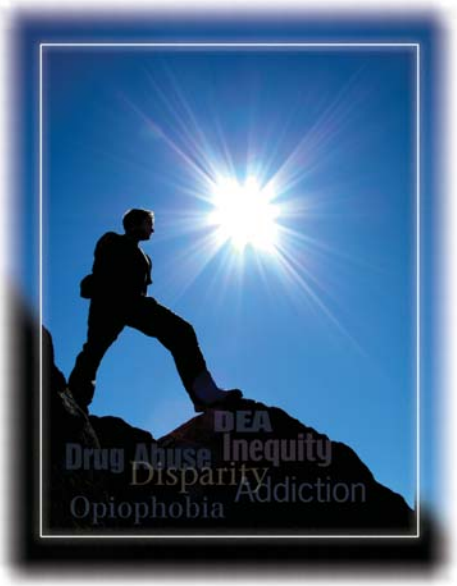

Improving Physician and Medical Student Education in Substance Use Disorders

Stephen A. Wyatt, DO
Michael A. Dekker, OMS III

Medical and psychosocial problems related to substance use disorders (SUDs) remain a major source of national morbidity and mortality. This situation exists despite greater understanding of genetic, neurobiologic, and social underpinnings of the development of these illnesses that has resulted in many advances in addiction medicine. The value of assessment and brief intervention of this disease is well documented. Patients need to be identified and engaged in order for them to be treated. A variety of evidence-based pharmacologic and psychotherapeutic treatments are now available. Strong evidence exists that treatment of patients for SUDs produces results similar to or better than those obtained from treatment for other chronic illnesses. It is also clear that physicians can play a pivotal role in helping to reduce the burden of disease related to SUDs However, to do this, physicians need to be better educated.

Through such education comes greater confidence in identification and providing treatment. Also, the discomfort and stigma often associated with this disease are reduced. The federal government—through the Office of National Drug Control Policy, the Surgeon General, the Center for Substance Abuse Treatment, the National Institute on Drug Abuse, the National Institute on Alcohol Abuse and Alcoholism, and the National Highway Traffic Safety Administration of the Department of Transportation (DOT)—is expending concerted efforts to improve physician education in addiction medicine. These efforts culminated in the Second Leadership Conference on Medical Education in Substance Abuse in December 2006. The osteopathic medical profession was represented at this conference.

This article reviews not only the recommendations from this meeting, but also the nature of the problem, how members of the osteopathic medical profession are currently addressing it, and a strategy for improvement endorsed by the American Osteopathic Academy of Addiction Medicine.

J Am Osteopath Assoc. 2007;107(suppl 5):ES27-ES38

Dr Wyatt is on the speakers bureau of Reckitt Benckiser Pharmaceuticals.

Mr Dekker is a third-year student in the DO-MPH program at Nova Southeastern University College of Osteopathic Medicine (NSUCOM) in Fort Lauderdale, Fla.

Address correspondence to Stephen A Wyatt, DO, Medical Director, Dual Diagnosis Program, Middlesex Hospital, 28 Crescent St, Middletown, CT 06457

E-mail: wyattsa@sbcglobal.net

A 2005 report reviewed the state of addiction medicine education in osteopathic medical schools, residencies, and continuing medical education programs.[1] I had help in that effort from William Vilensky, DO; James J. Manlandro, Jr, DO; and Michael A. Dekker, OMS II. This review is an update of that article, including recommendations (*Figures 1-9*) from the Second Leadership Conference on Medical Education in Substance Abuse that was held in December 2006. It includes important observations, both good and not so good.

Dimensions of the Problem

Physicians often agree that substance use disorders (SUDs) contribute significantly to the disease burden in the United States. In 2006, the Institute of Medicine released a seminal report on "Improving the Quality of Health Care of Mental Illness on Substance-Use Conditions."[2] The report recommends improving coordination of mental health and SUD services with general health care services. It notes that combined with mental health illnesses, SUDs are the leading cause of death and disability in women of all ages and for men between the ages of 15 and 44 years. Katon[3] points out that mental health and SUDs are associated with a variety of general medical illnesses. Examples include the profound association of cigarette smoking with lung disease; high prevalence of hepatitis C in all substance users (27%), and in particular injection drug users (76%); and the strong association of trauma victims with drug or alcohol intoxication (60%).

Current information on prevalence of dependent use of drugs and alcohol in the United States shows rates of cigarette smoking dropping from 26% in 2003 to 24.9% in 2005; heavy alcohol use continually hovering at 7% during the same period; and illicit drug use also having had little change with marijuana remaining approximately at 6%, cocaine at 1%, and nonprescribed pharmaceuticals such as opiates and benzodiazepines at 2.6%. There has been more positive news in younger age groups. Those younger than 18 show trends downward in their use of marijuana (8.2% to 6.8%), and a leveling off in the overall rate of nonmedical use of prescription drugs at

This continuing medical education publication is supported by an educational grant from Purdue Pharma LP.

2.6%. This decline followed a dramatic rise in pharmaceutical opiate use since 1991 in this population. There was, however, a rise in inappropriate use of such medications in the group of those aged 18 to 25 years. In the aging baby boomer population, those between the ages of 50 to 59 years showed an overall rise in illicit drug use from 2.7% to 4.4%.[4]

The fact that mental illness and SUDs carry such a high mortality rate in all women and younger men is a troubling fact, particularly when evidence-based treatments are available. Approximately 3 million people receive treatment each year in the United States, but more than 22 million are estimated to have a SUD.[4] At the second Leadership Conference on Medical Education in Substance Abuse in December 2006, Dr. Bertha Madras, deputy director of Demand Reduction with the Office of National Drug Control Policy (ONDCP), pointed out that not all 22 million people with a SUD need specialized physician treatment. Such assistance could come from a wide range of healthcare professionals. However, patients need to be screened in order to be identified and for a level of care to be established. Physicians are in an excellent position to provide such therapy. Policy and reimbursement incentives exist to help promote physician involvement. However, if the physician lacks knowledge in addiction medicine, improvement will be minimal. It is a goal of this article to have the reader understand how physician competence in screening, brief intervention, and coordination of treatment of patients with SUDs can be improved through education, policy change, and reimbursement incentives.

Research Breakthroughs

Advances have been made in our knowledge of SUDs and treatment of patients with SUDs. The Substance Abuse and Mental Health Service Administration (SAMHSA) sponsored a number of states in their efforts to study the effects of screening, brief intervention, and referral to treatment (SBIRT). Preliminary data from the Washington State site shows that a substantial number (74%) of high-risk individuals lowered their drug or alcohol consumption after one or more brief treatment sessions. There also continued to be reductions at 6-month follow-up. Healthcare cost savings following SBIRT, reported from the Ben Taub Trauma Center in Houston, Tex, were estimated at $4 million.[5]

Brief advice from a physician and office-based counseling interventions can reduce the use of alcohol in problem drinkers.[6,7] There is evidence that as the physiologic symptoms associated with heavy drinking increase, there is greater likelihood that a physician intervention will be more effective in motivating a patient to seek treatment.[8] Therefore, if a physician were well trained in recognizing early physiologic signs of heavy drinking (eg, liver enzyme elevations or abnormal blood count indices), an earlier effective intervention could be made. As drinking levels go down, medical and societal costs, which clearly outweigh the cost of an intervention, are reduced concurrently.[9]

We continue to learn ever more about the causes, consequences, prevention, and treatment of SUDs. Research funded by the National Institute on Alcohol Abuse and Alcoholism (NIAAA) and the National Institute on Drug Abuse (NIDA) has identified primary receptors for every major class of abused drug (including alcohol), identified their genetic code, and cloned the receptors.[10,11] Researchers have mapped locations of those receptors in the brain and determined the neurotransmitter systems so involved.[12] They have demonstrated the activation of these regions during addiction, withdrawal, and craving[13]; they have identified and separated mechanisms underlying drug-seeking behavior and physical dependence[14]; and they have developed animal models for drug self-administration.[15] Most important, they have demonstrated that the mesolimbic dopamine system is the primary site of dysfunction caused by abuse of drugs.[15] This neuroscience research into addiction has contributed substantially to recent advances in neurology and psychiatry.

Buprenorphine hydrochloride, effective in reducing opiate use, has now been in use in wider practice and shows tremendous potential as a safe and effective treatment of opiate-dependent patients.[16] Naltrexone hydrochloride and acamprosate calcium have gained a somewhat greater acceptance by primary care physicians as a result of their efficacy in treating patients with alcohol dependence.[17,18] Varenicline, a nicotine partial agonist, is showing great promise in reducing the craving of nicotine following abstinence of tobacco.[19]

Efficacy of nonpharmacologic modes of treatment for drug-dependent patients

Priority Competencies

- **Screening, Prevention, and Brief Intervention**
  Physicians should know:
  - ☐ How and when to screen patients for unrecognized substance use disorders (SUDs)
  - ☐ How to provide preventive counseling and brief interventions, as appropriate.
- **Identification and Management of Co-Occurring Substance Use and Medical or Psychiatric Disorders**
  Physicians should be:
  - ☐ Able to identify and treat or appropriately refer patients with co-occurring medical and psychiatric conditions and SUDs.
  - ☐ Prepared to provide ongoing medical monitoring and
  - ☐ Prepared to address needs of special populations (eg, adolescents and older adults)
- **Prescribing of Drugs With Abuse Potential***
  To minimize the risk of inducing or perpetuating prescription drug misuse or abuse, primary care physicians should have:
  - ☐ Ability to understand the clinical, legal, and ethical considerations involved in prescribing medications with abuse potential
  - ☐ Skills to address these considerations

*An essential area of competence for physicians.

Figure 1. *Highest priority competencies with direct application to care of patients with substance use disorders and with relevance to all medical disciplines and specialties.*

Working Group Recommendations Undergraduate Medical Education

- Establish a needs assessment to better query medical schools and students on the quality and skill-building aspects of course offerings.
- Compile and disseminate information about potential model curricula for teaching substance use disorders (SUDs) at the undergraduate level. Both the Association of American Medical Colleges (AAMC) and the American Association of Colleges of Osteopathic Medicine (AACOM) have established Internet opportunities to assist in the circulation of this information and to serve as a path to communication between educators.
- Establish a level of expertise expected for clinical instructors. Encourage certification or specialty boards in addiction medicine and specialty society involvement as baseline.
- Create online learning centers for students. This recommendation has been discussed as an alternative in clinical skill development particularly pertinent for those schools with limited faculty expertise in addiction medicine.
- During clinical rotations, SUDs should be addressed across all disciplines or specialties. Online learning could be utilized during these rotations.
- Establish course curricula on appropriate prescribing of medication.
- Provide support to Health Professional Students for Substance Abuse Training (HPSSAT), thereby allowing medical students to be catalysts for change in their own setting and around the nation through their meetings and Web sites.
- Pursue the Medical School Objectives Project (MSOP) as a vehicle for garnering expertise on teaching about SUDS.
- Create centers of excellence for electives in addiction medicine providing the highly motivated student with a superior opportunity for an elective clerkship.

Figure 2. *Recommended action items for upgrading undergraduate medical education on substance use disorders.*

Working Group Recommendations Graduate Medical Education

- Bring together representatives of the institutions of medicine in a forum to focus on establishing minimum standards that residents must meet in the recognition of substance use disorders (SUDs). Participants would include the Accreditation Council for Graduate Medical Education (ACGME), relevant specialty boards, relevant resident review committees, examining boards, National Board of Osteopathic Medical Examiners (NBOME), National Board of Medical Examiners (NBME), and others who create and maintain the requirements for core content in each of the targeted specialties.
- Work with the Board for Osteopathic Specialists (BOS), the American Board of Medical Specialists (ABMS), and various specialty societies and boards to strengthen the language articulating specialty board requirements for the content of examinations related to SUDs.
- Compile and disseminate information about available fellowship opportunities in addiction medicine and addiction psychiatry.

Figure 3. *Recommended action items for advancing graduate medical education on substance use disorders.*

is also well established. These modalities include cognitive behavioral therapy, motivational enhancement treatment, and contingency management.[20] There have been positive studies of effectiveness of 12-step mutual-support groups, such as Alcoholics Anonymous, as an adjunct to treatment and aftercare.[21-23]

The Centers for Medicare and Medicaid Services (CMS) has adopted codes for Medicaid that will allow physicians and other providers to be reimbursed for performing screening and brief intervention. There is currently a group working to develop and submit the Current Procedural Terminology (CPT) code application. Obtaining these codes will have the potential of expanding payment for screening and brief intervention into primary care physicians' offices.

Advances in treatment and reimbursement provide the groundwork for physicians to play a greater role in helping patients with this preventable and treatable disease of the brain. This paradigm shift will provide unprecedented opportunities to reduce health and social consequences of substance misuse, abuse, and dependence throughout the United States.

The Role of Physicians

In his opening remarks to the ONDCP conference attendees, Director John P. Walters described the evidence showing that medical students, residents, and practicing physicians should be better trained in the disease of addiction. He described the impact it can have on many other disorders, including cancer, cardiovascular disease, stroke, infectious diseases, mental illnesses, and even obesity. Director Walters challenged addiction medicine physicians and others to find new ways to improve the education of all physicians to reduce the disease burden of addiction.

Our national healthcare system offers an ideal opportunity to identify and treat these people and thereby reduce associated adverse health, family, and societal effects. Practitioners from various disciplines, including physicians, nurses, pharmacists, dentists, social workers, psychologists, and allied health professionals, are essential participants in national efforts to deal with these problems.[24]

Working Group Recommendations Continuing Medical Education

- ■ Enhance the practicing physician's access to high-quality continuing medical education (CME) programs focused on substance use disorder (SUD) issues and skill building.
- ☐ Encourage development of CME programs that address substance use issues relevant to particular patient populations such as children and adolescents, persons with co-occurring addiction and mental disorders, and diverse cultural groups. Explicitly address disparities in the burden of illness in various population groups.
- ☐ Assure quality, encourage all activities to be sponsored by CME-accredited providers. (individual courses are not accredited by the Accreditation Council for Continuing Medical Education [ACCME], and many providers are accredited by their state medical society).
- ☐ Identify currently available CME programs dealing with SUDs and their sponsoring organizations.
- ☐ Establish and publicize an accessible information and referral resource or portal such as a Web site where physicians can identify and/or link to available CME programs.
- ☐ Identify multiple conduits that can effectively reach physicians, such as live conferences, Internet-based enduring print materials, and live activities.
- ☐ Encourage competency in prescribing controlled drugs through educational programming.
- ■ Facilitate a connection between federal agency staff who have CME responsibilities and a group of addiction medicine leaders. Look to the buprenorphine training courses (the curricula for which were developed through collaboration between the Substance Abuse and Mental Health Services Administration and selected medical specialty societies) as a model.
- ■ Encourage revision of patient charts to move the personal/family history of alcohol and drug problems from the "social history" to "past medical history." Encourage all medical organizations to adopt a standard, clinically focused terminology in addressing SUDs. Examples of this would include referring to "relapse" rather than "recidivism," to "opioids" rather than "narcotics," and to "patients" rather than "clients."
- ■ Physician experts in the field should take a more active roll educating other gatekeepers such as school nurses, lawyers, judges, and traditional healers about SUDs and treatment of patients with SUDs. They are in an important position to facilitate change through effective identification and early intervention.

Figure 4. *Proposed processes for continuing medical education on substance use disorders (SUDs).*

Physicians are particularly well positioned to play a role in the recognition and treatment of patients with SUDs.[25] However, far too little attention has been paid to educating primary care physicians and other health professionals to respond to the needs of the millions of individuals and families affected by SUDs. As a result, primary care physicians neither identify nor diagnose alcohol and drug problems with the same acuity they bring to other medical disorders. The role of these front-line health professionals in prevention, early identification, and referral thus remains largely untapped.

Primary care physicians can provide preventive guidance, education, and intervention to children, adolescents, adults, and their families. It has been estimated that up to 20% of visits to primary care physicians are related to substance use problems.[26] Both generalist and specialist physicians have frequent contact with patients who have SUDs,[27-29] thus pointing to the importance of having addiction medicine education as a part of all clinical rotations in medical school. Clearly, the emphasis should be on the primary care physicians because patients with alcohol and other drug problems are twice as likely as patients unaffected by such problems to consult a primary care physician.[25,26]

Screening and brief intervention studies have shown that physicians can play an important role in their patients' health decisions.[30,31] Smoking cessation research shows that a physician's statement to quit smoking is enough to convince many patients to undertake such an effort. Interventions by emergency physicians have been shown to reduce subsequent alcohol use and readmission for traumatic injuries,[32] as well as drinking and driving, traffic violations, alcohol-related injuries, and alcohol-related problems among 18- and 19-year-olds.[33] There is strong evidence the public *wants* such help from their caregivers. For example, in a public opinion survey conducted by Harvard University and The Robert Wood Johnson Foundation,[34] 74% of respondents said they believe that addicts can stop using drugs, but to do so, they need help from professionals or organizations outside their families. By "help," two thirds said they meant intervention by a healthcare professional.

Unfortunately, although primary care physicians are the professionals most often cited by patients and families as the "most appropriate" source of advice and guidance about issues related to the use of alcohol, tobacco, and other drugs (including prescription drugs), they also are reported to be the "least helpful" in actually addressing these issues. Physicians often miss the diagnosis of drug abuse or addiction, and even when they make such a diagnosis, many do not know how to do a brief intervention or develop an organized plan for patient referral or treatment.

Osteopathic physicians represent just more than 7% of all practicing physicians in the United States. However, it is estimated that as a profession with a strong focus on the education of primary care physicians, we have the responsibility for approximately 17.4% of the pop-

ulation's primary care.[35,36] Thus, osteopathic physicians can assume a substantial role in helping patients at risk or currently suffering from a SUD. However, lack of training in osteopathic medical schools and graduate medical education programs often results in a missed opportunity for an appropriate intervention.

The Status of Medical Education

Osteopathic medicine, through its designation of addiction medicine as a subspecialty, has established itself as a leader in the field of SUDs by instituting the first co-joint specialty board and Certificate of Added Qualifications in Addiction Medicine (CAQ) for osteopathic primary care physicians. However, the CAQ is currently in jeopardy. A recertification examination will be given in 2007, but the certifying examination is now in dormancy. Osteopathic physicians as a profession have the opportunity to remain in the forefront of board certification in addiction medicine by maintaining the co-joint board and working together in training and certifying new physicians in this field.

Osteopathic medical schools are recognizing the need for more education in this field. The previous edition of this article[1] noted an unpublished 2000 review of osteopathic medical schools by the American Osteopathic Academy of Addiction Medicine (AOAAM) reporting that only 4 (22%) of 17 schools had a required curriculum on addiction medicine. A 2004 report of the American Association of Colleges of Osteopathic Medicine (AACOM)[37] shows that 22 of 23 schools required an addiction medicine program. Many schools have an addiction medicine component as part of a clerkship rotation; and a few offer it as an elective. Association of American Medical Colleges (AAMC) data indicate that since 1979, the proportion of allopathic medical schools requiring instruction in SUDs has increased from 70% in 1979 to nearly 100% in 2006.[38] Although these numbers are impressive, great disparity exists in curricula being taught and expertise of instructors.

There has been and continues to be a brighter picture when looking at education devoted to harmful effects of cigarette smoke, in part because of inclusion of core areas of instruction as programs were established. Osteopathic and allopathic medical schools have a similar record in covering 13 core content areas, 7 basic science areas, and 6 clinical science areas. However, more than 20% of schools had a required tobacco curricular component of 3 hours or less in the entire 4 years of undergraduate education. All too often, a minimum requirement is fulfilled with little carryover into the clinical years where the training of practicing clinical skills takes place. All osteopathic medical schools with 4-year programs reported less than 1 hour of tobacco cessation instruction in the previous year; two schools reported a required course on tobacco-related illnesses.[39] There are on average 51 hours of nonclinical hours of neuro-

Working Group Recommendations
Licensure, Accreditation, Certification, and Standards

- Create a joint committee to bring together addiction medicine specialty organizations, the American Osteopathic Academy of Addiction Medicine (AOAAM), the American Society of Addiction Medicine (ASAM), the American Academy of Addiction Psychiatry (AAAP), the Association for Medical Education and Research in Substance Abuse (AMERSA), and other stakeholders to:
  - ☐ Develop a pool of academically vetted test questions on substance use disorder (SUD)–related topics at various levels of difficulty, normed across different levels of training (student, resident, etc.), that can be offered to the National Board of Osteopathic Medical Examiners (NBOME), the National Board of Medical Examiners (NBME), and specialty boards.
  - ☐ Create a pool of self-assessment questions for use in continuing medical education (CME) courses offered by ASAM, AOAAM, AAAP, and other professional organizations to prepare their members for certification and specialty board examinations.
- Work with the Federation of State Medical Boards (FSMB) to encourage state boards of medicine and state medical schools to place renewed emphasis on physician competence in screening and brief intervention for substance use disorders (SUDs) and proper prescribing of controlled substances.
- Work with the Accreditation Council for Graduate Medical Education (ACGME) and the various specialty boards to strengthen the requirements for continuing education on SUDs and include questions on certification/recertification and licensing exams.
- Strengthen the Joint Commission for Accreditation of Healthcare Organizations (JCAHO) general standards of screening for SUDs by including this requirement as a surveyor training issue, and making it a provision of care performance element in hospital, ambulatory, long-term, and home healthcare reviews.
- Develop American Board of Medical Specialty–approved credentialing systems that recognize expertise available as resources to their primary care colleagues who seek training, consultation and referral.
- Ask federal agencies to support research into strategies that promote system change and provider behavior change, and work with the credentialing bodies to develop and maintain incentives for change. The efficacy of various models should be tested through demonstration projects that are funded through federal grants and contracts.
- Registration and reregistration requirements with the Drug Enforcement Administration (DEA) would include evidence of CME credits and/or focused self-assessment in competency of prescribing controlled drugs.
- Given the economic drivers of physician behavior, the health insurance industry and the Centers for Medicare and Medicaid Services (CMS) should be involved wherever possible.

Figure 5.

Working Group Recommendations Purchasers and Payers of Healthcare Services

- Encourage state medicaid directors to activate new Healthcare Common Procedure Coding System (HCPCS) codes providing reimbursement of screening and brief intervention and educate providers about their use.
- Expand current procedural terminology (CPT) codes by adding a complementary effort to the HCPCS coding changes. This would help clear the way for reimbursement by private insurers and Medicare.Obtain a Centers for Medicare and Medicaid Services (CMS) pay-for-performance measure for screening and brief intervention (SBI). Use new CMS "pay-for-performance" measures as an incentive for hospitals to report on these voluntary measures. Add an SBI performance measure to the 10 voluntary performance measures for emergency departments and trauma centers that CMS now has in place.
- Remove barriers to appropriate screening for SUDs in emergency departments created by the Uniform Accident and Sickness Policy Provision Law (UPPL), which allows the denial of insurance payment for emergency care if the patient was under the influence of alcohol at the time a traumatic injury occurred.
- Engage national medical organizations in advocacy on reimbursement issues.
- Utilize the Addiction Technology Transfer Centers (ATTCs) in training primary care practitioners on how to identify and intervene with patients who have SUDs.
- Expand the number of demonstration projects supported by CMS and the National Institutes of Health to include fund additional research and demonstration projects on the identification and management of SUDs.
- Ensure accountability through outcomes evaluations to determine whether funding for screening, brief intervention, and addiction treatment has "made a difference" (in terms of health, societal, and economic costs) at the state, local, and practice levels.

Figure 6.

science, 49.2 hours of behavioral medicine and 19.2 hours of preventive medicine/public health required in the first 2 years of osteopathic medical school.[40] There is good reason to examine more closely how these hours are being used in an attempt to find ways to expand the education of substance use effects on the body and skills surrounding screening and brief intervention.

Every year, AACOM compiles a survey of senior osteopathic medical students near the end of the academic year and publishes the results in the annual report.[41] Seniors were asked to rate various topics covered in their 4 years of education. The results showed 78.2% in 2002 and a slight drop to 76.2% in 2004 thought that they had had adequate didactics on drug and alcohol abuse; 18.1% in 2002 and 21.3% in 2004 believed that it was inadequate; and 3.7% in 2002 and 2.5% in 2004 thought that it was excessive. These trends indicate student recognition of the need to better understand this important area of disease.

Similar data are available from the AAMC: 90% of respondents thought that the amount of time spent was appropriate. Once again, however, there is no delineation of what constitutes an "adequate" curriculum or building of clinical skills.[38,40,41] Despite this progress, basic clinical skills in screening, assessment, and diagnosis, developing a treatment plan, and ongoing monitoring—capabilities that physicians routinely apply in managing other chronic disorders—clearly need attention regarding SUDs.[42] There is a need to establish some consistency in the content in the drug and alcohol abuse curricular component and in the experience and expertise of those teaching it.

Many medical students are recognizing this area of medicine as an important part of their education. In 2006, Health Professional Students for Substance Abuse Training (HPSSAT) merged with the American Medical Education and Research in Substance Abuse (AMERSA) organization. AMERSA and HPSSAT have compatible goals, with AMERSA promoting SUD education for health professionals, and HPSSAT promoting SUD education for health professional students. Coauthor Michael A. Dekker, OMS III from Nova Southeastern University College of Osteopathic Medicine (NSU-COM) in Fort Lauderdale, Fla, was present at the 2006 ONDCP meeting and described a variety of efforts under way to increase student awareness of SUDs and how patients with SUDs are treated.

Various activities are in progress at medical school campuses around the United States; NSU-COM has conducted a variety of optional noon lectures on various subjects. This program was spearheaded by Donna M. Kaminski, OMS II. There was a large voluntary turnout to a series on various problems associated with drugs and alcohol as well as a well-attended visit to a treatment facility. Students have been involved in outreach programs teaching middle school students about the hazards of nicotine use and dependence. The preteens reportedly enjoyed hearing from these young physicians, as they responded with enthusiasm and lots of questions. This outreach program provides great feedback to the osteopathic medical students as they prepare for careers as health advocates. It helps to build a positive association with the promotion of a healthy avoidance of drugs.

Osteopathic medical student Dekker and Brian Hurley, MS IV, from Keck School of Medicine at the University of Southern California in Los Angeles, presented a workshop, "Physician-in-Training Opportunities to Improve Substance Abuse Curricula in Medical Education" at the 2007 American Society of Addiction Medicine Annual Medical-Scientific Conference, which was held April 26 to 29 in Miami, Fla. There, they had the opportunity to speak with the many other physician student attendees.

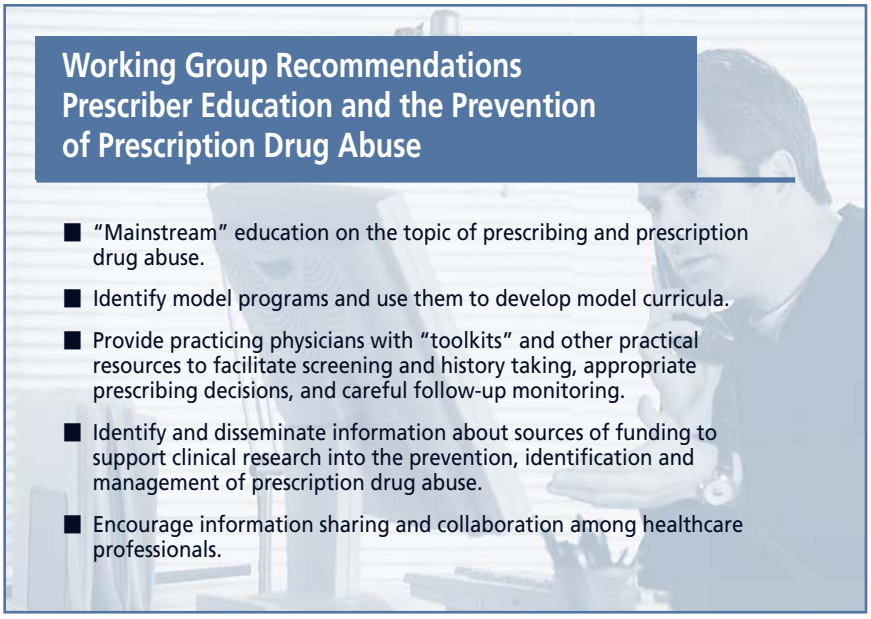

Figure 7.

Reportedly, there was general agreement that the schools are teaching the basic science of addiction. However, an informal survey showed that most did not feel comfortable enough to provide screening and brief intervention. Nor did these students understand how and where to refer patients with a SUD.

Although several professional organizations have issued calls for greater integration of substance abuse education into allopathic and osteopathic residency training programs, the impact of these recommendations has been variable. Information reported in 1988 indicated that there are Resident Review Committee program requirements regarding substance abuse education in only 5 of the 99 specialty training programs (anesthesiology, family practice, internal medicine, obstetrics/gynecology, and psychiatry).[43]

A 1999 report following a 74% response rate to the authors' survey revealed that the proportion of departments that offered a curriculum unit in substance abuse was 93 (40%) of 232 for internal medicine, 195 (68%) of 288 for family medicine, 38 (27%) of 139 for pediatrics, and 153 (91%) of 169 for psychiatry.[44] There is evidence to indicate that these proportions have improved some following the report of a 2000 study showing 56% of 1831 residency programs required an addiction medicine curriculum.[45] The proportion ranged from 95% in psychiatry to only 32% in pediatrics. The combined average was 65%. The programs had a medium range of 3 to 12 curricular hours. Grand rounds were the most commonly identified format for teaching. Psychiatry (75%) and family medicine (55%) programs had the highest proportion reporting clinical rotations in addiction medicine.[43] In surveying programs, the most commonly cited factors limiting further integration of substance abuse training into residency programs included a perceived lack of time, faculty expertise, identified training sites, and institutional support.[43,45] Consequently, what remains are poor requirements, poor consistency between programs surrounding the curriculum, and a lack of expertise within faculty.

In continuing medical education of practicing physicians, a change has occurred during the past decade in the general dissemination of information. A 2005 report[46] indicates that most physicians gain the greatest amount of information from coworkers (89%) and seminars or conferences (86%). Most respondents (59%) endorsed e-mail summaries of journal articles as a "very helpful" source of information. This is important information in attempting to formulate a plan for future efforts to transfer information on addiction medicine topics to practicing physicians. However, hurdles other than education need to be surmounted, including the lack of reimbursement and time that contributes to physicians' poor showing in identifying and working with these patients.

The other important roadblock to physicians' appropriately treating these patients is the stigma associated with the disease of addiction. Similar stigmas are associated with obesity as it relates to various medical problems, but rarely are obese patients turned away to the degree that the patient with a SUD is. A turnabout may come when physicians begin to recognize the role of genetics and neurochemistry in the development of behavior. Attendant to such recognition may be improvement in physician attitude and the potential for positive engagement with the patient that result in better outcomes.

A National Spotlight on the Issue

The second National Leadership Conference on Medical Education in Substance Abuse, an invitational 2-day conference of leaders from various public and private organizations, was held in Washington, DC, in December 2006. The sponsoring organization was the ONDCP, under the guidance of Conference Chair Bertha K. Madras, PhD, deputy director for demand reduction. Many educational institutions and organizations along with policy makers and others with a strong interest in SUDs were represented, including NIDA, NIAAA, SAMHSA, DOT, licensing and certification bodies, insurance experts, and academicians. This conference had greater attendance of individuals not currently involved in addiction care or research compared with the first such convocation in December 2004.

The purpose of this meeting was to provide a framework for developing specific recommendations to improve the current level of education and practice of addiction medicine. The goal was to improve interfacing between organizations involved in accreditation and licensing of educational programs, hospitals, and physicians. Also included were funders—both private and public—allowing for discussion of how financial incentives or disincentives could play a role.

Working Group Recommendations
Public Input on Medical Education in Substance Abuse

- Work with National Institute on Drug Abuse(NIDA), National Institute on Alcohol Abuse and Addiction (NIAAA), National Institute on Mental Health (NIMH), and other Federal agencies to develop and fund a program supporting the development of medical school faculty as experts on substance use disorders (SUDs).
- Review grant funding of SUD research to effect sustainability, creativity and quantifiable uniform results.
- Compile and disseminate information about potential model curricula.
- Work with NIAAA, NIDA, NIMH, and both the American Association of Colleges of Osteopathic Medicine and the Association of American Medical Colleges to establish and fund programs to support the development of young medical school faculty.
- Compile and disseminate information about sources of available funding to support modification of medical school curricula and residency training programs, as well as development of continuing education programs on SUDs.
- Encourage the Veterans Affairs system to develop models for medical education and to use its clout as a purchaser to renegotiate contracts with medical schools to incorporate them.
- Ask the Health Resources and Services Administration (HRSA) to compile an inventory of education programs the agency has funded so as to identify possible models and fill any gaps by funding the development and implementation of clinical models for its target populations.
- Work with multiple agencies, including payers such as Medicare and Medicaid and other organizations, to develop innovative ideas about clinical models.
- Through public/private partnerships, identify and/or develop educational materials that physicians can give to patients for whom they prescribe drugs with abuse potential. Engage the pharmaceutical industry in this activity as part of their risk management plans.
- Create federally funded centers of excellence to focus on developing, disseminating, and implementing methods of research, clinical care, and health professions education about SUDs.
- Increase the federal focus on the public health aspects of SUDs, through federal leadership, and development of public service announcements on the warning signs of addiction. Foster consumer-driven demand for care related to SUDs.

Figure 8.

Dr Madras in her welcoming remarks stated:

> We enlist your expertise in developing strategies to promote medical education curricula on drug and alcohol related disorders, the improvement of medical education after graduation, implementation of screening and brief intervention in mainstream medical care, obtaining appropriate physician reimbursement for these services, and preventing the non-medical use of prescription medications.

During the conference, many policy makers made it clear that the federal government, with its oversight of standards of public health and as a significant funder, is interested in improving physicians' understanding of addiction medicine and increasing the medical role in identification and care of these patients. Dr Madras solicited the conferees to make specific recommendation and a work plan to implement the recommendations by the conclusion of the conference.

Conferees were asked to consider alcohol as:

☐ the third leading cause of death in the United States, behind tobacco, poor diet and physical inactivity (obesity)
☐ the second leading cause of disability and disease burden in the United States
☐ associated with 41% of traffic deaths and 29% of suicides, which constitute the leading causes of death among persons aged 15 to 35 years.

Then, important questions to ask are:

- Why do only 43% of persons who have an alcohol use disorder receive "treatment?"
- Why does only $1 of every $5 for "treatment" of patients with alcohol disorder get spent on their actual treatment for alcohol abuse or dependence, and the other $4 is spent on their medical treatment for problems complicated by alcohol abuse or dependence?
- Why is there a similar picture with drugs of abuse, where about 60% of treatment expenditures go to the actual treatment of the patient for drug addiction, and the remaining is spent on treating the patient for associated illnesses and injuries?
- Why is there not more money going to substance abuse treatment when the most conservative estimate is that there is a savings of $2.80 in healthcare cost for every dollar spent on screening and treatment?
- Why is there so often a desire to show there is *cost savings* before we take appropriate care of patients and their families suffering from the disease of addiction?

NIDA has begun a program to help better educate physicians on how they might improve prevention and treatment of drug abuse. This organization announced the development of a Centers of Excellence for Physician Information program at four academic medical institutions to provide training for physicians to better screen, briefly intervene, and refer patients for treatment. In addition to sponsoring research that explores these issues, NIDA is helping prepare primary care physicians to be partners in preventing and treating drug abuse and addiction through a physician work group and a physicians' page on the NIDA Web site.

There was a call from federal policy makers for integration of the addiction medicine curriculum into the mainstream of medical education at all levels—undergraduate, graduate, and continuing medical education—and across all disciplines. John P. Walters, director of ONDCP, pledged that his organization and other federal agencies will continue to support basic research that enhances physicians' understanding of the causes and consequences of alcohol, tobacco, and drug misuse and abuse, including prescription drug abuse. He also promised support for clinical research that leads to development of better tools to prevent SUDs and identify and treat patients with SUDs in primary healthcare settings.

All the speakers acknowledged past efforts to teach physicians the competencies they need to care for patients with SUDs.[47]

The osteopathic medical profession was represented by William Vilensky, RPh, DO, of the American Osteopathic Association; student representative Michael A. Dekker, OMS III, of HPSSAT (the student organization advocating for schools to better education of graduate healthcare professionals in screening, diagnosis, and provision of appropriate intervention for patients with substance abuse disorders ([www.hpssat.org]); Douglas M. Leonard, DO, of the AACOM; Anthony H. Dekker, DO, of the AOAAM, also serving as the co-chair of the undergraduate working group; and this article's lead author (S.A.W.), who served as a member of the planning committee and an expert panelist for the undergraduate working group.

Identifying the Needed Competencies

Following productive discussion, participants in the Second Leadership Conference agreed that the highest priority should be given to three areas of competence (*Figure 1*).

All the competencies have direct application to the care of patients with SUDs and are relevant to all disciplines and specialties. Upon completion of each level of training, all medical students, residents, and physicians should be able to demonstrate that they have mastered this core body of knowledge and skill.

Recommendations Specific to Osteopathic Medicine

- ■ Establish a committee comprising members of the American Association of Colleges of Osteopathic Medicine (AACOM) and osteopathic experts in the field of substance use problems, charged with the responsibility of formulating a curriculum for the enhancement of the medical school education in prevention, identification, and treatment of these disorders.
- □ To this end, initial steps have been taken to develop a Special Interest Group (SIG) on Addiction Medical Education (AddictionMedEd) within the Society of Osteopathic Medical Educators. We have had the assistance of the AACOM in this effort.
- □ Faculty members charged with the addiction medicine curriculum development at a school not currently involved can contact the American Osteopathic Academy of Addiction Medicine (AOAAM) for more information on this activity.
- ■ Work with the schools in faculty development. Set a goal to establish that all programs are led by certified addiction medicine specialists.
- ■ Seek federal funding to establish a team of osteopathic addiction specialists, to be made available to each school to assist with curriculum development, faculty training and direct medical student didactics.
- ■ Work with the National Board of Osteopathic Medical Examiners (NBOME) to develop exam questions. This objective has been advanced.
- ■ Encourage leaders within all the primary care residency programs and experts in the field of addiction medicine in their respective organizations to establish recommendations for the inclusion of curriculum development and training in the area of addiction medicine.
- ■ Encourage state and regional osteopathic organizations (through the development of funding sources and vetted speaker lists) to include topics on the prevention, assessment and treatment of SUDs in their educational programming.
- ■ Develop curriculum guidelines for pain management and SUDs to be included in undergraduate, graduate and postgraduate education for the proper prescribing of controlled substances.
- □ Residency programs should require the inclusion of curriculum didactics in applied pharmacology of pain management and appropriate use of controlled substances.
- □ We support the Drug Enforcement Administration (DEA) and state licensing boards requiring continuing medical education units in SUDs and applied pharmacology of opioids
- ■ Maintain the certificate of added qualifications in addiction medicine now offered through a co-joint board with oversight by the AOAAM.
- ■ Continue to develop osteopathic fellowship opportunities. The first of these should be approved later in 2007. This development is vital if there is to be an adequate number of properly trained addiction medicine specialists available to lend expertise to the school as the profession moves forward.
- ■ Endorsement by the AOA of core competencies in addiction medicine for all Osteopathic Medical Student Graduates.
- □ A resolution has been submitted to the AOA House of Delegates outlining core competencies all osteopathic students should be expected to attain in their 4 years of school. This was not passed in the summer of 2006, but has been edited and resubmitted for review in 2007. I encourage you to contact your delegates to consider supporting this resolution.

Figure 9.

Physician education can, and should be, tailored to specific practice situations and patient populations. For example, pediatricians have a special need for knowledge of how SUDs can often be seen as developmental disorders and skills to perform screening, intervention, and referral in the adolescent population. Such physicians also need to consider issues raised by children and adolescents whose parents or other caregivers have SUDs and to acquire skills in screening and intervention in these situations.

Similarly, specialists in obstetrics and gynecology need the knowledge and skills to address substance-related problems in pregnant and parenting women. Because primary care physicians serve diverse populations of patients in terms of gender, socioeconomic status, and culture, they also must be culturally competent in communicating with patients and their families.

Recommendations for Action

During the Second Leadership Conference on Medical Education in Substance Abuse, participants were divided into seven working groups with each assigned to look at one of the following:

☐ undergraduate medical education
☐ graduate education
☐ continuing education
☐ licensure/accreditation/certification and standards
☐ purchasers and payers of healthcare services
☐ prescriber education and prevention of prescription drug abuse
☐ public input on medical education in substance abuse

Previous to this meeting, it had been determined that lack of education, financial incentives, and regulatory guidance are important obstacles in the way of physician involvement in the prevention, identification, and management of SUDs. Each of the seven working groups were asked to develop strategies to overcome these obstacles. *Figures 2* through *9* list many recommendations resulting from the working groups' discussions. Nearly all groups identified the need for examiners and licensing regulators to be encouraged to and assisted in establishing test questions and regulations reinforcing the need for SUD education development in the current practice of medicine.

Recommendations Specific to Osteopathic Medicine

Given our current understanding of the role SUDs play in the overall health problems of the United States, it is important that the osteopathic medical profession improve the assessment and education of students, residents, and practicing physicians concerning SUDs. The AOAAM remains the specialty group within the profession that is committed to the treatment of these patients. The AOAAM recommends that the initiatives in *Figure 9*, specific to osteopathic medical education, be encouraged as a supplement to the national objectives outlined in *Figures 2* through *8*. Many of these initiatives in part were established in 2005 and reported in the original article[1]; they are now presented either as having been moved forward in part or remaining unchanged.

Follow-up Activities

The following initiatives have continued to gain momentum since the meeting:

☐ presentation by William Harp, MD, to the Federation of State Medical Boards advocating these recommendations be adopted
☐ ongoing discussions with ONDCP, CSAT, NIDA, NIAAA, NIH, and DOT among others to find new funding opportunities
— NIDA's granting of funding to four schools or consortiums to establish innovative ways of improving student narcotic prescribing practices
— collaboration of AACOM and AAMC with specialty societies to establish communication with addiction medicine faculty with the goal of collaboration in setting forth a more consistent addiction medicine curriculum in the schools
— continued strong support by the National Board of Osteopathic Medical Examiners (NBOME) and the National Board of Medical Examiners (NBME) for establishing basic science and clinical competencies in the area of SUDs
— an effort by the AOAAM to get a resolution recommending a consistent core curriculum in addiction medicine for all osteopathic medical schools passed by the AOA House of Delegates at its July 2007 meeting. This effort was unsuccessful; however, there was significant support for it, and the resolution will be presented again in 2008.
— current efforts by CME providers for federally employed physicians to enhance exposure to these problems in their presentations

There is strong government support for this agenda to move forward; follow-up meetings as an outgrowth of the 2006 Leadership Conference are continuing. Various other recommendations established at the conference have been either completed or are under way. This initiative—apart from representing good practice of medicine—has strong political and academic support to move into the mainstream of medical education.

Comment

Osteopathic physicians as a profession dedicated to maintaining the health of patients and their families must take a serious look at the disease of addiction along with other substance use problems and the significant role it occupies in the morbidity and mortality in our patients. Students and residents in all specialties should be properly trained at a minimum in screening, brief intervention, and treatment planning.

Better education is needed in the prescribing of opioids, a clear threat to US youth and the entire nation. Most health professionals reading this article have witnessed the tremendous transformation that takes place as patients are treated for this illness and begin to regain their health. Physicians can play an important and extremely satisfying role in engagement and treatment. All patients should have the right to treatment, and osteopathic physicians are in a strong position to assist in seeing that they do. Education is a key element.

For more information on the Leadership Conference and its follow-up activities, contact the author at SAWyatt@sbcglobal.net.

Acknowledgment

The authors would like to acknowledge the support of Bonnie Wilford, MS, conference facilitator, Johnson, Bassin & Shaw, Inc, and

the Office of National Drug Control Policy in completing this article.

References

1. Wyatt SA, Vilensky W, Manlandro JJ Jr, Dekker MA. Medical education in substance abuse: from student to practicing osteopathic physician. *J Am Osteopath Assoc*. 2005;105(6 suppl 3):S18-S25. Available at: http://www.jaoa.org/cgi/content/full/105/6_suppl_3/S18. Accessed September 6, 2007.

2. *Committee on Crossing the Quality Chasm: Adaptation to Mental Health and Addictive Disorders Board on Health Care Services,Institute of Medicine of the National Academies.* Improving the Quality of Health Care for Mental and Substance-Use Conditions. Washington, DC: The National Academies Press; November 1, 2005.

3. Katon WJ. The Institute of Medicine "Chasm" report: implications for depression collaborative care models. *Hosp Psychiatry* 2003;25:222-229

4. SAMSHA, Office of Applied Studies. *State Estimates of Substance Use, Appendix B: Tables of Model-based Estimates (50 States and the District of Columbia), by Substance.* Rockville, Md: Substance Abuse and Mental Health Services Administration; 2005.

5. Screening adds to prevention and treatment. *SAMHSA News*. Substance Abuse and Mental Health Services Administration. January/February 2006;14:6.

6. Fleming M, Manwell LB: Brief intervention in primary care settings. A primary treatment method for at-risk, problem and dependent drinkers. *Alcohol Res Health*. 1999;23:128-137.

7. Ockene JK, Adams A, Hurley TG, Wheeler EV, Hebert JR. Brief physician- and nurse practitioner-delivered counseling for high-risk drinkers: does it work?. *Arch Intern Med*. 159:2198-2205. Available at: http://archinte.ama-assn.org/cgi/content/full/159/18/2198. Accessed August 22, 2007.

8. Weisner C, Matzger H. A prospective study of the factors influencing entry to alcohol and drug treatment. *J Behav Health Serv Res*. 2002;29(2):126-137

9. Mundt MP. *Analyzing the costs and benefits of brief intervention.* Economic Perspectives: Screening and Intervention, National Institute of Alcohol Abuse and Alcoholism Mongraph. 2006;29. Available at: http://pubs.niaaa.nih.gov/publications/arh291/34-36.htm. Accessed August 22, 2006.

10. Gordis E. Conceptual advances in understanding alcoholism. In: AW Graham AW, Schultz TK, Mayo-Smith MF, Ries RK, Wilford BB, eds. *Principles of Addiction Medicine*. 3rd ed. Chevy Chase, Md: American Society of Addiction Medicine; 2003.

11. Leshner AI.. Understanding drug addiction: Insights from the research. In: Graham AW, Schultz TK, Mayo-Smith MF, Ries RK. Wilford BB, eds. *Principles of Addiction Medicine*. 3rd ed. Chevy Chase, Md: American Society of Addiction Medicine; 2003.

12. Institute of Medicine. *Treating Drug Problems.* Washington, DC: National Academies Press; 1990.

13. Nestler EJ. Basic neurobiology of opioid addiction. In: Stine SM, Kosten TR, eds. *New Treatments for Opioid Dependence*. New York, NY: Guilford Press; 1997;286.

14. Koob GF, Roberts AJ, Schulteis G, et al. (2000). Neurocircuitry targets in ethanol reward and dependence. *Alcohol Clin Exp Res*. 1998;22(1):3-9.

15. McLellan AT, Lewis DC, O'Brien CP, Kleber HD. Drug dependence, a chronic medical illness: Implications for treatment, insurance, and outcomes evaluation. *JAMA*. 2000;284:1689-1695.

16. Johnson RE, McCagh JC. Buprenorphine and naloxone for heroin dependence. *Current Psychiatry Reports*. 2000;2:519-526.

17. Kranzler HR, Van Kirk J. Efficacy of naltrexone and acamprosate for alcoholism treatment: a meta-analysis. *Alcohol Clin Exp Res*. 2001;25:1335-1341.

18. O'Malley SS, Froehlich JC. Advances in the use of naltrexone: an integration of preclinical and clinical findings. *Recent Dev Alcohol*. 2003;16:217-245.

19. Varenicline (Chantix) for tobacco dependence. (2006). *Med Lett Drugs Ther*. 2006;48(1241-1242):66-68.

20. Higgins ST, Petry NM. Contingency management. Incentives for sobriety. *Alcohol Res Health*. 1999;23(2):122-127.

21. Miller WR. Spirituality, treatment, and recovery. *Recent Dev Alcohol*. 2003;16:391-404.

22. Tonigan JS. Project Match treatment participation and outcome by self-reported ethnicity. *Alcohol Clin Exp Res*. 2003;27:1340-1344.

23 Weisner C, Matzger H, Kaskutas LA. How important is treatment? One-year outcomes of treated and untreated alcohol-dependent individuals. *Addiction*. 2003;98:901-911.

24. Fleming MF. Screening, assessment, and intervention for substance use disorders in general health care settings. In: *Project Mainstream: Strategic Plan for Interdisciplinary Faculty Development: Arming the Nation's Health Professional Workforce for a New Approach to Substance Use Disorders: Part I. Evidence Supporting the Strategic Plan*. Providence, RI: Association for Medical Education and Research in Substance Abuse; 2002.

25. National Institute on Drug Abuse. *The Economic Costs of Alcohol and Drug Abuse in the United States—1992. Rockville, Md: National Institute on Drug Abuse, National Institutes of Health; 1998. Available at: http://www.nida.nih.gov/EconomicCosts/Index.html. Accessed August 22, 2007.*

26. Bradley KA. The primary care practitioner's role in the prevention and management of alcohol problems. *Alcohol Health Res World*. 1994:18(2):97-104.

27. Bush B, Shaw S, Cleary P, Delbanco TL, Aronson MD. Screening for alcohol abuse using the CAGE questionnaire. *Am J Med*. 1987;82:231-235.

28. Bien TH, Miller WR, Tonigan JS. Brief interventions for alcohol problems: a review. *Addiction*. 1993;88:315-336.

29. Fleming MF, Barry KL, Manwell LB, Johnson K, London R. Brief physician advice for problem alcohol drinkers. A randomized controlled trial in community-based primary care practices. *JAMA*. 1997;277:1039-1045.

30. Monti PM, Colby SM, Barnett NP, Spirito A, Rohsenow DJ, Myers M, et al.(1999). Brief intervention for harm reduction with alcohol-positive older adolescents in a hospital emergency department. *J Consult Clin Psychol*. 1999;67:989-994.

31. Lewis DC. Training about alcohol and substance abuse for all primary care physicians. Paper presented at: Training About Alcohol and Substance Abuse for All Primary Care Physicians (conference). New York, NY: Josiah Macy, Jr Foundation; October 2-5, 1994.

32. Gentilello LM, Rivara FP, Donovan DM, Jurkovich GJ, Daranciang E, Dunn CW, et al. Alcohol interventions in a trauma center as a means of reducing the risk of injury recurrence. *Ann Surg*. 1999;230:473-480. Available at: http://www.pubmedcentral.nih.gov/articlerender.fcgi?tool=pubmed&pubmedid=10522717. Accessed August 22, 2007.

33. Pew Health Professions Commission. Critical Challenges: Revitalizing the Health Professions for the 21st Century. San Francisco, Calif: University of California Press; 1995.

34. Harvard University and The Robert Wood Johnson Foundation. (2000). Report on public attitudes toward illegal drug use and drug treatment (telephone survey of 1,012 adults conducted by International Communications Research); 2000. [Unpublished slide presentation].

35. http://www.osteopathic.org/pdf/ost_factsheet.pdf.

36. http://www.ama-assn.org/ama1/pub/upload/images/373/internettable.gif.

37. Association of American Colleges of Osteopathic Medicine. AACOM/AOA Annual Osteopathic Medical School Questionaire. 2005-06 academic year.

38. Association of American Medical Colleges. *Annual Report 2006*. Available at: http://www.aamc.org/about/annualreport06.pdf. Accessed August 8, 2007.

39. Montalto NJ, Ferry LH, Stanhiser T. Tobacco dependence curricula in undergraduate osteopathic medical education. *J Am Osteopath Assoc*. 2004;104:317-323. Available at: http://www.jaoa.org/cgi/content/full/104/8/317. Accessed September 6, 2007.

40. Singer AM. *2003 Annual Statistical Report on Osteopathic*

Medical Education. Chevy Chase, Md: American Association of Colleges of Osteopathic Medicine; 2004.

41. Singer AM. *Debt, Plans and Opinions of Osteopathic Medical Students in 2003*. Chevy Chase, Md: American Association of Colleges of Osteopathic Medicine; 2004.

42. Conigliaro J, Delos Reyes C, Parran TV, Schulz JE. Principles of screening and early intervention. In Graham AW, Schultz TK, Mayo-Smith MF, Ries RK, Wilford BB, eds. *Principles of Addiction Medicine.* 3rd ed. Chevy Chase, Md: American Society of Addiction Medicine; 2003.

43. Davis AK, Cotter F, Czechowicz D. Substance abuse units taught by four specialties in medical schools and residency programs. *J Med Educ*. 63:739-746.

44. Fleming MF, Manwell LB, Kraus M, Isaacson JH, Kahn R. Stauffacher EA. Who teaches residents about the prevention and treatment of substance use disorders? *J Fam Pract*. 1999;48:725-729.

45. Isaacson JH, Fleming MF, Kraus M, Kahn R, Mundt M. A national survey of training programs in SUD in residency programs. *Journal of Studies on Alcohol*. 2000;61:912-915

46. Arfken CL, Agius E, Dickson M. Clinicians' information sources for new substance abuse treatment. *Adict Behav*. 2005;30:1592-1596.

47. Fiellin DA, Butler R, D'Onofrio G, Brown RL, O'Connor PG. The physician's role in caring for patients with substance use disorders: implications for medical education and training. In: *Project Mainstream: Strategic Plan for Interdisciplinary Faculty Development: Arming the Nation's Health Professional Workforce for a New Approach to Substance Use Disorders: Part II. Discipline-Specific Recommendations for Faculty Development.* Providence, RI: Association for Medical Education and Research in Substance Abuse; 2002.

Resources for Substance Abuse and Treatment Information

FEDERAL GOVERNMENT ABUSE- AND HEALTH-RELATED WEB SITES

- **Agency for Healthcare Research and Quality (AHRQ)**
  www.ahrq.gov
- **Center for Substance Abuse Treatment (CSAT)**
  csat.samhsa.gov
- **Health Resources and Services Administration (HRSA)**
  www.hrsa.gov
- **National Clearinghouse for Alcohol and Drug Information (NCADI)—A Department of Health and Human Services and SAMHSA Web site**
- **National Institute on Drug Abuse (NIDA)**
  www.nida.nih gov
- **Office of National Drug Control Policy (ONDCP)**
  www.whitehousedrugpolicy.gov
- **Substance Abuse and Mental Health Services Administration**
  www.samhsa.gov
- **US Department of Justice, Drug Enforcement Administration (DEA), Diversion Control Program**
  www.deadiversion.usdoj.gov
- **US Food and Drug Administration (FDA), Center for Drug Evaluation and Research/Subutex and Suboxone Questions and Answers**
  www.fda.gov/cder/drug/infopage/subutex_suboxone/default.htm

OTHER SUBSTANCE ABUSE–RELATED WEB SITES

- **Buprenorphine in the Treatment of Opioid Addiction: A Counselor's Guide**
  www.ceattc.org
- **Addiction Treatment Watchdog (ATW)**
  www.atwatchdog.org
- **American Association for the Treatment of Opioid Dependence (AATOD)**
  www.aatod.org
- **Narcotics Anonymous**
  www.na.org
- **National Alliance of Methadone Advocates (NAMA)**
  www.methadone.org
- **Project Cork, Authoritative Information on Substance Abuse, Dartmouth Medical School**
  www.projectcork.org
- **Reckitt Benckiser Suboxone Web site**
  www.suboxone.com/Suboxone
- **Reckitt Benckiser Buprenorphine Bibliography**
  www.coretext.org