EXECUTIVE SUMMARY

Objective: To review the current terminology and clinical definitions relevant to substance use, the epidemiology of substance-use disorders and their public health impact, and the neurobiology of addiction; and to provide a general overview of the evaluation and treatment of patients with substance use disorders and of efforts directed to preventing substance use in youth.

Methods: English-language reports on studies using human subjects were selected from a MEDLINE search of the literature from 1995 to March 2008 using the terms “addiction,” “substance” and/or “drug” in combination with “use,” “abuse,” “dependence,” “disorder,” “epidemiology,” and “treatment.” Additional articles were identified by manual review of the references cited in these publications. Web sites of the National Institute on Drug Abuse, National Institute on Alcohol Abuse and Alcoholism, Substance Abuse and Mental Health Services Administration, Centers for Disease Control and Prevention, American Society of Addiction Medicine, American Academy of Child and Adolescent Psychiatry, American Academy of Pediatrics, American Academy of Family Physicians, and the American College of Physicians were searched for relevant publications.

Results: Although some overall trends are encouraging, millions of Americans engage in patterns of substance use that are harmful, and a substantial proportion meet diagnostic criteria for substance use disorders. Substance use is a leading cause of morbidity and mortality. Addiction is now recognized as a chronic disease, attributable in part to long-term changes in the patterns of neuronal activity and connections. Effective prevention and treatment interventions are available, but many who need treatment never receive it.

Conclusion: Substance use disorders are common in the United States, affecting a disproportionate share of adolescents and young adults. More attention needs to be devoted to both screening for alcohol and drug use, and to treatment for substance use disorders, including office-based brief interventions with behavioral components, and/or referral for appropriate treatment of substance use disorders. Future research efforts should focus on implementation strategies to facilitate adoption of these practices into routine health care.
Resolution 421, introduced by the Texas Delegation and adopted by the House of Delegates at the 2007 American Medical Association (AMA) Annual Meeting, asked that our AMA study ways in which it can be supportive in communicating the fact that substance use disorder is: (1) a potentially lethal but treatable disease; and (2) one that may be preventable with early education and intervention. The resolution further asked that such efforts be directed at youth to help them understand these diseases and their treatments and to stave off peer pressure to experiment with potentially addictive substances.

To provide some clarity, and to substantiate the need to better address substance use disorders, this report focuses on the current terminology and clinical definitions relevant to substance use, the epidemiology of substance-use disorders and their public health impact, and the neurobiology of addiction. A general overview is provided, but a detailed discussion about the evaluation and treatment of patients with substance use disorders, or efforts directed to preventing substance use in youth, is beyond the scope of this report. The recommendations address, in part, the need for our AMA to continue activities and/or partnerships designed to reduce the public health impact of substance use disorders.

Methods

English-language reports on studies using human subjects were selected from a MEDLINE search of the literature from 1995 to March 2008 using the terms “addiction,” “substance” and/or “drug” in combination with “use,” “abuse,” “dependence,” “disorder,” “epidemiology,” and “treatment.” Additional articles were identified by manual review of the references cited in these publications. Web sites of the National Institute on Drug Abuse, National Institute on Alcohol Abuse and Alcoholism, Substance Abuse and Mental Health Services Administration, Centers for Disease Control and Prevention, American Society of Addiction Medicine, American Academy of Child and Adolescent Psychiatry, American Academy of Pediatrics, American Academy of Family Physicians, and the American College of Physicians were searched for relevant publications.

The Public Health Impact of Substance Use

Virtually every physician encounters patients or family members affected by substance-related conditions. A number of national studies and published reports indicate that substance use, including the nonmedical use of controlled substances, is a continuing concern and represents a significant public health problem, particularly among teens and young adults. Nonmedical use is...
defined as the use of prescription medications without a prescription, or use that is directed primarily toward the subjective experiences caused by the substance.

Prevalence Data. The annual National Survey on Drug Use and Health (NSDUH), sponsored by the Substance Abuse and Mental Health Services Administration (SAMHSA), is the primary source of information on the use of illicit drugs, alcohol, and tobacco in the civilian population, aged 12 years and older, in the United States. According to the 2006 survey, more than 20 million Americans were current (i.e., within the last 30 days) illicit drug users, including 7 million individuals who reported past month nonmedical use of prescription drugs.

In 2006, ~73 million Americans aged 12 years or older were current users of a tobacco product. Among high school youth, current use of cigarettes decreased significantly from the late 1990s to 2003 but rates have since leveled off. Young adults aged 18 to 25 years have the highest rate of current tobacco use (~44%). This represents a small decrease from the 2002 rate of 45.3%, although the rate of current use of smokeless tobacco in youths aged 12 to 17 years and young adult current use of cigars increased during this period. In 2006, the prevalence of current use of a tobacco product was highest in American Indians or Alaska Natives, and lowest among Asians.

With regard to alcohol, underage (illegal) use rates rise from 4% among 12- or 13-year-olds to 52% for those aged 18 to 20 years. Legal adult use rates peak at 69% among 21- to 25-year-olds and decrease with age, eventually decreasing to ~38% among people aged 65 years and older. Overall, the alcohol use rate of those 18 years and older is ~65%. Among youth, whites in 2006 were more likely than other racial/ethnic groups to report current use of alcohol, while Asians were least likely. The recent Surgeon General’s Call to Action to Prevent and Reduce Underage Drinking provides additional information on the scope of the problem in youth.

The National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) conducted by the National Institute on Alcohol Abuse and Alcoholism (NIAAA) defines high risk drinking as no more than 4 standard drinks a day for men and no more than 3 a day for women and/or weekly limits of no more than 14 standards drinks for men and 7 for women (similar to NSDUH). Nearly 30% of the population over 18 years of age exceeded either the daily or weekly limits for alcohol consumption in 2002, and the prevalence of those exceeding the weekly limits increased from 9.4% to 10.3% between 1992 and 2002.

Binge drinking (≥5 drinks on at least one occasion in the past month) affects at least 57 million individuals annually. Rates of binge drinking episodes among minors peak at 36% (18- to 20-year-olds), and among adults at 46% (aged 21 to 25 years), decreasing to 18.4% of persons aged 35 years or older. Importantly, nearly half of binge-drinking episodes occur among otherwise moderate (non-heavy) drinkers, and nearly three-quarters of all binge drinkers are otherwise moderate drinkers. Compared with non-binge drinkers, binge drinkers are 14 times more likely to drive while impaired by alcohol.

Except for the underage illicit use of alcohol and tobacco, marijuana continues to be the most commonly used illicit drug (14.8 million past month users). Nonmedical use of prescription drugs is the next most common, followed by cocaine, heroin, hallucinogens, and methamphetamine. Current illicit drug use varied by race/ethnicity in 2006. Among persons aged 12 years or older, the rate was lowest among Asians (3.6%) and highest (13.7%) among American Indians or Alaska Natives.

Combined data from the 2002-2004 NSDUH surveys indicate that nonmedical use of prescription pain relievers was second only to marijuana use as the most prevalent drug misuse behavior, with
the highest rates occurring in young adults aged 18 to 25 years.\textsuperscript{1} Although illicit drug use rates declined modestly overall in teens and young adults between 2002 and 2006, the proportion of young adults reporting current nonmedical use of prescription drugs in the NSDUH increased from 5.4\% to 6.4\%. Similarly, the 2007 Monitoring the Future survey continued to show encouraging trends reflecting overall lower use of illicit drugs and alcohol in America’s youth, except for the nonmedical use of prescription pain relievers, which maintained an elevated rate of use.\textsuperscript{6}

\textbf{Patients Meeting Criteria for Substance Abuse and Dependence.} Nearly 5\% of the population aged 18 years and older met \textit{Diagnostic and Statistical Manual of Mental Disorders} (DSM)-IV criteria (see below) for alcohol abuse, and 3.8\% met the criteria for alcohol dependence.\textsuperscript{9} Highest rates were in 18- to 29-year-olds. Among people who had developed alcohol dependence in the year prior to the survey and sought treatment, 25\% were still dependent, 27\% were in partial remission, 12\% were in remission but drinking at levels that put them at risk for relapse, 18\% were low risk drinkers, and a comparable number were totally abstinent.\textsuperscript{7} However, 75\% of this population never received treatment. Approximately 36 million cigarette smokers (14.4\% of the total population) currently meet the criteria for nicotine dependence.

According to NSDUH, an estimated 22.6 million persons (9.2\% of the population ≥12 years of age) were classified with substance dependence (excluding nicotine) or substance abuse in 2006 based on DSM, 4th edition, text revision (DSM IV-TR) criteria.\textsuperscript{1} Of these, 3.2 million were classified with dependence on or abuse of both alcohol and illicit drugs, 3.8 million were dependent on or abused illicit drugs but not alcohol, and 15.6 million were dependent on or abused alcohol but not illicit drugs.

\textbf{Emergency Room Visits.} The Drug Abuse Warning Network (DAWN) covering 21 metropolitan areas (with samples from the rest of the country) receives reports of emergency department (ED) episodes related to recent drug use including illegal drugs, prescription and over-the-counter (OTC) drugs, dietary supplements, and alcohol in minors or in combination with other drugs in adults (data are not collected if alcohol is the only substance involved in patients aged 21 years or older).\textsuperscript{8} In 2005, 1.45 million ED visits were associated with drug misuse or abuse. Approximately 56\% involved an illicit drug; 34\% involved alcohol; and 41\% involved the nonmedical use of prescription drugs, OTC pharmaceuticals, or dietary supplements; the latter represented a 21\% increase from 2004. ED-related visits increased 33\% for stimulants, 24\% for opioid analgesics, and 19\% for benzodiazepines. DAWN data cannot be used to identify whether the drugs were obtained from a legitimate prescription, as opposed to other sources.

\textbf{Treatment Facilities.} Additional data on problems with substance use disorders emanate from the Treatment Episode Data Set (TEDS) report, which provides information on the demographic and substance use characteristics of the annual admissions to treatment for alcohol and drug use disorders in facilities that are licensed or certified by the state substance abuse agency.\textsuperscript{9} Five substances accounted for 95\% of all TEDS admissions in 2005: alcohol (39\%), opiates (17\%), marijuana (16\%), cocaine (14\%), and stimulants (9\%; primarily methamphetamine). TEDS admissions for primary abuse of opiates other than heroin increased from 1\% of all admissions in 1995 to ~4\% in 2005. The proportion of admissions for primary marijuana abuse increased from 10\% in 1995 to 16\% in 2005, and for methamphetamine or amphetamine from 4\% to 9\% between

\textsuperscript{\textsuperscript{α}DSM-IV did not use the term “addiction,” although many clinicians and educators use “addiction” synonymously with the term “substance dependence.” This may change in the forthcoming revision (DSM V).

In summary, nearly 1 in 7 Americans meets the criteria for alcohol abuse or dependence during their lifetime, another 1 in 7 is currently dependent on nicotine, and about half this number meets the criteria for illicit drug abuse or dependence. A substantial number of other Americans engage in patterns of substance use that are harmful to themselves and/or others. Overall, these survey data confirm the current magnitude of substance use and addiction in the United States.

Costs and Comorbidities

Substance use disorders seldom occur in isolation. According to the most recent NESARC data, 18% to 20% of the U.S. population with a substance use disorder have a co-occurring independent anxiety or mood disorder. Among those seeking treatment for a drug-use disorder, 60% had at least one independent mood disorder, 43% at least one independent anxiety disorder, and 55% a comorbid alcohol use disorder. The risk relationship is reciprocal, with psychiatric disorders predicting increased risk of substance use and vice versa. Similarly, drug use disorders are far more common among persons with alcohol use disorders, and alcohol use disorders are far more common among persons with drug use disorders than among those in the general population. Individuals with substance use disorders also have an increased prevalence of chronic medical conditions and are at greater risk for human immunodeficiency virus (HIV) and other sexually transmitted diseases.

Combined, substance use disorders are the leading cause of death and disability in this country. Annually, the single leading actual cause of death in the United States is tobacco use (435,000 deaths; 16.6%), almost always among persons suffering from nicotine addiction; alcohol consumption is third (85,000; 3.5%) and illicit use of drugs is ninth (17,000; 0.7%). These substances also are factors in other leading causes of death including infectious diseases (including HIV, hepatitis B virus, and hepatitis C virus infections), toxic exposures, motor vehicle crashes, and incidents involving firearms. More persons die in America from alcohol-induced injuries (trauma) than from alcohol-induced illnesses.

Contributors to the economic costs of substance misuse and addiction are health care expenditures for substance use services and the medical consequences of use, lost earnings due to impaired job performance, social welfare administrative costs, and increased demands on the juvenile and criminal justice system, as well as other impacts on society from violence, crime, and accidents. The attributable costs related to substance use disorders exceed $500 billion annually. However, more than 95% of the health care dollars devoted to substance use and addiction is spent on treatment of the medical consequences of addiction, versus less than 5% on treatment of addiction itself. Less than one-half of 1% of U.S. health care expenditures goes to treatment for substance use disorders themselves.

Terminology and Definitions

The terminology used in this field continues to cause some confusion. Most drug or alcohol users do not meet the criteria for substance abuse or dependence. Rather, there are patterns of use that include “substance use,” “misuse or risky use,” “harmful use” or “abuse,” as well as “dependence” or “addiction,” each with different implications.

Diagnostic Criteria. DSM IV-TR uses an umbrella category “substance-related disorders,” which is further subdivided into two groups: the substance use disorders (substance dependence and
substance abuse), and the substance-induced disorders (i.e., intoxication, withdrawal, other
medical or psychiatric disorders, or health problems attributable to substance use). Descriptive
criteria for substance dependence and abuse (see Appendix) are intended to be applicable across
most classes of substances.

Most notably, substance dependence is defined as “a maladaptive pattern of substance use,
leading to clinically significant impairment or distress,” manifested by at least 3 of 7 criteria
within a 12-month period, including: (1) tolerance; (2) withdrawal symptoms; (3) increased
dosage or length of use; (4) persistent desire or unsuccessful efforts to cut down or control use;
(5) inordinate amount of time devoted to substance retrieval, use, or recovery from use; (6)
important activities are affected because of use; and (7) use is continued despite knowledge of
harm.

Substance abuse is defined as “a maladaptive pattern of substance use leading to clinically
significant impairment or distress, manifested by at least 1 of 4 criteria within a 12-month period.
These criteria are: (1) recurrent use causing failure to fulfill major role obligations; (2) recurrent
use in hazardous situations; (3) recurrent use causing substance-related legal problems; and (4)
continued use despite persistent or recurrent social or interpersonal problems caused or
exacerbated by the substance.

The DSM IV-TR criteria for substance dependence and substance abuse are generally applicable
to alcohol, opioids, sedative-hypnotics/anxiolytics, amphetamine, cocaine, and cannabis. Some
dependence criteria may not apply to hallucinogens, phencyclidine, and inhalants. For nicotine,
dependence, but not abuse, is a diagnostic entity (although, ironically, the International
Classification of Diseases [ICD]-9 code for “tobacco use disorder” falls numerically among the
other forms of “substance abuse”—the 305.xx series—rather than among other forms of
“substance dependence”—the 304.xx series).

Accordingly, addiction is one of the substance-use disorders. Addiction is defined as:

…a primary, chronic, neurobiological disease, with genetic, psychosocial, and
environmental factors influencing its development and manifestations. It is characterized
by behaviors that include one or more of the following: impaired control over drug use,
compulsive use, continued use despite harm, and craving.

It is now generally accepted that addiction is a brain disease (see below), often progressive, and
with a chronic relapsing/remitting course in which compulsive drug-seeking and drug-taking
behavior persist, even in the face of harmful health, social, and in some cases, legal
consequences. Addiction is distinct from tolerance and physical dependence. That is, tolerance
and physical dependence can develop to substances in the absence of behaviors that constitute
addiction.

Still other terms were used in the 2006 Institute of Medicine (IOM) Report entitled “Improving
the Quality of Health Care for Mental and Substance-Use Conditions.” This report discussed the
epidemiology of substance-use “conditions” or “illnesses” and their treatment, documenting
discrepancies between substance use care that is known to be effective, and care that is actually
delivered.

With regard to alcohol, various terms associated with patterns of misuse have been used. A 1990
report by the IOM broadened the base by referring to alcohol problems consistent with the
concept that a continuum exists for the pattern of use and potential harms. The NIAAA uses
substance dependence or abuse per DSM IV-TR, and at-risk drinking. The limits above which risks increase are more than 2 drinks daily for men, and more than 1 drink daily for women or those over 65 years of age. Risky drinkers are those who exceed daily or weekly limits; harmful drinkers experience harm associated with their alcohol use, but do not meet the DSM IV-TR criteria for substance abuse or dependence.

In concert with the definition of addiction, alcoholism is defined as:18,19

…a primary, chronic disease with genetic, psychosocial, and environmental factors influencing its development and manifestations. The disease is often progressive and fatal. It is characterized by continuous or periodic: impaired control over drinking, preoccupation with the drug alcohol, use of alcohol despite adverse consequences, and distortions in thinking, most notably denial.

Neuropathological Basis of Addiction

Most people who experiment with illicit drugs or alcohol or who are exposed to opioids, stimulants, or sedative-hypnotics during medical treatment do not develop a substance use disorder. Addictive substances can induce pleasant states or euphoria in the initiation phase and/or relieve distress from anxiety, depression, fear, feelings of hopelessness, and so forth. Continued use of some substances triggers adaptive changes in the central nervous system leading to tolerance and physical dependence. In some individuals, ongoing substance use gives rise to a condition in which environmental stimuli (cues) associated with substance use itself induce conditioned responses (craving; drug-seeking behavior) in the absence of the drug.20 The motivational hierarchy of persons with addiction differs from that of persons without addiction or from that which they manifested prior to the onset of addiction: substance use or procuring drug supplies takes a salient position as a positive reinforcer, displacing other rewards such as pro-social reinforcements derivable from work, educational achievement, family, intimate relationships, recreational pursuits, and community involvement. Relapse and vulnerability to relapse are key elements to maintaining substance use. Vulnerability to developing a substance use disorder is based on interplay of the characteristics of the substance; substance availability and cost; genes; environmental influences; social interactions; developmental history and experiences;21 and other host factors, including the presence of other psychiatric disorders.22-24

Specific neurologic substrates have been identified on the basis of neuroimaging studies in humans and gene targeting in animals, assisted by the availability of specific receptor agonists and antagonists.20 Neuroimaging techniques have measured neural effects as they occur or following drug exposures, how they change and persist in the brains of individuals with substance use disorders, and how they remit after periods of abstinence. Substances that are neurotoxic with chronic use (e.g., alcohol, methamphetamine, cocaine) induce changes that are evident at a gross structural level.

Alcohol and other substances that are misused enhance specific brain neurochemical pathways in a fashion similar to other natural rewards (e.g., food, sex), only in a more intense and prolonged manner. Dopamine-containing projections from the ventral tegmental area to the nucleus accumbens are a key component in brain reward circuitry. Activity in this dopamine pathway plays a pivotal role in coding reward (and its saliency), predicting reward, and the motivation to pursue it. The pathway also is involved in priming cortical regions that exert inhibitory control and executive function (choice), and in conditioned or learned responses.20 By mimicking the brain effects of natural rewards that serve biological needs, addictive drugs exert their capacity to shape behavior.25
Although the initial activation of this pathway is critical for drugs to reinforce behavior and promote substance misuse, addiction is associated with long-term changes in brain circuitry in higher cortical pathways and associative loops. Repeated administration of the substance triggers (long-term) synaptic changes in higher brain regions and excitatory neuropathways as learned associations with drug-related events are formed. Ultimately, these changes modify (diminish) how the brain perceives the value of natural rewards, and dampens the capacity of the prefrontal cortex to exert cognitive control over drug seeking, while at the same time enhancing responsiveness to cues and drug-associated stimuli. On a behavioral level, the individual transitions from experiencing the acute drug effects to patterns of recreational use, and then the pathological states of abuse or addiction. This pattern typically occurs with high frequency and often with great rapidity among nicotine users. The persistence of addiction is based on the remodeling of synapses and brain circuits similar to the process of long-term associative memory, wherein drug-associated environmental stimuli or cues have inordinate power in directing behavior. The persistence of changes in brain activity of persons with addiction explains the persistence of behaviors, altered motivational hierarchies, cue responses, and craving, that can persist for long periods after the cessation of substance use (e.g., for years after a nicotine addict’s last cigarette). These changes have obvious implications for the required course and effectiveness of treatment in individuals with addiction.

Treatments Are Effective

To be effective, treatment must address the individual’s substance use; use behaviors; and any associated medical, psychiatric, social, vocational, and legal problems. For individuals with risky use, harmful use, or substance abuse, treatment is directed toward detoxification and/or resolution of withdrawal symptoms as needed, motivation to change, moderation in use or use patterns, minimization of problems from use, and harm reduction. For individuals with addiction, treatment (with abstinence as a goal) is focused on detoxification and resolution of withdrawal symptoms, fostering behavioral changes to eliminate drug use behaviors, and bolstering personal responsibility for wellness, in order to decrease the frequency and severity of relapses, increase the duration of remission, and optimize functioning. To accomplish rehabilitation, cognitive, affective, and social changes are necessary in addition to behavior change.

Organizing care to address concurrent conditions, such as by integrating alcohol and drug treatment with other medical care, and combining treatment for substance use and mental health problems also optimizes outcomes. Treatment can be hampered by the stigma associated with substance use as well as by patient variables including impaired self-management capabilities; in some cases, treatment entry may have been coerced. Additionally, the mode of clinical practice; features of certain state medical practice acts; the varied composition of the health care workforce delivering care for patients with substance use disorders; failure to screen, identify, or intervene; and discriminatory insurance coverage impede the delivery of patient-centered care.

Treatment for substance use disorders is delivered in different settings, using a variety of approaches. Because addiction is a chronic disease, management and recovery from it (restored functioning and, ideally, sustained abstinence), may, as with other chronic diseases, be a long-term process requiring repeated treatment interventions.
Psychosocial interventions typically are delivered as:

- Outpatient treatments ranging from primarily education and counseling for individuals and families, to programs that also treat comorbid mental health or medical problems, to intensive day treatment.
- Short-term residential programs with inpatient treatment followed by extended outpatient therapy, often supplemented by participation in a self-help group.
- Long-term residential or therapeutic community treatment programs.

In adults, general approaches include cognitive behavioral therapy for relapse prevention, supportive-expressive psychotherapy or individualized drug counseling, motivational enhancement to encourage treatment acceptance and adherence and discontinue drug use, and contingency management. Individual, group, and family approaches all have utility. Brief advice and office-based counseling interventions (see below) have been used in patients with alcohol use disorders and nicotine dependence, but have not been shown to be helpful in other substance use disorders. Also effective are 12-step mutual support groups as an adjunct to treatment and as a long-term component of sustaining remission. More specialized community-based programs exist, including community counseling plus vouchers (positive reinforcement) that reward drug-free periods, and day treatment with abstinence contingencies and vouchers. Behavior or multidimensional family therapies are particularly useful for adolescents. A clinical practice guideline on the assessment and treatment of children and adolescents with substance use disorders is available from the American Academy of Child and Adolescent Psychiatry. Specific services for affected family members are also offered by many addiction treatment agencies.

For patients with substance dependence or addiction, pharmacologic treatments are used according to the following paradigms:

- To manage withdrawal symptoms and facilitate cessation of substance use.
- In some cases, agonist replacement therapy is used during the cessation process (e.g., for nicotine), or as maintenance treatment (e.g., for opioids) with counseling and needed medical, psychological, and social services.
- To block drug effects that are reinforcing (partial agonists or antagonists working at nicotinic or mu-opioid receptors).
- To diminish cravings and prevent relapse (alcohol, nicotine, opioids; possibly cocaine).
- To induce aversive responses to assist in promoting abstinence (alcohol; possibly cocaine).

**Brief Interventions.** The essential features of office-based brief interventions are based on the 5 “A’s”: *ask* about use at every opportunity; *advise* patients to stop; *assess* their willingness to stop; *assist* the patient to stop; and *arrange* follow-up care. Brief advice and multi-contact office-based counseling interventions by primary care physicians reduce risky and harmful alcohol use, and enhance tobacco cessation efforts. Very brief or brief single-contact interventions are less effective or ineffective in reducing alcohol and nicotine consumption in these groups. Data on whether women or youth may be less responsive than adult males to these types of interventions for problem drinking are somewhat controversial.

Instructive and helpful manuals or guidelines are available for primary care physicians to assist in providing effective screening and treatment via brief intervention. Toll-free smoking cessation “QuitLines” are available for patient assistance in every state. Overall, these types of efforts to
reduce alcohol and tobacco use need to be improved.\textsuperscript{44} Applied treatments also reduce consumption and substance use behaviors in individuals affected by opioids, cannabis, and cocaine who seek treatment.\textsuperscript{45}

**Prevention Efforts**

Most prevention efforts focus on substance use-related issues, and not addiction \textit{per se}. The National Institute on Drug Abuse (NIDA) has developed a research-based guide for parents, educators, and community leaders on preventing illicit substance use (other than alcohol) among children and adolescents.\textsuperscript{46} The guide includes several prevention principles addressing risk and protective factors; prevention planning for family, school, and community programs; and program delivery. Prevention programs are usually designed to reach target audiences in their primary setting; they also can be classified based on the audience as \textit{universal} (designed for a general audience); \textit{selective} (designed for groups at risk), or \textit{indicated} (designed for individuals already using substances). A number of such evidence-based programs under each classification have been catalogued by NIDA, and the American Academy of Pediatrics has published a policy statement on the role of schools in combating illicit substance use.\textsuperscript{47,48}

The Center for Substance Abuse and Prevention (CSAP) within SAMHSA provides an online “Prevention Platform” with tools and resources to help organizations undertake assessment efforts, build capacity by mobilizing resources and via training and education to promote readiness, and create a comprehensive plan with goals, objectives, and strategies aimed at meeting the substance abuse prevention needs of the community, implement various components of the prevention plan, and evaluate the impact of programs and practices.\textsuperscript{49} The CSAP has also designed and implemented several public education programs that range from raising awareness about the harms of underage drinking to helping families live a healthy, drug-free lifestyle.\textsuperscript{50} Links to a number of other prevention resources are available on the CSAP’s web site. Another effective national prevention organization is the Community Anti-Drug Coalitions of America.\textsuperscript{51}

**AMA Prevention and Other Activities**

Our AMA has a long-standing commitment to the prevention and treatment of alcohol, tobacco, and illicit drug use and addiction. In 1956 our Council on Mental Health and its Committee on Alcoholism recognized alcoholism as a disease that could be treated medically.\textsuperscript{52} In 1979 our AMA adopted a policy statement entitled “Guidelines for Physician Involvement in the Care of Substance-Abusing Patients.” The guidelines articulated the principle that every physician must assume clinical responsibility for the diagnosis and referral of patients with substance use disorders, and broadly defined the competencies required to meet that responsibility. These activities represented some of the first efforts by a major medical organization to address addiction as a disease, and to highlight the need for all physicians to have competence in addressing substance use disorders. Almost 30 years later, the targets set for health education and health care delivery on substance use disorders have not been substantially approached.

The AMA Office of Alcohol, Tobacco and Other Drug Abuse Prevention, located in the Division of Healthy Lifestyles, raises awareness of alcohol-, tobacco-, and illicit drug abuse-related problems and solutions among physicians and the general public. The Office serves physicians and the public as an information source for advocacy, public policy change, leadership, and education. It also serves as liaison to federal and international drug abuse prevention and treatment agencies and collaborates in disseminating resources for physicians. It helps physicians help their patients through the dissemination of screening and brief intervention resources for management of patient alcohol problems and of smoking cessation resources.
Effective prevention of alcohol and tobacco use have been found to involve combinations of environmental change strategies consisting of public education and counter-marketing, reduction and control of availability and promotion, minimum use and purchase age, increase in cost through taxation and other means (e.g., license fees; bans on discounted sales), clean indoor air regulations (for smoking), and beverage service training and regulations (for alcohol), supported by law enforcement entities. These strategies were applied effectively by our AMA, in partnership with the Robert Wood Johnson Foundation, through funding and management of three national, state, and local coalition policy advocacy programs:

- SmokeLess States (1993-2004; in 41 states);
- Reducing Underage Drinking through Coalitions (1996-2005; in 10 states, District of Columbia and Puerto Rico); and

Currently, NIDA supports its Primary Care Physician Outreach Project at the AMA to familiarize physicians with resources to address patient drug abuse and to research ways to increase physician involvement in addressing patient substance use disorders. As part of this effort, NIDA has funded 6 Centers of Excellence in Substance Abuse Information through medical education development grants to 6 medical school participants in the AMA Ethics Division’s Innovative Strategies for the Education of Physicians (iSTEP) initiative. The Environmental Protection Agency supports an AMA project, “Developing A System to Educate Low Income Patients About Health Risks of Secondhand Smoke,” to increase physicians’ and their staff’s knowledge about secondhand smoke as a major asthma trigger and source of respiratory distress in children and adults, and to assist physicians to educate, especially, low income patients about the health effects of secondhand smoke exposure and how to reduce their family’s exposure, especially through smoking cessation.

Our AMA has also collaborated with the Partnership for a Drug Free America on several of its universal programs designed to foster family communication and understanding that harm is associated with substance use. Currently, our AMA partners with the Office of National Drug Control Policy to reinforce messages designed to minimize the diversion of prescription drugs subject to misuse, and with the AMA Alliance in a national collaboration to reduce the depiction of smoking in motion pictures.

**AMA Policy**

Our AMA already recognizes that “drug dependencies, including alcoholism, tobacco dependence, and substance abuse” are diseases (Policies H-95.983, H-95.976, and H-30.977, AMA Policy Database). Furthermore, AMA policy also recognizes that “drug addiction in any of its manifestations,” is a treatable disease (Policy H-30.958) and promotes “medical approaches to substance use disorders” (Policy H-95.950).

However, the terminology used throughout AMA policy on what are now generally termed substance use disorders is variable. Examples include use of the terms “chemically dependent,” “drug abuse,” “substance abuse,” “alcohol and other drug abuse,” “alcoholism and other chemical dependencies,” “alcohol use disorders,” and “alcohol dependency.” Certain policies that characterize conditions and/or diseases introduce further ambiguity. For example, AMA policy on health promotion and disease prevention refers to the “health hazards of tobacco, alcohol, accidental injuries, unhealthy lifestyles, and all forms of preventable illness” [emphasis added] (Policy H-425.993). AMA policy on “substance abuse among physicians” defines physician
impairment as any physical, mental, or behavioral disorder (Policy H-95.955). Other policies refer to alcoholism as a disability or chronic illness (H-30.995; H-30.999).

Summary and Conclusion

Substance use disorders are common in the United States, affecting a disproportionate share of adolescents and young adults, and are associated with substantial morbidity and mortality. More attention should be devoted to screening for alcohol and drug use and to effective professional treatment, including office-based brief interventions with behavioral components, and/or referral for appropriate treatment of substance use disorders, especially when addictive disease is suspected. Future research efforts should focus on implementation strategies to facilitate adoption of these practices into routine health care. Additionally, research using neurobiologic approaches to identify why some individuals are more susceptible to developing substance use disorders may be informative.

RECOMMENDATIONS

The Council on Science and Public Health recommends that the following recommendations be adopted and that the remainder of this report be filed:

1. That our American Medical Association (AMA) continue to seek and participate in partnerships designed to foster awareness and to promote screening, diagnosis, and appropriate treatment of substance misuse and substance use disorders. (Directive to Take Action)

2. That our AMA renew its efforts to: (a) have substance use disorders addressed across the continuum of medical education; (b) provide tools to assist physicians in screening, diagnosing, intervening, and/or referring patients with substance use disorders so that they have access to treatment; (c) develop partnerships with other organizations to promote national policies to prevent and treat these illnesses, particularly in adolescents and young adults; and (d) assist physicians in becoming valuable resources for the general public, in order to reduce the stigma and enhance knowledge about substance use disorders and to communicate the fact that substance use disorder is a treatable disease. (Directive to Take Action)

3. That our AMA support appropriate federal and state legislation that would enhance the prevention, diagnosis, and treatment of substance use disorders. (Directive to Take Action)

Fiscal Note: $15,000
References


17. Institute of Medicine, Committee for the Study of Treatment and Rehabilitation Services for Alcoholism and Alcohol Abuse. Broadening the Base of Treatment of Alcohol Problems. Washington, DC: National Academy of Sciences; 1990.


38. Institute of Medicine, Committee on Crossing the Quality Chasm. Improving the quality of health care for mental and substance-use conditions. Washington, DC: National Academies Press; 2006.


Appendix

DSM IV-TR Criteria for Substance Dependence

A maladaptive pattern of substance use, leading to clinically significant impairment or distress, as manifested by three (or more) of the following, occurring at any time in the same 12-month period:

1. Tolerance, as defined by either of the following:
   a. A need for markedly increased amounts of the substance to achieve intoxication or desired effect
   b. Markedly diminished effect with continued use of the same amount of the substance

2. Withdrawal, as manifested by either of the following:
   a. The characteristic withdrawal syndrome for the substance (refer to Criteria A and B of the criteria sets for Withdrawal from the specific substances)
   b. The same (or a closely related) substance is taken to relieve or avoid withdrawal symptoms

3. The substance is often taken in larger amounts or over a longer period than was intended

4. A great deal of time is spent in activities necessary to obtain the substance (e.g., visiting multiple doctors or driving long distances), use the substance (e.g., chain-smoking), or recover from its effects

5. Important social, occupational, or recreational activities are given up or reduced because of substance use

6. The substance use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the substance (e.g., current cocaine use despite recognition of cocaine-induced depression, or continued drinking despite recognition that an ulcer was made worse by alcohol consumption)

Specify if:

With Physiological Dependence: evidence of tolerance or withdrawal (i.e., either Item 1 or 2 is present)
Without Physiological Dependence: no evidence of tolerance or withdrawal (i.e., neither Item 1 nor 2 is present)

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DSM IV-TR Criteria for Substance Abuse

A. A maladaptive pattern of substance use leading to clinically significant impairment or distress, as manifested by one (or more) of the following, occurring within a 12-month period:

1. Recurrent substance use resulting in a failure to fulfill major role obligations at work, school, or home (e.g., repeated absences or poor work performance related to substance use; substance-related absences, suspensions, or expulsions from school; neglect of children or household)

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

3. Recurrent substance-related legal problems (e.g., arrests for substance-related disorderly conduct)

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

B. The symptoms have never met the criteria for Substance Dependence for this class of substance.