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AMERICAN ACADEMY OF PEDIATRICS

POLICY STATEMENT

Organizational Principles to Guide and Define the Child Health Care System and/or Improve the Health of All Children

Committee on Substance Abuse

Alcohol Use by Youth and Adolescents: A Pediatric Concern

ABSTRACT. Alcohol use continues to be a major problem from preadolescence through young adulthood in the United States. Recent neuroscience research has substantiated the deleterious effects of alcohol on adolescent brain development, adding even more evidence to support the call to prevent and reduce underaged drinking. Pediatricians should be knowledgeable about substance abuse to be able to recognize risk factors for alcohol and other substance abuse among youth, screen for use, provide appropriate brief interventions and refer to treatment. The integration of alcohol use prevention programs in the community and our educational system from elementary school through college should be promoted by pediatricians and the health care community. Promotion of media responsibility to connect alcohol consumption with realistic consequences should be supported by pediatricians. Additional research into the prevention, screening and identification, brief intervention, and the management and

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treatment of alcohol and other substance use by adolescents is a continuing need to improve evidence-based practices.

Key words: alcohol, substance abuse, adolescent brain development, advocacy.

ABBREVIATIONS: ADHD, attention-deficit/hyperactivity disorder; AOD, alcohol and other drug

INTRODUCTION

Alcohol use and heavy drinking are common during adolescence and young adulthood, even though the minimum legal drinking age across the United States is 21 years. Some individuals may start hazardous alcohol consumption earlier in childhood. The prevalence of problematic alcohol use continues to escalate into the late adolescent and young adult age range of 18 to 20 years. Drinking by college-aged students remains a major issue. Recent research demonstrating that brain development continues well into early adulthood¹ and that alcohol consumption can interfere with such development^{2,3} makes alcohol use by youth an even greater pediatric health concern.

Use of alcohol at an early age is associated with future alcohol-related problems.⁴⁻⁶ Data from the National Longitudinal Alcohol Epidemiological Study⁴ substantiated that the prevalence of both lifetime alcohol dependence and alcohol abuse show a striking decrease with increasing age at onset of use. For those aged 12 years or younger at first use, the prevalence of lifetime alcohol dependence was 40.6%, while those who initiated at 18 years was 16.6%, and at 21 years 10.6%. Similarly, the prevalence of lifetime alcohol abuse was 8.3% for those initiating use at 12 years or younger, 7.8% for those initiating at 18 years and 4.8% for those initiating at 21 years. The contribution of age at alcohol use initiation to the odds of lifetime dependence and

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abuse varied little across gender and racial subgroups in the study. Early alcohol initiation has been associated with greater sexual risk-taking (unprotected sexual intercourse, multiple partners, being drunk or high during sexual intercourse, and pregnancy)⁷; academic problems; other substance use; and delinquent behavior in mid- to later adolescence.⁸ By young adulthood, early alcohol use is associated with employment problems, other substance abuse, and criminal and violent behavior.⁸ Independent of genetic risk, exposure to parental alcohol or other drug use disorders of parents predicts substance use disorders in children.⁹

Alcohol Use, Misuse, Abuse, and Dependence

Adolescent drinking behaviors cover the alcohol use spectrum, from primary abstinence to alcohol dependence. The *Diagnostic and Statistical Manual of Mental Disorders, 4th Edition, Text Revision (DSM-IV-TR)*¹⁰ defines alcohol abuse as a maladaptive pattern of use leading to clinically significant impairment or distress, as manifested by one or more of the following, within a 12-month period:

- Recurrent alcohol use resulting in a failure to fulfill major role obligations at work, school, or home;
- Recurrent alcohol use in situations in which it is physically hazardous;
- Recurrent alcohol-related legal problems;
- Continued alcohol use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of the alcohol; or
- The symptoms have never met the criteria for alcohol dependence.

Alcohol dependence is defined as a maladaptive pattern of use leading to clinically

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significant impairment or distress, as manifested by 3 or more of the following within the same 12-month period:

- Tolerance;
- Withdrawal;
- Alcohol used in larger amounts or over a longer period of time than intended;
- Persistent desire or unsuccessful efforts to cut down or control use;
- A great deal of time is spent in activities necessary to obtain alcohol or recover from its effects;
- Important social, occupational, or recreational activities are given up or reduced because of use; or
- Alcohol 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 alcohol.

Because these diagnostic criteria were developed largely from research and clinical work with adults, there are limitations to applying these definitions to classify alcohol use and associated risks to adolescents.¹¹⁻¹³ As *DSM-IV-TR* defined, alcohol abuse or dependence may not have had time to develop in an adolescent, especially a younger one, and yet the adolescent may be engaging in very risky behavior. Applicability is also potentially limited in that several of the criteria, such as withdrawal, are not typically experienced by adolescents, and other criteria, such as tolerance, have low specificity for adolescents.

Tolerance can be anticipated as a developmental process that will occur over time in most adolescents who drink.¹¹

Alcohol misuse can be defined as “alcohol-related disturbances of behavior, disease, or

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other consequences that are likely to cause an individual, his/her family, or society harm now or in the future.”¹⁴ Because the term “alcohol misuse” encompasses earlier stages of problematic alcohol use as well as alcohol dependence that do not meet diagnostic criteria, it may be a more useful concept clinically in pediatrics and when developing alcohol use primary prevention programs for youth.

In examining the use of drugs by US youth, the annual *Monitoring the Future Study* (sponsored by the National Institute on Drug Abuse and implemented by the University of Michigan)¹⁵ has consistently reported that the drug most commonly used by youth is alcohol, exceeding the use of tobacco and illicit drugs. The 2009 survey of more than 46,000 8th-, 10th-, and 12th-grade students in more than 380 schools nationwide reported that the prevalence of alcohol use in the previous 30 days had declined by more than one third since most recently peaking in 1996, but that less of a decline was found for older students. The prevalence of being drunk at least once in the prior month was 5.4% for 8th graders, 15.5% for 10th graders, and 27.4% for 12th graders. Prevalence of use in the previous 30 days of the relatively new flavored alcoholic beverages, also known as “alcopops” or “malternatives,” decreased somewhat since initial inclusion in this survey in 2004. Alcopop use in the prior 30 days was reported by 9.5% of 8th graders, 19.0% of 10th graders, and 27.4% of 12th graders in 2009. Recent ‘binge drinking,’ defined as the consumption of 5 or more drinks in a row on at least one occasion in the previous 2 weeks, has continued at a relatively stable level, with 7.8% of 8th graders, 17.5% of 10th graders, and 25.2% of 12th graders reporting this activity. Since the start of this century, more than 90% of 12th graders have reported that alcohol is “fairly easy” or “very easy” to get, and more than 60% of 8th graders say the same. These epidemiologic statistics are corroborated by

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data reported by 2 other large surveys of youth alcohol use in the United States—the Youth Risk Behavior Survey¹⁶ of the Centers for Disease Control and Prevention and the National Survey on Drug Use and Health (formerly the National Household Survey).¹⁷

Hazards of Use of Alcohol

When compared with use by adults, alcohol use by adolescents is much more likely to be episodic (“binge”) and heavy, making alcohol use by this age group particularly dangerous. Rapid binge drinking, possibly related to a bet or dare, puts the teenager at even higher risk of alcohol overdose or alcohol poisoning, in which suppression of the gag reflex and respiratory drive can be fatal. The adult definition of binge drinking (the consumption of 5 or more drinks in a row over approximately a 2-hour period) is often also used to describe adolescent or young adult alcohol use. Recent literature, however, suggests that for 9- to 13-year-old children and girls 14 to 17 years of age, binge drinking should be defined as 3 or more drinks. For boys, binge drinking should be defined as 4 drinks or more for those 14 or 15 years of age and 5 or more drinks for those 16 or 17 years of age.¹⁸

Alcohol use is the primary contributor to the leading causes of adolescent death (ie, motor vehicle crashes, homicide, and suicide) in the United States.¹⁹ Motor-vehicle crashes rank as the top cause of death for US teenagers and young adults. The Youth Risk Behavior Survey in 2007 found that during the 30 days preceding the survey, 29.1% of students nationwide had ridden one or more times in a car or other vehicle driven by someone who had been drinking alcohol, and 10.5% of students had driven a car or other vehicle at least once when they had been drinking alcohol.¹⁶ The impressive relationship of alcohol use and motor-vehicle crashes involving youth is also highlighted by the fact that after the legal drinking age was changed

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uniformly to 21 years across the United States, the number of motor-vehicle fatalities in individuals younger than 21 years significantly decreased.²⁰ Teenagers drink and drive less frequently than do adults, but their motor-vehicle crash risks are higher than those of adults when they do drink, especially at low and moderate blood alcohol concentrations.²¹

Lower minimum legal drinking ages in the United States have also been associated with higher youth suicide rates.²² The research literature consistently reports the association of alcohol use or abuse with other risk-taking behaviors, including assault, sexual-risk taking, and other drug use.^{12,13,23,24} Thus, alcohol use by adolescents is not safe, even when teenagers are not driving.

Alcohol misuse and alcohol use disorders in adolescents are associated with many other mental and physical disorders. Alcohol use disorders are a risk factor for suicide attempts.²⁵ Psychiatric conditions most likely to co-occur with alcohol use disorders include mood disorders, particularly depression; anxiety disorders; attention-deficit/hyperactivity disorder (ADHD); conduct disorders; bulimia; and schizophrenia.²³ Associated physical health problems include trauma sequelae,²⁶ sleep disturbance, modestly elevated serum liver enzyme concentrations, and dental and other oral abnormalities,²⁷ despite relatively few abnormalities being evident on physical examination.^{27,28}

Factors Contributing to Hazardous Use

Genetic and Familial Factors

Twin studies in adult populations have consistently demonstrated genetic influences on use and abuse of alcohol,²⁹⁻³¹ but less research has examined genetic influences on the adolescent age range.³²⁻³⁴ Through a sibling/twin/adoption study of adolescents, Rhee et al³⁵ examined the

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relative contribution of genetics and environment on initiation, use, and problem use of substances. This study demonstrated that for adolescents, compared with adult twin study findings, the magnitude of genetic influences was higher and that of shared environmental influences was lower for problem alcohol or drug use than for initiation of use.

Families play an important role in the development of alcohol and other drug problems in youth. Drug use by parents or older siblings and permissive parental attitudes toward drug use by young people predict greater risk of youth drug and alcohol use.^{36,37} Both parental monitoring of children's use and the convincing conveyance of household rules governing use aid in deterring alcohol use among youth.^{38,39} In the United States, 7 million children younger than 18 years are children of alcoholic parents. Children of alcohol abusers are at increased risk of many behavioral and medical problems, including delinquent behavior, learning disorders, ADHD, psychosomatic complaints, and problem drinking or alcoholism as adults.⁴⁰

Other Factors

Having friends who use alcohol, tobacco, or other substances is one of the strongest predictors of substance use by youth. Patterns of use in the community also predict individual substance use behaviors. Rates of use are higher in communities where alcohol and other drugs are less expensive and easily obtainable. Other risk factors for substance abuse include poor school performance, untreated ADHD, and conduct disorder.³⁶

Media influences on the use of alcohol by young people are substantial. Jernigan et al⁴¹ examined boys' and girls' exposure to magazine advertising for alcohol as compared with that of legal-aged adults and found that underaged youth saw 45% more beer and ale ads, 12% more distilled spirit ads, and 65% more low-alcohol refresher beverage ads (for "alcopops" or

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lemonades, iced teas, or fruity beverages containing alcohol) as well as 69% less wine advertising than did people 21 years or older. Exposure to alcohol advertising was greater for girls than for boys. Other media, such as television, movies, billboards, and the Internet, are known to be very influential in promoting alcohol use through attractive portrayals of use without associated negative consequences. Considerable research has shown that media exposure can make children and adolescents more likely to experiment with alcohol.^{42,43}

Adolescent Developmental and Neurobiological Factors

Over the past decade, great strides have been made in understanding the neurobiological basis of addiction. Studies investigating normal brain development have yielded information elucidating the effects of alcohol and other drugs on the adolescent brain. As summarized by Sowell et al,⁴⁴ postmortem studies show that myelination, a cellular maturational process of the lipid/protein sheath of nerve fibers, begins near the end of the second trimester of fetal development and extends well into the third decade of life and beyond. Autopsy results show both a temporal and spatial systematic sequence of myelination, which progresses from inferior to superior and posterior to anterior regions of the brain. This sequencing results in initial brain myelination occurring in the brainstem and cerebellar regions and myelination of the cerebral hemispheres and frontal lobes occurring last. Converging evidence from electrophysiological and cerebral glucose metabolism studies reveals relatively late frontal lobe maturation, and neuropsychological studies show that performance on tasks involving the frontal lobes continues to improve into adolescence.

Sowell et al⁴⁴ documented reduction in gray matter in the regions of the frontal cortex between adolescence and adulthood, probably reflecting increased myelination in the peripheral

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regions of the cortex. Grey matter loss, with pruning and elimination of neural connections during normative adolescent development, appears to reflect a sculpting process, turning the immature brain into a mature one.⁴⁵ These changes are thought to improve cognitive processing in adulthood. Neuropsychological studies show that the frontal lobes are essential for functions such as response inhibition, emotional regulation, planning, and organization, all of which may continue to develop between adolescence and young adulthood. Conversely, parietal, temporal, and occipital lobes show little change in maturation between adolescence and adulthood. Parietal association cortices are involved in spatial relationships and sensory functions, and the lateral temporal lobes are associated with auditory and language processing, and these functions are largely mature by adolescence. Hence, the observed patterns of brain maturational changes are consistent with cognitive development.⁴⁴ Connections are being fine-tuned in adolescence with the pruning of overabundant synapses and the strengthening of relevant connections with development and experience. The further development of the prefrontal cortex likely aids in the filtering of information and suppression of inappropriate actions.⁴⁵

The effects of alcohol and other drugs on the adolescent brain are probably multiple, because the immaturity or plasticity of the brain developmental processes likely confers greater vulnerability to both the toxic and the addictive actions of drugs, and drug use itself may directly affect brain development. The use of alcohol and drugs during early adolescence, coupled with genetic predisposition to substance abuse and addiction, may increase the magnitude of risk-taking during adolescence. All substances of abuse that lead to dependence share 2 common effects during withdrawal: a decrease in dopamine 2 (D2) receptors (which can lead to tolerance) and hypofunctioning of the prefrontal cortex. The effects of drugs and alcohol on an immature

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prefrontal cortex may increase the incentive to seek out substances of abuse, especially to decrease the effects felt during withdrawal.^{46,47} Continued use may impair an already immature prefrontal cortex and further affect decision-making once substance use begins.

Developmentally focused research on how alcohol affects the adolescent brain has started to demonstrate that adolescents with an alcohol use disorder employ fewer strategies to learn new information and demonstrate significantly reduced memory skills that continue to deteriorate with continued alcohol use. Neuroimaging studies of patients with adolescent-onset alcohol use disorders have documented reduced hippocampal volumes and subtle white matter abnormalities.³ Research continues to explore these brain developmental processes that may confer greater vulnerability to the addictive actions of drugs, including alcohol.²

National Call to Prevent and Reduce Underaged Drinking

In 2007, *The Surgeon General's Call to Action to Prevent and Reduce Underage Drinking*⁴⁸ was issued, after being developed in collaboration with the National Institute on Alcohol Abuse and Alcoholism (NIAAA) and the Substance Abuse and Mental Health Services Administration (SAMHSA). The Call to Action identifies 6 goals:

- Foster changes in American society that facilitate healthy adolescent development and that help prevent and reduce underage drinking.
- Engage parents and other caregivers, schools, communities, all levels of government, all social systems that interface with youth, and youth themselves in a coordinated national effort to prevent and reduce underage drinking and its consequences.

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- Promote an understanding of underage alcohol consumption in the context of human development and maturation that takes into account individual adolescent characteristics as well as environmental, ethnic, cultural, and gender differences.
- Conduct additional research on adolescent alcohol use and its relationship to development.
- Work to improve public health surveillance on underage drinking and on population-based risk factors for this behavior.
- Work to ensure that policies at all levels are consistent with the national goal of preventing and reducing underage alcohol consumption.

The report outlines specific strategies to implement these goals, including recommendations for parents and other caregivers; schools, colleges, and universities; communities; the criminal and juvenile justice systems and law enforcement; entertainment and media industries; the health care system; professional health care associations; and governments and policy makers.

Role of the Pediatrician

Pediatricians and other health care providers who care for children and adolescents should help prevent, identify, and treat alcohol and other substance use by youth. The American Academy of Pediatrics guidelines for the health care of children and adolescents recommend that pediatricians discuss substance use as part of anticipatory guidance and preventive care for children and adolescents.⁴⁹ Because of their understanding of family dynamics and long-standing relationships with families, pediatricians can identify substance-abusing families and facilitate their care.⁵⁰ Pediatricians can be involved in the primary prevention of alcohol misuse through educational and psychological interventions with youth. Although evaluation of such programs

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shows many methodologic weaknesses, there is some evidence supporting the effectiveness of family-focused prevention programs and culturally-focused skills training in the long-term prevention of alcohol misuse.¹⁴ Pediatricians should support parenting programs shown to reduce or prevent substance use by youth. The most effective programs emphasize active parental involvement and have components that emphasize development of social skills and promote a sense of personal responsibility among young people, as well as address issues related to substance abuse.⁵¹ Pediatricians also have an important advocacy role in health systems' changes as well as legislative efforts, such as increasing alcohol taxes,⁵² resisting efforts to weaken minimum drinking age laws, and implementing graduated driver licensing.²¹ A recent Cochrane review showed implementation of graduated driver licensing to be effective in reducing the crash rates of young drivers and, specifically, alcohol-related crashes in most studies in the United States and internationally.⁵³

The American Academy of Pediatrics recommends that pediatricians routinely screen and evaluate youth for substance use and provide office interventions and referrals for patients who are using alcohol or other substances.⁴⁹ The American Medical Association *Guidelines for Adolescent Preventive Services (GAPS)*⁵⁴ and the American Academy of Pediatrics *Bright Futures* guidelines⁵⁵ recommend that pediatricians and other health care providers who work with children and adolescents conduct routine annual substance use screening of all adolescents and use brief intervention techniques as indicated. In addition, it is recommended that pediatricians be familiar with community resources and refer patients with problematic use or a substance use disorder for treatment.⁵⁶ Despite these recommendations, primary care providers report many barriers to implementing alcohol and other drug use screening as a routine. Barriers

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to such screening have been identified to include insufficient time, lack of training to manage a positive screen, the need to triage competing medical problems, lack of treatment resources, a tenacious parent who will not leave the examination room, and unfamiliarity with screening tools.⁵⁷

Brief screening surveys for adolescent substance use are available and include the Alcohol Use Disorders Identification Test (AUDIT) developed by the World Health Organization,⁵⁸ the Problem Oriented Screening Instrument for Teenagers (POSIT) substance use/abuse scale developed by the National Institute on Drug Abuse,⁵⁹ and the CRAFFT, a 6 question, developmentally appropriate screening tool developed by Knight et al (see Table 1).⁶⁰ Although all 3 of these tools have acceptable sensitivity for identifying alcohol problems or disorders in 14- to 18-year-old adolescents,⁶¹ the CRAFFT has emerged as a quick, validated, reliable and easy-to-use screening tool that can be administered in the primary care setting in verbal or written format and has good discriminative properties for determining substance use disorders in adolescents.⁶² Test-retest reliability of the CRAFFT has been shown to be high, especially when the questions are prefaced with the phrase “in the past year” when office-based screening is performed.⁶³ Recently, the CRAFFT tool use has been integrated into an adolescent substance use screening, brief intervention, and referral to treatment algorithm and toolkit to augment pediatricians’ confidence and ability in responding effectively to screening results.⁶⁴

More research is still needed to aid in developing brief intervention strategies (ie, short, efficient, office-based techniques) that health care providers working with adolescents can use to detect and intervene with alcohol misuse. Motivational interviewing is one of the most promising brief intervention strategies that can be used in an office-based setting.⁶⁵ Motivational

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interviewing is a patient-centered, directive counseling style that builds on the intrinsic motivation of an individual. When conducting a motivational interview, the pediatrician or counselor creates a partnership with the adolescent patient to explore and resolve his or her ambivalence about behavioral change. Motivational interviewing is often associated with the transtheoretical model described by Prochaska and DiClemente,⁶⁶ who identified what they called “stages of change,” a continuum of readiness to change behavior. In this model, change is facilitated by matching the counseling strategy to the stage of patient readiness to change behavior. The essential spirit of motivational interviewing comprises 3 elements: collaboration, or forming a partnership with the patient; evocation, or using open-ended questions and reflections to help the patient determine his or her own motivation to change; and autonomy, or accepting that it is the adolescent’s responsibility to change his or her behavior and decide how the change will occur and that direct persuasion by a pediatrician or counselor is unlikely to be effective. Expressing empathy, developing discrepancy between goals and current behavior, ‘rolling’ with the resistance a patient may have (ie. avoiding arguing for change), and supporting patient self-efficacy are the 4 principles of motivational interviewing.⁶⁷

Research has shown that motivational interviewing as a counseling style has been effective in decreasing alcohol use in both younger and older adolescents.⁶⁸⁻⁷¹ A recent Cochrane review of primary prevention for alcohol misuse by young people noted that although much research investigating the effectiveness of alcohol interventions was of poor quality, there was “strong design and consistent pattern of results indicating potential value of motivational interviewing.”¹⁴ Further research is indicated to improve all aspects of adolescent substance abuse intervention and treatment.⁷²

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Specific recommendations regarding the best management tools and techniques for treatment can be found in the American Academy of Pediatrics statement “Adolescent Substance Abuse Screening, Brief Intervention and Referral to Treatment.”⁷³ For further information, please see the resources listed at the end of this statement.

RECOMMENDATIONS

Pediatricians and other health care providers who work with children and adolescents are recommended to:

1. Become knowledgeable about all aspects of adolescent alcohol, tobacco, and other substance use through participation in training program curricula and/or continuing medical education that provides current best practices training, including media literacy training.
2. Obtain a complete family medical and social history at prenatal and health supervision visits to explore potential genetic and family influences regarding alcohol and other substance use.
3. Recognize risk factors for alcohol (as well as other drug) use among youth and be aware of coexisting mental health problems, such as depression, that may occur in this age group.
4. Regularly screen for current alcohol (as well as other drug) use by adolescents and young adults, using nonjudgmental, validated screening methods and appropriate confidentiality assurances.
5. Assess patients screening positive for alcohol use to determine the appropriate level of intervention.

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6. Employ brief intervention techniques in the clinical setting and be familiar with motivational interviewing techniques to work with patients who use alcohol but do not meet criteria for immediate referral. Offer referral to treatment when indicated.⁷³
7. Discuss the hazards of alcohol and other substance use with patients as part of anticipatory guidance and patient/parent education at health supervision visits as well as when relevant at acute problem visits. Anticipatory guidance aligned with key school calendar events, such as prom and graduation, may be especially meaningful.
8. Strongly advise against the use of alcohol, tobacco, and other illicit drugs by youth.
9. Encourage parents to be good role models for healthy life choices and never allow underage drinking at their home or other property. Empower parents with the realization that their involvement with their adolescents is a powerful deterrent of substance abuse.
10. Be familiar with local resources to which various pediatric aged patients with alcohol use disorders, their parents and other family members can be referred for developmentally appropriate treatment.
11. Support adolescents with substance use disorders throughout and after their treatment.
12. Serve as a resource and support school and other community-based alcohol use prevention programs.
13. Support advocacy efforts to promote appropriate media modeling of alcohol consumption and consequences, including print media, television, film, and Internet.
14. Support advocacy efforts to promote legislation that reduces alcohol-related morbidity and mortality, such as graduated driver licensing; treatment parity from third-party payers; legal ramifications for parent sponsorship of adolescent drinking; increased

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alcohol excise taxes; and other prevention and treatment policies recommended in the Surgeon General's Call to Action.

15. Support continuation of age 21 as the minimum legal drinking age and support enforcement that decreases access to alcohol for minors.
16. Support further research into prevention, evidence-based screening and identification, brief intervention, and management and treatment of alcohol and other substance use by adolescents.

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RESOURCES

AAP Resources

Alcohol: Your Child and Drugs (patient education brochure)

Parent-Teen Driving Agreement and a Message to Parents of Teen Drivers (patient education brochure)

Substance Abuse Prevention (patient education brochure)

Substance Use Screening, Brief Intervention and Referral to Treatment for Pediatricians (policy statement, In press)

Tobacco, Alcohol and Other Drugs: Prevention, Identification and Management of Substance Abuse (policy statement)

Suggested Internet Resources

AAP District II, New York Chapter 2, Committee on Youth and Adolescence.
“Teen Parties in Your Home: A Guide for Parents”

<http://www.ny2aap.org/teenparties.pdf>

Al-Anon/Alateen

<http://www.al-anon.alateen.org/>

American Council for Drug Education

<http://www.acde.org/>

American Medical Association

Office of Alcohol and Other Drug Abuse

The National Office of the Robert Wood Johnson Foundation

Helping Patients Who Drink Too Much: A Clinician's Guide

<http://www.ama-assn.org/ama/pub/category/3337.html>

College Drinking – Changing the Culture

<http://www.collegedrinkingprevention.gov>

Monitoring the Future Study

<http://www.monitoringthefuture.org>

National Institute on Alcohol Abuse and Alcoholism

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<http://www.niaaa.nih.gov>

National Survey on Drug Use & Health (formerly called the National Household Survey on Drug Abuse) (NHSDA)

<http://www.oas.samhsa.gov/nhsda.htm>

Partnership for a Drug-Free America

<http://www.drugfree.org/>

US Department of Health and Human Services and SAMHSA's National Clearinghouse for Alcohol and Drug Information

<http://ncadi.samhsa.gov/>

Self-Help and Advocacy Group Resources

Alcoholics Anonymous - A.A. World Services, Inc.

PO Box 459

New York, NY 10163

Phone: 212/870-3400

Internet: <http://www.alcoholics-anonymous.org>

Mothers Against Drunk Driving (MADD)

National HQ

Victim Assistance and Book Orders

511 East John Carpenter Freeway, Suite 700

Irving TX 75062

Phone: 214/744-6233

Internet: <http://www.madd.org/>

Narcotics Anonymous World Services, Inc.

A. Main Office

PO Box 9999

Van Nuys, California 91409 USA

Telephone: 818/773-9999

Fax: 818/700-0700

B. WSO-Europe

48 Rue de l'Été/Zomerstraat

B-1050 Brussels, Belgium

Phone: 32-2-646-6012

Fax: 32-2-649-9239

Internet: www.na.org

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National Clearinghouse for Alcohol and Drug Information
PO Box 2345
Rockville, MD 20847-2345

Toll Free: 800/729-6686
Local Call: 301/468-2600
Hablamos Espanol: 811/767-8432
TDD: 800/487-4889
Fax: 301/468-6433
Internet: <http://ncadi.samhsa.gov/>

Students Against Destructive Decisions (formerly Students Against Drunk Driving) (SADD)
SADD National
255 Main Street
Marlborough, MA 01752

Phone: 877/SADD-INC
Fax: 508/481-575
Internet: <http://www.sadd.org/>

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REFERENCES

1. Giedd JN. The teen brain: insights from neuroimaging. *J Adolesc Health*. 2008;42(4):335-343
2. Chambers RA, Taylor JR, Potenza MN. Developmental neurocircuitry of motivation in adolescence: a critical period of addiction vulnerability. *Am J Psychiatry*. 2003;160(6):1041-1052
3. Brown SA, Tapert SF. Adolescence and the trajectory of alcohol use: basic to clinical studies. *Ann N Y Acad Sci*. 2004;1021:234-244
4. Grant BF, Dawson DA. Age at onset of alcohol use and its association with DSM-IV alcohol abuse and dependence: results from the National Longitudinal Alcohol Epidemiologic Survey. *J Subst Abuse*. 1997;9:103-110
5. Grant BF, Stinson FS, Harford TC. Age at onset of alcohol use and DSM-IV alcohol abuse and dependence: A 12-year follow-up. *J Subst Abuse*. 2001;13(4):493-504
6. DeWit DJ, Adlaf EM, Offord DR, Ogborne AC. Age at first alcohol use: A risk factor for the development of alcohol disorders. *Am J Psychiatry*. 2000;157(5):745-750
7. Steuve A, O'Donnell LN. Early alcohol initiation and subsequent sexual and alcohol risk behaviors among urban youths. *Am J Public Health*. 2005;95(5):887-893
8. Ellickson PL, Tucker JS, Klein DJ. Ten-year prospective study of public health problems associated with early drinking. *Pediatrics*. 2003;111(5 Pt 1):949-955
9. Biederman J, Faraone SV, Monuteaux MC, Feighner JA. Patterns of alcohol and drug use in adolescents can be predicted by parental substance use disorders. *Pediatrics*. 2000;106(4):792-797

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10. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR)*. Washington, DC: American Psychiatric Association; 2000
11. Martin CS, Winters KC. Diagnosis and assessment of alcohol use disorders among adolescents. *Alcohol Health Res World*. 1998;22(2):95-105
12. Clark DB. The natural history of adolescent alcohol use disorders. *Addiction*. 2004;99 (Suppl 2):5-22
13. Irons BL. Alcohol use disorders: a clinical update. *Adolesc Med Clin*. 2006;17(2): 259-282
14. Foxcroft DR, Ireland D, Lowe G, et al. Primary prevention for alcohol misuse in young people. *Cochrane Database Syst Rev*. 2002(3):CD003024
15. Johnston, L. D., O'Malley, P. M., Bachman, J. G., & Schulenberg, J. E. (December 14, 2009). "Teen marijuana use tilts up, while some drugs decline in use." University of Michigan News Service: Ann Arbor, MI. Retrieved 01/18/2010 from <http://www.monitoringthefuture.org>
16. Centers for Disease Control and Prevention. Youth risk behavior surveillance—United States, 2007. *MMWR Surveill Summ*. 2006;57(SS-4):1-131
17. National Survey on Drug Use and Health [formerly the National Household Survey on Drug Abuse]. Available at: <http://www.oas.samhsa.gov/nhsda.htm>. Accessed June 9, 2009
18. Donovan JE. Estimated blood alcohol concentrations for child and adolescent drinking and their implications for screening instruments. *Pediatrics*. 2009;123(6):e975-e981. Available at: <http://pediatrics.aappublications.org/cgi/content/full/123/6/e975>

Alcohol Use by Youth and Adolescents: A Pediatric Concern

19. National Institute on Alcohol Abuse and Alcoholism. Underage drinking: a major public health challenge. *Alcohol Alert*. April 2003;59. Available at: <http://pubs.niaaa.nih.gov/publications/aa59.htm>. Accessed June 9, 2009
20. Centers for Disease Control and Prevention. Alcohol-related traffic fatalities among youth and young adults—United States, 1982-1989. *MMWR Morb Mortal Wkly Rep*. 1991;40(11):178-179, 185-187
21. American Academy of Pediatrics, Committee on Injury, Violence, and Poison Prevention and Committee on Adolescence. The teen driver. *Pediatrics*. 2006;118(6):2570-2581
22. Birckmayer J, Hemenway D. Minimum-age drinking laws and youth suicide, 1970-1990. *Am J Public Health*. 1999;89(9):1365-1368
23. Simkin D. Adolescent substance use disorders and comorbidity. *Pediatr Clin North Am*. 2002;49(2):463-477
24. Champion HLO, Foley KL, Durant RH, Hensberry R, Altman D, Wolfson M. Adolescent sexual victimization, use of alcohol and other substances, and other health risk behaviors. *J Adolesc Health*. 2004;35(4):321-328
25. Windle M. Suicidal behaviors and alcohol use among adolescents: a developmental psychopathology perspective. *Alcohol Clin Exp Res*. 2004;28(5):29S-37S
26. Vitale S, van de Mheen D. Illicit drugs and injuries: a review of emergency room studies. *Drug Alcohol Depend*. 2006;82(1):1-9
27. Clark DB, Lynch KG, Donovan JE, Block GD. Health problems in adolescents with alcohol use disorders: self-report, liver injury, and physical examination findings and correlates. *Alcohol Clin Exp Res*. 2001;25(9):1350-1359

Alcohol Use by Youth and Adolescents: A Pediatric Concern

28. Arria AM, Dohey MA, Mezzich AC, Bukstein OG, Van Theil DH. Self-reported health problems and physical symptomatology in adolescent alcohol abusers. *J Adolesc Health*. 1995;16(3):226-231
29. Kaprio J, Koskenvuo M, Langinvainio H, Romanov K, Sarna S, Rose RJ. Genetic influences on use and abuse of alcohol: a study of 5638 adult Finnish twin brothers. *Alcohol Clin Exp Res*. 1987;11(4):349-356
30. Kendler KS, Prescott CA, Neale MC, Pedersen NL. Temperance board registration for alcohol abuse in a national sample of Swedish males twins, born 1902-1949. *Arch Gen Psychiatry*. 1997;54(2):178-184
31. McGue M, Pickens RW, Svikis DS. Sex and age effects on the inheritance of alcohol problems: a twin study. *J Abnormal Psychol*. 1992;101(1):3-17
32. Han, McGue M, Iacono WG. Lifetime tobacco, alcohol and other substance use in Minnesota twins: univariate and multivariate behavioral genetic analyses. *Addiction*. 1999;94(7):981-993
33. Maes HH, Woodard CE, Murrelle L, et al. Tobacco, alcohol and drug use in eight- to sixteen-year-old twins: the Virginia Twin Study of Adolescent Behavioral Development. *J Stud Alcohol*. 1999;60(3):293-305
34. McGue M, Elkins I, Iacono WG. Genetic and environmental influences on adolescent substance use and abuse. *Am J Med Genet*. 2000;96(5):671-677
35. Rhee SH, Hewitt JK, Young SE, Corley RP, Crowley TJ, Stallings MC. Genetic and environmental influences on substance initiation, use, and problem use in adolescents. *Arch Gen Psychiatry*. 2003;60(12):1256-1264

Alcohol Use by Youth and Adolescents: A Pediatric Concern

36. Hawkins JD. Risk and protective factors and their implications for preventive interventions for the health care professional. In: American Academy of Pediatrics. *Substance Abuse: A Guide for Health Professionals*. 2nd ed. Schydlower M, ed. Elk Grove Village, IL: American Academy of Pediatrics; 2001
37. Foley KL, Altman D, Durant RH, Wolfson M. Adults' approval and adolescents' alcohol use. *J Adolesc Health*. 2004;35(4):345.e17-345.e26
38. Jackson C, Henriksen L, Dickinson D. Alcohol-specific socialization, parenting behaviors, and alcohol use by children. *J Stud Alcohol*. 1999;60(3):362-367
39. Yu J. The association between parental alcohol-related behaviors and children's drinking. *Drug Alcohol Depend*. 2003;69(3):253-262
40. Adger H. Problems of alcohol and other drug use and abuse in adolescents. *J Adolesc Health*. 1991;12(8):606-613
41. Jernigan DH, Ostroff J, Ross C, O'Hara JA. Sex differences in adolescent exposure to alcohol advertising in magazines. *Arch Pediatr Adolesc Med*. 2004;158(7):629-634
42. Strasburger VC. Alcohol advertising and adolescents. *Pediatr Clin North America*. 2002;49(2):353-376
43. American Academy of Pediatrics, Committee on Communications. Children, adolescents, and advertising. *Pediatrics*. 2006;118(6):2563-2569
44. Sowell ER, Thompson PM, Holmes CJ, Jernigan TL, Toga AW. In vivo evidence for post-adolescent brain maturation in frontal and striatal regions. *Nat Neurosci*. 1999;2(10):859-861
45. Casey BJ, Tottenham N, Liston C, Durston S. Imaging the developing brain: what have

Alcohol Use by Youth and Adolescents: A Pediatric Concern

- we learned about cognitive development? *Trends Cogn Sci.* 2005;9(3):104-110
46. Koob G, LeMoal M. Addiction and the brain antireward system. *Annual Rev Psychol.* 2008;59:29-53
 47. Volkow, ND, Wang GJ, Fowler, JS, et al. Brain DA D2 receptors predict reinforcing of stimulants in humans: replication study. *Synapse.* 2002;46(2):79-82
 48. US Department of Health and Human Services. The Surgeon General's Call to Action to Prevent and Reduce Underage Drinking. Rockville, MD: US Department of Health and Human Services, Office of the Surgeon General; 2007
 49. Kulig JW; American Academy of Pediatrics, Committee on Substance Abuse. Tobacco, alcohol, and other drugs: the role of the pediatrician in prevention, identification and management of substance abuse. *Pediatrics.* 2005;115(3):816-821
 50. Werner MJ, Joffe A, Graham AV. Screening, early identification, and office-based intervention with children and youth living in substance abusing families. *Pediatrics.* 1999;103(5 Pt 2):1099-1112
 51. Petrie J, Bunn F, Byrne G. Parenting programmes for preventing tobacco, alcohol or drugs misuse in children <18: a systematic review. *Health Educ Res.* 2006;22(2):177-191
 52. National Research Council and Institute of Medicine (2004). *Reducing Underage Drinking: A Collective Responsibility.* Committee on Developing a Strategy to Reduce and Prevent Underage Drinking. Bonnie RJ and O'Connell ME, Editors. Board on Children, Youth and Families, Division of Behavioral and Social Sciences and Education. Washington, DC: The National Academies Press

Alcohol Use by Youth and Adolescents: A Pediatric Concern

53. Hartling L, Wiebe N, Russell K, Petruk J, Spinola C, Klassen TP. Graduated driver licensing for reducing motor vehicle crashes among young drivers. *Cochrane Database Syst Rev*. 2004;(2)CD003300
54. American Medical Association. *Guidelines for Adolescent Preventive Services (GAPS)*. Elster A, Kuznets N, eds. Baltimore, MD: Williams & Wilkins; 1994
55. American Academy of Pediatrics, Bright Futures Steering Committee. *Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents*. 3rd ed. Hagan JF, Shaw JS, Duncan P, eds. Elk Grove Village, IL: American Academy of Pediatrics; 2007
56. Adger H Jr, McDonald DI, Wenger S. Core competencies for involvement of health care providers in the care of children and adolescents in families affected by substance abuse. *Pediatrics*. 1999;103(5 Pt 2):1083-1084
57. Van Hook S, Harris SK, Brooks T, et al. The “Six T’s”: barriers to screening teens for substance use in primary care. New England Partnership for Substance Abuse Research. *J Adolesc Health*. 2007;40(5):456-461
58. Babor T, de la Fuente J, Saunders J, Grant M. *AUDIT: The Alcohol Use Disorders Identification Test: Guidelines for Use in Primary Health Care*. Geneva, Switzerland: World Health Organization; 1992
59. US Department of Health and Human Services, Alcohol, Drug Abuse, and Mental Health Administration. *The Adolescent Assessment/Referral System Manual*. Rahdert E, ed. Rockville, MD: US Department of Health and Human Services; 1991. DHHS Publication No. (ADM)91-1735

Alcohol Use by Youth and Adolescents: A Pediatric Concern

60. Knight JR, Schrier LA, Bravender TD, Farrell M, Vander Bilt J, Shaffer HJ. CRAFFT: a new brief screen for adolescent substance abuse. *Arch Pediatr Adolesc Med.* 1999;153(6):591-596
61. Knight JR, Sherritt Harris SK, Gates EC, Chang G. Validity of brief alcohol screening tests among adolescents: a Comparison of the AUDIT, POSIT, CAGE, and CRAFFT. *Alcohol Clin Exp Res.* 2003;27(1):67-73
62. Knight JR Sherritt L, Shrier LA, Harris SK, Chang G. Validity of CRAFFT substance abuse screening test among adolescent clinic patients. *Arch Pediatr Adolesc Med.* 2002;156(6):607-614
63. Levy S, Harris SK, Sherritt L, Angulo M, Knight JR . Test-retest reliability of adolescents' self-report of substance use. *Alcohol Clin Exp Res.* 2004;28(8):1236-1241
64. Massachusetts Department of Public Health Bureau of Substance Abuse Services, Adolescent Screening, Brief Intervention, and Referral to Treatment Using the CRAFFT Screening Tool. Boston, MA, Department of Public Health, 2009
65. Kokotailo PK, Gold MA. Motivational interviewing with adolescents. *Adolescent Medicine: State of the Art Reviews* 2008;19(1):54-68
66. Prochaska JO, DiClemente CC. Stages and processes of self-change of smoking: toward an integrative model of change. *J Consult Clin Psychol.* 1983;51(3):390-395
67. Gold MA, Kokotailo PK. Motivational interviewing strategies to facilitate adolescent behavior change. *Adolesc Health Update.* 2007;20(1):1-10
68. Monti PM, Spirito A, Myers M, et al. Brief intervention for harm reduction with alcohol-positive older adolescents in a hospital emergency department. *J Consult Clin Psychol.*

Alcohol Use by Youth and Adolescents: A Pediatric Concern

- 1999;67(6):989-994
69. Spirito A, Monti PM, Barnett NP, et al. A randomized clinical trial of a brief motivational intervention for alcohol-positive adolescents treated in an emergency department. *J Pediatr.* 2004;145(3):396-402
70. Baer JS, Kivlahan DR, Blume AW, et al. Brief intervention for heavy-drinking college students: 4-year follow-up and natural history. *Am J Public Health.* 2001;91(8):1310-1316
71. Marlatt GA, Baer JS, Kivlahan DR, et al. Screening and brief intervention for high-risk college student drinkers: results from a 2-year follow-up assessment. *J Consult Clin Psychol.* 1998;66(4):604-615
72. Colby SM, Lee CS, Lewis-Esquerre J, Esposito-Smythers S, Monti PM. Adolescent alcohol misuse: methodological issues for enhancing treatment research. *Addiction.* 2004;99(Suppl 2):47-62
73. Kokotailo PK; American Academy of Pediatrics, Committee on Substance Abuse. Substance use screening, brief intervention, and referral to treatment for pediatricians. *Pediatrics.* In press.

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Table 1. CRAFFT^a Questions: A Brief Screening Test of Adolescent Substance Abuse

C	Have you ever ridden in a CAR driven by someone (including yourself) who was “high” or had been using alcohol or drugs?
R	Do you ever use alcohol or drugs to RELAX , feel better about yourself, or fit in?
A	Do you ever use alcohol or 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?

^a Two or more “Yes” answers suggest a significant problem, abuse, or dependence.

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