

TDMHSAS BEST PRACTICE GUIDELINES

Schizophrenia in Children and Adolescents

Workgroup Members: Charles Freed, MD, MHA, CPE, FAPA, United Healthcare Community Plan of Tennessee – Chairperson; Carletta Rando-Smelcer, MA, Helen Ross McNabb; Joseph Stotts, LMSW, Generations/Gaither’s Group; and William G. Wood, MD, PhD, FAPA, Amerigroup Community Care of Tennessee.

Background: Pediatric schizophrenia is divided into two basic categories according to age of onset. When onset occurs before the age of 13, it is referred to as very-early-onset schizophrenia (VEOS). Depending on the source, VEOS may also be referred to as Childhood-Onset Schizophrenia, or COS; these terms are synonymous. When onset occurs after age 13, but before age 18, it is referred to as early-onset schizophrenia (EOS) [AACAP Schizophrenia CPG]. By comparison, the typical age of onset of schizophrenia in adults is the age range of 18 to 25.

Pediatric schizophrenia is rare, occurring in 1 in 40,000 individuals compared to Adult schizophrenia which occurs in 1 in 100 individuals. As one might imagine, the incidence in the EOS group increases as the adolescent approaches the age of 18 [NIMH, 2001]. In cases of VEOS in which developmental lags are present (e.g.-delays in motor and speech/language development), the course of the illness is more severe and the prognosis worse due to the involvement of important neurodevelopmental processes. The course and prognosis of illness can often be mitigated to a significant degree by early diagnosis and aggressive treatment, as is the case in adult onset schizophrenia.

DSM Criteria: DSM-IV-TR criteria for pediatric schizophrenia are identical to that for adult schizophrenia with one potential modification; the failure to meet expected interpersonal, academic, or occupational milestones may be present as opposed to exhibiting deterioration in functioning.

- At least two of the following must be present for a significant period of time during a one-month period:
 - Delusions.
 - Hallucinations.
 - Disorganized speech.
 - Grossly disorganized or catatonic behavior.
 - Negative symptoms (flattened affect, paucity of thought or speech).
- Only one symptom need be present if the delusions are bizarre, the hallucinations include a voice providing a running commentary on the person’s behavior or thinking, or at least two voices are conversing with each other.
- In children and adolescents, there is a failure to achieve the expected level of interpersonal, academic, or occupational achievement.

- The disturbances must be present for a period of at least 6 months, which period must include one month (less if successfully treated) of active-phase symptoms described above, which may include residual or prodromal symptoms.
- Schizoaffective Disorder and Mood Disorder with Psychotic Features are ruled out.
- The disturbance is not due to the direct physiological effects of a substance or general medical condition.
- Where there is a history of Autistic or other Pervasive Developmental Disorder, delusions or hallucinations are also present for at least one month (less if successfully treated) [American Psychiatric Association, 2000].

Differential Diagnostic Considerations: Of all the differential diagnostic considerations listed below, one of the biggest challenges in the 3 to 7 year old age group is differentiating between autism or other pervasive developmental disorders (PDD) and VEOS. This is due to the similar failure to achieve language and socialization developmental milestones. In the VEOS group, hallucinations and delusions which persist over longer periods of time are present, whereas in autism or other PDDs, they do not persist if they are present at all. In the EOS group, it is differentiating between Bipolar Disorder and Schizophrenia.

The older the age of onset of Schizophrenia in adolescent presentations, the more the syndrome will appear similar to the onset in the adult population.

Bipolar Disorder	Developmental Language Disorders
Schizoaffective Disorders	Obsessive-Compulsive Disorder
Other Psychotic Disorders	Factitious Disorder
Pervasive Developmental Disorders	Substance Abuse/Substance Induced
Organic Disorders	Psychosis
Delirium	Personality Disorders:
Seizure	Paranoid
CNS Lesion	Borderline
Neurodegenerative	Schizotypal
Metabolic	Schizoid
Toxic Encephalopathy	Posttraumatic Stress Disorder
Infectious Diseases	Other non-psychotic behavioral and/or disorders

Assessment: Schizophrenia tends to emerge gradually in children [NIMH, 2001]. Signs and symptoms to look for in VEOS include premorbid developmental impairments, such as language, motor and social deficits. These appear to be more frequent and more pronounced than for later-onset forms of Schizophrenia. Auditory hallucinations are the most frequent positive symptom, with visual and/or tactile hallucinations being extremely rare in the younger ages.

- Conduct a complete diagnostic assessment, which specifically should include the following elements:

- Premorbid history (prenatal, developmental disturbances such as delays in motor and language development, interpersonal relationships such as the lack of friends, personality development, highest level of functioning).
- History of present illness (DSM-IV-TR target symptoms; course of illness including onset, cyclical patterns, precipitating stressors; associated or compounding symptoms, especially mood disturbances, substance abuse, and organic factors).
- Mental status examination.
- Physical examination, including a thorough neurological assessment.
- Laboratory evaluations, EEG, and neuroimaging techniques may be necessary to rule out other disorders.
- Psychological and neuropsychological testing may be necessary to assess baseline cognitive deficits and to direct rehabilitative efforts.
- Family history (environment, interactions, coping styles, resources, strengths; history of psychiatric and neurological conditions, and substance abuse).
- School functioning.
- Suspected skills deficits.
- Rule out other disorders and determine if it is necessary to place the child or adolescent in a more structured milieu, such as an inpatient unit, partial hospital or intensive outpatient program depending on diagnostic and assessment needs as well as to manage risk behavior or thoughts.
- Identify other pertinent issues that will require ongoing treatment (family dysfunction, school difficulties, comorbid disorders, etc.).

Treatment:

Nonpharmacologic interventions include:

- 1) Periodic diagnostic reassessments to ensure accuracy of diagnosis.
- 2) Appropriate psychotherapy.
- 3) Psychoeducational services for the youth.
- 4) Psychoeducational services for the primary caregivers.
- 5) Social skills training geared to helping the individual to cope with their illness.
- 6) Case Management services for the youth and family (e.g. Coordinated Child and Family Therapy, or CCFT).
- 7) Supportive services for the family, such as Parental Peer Support offered by Tennessee Voices for Children.
- 8) Educational and vocational services (e.g.- special education and/or other accommodations may be required to help the child to succeed in the classroom)
- 9) Residential, partial hospitalization or intensive outpatient services when indicated.

Psychopharmacologic Therapy: See table titled *Psychotropic Medication Utilization Parameters* below [Texas Department of Family and Protective Services and the University of Texas at Austin College of Pharmacy. (December 2010). *Psychotropic medication utilization parameters for foster children*].

The use of antipsychotic agents requires the following:

1. Adequate informed consent from the parent, guardian, or youth.
2. Documentation of target symptoms.
3. Documentation of any required baseline and follow-up laboratory monitoring. This should include parameters indicative of the onset of metabolic syndrome such as Fasting Blood Sugar or hemoglobin 1Ac, Lipid profile, weight and BMI
4. Documentation of treatment response.
5. Documentation of pre-treatment abnormal movements, suspected side effects, and the monitoring for known side effects.
6. Adequate therapeutic trials, generally requiring that sufficient dosages are used, adherence is monitored and medications are used over a 4 to 6 weeks.
7. Long-term monitoring to reassess dosage, depending on the stage of illness.

Acute Phase

The choice of antipsychotic medication should be based on the agent's relative potency and spectrum of side effects, and on the history of medication response in the youth and his or her family members. Side effects occur with all antipsychotic medications, and may include acute extrapyramidal symptoms (EPS- such as dystonia, parkinsonism, akathisia), late-onset EPS (such as tardive dyskinesia, withdrawal dyskinesia, tardive dystonia), anticholinergic symptoms, neuroleptic malignant syndrome, cognitive impairment, sedation, orthostatic hypotension, weight gain, sexual dysfunction, hyperprolactinemia, decreased seizure threshold, increased hepatic metabolism, cholestatic jaundice, agranulocytosis, and activation or agitation. Many of these side effects are specific to particular antipsychotics and should be monitored when that antipsychotic is used.

When using antipsychotic medications, antiparkinsonian agents may be needed for the treatment of acute extrapyramidal side effects. Prophylactic use of antiparkinsonian agents should be considered when acute extrapyramidal symptoms are likely, such as when using high-potency neuroleptics, when treating new youth, or when treating paranoid youth for whom a dystonic reaction may significantly impair adherence.

For both prodromal and first-episode illness, start with an atypical antipsychotic drug that has FDA approval for children and/or adolescents. To date, only two antipsychotic medications meet this criterion: Risperdal and Abilify. Approved ages and maximum dosages can be found in the table titled *Psychotropic Medication Utilization Parameters* below. The second-choice medication should also fall in the atypical antipsychotic category. Thus, in the acute phase of the illness, the second-line drugs of choice might include: Olanzapine, Quetiapine, Ziprasidone, and Aripiprazole. To determine whether or not antipsychotic medication is effective, it must be used for at least four to six weeks at adequate dosages. If no effects are seen at that point, consideration should be given to changing to a different antipsychotic medication. Children and adolescents are likely to be more sensitive to the adverse effects of antipsychotic medications, and lower doses are as effective as higher doses with superior tolerability, and therefore adherence, in first episodes.

Inpatient treatment and other less restrictive milieu-based support options should be considered for observation and/or management of behavioral dyscontrol or other risk factors. The risk of relapse following recovery from a first psychotic episode is very high and significantly diminished by

maintenance antipsychotic medication treatment. When the youth who has experienced only one episode of positive symptoms is symptom-free for 12 months, a gradual dose reduction over several months, with a trial period of no medication, may be considered. If the first episode was more severe and if the symptoms were slow to respond to treatment, a dosage reduction may be considered after 24 months. Incomplete response in some symptom areas, but with clear benefit in other areas, indicates a need for maintenance treatment for at least two to five years.

Stabilization Phase

Once the acute psychotic symptoms are stabilized, the youth may still have ongoing difficulties with confusion, disorganization, motivation, and possible dysphoria. Antipsychotic medication should be maintained through this phase to prevent acute exacerbations. The goal of therapy is to reintegrate the youth back to his or her home and school, if possible.

This period is generally considered to begin 4 to 12 weeks after the acute phase is controlled, at which time treatment should be continued for at least 6 to 12 months. Dosage reductions should be considered as indicated.

Residual or Remission Phase

The youth should be maintained on the lowest effective dose of antipsychotic medication. Once the youth is clinically stable, the dosages should be reassessed approximately every 6 months. Many youth will be chronically impaired and need to be maintained on long-term antipsychotic agents. The duration of treatment is indefinite when there have been multiple prior episodes or 2 episodes within 5 years.

When discontinuing these agents, they should be tapered, given the increased risk in children for withdrawal dyskinesia. The exception to this is when neuroleptic malignant syndrome occurs. Careful monitoring is needed during times in which the dosage is being changed to assess for symptoms of relapse. Longitudinal medication management is needed to monitor side effects, including tardive dyskinesia.

Relapse of Symptoms

The most common contributors to relapse are nonadherence to medications, substance use, and stressful life events. When a youth relapses, it should first be determined whether or not the youth was compliant with his or her antipsychotic medications. If not, resumption of the medication should occur.

If the youth was compliant and had been previously responding and tolerating the agent, an increase in the medication dose may stabilize the psychotic symptoms (keeping in mind the standard dosage ranges).

The drugs of choice for nonadherent youth are the long-acting depot formulations Haloperidol Decanoate, Fluphenazine Decanoate, and Risperdal Consta because these formulations are only required to be readministered every two to four weeks, depending on the agent used. Invega Sustenna (paliperidone palmitate) is another potential depot formulation option, but there is very little experience

in this population compared to the other depot formulations. As such, it should be considered only as last resort (other agents have failed or resulted in intolerable side effects). *Depot injections are not recommended for children younger than 12 years of age. They are recommended only for adolescents with a documented history of poor medication adherence and chronic psychotic symptoms.* Depot agents have inherent risks of long-term exposure to neuroleptic side effects. Further, their use has not been sufficiently studied in pediatric age groups.

Youth Who Do Not Respond to Antipsychotic Medications

Before it is decided that the youth is a non-responder, s/he must receive at least two adequate trials of different antipsychotic agents. Keep in mind that nonresponse, or poor response, to antipsychotic agents may reflect the presence of comorbid conditions. This should be a consideration when there has been a reduction in positive symptoms, but significant anxiety, depression, hostility, agitation, explosive outbursts, or mood instability, persist. In these circumstances, an adjunctive medication may be warranted. Although commonly used, there is often a dearth of randomized controlled trials that have systematically studied the use of adjunctive agents in children and adolescents.

Although Clozapine has been used successfully for adolescents with schizophrenia, there is little published data on its use in youth younger than sixteen years of age. If Clozapine is to be used, the prescriber **must** monitor closely for potential seizures, agranulocytosis (with the required periodic blood cell counts), weight gain, and glucose and lipid abnormalities. Clozapine is generally used only after trials of at least two other antipsychotic agents, one or both of which should have been a second-generation antipsychotic medication. [AACAP Schizophrenia CPG, 2001]

Antipsychotics: Second Generation (Atypical) †

Drug	Initial Dosage	Literature Based Maximum Dosage	FDA Approved Maximum Dosage for Children and Adolescents	Schedule	Patient Monitoring Parameters	Black Box Warning	Warnings and Precautions
Aripiprazole Abilify®	Children: 2.5 mg/day Adolescents: 5 mg/day	Children: 15mg/day Adolescents: 30mg/day	Approved for Bipolar Mania or Mixed Episodes in pediatric patients (10 to 17 years) and Schizophrenia in adolescents (13-17 years) 30mg/day Inability associated with autistic disorder (9-17 years) 15mg/day	Once daily	1) CBC as indicated by guidelines approved by the FDA in the product labeling. 2) Pregnancy test – as clinically indicated 3) Weight and BMI measurement – when a new antipsychotic is initiated, at every visit (monthly for inpatients) for 6 months after the new antipsychotic is initiated, and quarterly when the antipsychotic does stabilize.	Not approved for depression in under age 18. Increased the risk of suicidal thinking and behavior in short-term studies in children and adolescents with major depressive disorder and other psychiatric disorders	<ul style="list-style-type: none"> • Neuroleptic Malignant Syndrome • Tardive Dyskinesia • Hypoglycemia and Diabetes Mellitus • Weight gain • Akathisia • Dyslipidemia
Quetiapine Seroquel®	Children: 12.5 mg/day Adolescents: 25 mg/day	Children: 300 mg/day Adolescents: 600 mg/day	Approved Bipolar Mania (10-17 years) and for Schizophrenia in adolescents (13-17 years) 600mg/day Not approved for children	Once to twice daily	4) Fasting plasma glucose level or hemoglobin A1c – before initiating a new antipsychotic, then yearly. If a patient has significant risk factors for diabetes and for those that are gaining weight – before initiating a new antipsychotic, 4 months after starting an antipsychotic, and then yearly.		
Olanzapine Zyprexa®	Children: 2.5 mg/day Adolescents: 2.5-5 mg/day	Children: 12.5 mg/day Adolescents: 30 mg/day	Approved for Bipolar Mania or Mixed Episodes and Schizophrenia in adolescents (13-17 years) 20mg/day Not approved for children	Once to twice daily	5) Lipid screening (total cholesterol, low- and high-density lipoprotein (LDL and HDL) cholesterol, and triglycerides) – Every 2 years or more often if lipid levels are in the normal range, every 6 months if the LDL level is > 130 mg/dl	None related to youth	
Risperidone Generic available Risperdal®	Children: 0.25 mg/day Adolescents: 0.5 mg/day	Children: 3 mg/day Adolescents: 6 mg/day	Approved for Bipolar Mania or Mixed Episodes in children and adolescents (10-17 years) and Schizophrenia in adolescents (13-17 years) 6 mg/day Inability associated with Autistic Disorder (5-16 years) 3 mg/day	Once to twice daily	6) Sexual function inquiry – inquire yearly for evidence of galactorrhea/gynecomastia, menstrual disturbance, libido disturbance or erectile/ejaculatory disturbances in males. If a patient is receiving an antipsychotic known to be associated with Prolactin elevation, then this inquiry should be done at each visit (quarterly for inpatients) for the first 12 months after starting an antipsychotic or until the medication dose is stable and then yearly.	None related to youth	
Clozapine Generic available Clozaril® Fazaclo®	Children: 6.25-12.5 mg/day Adolescents: 6.25-25 mg/day	Children: 150-300 mg/day Adolescents: 200-600 mg/day	Not approved for children and adolescents	Once daily	7) EPS Evaluation (examination for rigidity, tremor, akathisia) – before initiation of any antipsychotic medication, then weekly for the first 2 weeks after initiating treatment with a new antipsychotic or until the dose has been stabilized and weekly for 2 weeks after a dose increase.	Agranulocytosis; seizures; myocarditis; other adverse cardiovascular and respiratory effects	
Asenapine (sublingual) Saphris®	Insufficient Evidence	Insufficient Evidence	Not approved for children and adolescents	Insufficient Evidence	8) Tarative Dyskinesia evaluation – every 12 months. For high risk patients (including the elderly), every 6 months.	None related to youth	
Isoperidone Fonopit®	Insufficient Evidence	Insufficient Evidence	Not approved for children and adolescents	Insufficient Evidence	9) Vision questionnaire – ask whether the patient has experienced a change in vision and should specifically ask about distance vision and blurry vision – yearly	None related to youth	
Paliperidone Invega®	Insufficient Evidence	Insufficient Evidence	Not approved for children and adolescents	Insufficient Evidence	10) Ocular evaluations – every 2 years in youth ‡ 11) EKG – Baseline and as clinically indicated (Asenapine, Isoperidone, Paliperidone and Ziprasidone) §	None related to youth	
Ziprasidone Geodon®	Children: 10 mg/day Adolescents: 20 mg/day	Children: Insufficient Evidence Adolescents: 100 mg/day	Not approved for children and adolescents	Twice daily (Better absorbed when taken with food)		Not approved for depression in under age 18. Increased the risk of suicidality in short-term studies in children and adolescents with major depressive disorder and other psychiatric disorders	<ul style="list-style-type: none"> • Neuroleptic Malignant Syndrome • Tardive Dyskinesia • Hypoglycemia and Diabetes Mellitus • Weight gain • Akathisia • Dyslipidemia • Prolonged QTc Interval

† Dosage recommendations in this table are based on reference # 17 (Jensen, 2010).

‡ There is no current clinical consensus regarding the need for routine ocular evaluations in children and adolescents. Data from animal studies suggest that quetiapine might be associated with increased risk of cataract development, but this has not been concluded from current evidence in human use.

§ There is no current clinical consensus regarding the need for routine monitoring of QTc Interval with use of Ziprasidone in children and adolescents. For additional information regarding EKG monitoring with Ziprasidone use, please refer to reference #4 (Blak, 2005).

Antipsychotics: First Generation (Typical)

Drug	Starting Dose	Literature Based Maximum Dosage	FDA Approved Maximum Dosage for Children and Adolescents	Schedule	Black Box Warning	Warnings and Precautions
Chlorpromazine † Generic available Thorazine®	Child 0.275 mg/kg Adolescent 12.5 mg	Children younger than 5 years 40 mg/day Children 5-12 years 75mg/day Adolescent 800 mg/day	Approved for treatment of severe behavioral problems in children (6 months to 12 years) Outpatient Children: 0.25mg/pound every 4-6 hours Inpatient Children: 200mg/day in older children Adolescents 800 mg/day	Two to four times daily	None related to youth	<ul style="list-style-type: none"> • May alter cardiac conduction • Sedation • Orthostatic hypotension • EPS • Tardive Dyskinesia • Neuroleptic Malignant Syndrome • Use caution with renal disease, seizure disorders, respiratory disease, and any acute illness in children • Weight gain
Haloperidol † Generic available Haldol®	<35 kg: 0.25-0.5mg/ day ≥35 kg: 1 mg/day	<35 kg: 3-4 mg/day ≥35 kg: 10 mg/day	Approved for treatment of Psychotic Disorders, Tourette's Disorder, and severe behavioral problems in children 3 years and older Psychosis: 0.15mg/kg/day Tourette's and severe behavioral problems: 0.075mg/kg/day 6mg/day	Once to three times daily	None related to youth	<ul style="list-style-type: none"> • Sedation • Orthostatic Hypotension • EPS • Photosensitivity • Tardive Dyskinesia • Constipation • Dry Mouth • Tachycardia • Prolactin elevation
Perphenazine Generic Available Trilafon®	≥ 12 years old 12 mg/day	6-12 years: 6 mg/day Adolescents: 64 mg/day	Approved for treatment of psychotic disorders in 12 years and older 64mg/day	Three times a day	None related to youth	<ul style="list-style-type: none"> • EPS • Tardive Dyskinesia • Dystonia • Neuroleptic Malignant Syndrome • Orthostatic hypotension • May alter cardiac conduction • Endocrine changes • Weight gain
Pimozide Orep®	1-2 mg/day	≤ 12 years 0.2 mg/kg/d 10 mg/day	Approved for treatment of Tourette's Disorder in 12 years and older 10mg/day	Once to twice daily	None related to youth	<ul style="list-style-type: none"> • EPS • Tardive Dyskinesia • Dyskinesias • Dry Mouth • Constipation • Prolactin Elevation • Prolongs QTc interval

†Chlorpromazine and Haloperidol, when prescribed for severe behavioral problems, should be reserved for children with who have failed to respond to psychotherapy or medications other than antipsychotics.

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Source:
Texas Department of Family and Protective Services and the University of Texas at Austin College of Pharmacy. (December 2010). *Psychotropic medication utilization parameters for foster children.*

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TDMHSAS BEST PRACTICE GUIDELINES

Substance Use Disorders in Children and Adolescents

Workgroup Members: Margaret M. Benningfield, MD, Vanderbilt University School of Medicine – Chairperson; Carl Counts, LPC, MHSP, Frontier Health; Connie Mazza, MA, LSPE, LPC, United Healthcare Community Plan of Tennessee; Michelle Berthon, LCSW, United Healthcare Community Plan of Tennessee; Jennifer Muise-Hill, MS, Helen Ross McNabb Center; and Vickie Harden, LAPSW, Volunteer Behavioral Health Care System.

Adolescence is a time of increased risk taking including experimentation with use of substances. Two national epidemiologic surveys provide data about the rates of substance use by youth across the United States. The National Survey on Drug Use and Health (SAMHSA, 2011) reports that rates of substance use in individuals aged 12-17 in the past month were 16 percent for alcohol, 10 percent for cigarettes, and 10 percent for illicit drugs. Marijuana is the illicit drug most frequently used by adolescents. The Monitoring the Future survey (Johnson, *et al.*, 2011) reports data on 8th, 10th and 12th graders. Rates of lifetime alcohol use ranged from 37 percent in 8th graders to 72 percent in 12th graders. Lifetime use of illicit drugs was 20 percent for 8th graders and 44 percent for 12th graders. According to SAMHSA's 2009-2010 National Survey on Drug Use and Health (NSDUHs) data, six percent of Tennessee youth between the ages of 12 and 17 either abused or demonstrated dependence on alcohol or illicit drugs in the past year (SAMHSA/NSDUH, 2012).

The younger people are when they begin to experiment with substances, the more likely they are to abuse drugs in later life, an outcome that can be dangerous and even fatal (Virginia Commission on Youth, 2005). For each year of delay of onset of alcohol use, odds of developing an alcohol use disorder drops by 14 percent (Grant & Dawson, 1997). For persons who initiate drinking at or before age 14, the rate of later alcohol dependence is 15 percent compared to 3 percent for persons who have their first drink at age 21 or older (SAMHSA, 2011).

Problem substance use in youth often manifests as acute change in mood, cognition, and behavior. Behavioral changes may range from disinhibition with hyperactivity, agitation, and hypervigilance to lethargy or somnolence. Changes in cognition may include impaired concentration, changes in attention span, and severe disturbances in thinking such as delusions or hallucinations. Mood changes can range from depression to euphoria. The manifestations of substance use and intoxication vary with the type of substance used, the amount used during a given time period, the setting and context of use, and a host of characteristics of the individual such as experience with the substance, expectations of drug effect, and the presence or absence of other psychopathology.

A hallmark of Substance Use Disorder (SUD) in adolescents is impairment in psychosocial and academic functioning. Impairment can include family conflict or dysfunction, interpersonal conflict, and

academic problems. School failure may be the first sign of a problem with alcohol or drugs. Associated characteristics include deviant and risk-taking behavior and co-occurring psychiatric disorders such as conduct disorder, attention deficit hyperactivity disorder (ADHD), and mood, anxiety, and learning disorders.

SUDs are defined in the DSM-IV as dependence on or abuse of specific classes of substances including (American Psychiatric Association, 2000; Rapoport & Ismond, 1996):

- Alcohol
- Nicotine.
- Amphetamines.
- Caffeine.
- Cannabis.
- Cocaine.
- Hallucinogens.
- Inhalants.
- Opiates.
- Phencyclidine.
- Sedatives, Hypnotics, or Anxiolytics.

Persons who use more than one substance in a problematic way are characterized as having polysubstance dependence. The course of SUDs in adolescents is variable. Adolescents with substance abuse often decrease or discontinue use in late adolescence or early adulthood, while those who meet criteria for substance dependence often have a more chronic and severe course of illness (AACAP, 2005).

Various individual, peer, family, and community risk and protective factors influence whether a given adolescent will develop a substance use disorder. Genetic predispositions to affective, cognitive, and behavioral dysregulation and other temperamental deviations contribute about half of the variance in development of SUD. Family and peer factors and the developmental issues of puberty may exacerbate risk. Early onset of disruptive behavior, mood, or anxiety disorders is associated with higher rates of SUDs. Common adolescent feelings of being invulnerable, issues of autonomy, and peer influences or peer pressure may also influence initiation and continued substance use (AACAP, 2005).

While estimates vary on the rate of comorbidity for adolescents who present with substance use issues, there is a clear association with the occurrence of Conduct Disorder, ADHD, traumatic experiences, and major mental illnesses such as depression and anxiety. A comprehensive diagnostic evaluation for mental health issues and family dysfunction is needed before an adequate treatment plan can be created.

DSM-IV-TR Criteria for Substance Use Disorders

Substance Dependence*

- A maladaptive pattern of substance used that leads to clinically significant distress or impairment. It is manifested through at least three of the following behaviors and has occurred within the same 12-month period:
 1. Tolerance, as defined by:

- a. need for markedly increased amounts of the substance to achieve desired effect/intoxication; OR
- b. markedly diminished effect with continued use of the same amount of the substance.
2. Withdrawal, as evidenced by:
 - a. the characteristic withdrawal syndrome due to the cessation of (or reduction in) substance use that has been heavy and prolonged or that causes clinically significant impairment of distress in academic, social, or other important areas of functioning.
 - b. similar or equivalent substance is taken to relieve or avoid symptoms of withdrawal.
3. Substance is taken in greater amounts or over a longer period of time than originally intended.
4. There exists persistent desire or unsuccessful efforts to cut down or regulate substance use.
5. An inordinate amount of time is spent in activities necessary to obtain the substance, use the substance, or recover from its effects.
6. Important academic, recreational, social or other activities are given up or reduced because of substance use.
7. Substance use continues despite knowledge that a persistent or recurring physical or psychological problem will erupt or become exacerbated by the substance.

***NOTE:** Criteria should specify with or without physiological dependence.*

Substance Abuse*

- A maladaptive pattern of substance use that leads to clinically significant distress or impairment. It is manifested through at least one of the following behaviors and has occurred within the last 12 months:
 1. recurring substance use that results in a failure to fulfill major role obligations at school, home, or work (e.g., repeated absences or poor school performance related to substance use, suspensions or expulsions from school).
 2. repeated substance use in situations where it is physically dangerous to self and/or others (e.g., driving while under the influence of substances).
 3. recurring legal problems that stem from substance use (e.g., arrests for substance-related disorderly conduct).
 4. ongoing substance use despite having repeated interpersonal or social problems caused or made worse by the effects of the substance (e.g., physical fights, arguments with special friends or other significant others, including parents/caregivers) the behaviors exhibited under this class of substance have never met the criteria for Substance Dependence (American Psychiatric Association, 2000).

****The diagnostic categories substance dependence and substance abuse will be combined in the new DSM-5. Substance use disorder (SUD) in the DSM-5 will require two to three symptoms (Grohol, 2012).***

Differential Diagnosis

The symptoms and behaviors associated with problem substance use may also indicate another underlying condition. Ruling out co-occurring mental disorders should be part of the routine screening process (Virginia Commission on Youth, 2005; Georgetown University, 2002). Careful assessment for the following conditions is critical:

- Mood disorders
- Anxiety disorders
- Attention Deficit Hyperactivity Disorder (ADHD)
- Oppositional Defiant Disorder
- Conduct Disorder
- Learning disorders
- Association with delinquent peers
- Troubled family relationships
- Abusive relationships/environments
- Parental/caregiver substance use

Comorbidity of Substance Use Disorders

- More than 50 percent of adolescents with substance abuse problems also have conduct problems (Virginia Commission on Youth, 2005).
- The coexistence of more than a single childhood psychiatric disorder greatly increases the risk for later substance use in adulthood (Center for Substance Abuse Treatment, 2008).

SUDs are commonly present with other psychiatric illness. Integrated treatment of both illnesses in combination is essential for the best outcomes. See the best practices section for co-occurring substance use and other psychiatric disorders for further information.

Screening/Evaluation

Mental health evaluation of any adolescent should include screening for use of alcohol, tobacco, and other drugs. The American Medical Association (AMA) also advocates for screening adolescents for alcohol and drug use during annual Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) services or other office visits. Clinicians should begin by asking whether the child or adolescent has ever used any substance to alter the way they feel. If the youth does report use, the evaluator should identify the nature of the use pattern. Ask about age of first use, progression of use for specific substances, frequency and variability of use, in conjunction with the types of substances used to establish patterns of use. The questions, "What does [the drug] do *for* you?" and, "What does [the drug] do *to* you?" can give some sense of reasons why the teen uses and the associated perceived benefits as well as negative consequences.

The CRAFFT questions are particularly useful for screening for problematic use of alcohol or other drugs (Knight et. al., 2007). A positive response to any of these questions indicates a need for further evaluation.

The American Academy of Child and Adolescent Psychiatry (AACAP) published practice parameters in 2005 to address evaluation and treatment of SUDs. Each recommendation (including subsequent ones listed herein) falls within a category of endorsement: 1) **MS** – minimal standards; 2) **CG** – clinical guidelines; 3) **OP** – options; or 4) **NE** – not endorsed (AACAP, 2005). Within this section, recommendations are presented by number, with the category of endorsement in parentheses.

Recommendation 1 (MS) instructs *the clinician to observe appropriate levels of confidentiality during all phases of contact with youth, including screening and evaluation.* The clinician should openly inform the youth, usually an adolescent, about the conditions under which there may be limits to confidentiality. In addition, the clinician should clarify the types of information that cannot be shared without the youth’s consent.

Recommendation 2 (MS) requires *screening of older youth to include questions about the use of alcohol or other drugs.* Youth exhibiting problems in one or more domains of adolescent functioning should be screened to determine the need for a comprehensive evaluation. Screening questions should gauge quantity and frequency of use, the presence of adverse consequences of use, and information about the young person’s attitude toward use. A sample of screening instruments is presented in Table 1 below.

Table 1. Instruments That May Be Used to Screen for Substance Use in Adolescents*

Instrument	Comments
<i>CRAFFT</i>	6 items; brief screen for primary care professionals http://www.ceasar-boston.org/clinicians/crafft.php
<i>The Drug Use Screening Inventory-Adolescents (DUSI-A)</i>	159 items; documents the level of involvement with a variety of drugs and quantifies severity of consequences associated with drug use
<i>Problem Oriented Screening Instrument for Teenagers (POSIT)</i>	139 items; designed to identify problems and potential need for service in 10 functional areas, including substance use and abuse
<i>Personal Experience Screening Questionnaire (PESQ)</i>	40 items; screens for the need for further assessment of drug use disorders
Adolescent SASSI-A2	available at http://www.sassi.com/ or
	Global Appraisal of Individual Needs– Short Screener (GAIN-SS) available at http://www.gaincc.org/).

*Adapted from AACAP Practice Parameters for the Assessment and Treatment of Children and Adolescents with Substance Use Disorders, 2005.

Table 2. Instruments That May Be Used to Evaluate Substance Use in Adolescents*

Instrument	Comments
<i>Adolescent Drug Abuse Diagnosis (ADAD)</i>	Provides severity ratings on multiple domains of functioning
<i>Adolescent Problem Severity Index (APSI)</i>	Provides severity ratings on multiple domains of functioning
<i>Teen Addiction Severity Index (T-ASI)</i>	Provides severity ratings on multiple domains of functioning
<i>Comprehensive Adolescent Severity Inventory for Adolescents (CASI-A)</i>	Provides severity ratings on multiple domains of functioning
<i>Global Appraisal of Individual Needs (GAIN)</i>	Documents SUD and other psychiatric diagnoses; placement criteria; health, mental distress, and environment; and service utilization outcomes. A brief version allows for screening and an outcome version provides information about critical outcome variables.
<i>Customary Drinking and Drug Use Record (CDDR)</i>	Current and lifetime measures of 4 alcohol and other drug-related domains
<i>Adolescent Diagnostic Interview (ADI)</i>	Assesses symptoms associated with SUDs. Provides diagnoses, substance use history, and psychosocial functioning.

*Source: AACAP Practice Parameters for the Assessment and Treatment of Children and Adolescents with Substance Use Disorders, 2005.

If co-occurring disorders are suspected, Recommendation 13 (MS) points out that *youth with SUDs should receive a thorough evaluation for comorbid psychiatric disorders* (AACAP, 2005). Because of the association of co-occurring disorders with SUD, the evaluation should include a comprehensive review of past and present psychopathology, which incorporates treatment history. Complete evaluations of adolescents should further include a detailed developmental history, social history, and medical history.

With regard to the diagnosis of SUDs, the primary goal of evaluation should be to ascertain whether the use of substances exists and, if so, does it meet the SUD criteria within the DSM-IV. Data collection should involve multiple sources in addition to the adolescent's self-report including parents or other caregivers, social service agencies, relevant educational information, and legal history including any drug or alcohol related offenses. Additionally, clinicians should take into consideration that dually-diagnosed patients may not present in the same way as substance users without a mental disorder. For example, dually-diagnosed children and adolescents may use lesser amounts of alcohol and/or drugs and experience different consequences from use. Therefore, it is recommended that clinicians conduct interviews and histories so that the presence of an SUD is not omitted, as might be the case using standard instruments alone (Virginia Commission on Youth, 2005).

Drug Testing

Repeated, random urine drug screens will assist in identifying adolescents who have substance use issues while receiving medical or psychiatric medication management. Practitioners should not assume that a negative test result confirms that an adolescent is not using substances.

Table 3. Urine toxicology*

Substance	Half-life (hr)	Detection after Last Use (days)
Amphetamines	10-15	1-2
Barbiturates	20-96	3-14
Benzodiazepines	20-90	2-9
Cocaine	0.8-6.0	0.2-4
Methaqualone	20-60	7-14
Opiates	2-4	1-2
Phencyclidine (PCP)	7-16	2-8
Cannabinoids (THC)	10-40	2-8 (acute) 14-42 (chronic)
Drugs not usually tested: LSD, psilocybin, MDMA, MDA, other designer drugs		

*Source: AACAP Practice Parameters for the Assessment and Treatment of Children and Adolescents with Substance Use Disorders, 2005.

Treatment

A diagnosis of SUD for adolescents should result in *specific treatment for substance use* (AACAP, 2005). In fact, research on treatment outcomes for adolescents concludes that treatment is better than no treatment, and longer treatment leads to more favorable outcomes. After treatment, positive outcomes are associated with being around non-using peers and involvement in a number of activities. The best outcomes are linked to treatment completion, low pretreatment use, and peer and parent social support and nonuse of substances. Treatment plans should incorporate modalities that target: 1) social ecology, as it relates to pro-social behaviors, peer relationships, and academic functioning; 2) improved problem

solving and social skills, as well as relapse prevention; 3) motivation and engagement; 4) family involvement aimed at improving supervision, monitoring, and communication between youth and parents; 5) comorbid psychiatric disorders through psychosocial and/or medication treatments; and 6) adequate duration of treatment and aftercare.

Treatment should be provided in the least restrictive setting possible. Typical treatment settings for youth with SUD include:

- **Inpatient treatment.** Treatment at this level is generally limited to youth that demonstrate one of the following: severe psychiatric disorders (such as acute psychosis and/or dangerous behaviors); a history of treatment failure in less restrictive environments; or a risk of withdrawal. Alcohol and drug detoxification programs are typically included. In fact, going through detoxification is often a criterion for admission to other forms of treatment. This option is usually not available for patients with dual diagnosis who have severe mental illness.
- **Residential treatment.** Group homes and therapeutic communities are included here. While the environment is typically less restrictive than hospitalization, it still provides youth with intensive services and support.
- **Partial hospitalization/day treatment.** Youth remain in the community while receiving intensive treatment. They may further serve as a transition program for youth moving back into the community from a more restrictive setting.
- **Outpatient treatment.** Treatment is focused on the primary problem, commonly uses a single method, or a limited combination of the two. It is recommended for youth whose history, clinical status, and environment require a less intensive level of care.
- **Community treatment.** School-based counseling and self-help groups are included in this type of setting. Also considered are prosocial organizations and recreational opportunities that are made available to the youth. This type of treatment may be used either in conjunction with outpatient treatment, or as a transition from long-term treatment in more restrictive settings.

Recommendations based upon literature reviews of empirical studies, publications related to clinical experiences and SAMSHA's Report to Congress, include:

- Substance use and Co-occurring disorders in children and adolescents vary in severity, and require **ongoing assessments**, including random urine tests throughout treatment and careful psychopharmacological treatments to decrease abuse of substance for self-medication, as well as **adjustments of treatment along a continuum of care**.
- Treatment must be **developmentally** appropriate which includes the recognition that **confrontation may not be an appropriate method** for adolescent populations. Because 12-Step AA/NA models were not designed to be developmentally appropriate for adolescents and do not appear as effective with this population, some authors recommend use of such groups only when the model and group appears to be a good match for the young client.
- **Comprehensive approaches** best **integrate domains** such as health, educational, legal, and recreational services using a **variety of approaches** including group, family and individual treatment modalities. **Cognitive treatment** such as identifying negative self-talk and distorted thoughts as well as **behavioral techniques** such as gradual exposure/ desensitization to traumatic memories are recommended for youth with substance abuse and PTSD. **Skill training**, such as stress management/ relaxation skills, problem-solving, drug refusal and safety skills and social skills, and **psychoeducation** should be included as well.

- Since a good *therapeutic alliance* is considered a crucial element, the *active involvement of youth and family in the design of their program* is recommended along with clear structure as well as flexibility to individualize treatment methods and goals.

In addition, recommendations for policies and training related to provision of treatment were as follows:

- Providers in all settings including primary care, mental health and substance abuse should *consider co-occurring illness an expectation* rather than an exception.
- *No wrong door*. Any door should be the right door to receive treatment for co-occurring disorders, understanding both disorders as “primary”.
- *Promoting awareness of different sites of care and the need for collaboration*.
- Treatment plans should be *client-centered and individualized* and families must be involved in treatment; recognition that there is *no single correct intervention*.
- Prevention and treatment services must be *culturally competent*, and appropriate for the diversity of age, sexual orientation and gender.

List of evidence based programs for treatment of SUD

The following treatment models have been approved as evidence-based programs for treatment of substance use disorder in the adolescent population by the Substance Abuse and Mental Health Services Administration, as cited on the National Registry of Evidence-Based Programs and Practices website:

- **Adolescent Community Reinforcement Approach (A-CRA)**

The Adolescent Community Reinforcement Approach (A-CRA) to alcohol and substance use treatment is a behavioral intervention that seeks to replace environmental contingencies that have supported alcohol or drug use with pro-social activities and behaviors that support recovery.

- **Brief Strategic Family Therapy**

Brief Strategic Family Therapy (BSFT) is designed to (1) prevent, reduce, and/or treat adolescent behavior problems such as drug use, conduct problems, delinquency, sexually risky behavior, aggressive/violent behavior, and association with antisocial peers; (2) improve pro-social behaviors such as school attendance and performance; and (3) improve family functioning, including effective parental leadership and management, positive parenting, and parental involvement with the child and his or her peers and school.

- **Chestnut Health Systems - Bloomington Adolescent Outpatient (OP) and Intensive Outpatient (IOP) Treatment Model**

The Chestnut Health Systems-Bloomington Adolescent Outpatient (OP) and Intensive Outpatient (IOP) Treatment Model is designed for youth between the ages of 12 and 18 who meet the American Society of Addiction Medicine's criteria for Level I or Level II treatment placement.

- **Family Behavior Therapy**

Family Behavior Therapy (FBT) is an outpatient behavioral treatment aimed at reducing drug and alcohol use in adults and youth along with common co-occurring problem behaviors such as depression, family discord, school and work attendance, and conduct problems in youth.

- **Family Support Network (FSN)**

Family Support Network (FSN) is an outpatient substance abuse treatment program targeting youth ages 10-18 years. FSN includes a family component along with a 12-session, adolescent-focused cognitive behavioral therapy--called Motivational Enhancement Therapy/Cognitive Behavioral Therapy (MET/CBT12)--and case management.

- **Moral Reconciliation Therapy**

Moral Reconciliation Therapy (MRT) is a systematic treatment strategy that seeks to decrease recidivism among juvenile and adult criminal offenders by increasing moral reasoning. Its cognitive-behavioral approach combines elements from a variety of psychological traditions to progressively address ego, social, moral, and positive behavioral growth.

- **Multidimensional Family Therapy (MDFT)**

Multidimensional Family Therapy (MDFT) is a comprehensive and multisystemic family-based outpatient or partial hospitalization (day treatment) program for substance-abusing adolescents, adolescents with co-occurring substance use and mental disorders, and those at high risk for continued substance abuse and other problem behaviors such as conduct disorder and delinquency (National Registry of Evidence-based Programs and Practices, 2008).

- **Multisystemic Therapy (MST) for Juvenile Offenders**

Multisystemic Therapy (MST) for juvenile offenders addresses the multidimensional nature of behavior problems in troubled youth. Treatment focuses on those factors in each youth's social network that are contributing to his or her antisocial behavior.

- **Not On Tobacco (N-O-T)**

Not On Tobacco (N-O-T) is a school-based smoking cessation program designed for youth ages 14 to 19 who are daily smokers. N-O-T is based on social cognitive theory and incorporates training in self-management and stimulus control; social skills and social influence; stress management; relapse prevention; and techniques to manage nicotine withdrawal, weight, and family and peer pressure.

- **Parenting with Love and Limits (PLL)**

Parenting with Love and Limits (PLL) combines group therapy and family therapy to treat children and adolescents aged 10-18 who have severe emotional and behavioral problems (e.g., conduct disorder, oppositional defiant disorder, attention deficit/hyperactivity disorder) and frequently co-occurring problems such as depression, alcohol or drug use, chronic truancy, destruction of property, domestic violence, or suicidal ideation.

- **Phoenix House Academy**

Phoenix House Academy (formerly known as Phoenix Academy) is a therapeutic community (TC) model enhanced to meet the developmental needs of adolescents ages 13-17 with substance abuse and other co-occurring mental health and behavioral disorders.

- **Project ASSERT**

Project ASSERT (Alcohol and Substance Abuse Services, Education, and Referral to Treatment) is a screening, brief intervention, and referral to treatment (SBIRT) model designed for use in health clinics or emergency departments (EDs).

- **Project SUCCESS**

Project SUCCESS (Schools Using Coordinated Community Efforts to Strengthen Students) is designed to prevent and reduce substance use among students 12 to 18 years of age. The program was originally developed for students attending alternative high schools who are at high risk for substance use and abuse due to poor academic performance, truancy, discipline problems, negative attitudes toward school, and parental substance abuse.

- **Project Towards No Tobacco Use**

Project Towards No Tobacco Use (Project TNT) is a classroom-based curriculum that aims to prevent and reduce tobacco use, primarily among 6th- to 8th-grade students. The intervention was developed for a universal audience and has served students with a wide variety of risk factors.

- **Residential Student Assistance Program (RSAP)**

The Residential Student Assistance Program (RSAP) is designed to prevent and reduce alcohol and other drug (AOD) use among high-risk multi-problem youth ages 12 to 18 years who have been placed voluntarily or involuntarily in a residential child care facility (e.g., foster care facility, treatment center for adolescents with mental health problems, juvenile correctional facility).

- **Seeking Safety**

Seeking Safety is a present-focused treatment for clients with a history of trauma and substance abuse. The treatment was designed for flexible use: group or individual format, male and female clients, and a variety of settings (e.g., outpatient, inpatient, residential).

- **The Seven Challenges**

The Seven Challenges is designed to treat adolescents with drug and other behavioral problems. Rather than using pre-structured sessions, counselors and clients identify the most important issues at the moment and discuss these issues while the counselor seamlessly integrates a set of concepts called the seven challenges into the conversation.

- **Teen Intervene**

Teen Intervene is an early intervention program targeting 12- to 19-year-olds who display the early stages of alcohol or drug use problems (e.g., using or possessing drugs during school) but do not use these substances daily or demonstrate substance dependence.

*The following items are **NOT** on the Evidence-Based Registry for adolescents, but are widely endorsed either by profession or the State of Tennessee Department of Mental Health and Substance Abuse Services:*

- **Dialectical Behavior Therapy**

Dialectical Behavior Therapy (DBT) is a cognitive-behavioral treatment approach with two key characteristics: a behavioral, problem-solving focus blended with acceptance-based strategies, and an emphasis on dialectical processes.

- **Double Trouble in Recovery**

Double Trouble in Recovery (DTR) is a mutual aid, self-help program for adults ages 18-55 who have been dually diagnosed with mental illness and a substance use disorder. In a mutual aid program, people

help each other address a common problem, usually in a group led by peer facilitators rather than by professional treatment or service providers.

- **Motivational Enhancement Therapy**

Motivational Enhancement Therapy (MET) is an adaptation of motivational interviewing (MI) that includes one or more client feedback sessions in which normative feedback is presented and discussed in an explicitly non-confrontational manner.

- **Motivational Interviewing**

Motivational Interviewing (MI) is a goal-directed, client-centered counseling style for eliciting behavioral change by helping clients to explore and resolve ambivalence. The operational assumption in MI is that ambivalent attitudes or lack of resolve is the primary obstacle to behavioral change, so that the examination and resolution of ambivalence becomes its key goal. This method utilizes an interaction style that capitalizes on the readiness for change and helps the adolescent identify areas that need change and choices that are likely to result in undesired outcomes. MI research and tools can be accessed at <http://www.motivationalinterview.net/>.

- **Hazelden Adolescent Co-Occurring Series**

Hazelden Adolescent Co-Occurring Series utilizes an integrated therapies approach in conjunction with a family program and medication management. The therapy approach includes Motivational Enhancement Therapy, Cognitive-Behavioral Therapy and Twelve Step Facilitation.

- **Family-Based Education and Support**

Interventions that focus on addressing family functioning, relational concerns, primary caregiver problems, communication, supervision and parenting skills deficits have shown demonstrated efficacy in reducing substance use and disruptive behaviors.

Pharmacotherapy

The data supporting use of medication to treat substance use disorders in adolescents are limited. All medications carry some risk of adverse effects and many teens who abuse substances discontinue use without treatment as they get older. However, adolescents who exhibit severe problems with substance dependence should be evaluated by a child psychiatrist who is able to make recommendations about appropriate use of medications to treat the SUD as well as other co-occurring disorders. Medications are typically not indicated for substance abuse, but may play a role in treatment of severe substance dependence. For a review of the available literature to date, see Simkin & Grenoble, 2010. Results from this review are summarized here.

FDA approved medications are available to treat dependence on alcohol, opiates, and nicotine in adults. These medications have not been approved for adolescents, therefore all use of these medications in adolescents is *off-label use*. There are four main indications for use of medications in substance dependence: 1) detoxification, 2) aversive treatment, 3) craving reduction, and 4) substitution therapies. Substitution therapies include treatments that mimic some of the effects of the drug of abuse while decreasing the negative effects. Cutting edge research is now being conducted in adults on use of vaccines to prevent addiction in high risk populations (Volkow, 2007).

Alcohol:

Detoxification: Withdrawal from alcohol after the development of physiological dependence (tolerance and withdrawal) can be fatal and should be treated by a physician. Benzodiazepines are the first line pharmacological treatment for alcohol withdrawal. Benzodiazepines are approved for use in adults and decrease morbidity and mortality associated with alcohol withdrawal. No studies have been published addressing the safety or effectiveness of these medications in adolescents.

Aversive treatments: Disulfuram is a medication that interferes with the breakdown of alcohol resulting in the build-up of a toxic byproduct. Drinking alcohol while taking this medication results in negative consequences of flushing, nausea, vomiting, and headache. Disulfuram is approved for treatment of alcohol dependence in adults. A single randomized controlled trial of disulfuram in 49 adolescents showed promising results without adverse events. A case report has also been published of 2 adolescents--one maintained abstinence for 4 months, the other was not adherent with treatment.

Anti-craving agents: Acamprosate was approved for use in adults in 2004. On randomized controlled trial studied its use in 26 adolescents and found positive results with decreased alcohol use. This medication required three times daily dosing--a significant challenge for medication adherence. Naltrexone is a medication indicated for opiate dependence which is sometimes also used to reduce craving in alcohol dependence. Its use has not been studied in adolescents with alcohol dependence. Odansterone is a medication that works on the serotonin system. One open label trial has been published showing favorable results in adolescents.

Substitution therapies: There are no substitution therapies available for treatment of alcohol dependence.

Opiates:

Opiates include drugs like heroin and morphine as well as the prescription pain medications oxycodone, hydrocodone, among others. They are marketed under trade names such as Percocet, Lortab, Vicodin, and Oxycontin. These drugs may be used orally, or crushed and either snorted or injected. Intra-venous drug use presents additional health concerns including risk of infection and should be assessed by a physician.

Detoxification: Opiate withdrawal is extremely uncomfortable, but carries no risk of serious medical consequences. Medications used in opiate withdrawal are intended to decrease the negative consequences of withdrawal to encourage opiate dependent individuals to stop using. Clonidine is a medication which provides some relief for the symptoms of opiate withdrawal. This medication is frequently used in children and adolescents for other indications (such as ADHD) and is safe and tolerable.

Buprenorphine is a newer medication that acts as a partial antagonist at the mu-opioid receptor and has been studied in adolescent populations. Accumulating evidence suggests that it is safe and effective for treatment of opiate withdrawal. This medication has also been used as a substitution therapy, discussed below.

Aversive treatments: There are no aversive treatments for opiate dependence.

Anti-craving agents: Naltrexone was FDA approved for treatment of opiate addiction in adults in 1994. One open label trial and 2 case reports of its use in adolescents have shown positive results with improvement in clinical outcomes and no serious side effects.

Substitution therapies: Methadone was approved as treatment for opiate dependence in 1972. It was shown to have significant benefit in decreasing the morbidity and mortality associated with injection drug use. Over the past several decades, prescription opiate abuse has risen dramatically and tends to be the most commonly encountered opiate problem seen in adolescents. Subsequent FDA approval has been given for the following medications in the treatment of adults with opiate dependence: Levo α -acetyl methadol (LAAM) in 1993, sublingual buprenorphine (Subutex) and sublingual buprenorphine with naltrexone (Suboxone) in 2002. Several studies have found favorable results for substitution therapy in heroin-dependent teens. Strict federal regulations guide the prescription of these medications and require that anyone under the age of 18 have failed 2 courses of detoxification and maintenance treatment prior to trial of substitution therapy. Methadone treatment is recommended for the treatment of opiate dependence in pregnant teens to reduce the harm of repeated intoxication and withdrawal on the fetus.

Nicotine:

Detoxification: There are no treatments for nicotine detoxification.

Aversive treatments: There are no aversive treatments for nicotine dependence.

Anti-craving agents: The agents bupropion and varenicline have been FDA approved for treatment of nicotine dependence in adults. However, these medications now carry a black box warning that the use of these medications has been associated with serious mental health events, including changes in behavior, hostility, agitation, depressed mood, suicidality, and attempted suicide.

Substitution therapies: Nicotine patches, lozenges, and gum are available substitution treatments for nicotine dependence in adults. Several randomized controlled studies have failed to show significant benefit of these medications in adolescents.

There are no approved medications for treatment of marijuana or cocaine dependence.

Prevention

Prevention works. The 2012 National Drug Control Strategy states that drug prevention “saves lives and cuts long-term costs.” The report also notes that drug abuse prevention is among the “highest drug policy priorities: of the current administration. Evidence-based programs must be incorporated into a range of settings including communities, schools, homes, workplaces, juvenile justice and child welfare services (National Drug Control Policy, 2012). In addition to community-based strategies, prevention focuses on individual and family interventions. Risk factors influence the onset of behaviors that may increase the likelihood of behaviors such as substance use. Protective factors may be family or personal characteristics, supports or other environmental situations that reduce risk. Risk and protective factors do not cause or cure substance abuse; however, prevention strategies typically target the reduction of risk and the increase of protective factors.

The Substance Abuse Mental Health Services Administration (SAMHSA) has endorsed a public health approach to prevention that engages whole communities in prevention initiatives. The public health approach endorses the creation of governmental and community-based infrastructures as well as capacity-building via committees, councils and boards directed and improving key health indicators (SAMHSA, 2012). This approach is operationalized in the SAMHSA Strategic Prevention Framework's planning process which guides states and communities in the development of prevention activities.

Tennessee utilizes the Strategic Prevention Framework as part of its statewide prevention programming. The five-step process 1) assesses needs of a population or specific community, 2) identifies resources and readiness to act on the identified issue; 3) builds capacity at the state and community level; 4) develops a strategic plan that articulates the vision of the community to address problems related to substance abuse; 5) implements evidence-based programs and practices and monitors implementation, evaluating for effectiveness and improvements related to the identified issues. Selecting and implementing evidence-based prevention programs is of particular importance in this process (Center for Substance Abuse Prevention, 2009).

Evidence based programs are those that meet one of the following criteria:

- The program is included in Federal registries of evidence-based practices. This may include the SAMHSA National Registry of Evidence-Based Programs and Practices, the Office of Juvenile Justice and Delinquency Programs Model Programs Guide, the Exemplary and Promising Safe or Disciplined and Drug-Free Schools Programs with the U.S. Department of Education
- The intervention is reported to have positive effects in peer-review journals
- There is documented effectiveness, supported by consensus judgment of informed experts.

Core components in programs proven to be effective in prevention or reducing substance abuse among adolescents include (Bandy & Moore, 2008; Terzian, Andrews & Moore, 2011):

- Multi-component programs in which a variety of approaches and outreach are utilized. These approaches include school, family, community, outside social activities and media campaigns to reach youth and impact substance use.
- Programs that address all forms of drug use in combination, such as initiation of alcohol, tobacco, marijuana and illicit drug use.
- Programs tailored to address substance use risk specific to a population. This may include programs that are gender-specific, have defined developmental or age assignments or are targeting a specific ethnic group.
- Peer teaching when combined with adult facilitation.
- Programs that emphasize drug resistance and reinforce anti-drug attitudes work.
- Support and strengthen family functioning
- Increase connections between students and schools
- Make communities safe and supportive
- Promote involvement in out-of-school programs
- Promote the development of sustained relationships with caring adults
- Provide children and youth opportunities to build social and emotional competence
- Provide children and youth with high quality education during early and middle childhood

Youth at risk for SUD often engage in a multiple risky behaviors. Strategies that address these multiple risky behaviors are more effective (Terzian, Andrews & Moore, 2011). The most effective prevention strategies encompass all domains of the youth's life, from the overarching culture of the community related to the acceptance of substance use, to the family support system and the youth's social engagement and self-image.

In Tennessee, several evidence-based programs have been initiated at the state, community and participant level. Most counties have anti-drug coalitions that provide community-level interventions and impact the development of local policies and laws. For example, Coalitions work closely with local beer boards to ensure area businesses are not selling to underage drinkers. Statewide, Checkpoint Tennessee has been identified as an effective substance abuse prevention program with the Office of Justice Programs. School systems across the state have implemented programs to suppress bullying and improve school climate. Locally, agencies have adopted and implemented evidence-based programs in the juvenile justice setting, in schools, at local community centers and after school programs and in a variety of settings in which children and adolescents congregate. Several programs incorporate family interventions as well as individual and group activities targeting multiple risk factors, and build on strengths and protective factors of each child and family system.

As recognized by SAMHSA, prevention works. Prevention also requires a multi-systemic, multi-level approach to address the needs of the children and youth of Tennessee and ensure that they are able to reach their full potential.

Early Intervention

Early Intervention is an approach that is specifically designed to explore and address problems or risk factors that appear to be related to substance use and to assist in recognizing the harmful consequences of substance use. Such services are intended to be a combination of prevention and treatment services for at-risk youth. Early intervention services are relevant for children and adolescents who do not yet meet diagnostic criteria for a substance use disorder as defined by DSM-IV criteria. Any adolescent whose substance use has progressed to the point of causing a pattern of impairment, even if that impairment is deemed to be mild, requires treatment services at a more intensive level of care. Early intervention for psychopathology in youths at risk of SUDs is critical to prevent early-onset substance use and SUDs. Interventions may include, but not be limited to, individual counseling, group counseling, family counseling, and educational experiences designed to help adolescents recognize problems, causes, changes that will promote health, and the skills to maintain those changes (American Society of Addiction Medicine, 2001).

According to ASAM Patient Placement Criteria-Second Edition Revised (PPC-2R), the length of time in service may vary depending on the following variables:

- 1) the individual's ability to comprehend the information being provided;
- 2) the individual's ability to apply the information to make behavioral changes;
- 3) the individual's ability to avoid problems related to substance use;
- 4) the appearance of new problems that may require treatment at another level of care.

Using ASAM PPC-2R, early intervention services would be considered Level 0.5 within a service matrix of 0.5- IV, thus demonstrating the lowest service level within the PPC-2. These services can be provided in any age-appropriate setting (e.g., schools, clinical offices, community centers, or an

adolescent's home). Support system considerations for early intervention programs should include capacity for referral services that may include but not be limited to:

- Additional substance related assessments
- Primary medical care
- Psychological services
- Psychiatric evaluation and medication management
- Ongoing treatment for substance abuse or dependence
- Community services (Self-Help Groups, Organized activities, CMHCs)
- Family support services

Professionals providing early intervention services need to be knowledgeable about adolescent development, the biopsychosocial dimensions of substance use and dependence, able to recognize mental health concerns and substance-related disorders, have experience working with and engaging adolescents and their families, and be skilled in providing drug and alcohol education, motivational counseling that incorporates the Transtheoretical Model of Change, and brief interventions (American Society of Addiction Medicine, Inc, 2001). The Transtheoretical Model of Change suggests that individuals move through the following stages in readiness for change and that interventions should be tailored to the particular stage: precontemplation, contemplation, determination, action, maintenance (Prochaska, DiClemente, & Norcross, 1992).

Additional Reading

For clinicians:

Adolescents, Alcohol, and Substance Abuse. Monti, Colby, & O'Leary (Eds.) 2001. New York: The Guilford Press.

Educating Yourself About Alcohol and Drugs. Schuckitt. 1998. Cambridge, MA: DaCapo Press.

For Youth with Substance Use Disorders

- *Under Whose Influence?* by Laik, 1994 (Amazon.com, 2007).
- *Smoking Stinks* by Gosselin, 1998 (Amazon.com, 2007).

For Youth with Substance Using/Abusing Parent or Caregiver

- *Daddy Doesn't Have to Be a Giant Anymore* by Thomas, 1996 (Amazon.com, 2007).
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