** Therapeutic boarding schools are educational institutions that provide constant supervision for their students by a professional staff. These schools offer a highly structured environment with set times for all activities; smaller, more specialized classes; and social and emotional support. In addition to the regular services offered at traditional boarding schools, therapeutic schools also provide individual and group therapy for adolescents with mental health or substance use disorders.

Medical Treatment

Some patients might need referral to an inpatient medical treatment facility for any significant medical problems (e.g., severe alcohol withdrawal features or seizures). Some other medical problems can be managed by the primary care provider on an outpatient basis.

Social Intervention

Includes academic intervention, vocational testing and training for older adolescents for whom return to school is unlikely, and intervention with peers and teachers.

Appendix IV. Sample Treatment Contract

I,_____, agree to not drink alcohol, use drugs, or take anyone else's medication for the next _____ days. I also will not provide drugs, alcohol, or prescription medications for anyone else during this time. In addition, I agree to not drive a motor vehicle while under the influence of drugs or alcohol, nor will I ride with a driver who has been drinking or using drugs.

I will come to my follow-up appointment with _____on _____.

Signed: _____

Date: _____

Appendix V. DSMIV-TR Criteria for Substance Abuse for Dependence

Criteria for Substance Abuse

A pattern of substance use leading to significant impairment or distress, as manifested by one or more of the following during in the past 12 month period:

1. Failure to fulfill major role obligations at work, school, home such as repeated absences or poor work performance related to substance use; substance-related absences, suspensions, or expulsions from school; neglect of children or household

2. Frequent use of substances in situation in which it is physically hazardous (e.g., driving an automobile or operating a machine when impaired by substance use)

3. Frequent legal problems (e.g. arrests, disorderly conduct) for substance abuse

4. Continued use despite having persistent or recurrent social or interpersonal problems (e.g., arguments with spouse about consequences of intoxication, physical fights)

Criteria for Substance Dependence

Dependence or significant impairment or distress, as manifested by 3 or more of the following during a 12 month period:

1. Tolerance or markedly increased amounts of the substance to achieve intoxication or desired effect or markedly diminished effect with continued use of the same amount of substance

2. Withdrawal symptoms or the use of certain substances to avoid withdrawal symptoms

3. Use of a substance in larger amounts or over a longer period than was intended

4. persistent desire or unsuccessful efforts to cut down or control substance use

5. Involvement in chronic behavior to obtain the substance, use the substance, or recover from its effects

6. Reduction or abandonment of social, occupational or recreational activities because of substance use

7. Use of substances even though there is a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the substance