

Addiction Medicine: A Model Osteopathic Medical School Curriculum

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The World Health Organization has identified nicotine, alcohol, and illicit drugs as among the top 10 contributors of morbidity and mortality in the world. Substance use disorders are preventable conditions that are major contributors to poor health, family dysfunction, and various social problems in the United States—problems that have a profound economic impact. The American Osteopathic Academy of Addiction Medicine seeks to promote teaching of addiction medicine at colleges of osteopathic medicine (COMs), which—honoring the osteopathic concepts of holistic medicine and disease prevention—are well poised to develop a model addiction medicine curriculum. Educators and students at COMs can use guidelines from Project MAINSTREAM, a core addiction medicine curriculum designed to improve education of health professionals in substance abuse, for developing addiction medicine curricula and for gauging their professional growth. These guidelines should be incorporated into the first 2 years of osteopathic medical students' basic science didactics. The authors encourage the development of addiction medicine courses and curricula at all COMs.

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Addictive disorders continue to produce severe impacts on public health. The World Health Organization has identified nicotine and alcohol as two of the top three contributors of morbidity and mortality in the world, with illicit drug use also in the top 10.¹ In another testament to the widespread incidence of addictive disorders, the 2007 National Survey on Drug Use and Health² reported that 9%

of the US population met diagnostic criteria for an alcohol or drug disorder.

Problem drinkers—defined as individuals having a consumption pattern that averages more than one drink per day for women and more than two drinks per day for men—often have collateral mental illness. For example, an increased incidence of mood disorders has been observed in heavy drinkers.³ The toll from heavy drinking also includes an increase in the probability of illness or injury.^{4,5} One in four deaths in the United States each year result from a substance use disorder (SUD), and these disorders, in turn, result in more fatalities, illnesses, and disabilities than any other preventable health condition.⁶

Because medical school curricula have great influence on healthcare in the United States, increased incorporation of addiction medicine in medical school curricula would likely be beneficial to public health. However, intense competition exists for the limited space in medical school curricula. A medical school's administrators must plan prudent development of the curriculum to avoid educational gridlock. Any addition to a medical school curriculum faces a variety of obstacles. In some cases, the crowded curriculum can accommodate a new element only by deleting an existing one—at the displeasure of those educators and students who are displaced in the process.

One of the principle missions of the American Osteopathic Academy of Addiction Medicine (AOAAM) is to promote the teaching of addiction medicine at colleges of osteopathic medicine (COMs). This mission complements the tradition of COMs instilling the principles of holistic health and disease prevention in their students. In addition, changes in US healthcare are likely to place increasing emphasis on primary prevention—an area in which we believe COMs are positioned to assume a leadership role.

In the present article, we describe the rationale for including addiction medicine in medical school curricula—for the benefit of patients and medical students—and we outline the various steps in creating such a program. We also describe Project MAINSTREAM, identify that initiative's curricular guidelines, and present suggestions for implementing its goals.

Rationale for Addiction Medicine Curriculum

There are numerous reasons that COM curricula should include the study of SUDs, which are preventable conditions

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that, collectively, are the single greatest contributor to poor health, family dysfunction, and social problems in the United States and many other countries.⁷ Although downward trends have been reported in certain aspects of SUDs, the seemingly encouraging statistics can be misleading. For example, although the absolute number of alcohol-related traffic fatalities has decreased in the past 20 years,⁸ drivers under the influence of alcohol are still responsible for approximately 40% of all fatal traffic accidents.⁸ In addition, various factors not related to SUD incidence, such as advances in automotive engineering that emphasize passenger safety, may play roles in reducing all kinds of traffic fatalities.

Beyond the morbidity and mortality associated with SUDs, the economic impact of these disorders—measured in terms of direct and indirect health costs, lost productivity, and a host of social problems—results in a staggering \$25-billion blight on the US economy.⁹

A COM addiction medicine curriculum should address these issues, as well as the mostly silent problem of physician addiction. Substance use disorders ranked as the second most common cause of physicians being referred for disciplinary action to the Medical Board of California in a 1998 report¹⁰—one of the few published reports on this subject. Educators at COMs can help osteopathic medical students understand and identify the developmental course of substance misuse—both in themselves and in their colleagues. Such education might provide valuable guidance during a COM alumnus's career, such as by helping the alumnus offer appropriate intervention to a fellow osteopathic physician who is quietly succumbing to addiction.

The stress of medical school is sometimes reflected in substance misuse among students. A study exploring and comparing health-related behaviors among medical students, residents, and practicing physicians showed that medical students were most likely to use tobacco and alcohol.¹¹ In another study,¹² first-year medical students were found to increase their overall alcohol consumption as they began their long, arduous educational journey.

In an effort to identify risk factors associated with substance misuse, a longitudinal study¹³ explored physician behaviors after graduation from medical school. The study¹³ identified uninterrupted tobacco use, a regular pattern of alcohol consumption, and a serious alcohol-related incident (eg, arrest for driving while intoxicated) as predictive factors for future problem drinking. By having addiction medicine curricula, COMs can help their students be more attentive to these potential problems and more capable of dealing with problems when they arise.

In our opinion, part of the reluctance of medical schools to adopt rigorous addiction medicine curricula might be related to a lingering sense of treatment futility for patients with SUDs. Such perceptions often overshadow reality, and only education can slowly chip away at these long-held beliefs. Osteo-

pathic medical schools can partner with specialists in addiction medicine to reveal “the rest of the story” to students.

Addiction medicine is a dynamic profession, attractive to both clinicians and researchers. The result of this dynamism is a growing optimism—based on a solid medical foundation—that effective evidenced-based treatments for patients with addictive disorders now exist.¹⁴ Specialists in addiction medicine recognize the chronic course of addictive disorders, the importance of long-term treatment, and the need to tailor interventions accordingly.¹⁵ Medical students might be surprised by recent advances in addiction medicine, and education about these advances may modify pessimistic beliefs regarding this subject.

Current Applications of Addiction Medicine in Curricula

Despite the high incidence of addictive disorders and the resulting huge health and economic toll in the United States, as well as the severe consequences of medical student SUDs, most medical schools lack sustained multiyear training in addiction medicine.¹⁶ Exceptions do exist, however. Five Canadian medical schools launched the innovative Curriculum Renewal and Evaluation of Addiction Training and Education (CREATE) program in the 1990s.¹⁷ The CREATE program included both core and specialty training modules devoted to the clinical management of substance misuse. The program also addressed the issue of social stigma associated with SUDs.¹⁷

Also in the 1990s, Gray et al¹⁸ proposed a comprehensive health-and-lifestyle policy for Newcastle Medical School in the United Kingdom that addressed the social, educational, and treatment needs of medical students. The policy, which covered alcohol, physical activity, sexual health, stress, occupational health and safety, and diet in the curriculum, was later implemented at the school.

In 2009, educators at the Western Regional Training Center for Fetal Alcohol Exposure at the University of California at Los Angeles reported using problem-based learning to integrate issues of substance misuse into the curriculum.¹⁹ The report described methods in which medical students were taught about the management of fetal alcohol disorders.¹⁹

Educators at some COMs have implemented novel approaches to teaching about addiction medicine. For example, at Midwestern University/Arizona College of Osteopathic Medicine in Glendale, a comprehensive addiction medicine curriculum stimulates student interest in and discussion of SUDs. This curriculum uses clips from popular commercial movies and special educational movies to dramatize the personal damage resulting from substance dependence (Steven Boles, DO, written communication, January 2010).

At Pikeville College School of Osteopathic Medicine in Kentucky, educators use the SUD curriculum outline developed in Project MAINSTREAM²⁰—as described in the following section and depicted in *Figure 1*—to incorporate SUD

Project MAINSTREAM Core Curriculum Guidelines on Addiction Medicine: Student Knowledge Goals

- **Screening, Prevention, and Brief Intervention**
 - screening patients for substance use disorders
 - performing preventive counseling and brief interventions
- **Evaluation and Management**
 - understanding etiologic, neurobiologic, and epidemiologic factors of substance use disorders
 - evaluating patients with substance use disorders and staging the disorders
 - referring such patients to specialized addiction services that match patients' individual treatment needs
 - addressing needs of special populations, such as adolescents and older adults
- **Co-occurring Disorders**
 - identifying and managing, or appropriately referring, patients with medical conditions and psychiatric disorders that co-occur with, or are complications of, substance use disorders
- **Legal and Ethical Issues**
 - understanding and being prepared to address the legal and ethical issues raised by the diagnosis and treatment of patients with substance use disorders
- **Prescriber Education and Prevention of Prescription Drug Abuse**
 - understanding and being prepared to address the clinical, legal, and ethical issues involved in prescribing medications with abuse potential
 - monitoring patients for potential nonmedical use of such medications and addressing any indications of such nonmedical use
- **Impaired Health Professionals**
 - recognizing substance use disorders in fellow physicians or other health professionals
 - making appropriate referrals so as to protect patients and the public while helping the impaired individual obtain treatment

Figure 1. Core addiction medicine curriculum guidelines for undergraduate medical education, as developed by Project MAINSTREAM.²⁰

material into the school's curriculum. This COM also uses Webcasts to make the material available to students at off-campus locations (John Scanlon, DO, written communication, January 2010).

Results from a small collection of surveys of medical students and residents suggest that topics in addiction medicine

are likely to be greeted with a poor reception.^{16,21,22} Survey responses indicate that part of this chilly reception is based on the stigma associated with SUDs. Thus, faculty members responsible for designing an addiction medicine course need to recognize the reality of this stigma and—perhaps through the use of small group discussions—explore the issue in detail with students.

Constructing a Core Addiction Medicine Curriculum

In our opinion, an excellent core addiction medicine curriculum has been established by Project MAINSTREAM.²⁰ This initiative is part of the Interdisciplinary Project to Improve Health Professional Education on Substance Abuse, which is administered by the Health Resources and Services Administration-Association for Medical Education and Research in Substance Abuse-Substance Abuse and Mental Health Services Administration/Center for Substance Abuse Treatment. Project MAINSTREAM has trained numerous fellows in several interdisciplinary faculty learning groups, each of which has worked collaboratively, across professions, on curriculum and field projects. Curriculum projects have involved improving SUD curricula in the fellows' professions, and field projects have involved improving SUD services in clinical and community settings.²⁰

Curriculum guidelines developed as part of Project MAINSTREAM are outlined in *Figure 1*. Educators and students at COMs can use the goals of Project MAINSTREAM to guide curriculum development and to gauge personal and professional growth. Project MAINSTREAM guidelines should be incorporated into the first 2 years of the osteopathic medical student's basic science didactics.²⁰

The Project MAINSTREAM model addiction medicine curriculum, based on the guidelines in *Figure 1*, provides the foundation upon which COM educators can develop and present specific SUD topics for osteopathic medical students. For example, the well-documented advantages of substance use screening and brief interventions can be taught to osteopathic medical students, thereby providing students with efficient, powerful tools to treat patients.²⁰ The reluctance to identify and discuss patients' alcohol and drug histories becomes a non-threatening issue when osteopathic physician educators teach appropriate skills to students. Familiarity with effective screening tools and brief therapeutic interventions will strengthen the osteopathic medical student's typically poor confidence in detecting the presence of SUDs.^{23,24}

Educating medical students about SUDs has been shown to generate benefits in patient care. Manwell et al²⁵ reported greater diagnostic detection of substance misuse by medical students who completed a course on addiction medicine. By contrast, lack of education produces the opposite effect. Lee et al²⁶ analyzed responses on questionnaires given to 123 medical students who read case reports and then answered questions on diagnosis and clinical judgment. The researchers found

that medical students without proper mentoring can develop fixed attitudes about SUDs as they progress through school, with the belief that treatment for SUDs “is repetitive and detracts from the care of others.”²⁶

The goals of an addiction medicine curriculum also support educational efforts directed toward safe, effective use of prescription narcotics. Pain management forms a complex intersection where humane treatment and addiction sometimes collide. An individual with opioid dependence, for example, may require effective pain relief after suffering a severe injury. Specialists in addiction medicine can guide medical students through this thorny subject, using practical clinical scenarios that highlight possible dilemmas and solutions. Through this process, students will learn to manage patient expectations, review nonpharmacologic treatment strategies, and reduce the incidence of inappropriate prescribing by misinformed physicians.²⁷

As students progress through medical school, a core addiction medicine curriculum will promote a uniform and consistent message. The core curriculum will also serve as an outline for advanced study, preparing students for certifying examinations and responsible medical practice. Special curriculum topics in the clinical years of education might include substance misuse during pregnancy, the impact of maternal addiction on the newborn, SUD-related challenges posed to teenagers by peer pressure, and co-occurring disorders associated with SUDs.²⁸

The inclusion of both general and special topics in the curriculum serves to address a common medical myopia—focusing on a substance-related medical problem while missing the real etiologic factors involved in the problem. Elements of a core curriculum that reflect the Project MAINSTREAM directives²⁰ would balance general and specific addiction medicine themes. Medical students should learn about screening tools for identifying patients with SUDs, techniques for performing preventive counseling and brief interventions, the science of addiction medicine, the role of integrated treatment for co-occurring disorders, legal and ethical issues, prevention of prescription drug abuse, and issues concerning impaired providers (*Figure 1*).

The concept of using guidelines for addiction medicine curriculum development receives further support from the Patient-Centered Medical Home model of primary care medicine, which emphasizes addiction medicine and science training for the primary care provider.²⁹ In December 2008 the Betty Ford Institute in Rancho Mirage, California, hosted a conference addressing this aspect of primary care. Specialists in primary care and subspecialists in addiction medicine joined forces in this unique round-table conference. One of us (S.A.W.), representing the interests of the AOAAM, collaborated with national and international colleagues in authoring important academic recommendations.³⁰ These recommendations are shown in *Figure 2*.

Integration of Addiction Medicine and Science Into Primary Care

- The competencies required for screening, brief intervention, diagnosis, referral, and management of patients with the full spectrum of substance use disorders must be integrated into the curriculum for residents in internal medicine, family medicine, and other primary care specialties.
- The teaching of these competencies must be afforded the same level of priority as the teaching of other major medical illnesses. The methods, approaches, and environments used to teach about substance use disorders should be identical to those used to teach about other major diseases in internal medicine, family medicine, and other primary care specialties.
- Those who teach and model these competencies must include members of the residency training specialty (eg, internists, family physicians) in order to demonstrate role responsibility and to appropriately tailor curricula to the relevant specialty setting, including inpatient and outpatient settings.
- Faculty development efforts must be initiated and funded sufficiently to assure that each accredited residency program in internal medicine and family medicine has at least one faculty member with demonstrated expertise in the designated competencies centrally involved in curriculum development and teaching of residents and faculty.
- Within academic centers, a program, division, or other organizational entity must be designated as responsible for the curriculum, faculty development, and outcome measurement related to the teaching about substance use disorders across all clinical departments. The existence of such an entity, integrated into the organizational structure of the academic center, is necessary to ensure that didactic, experiential, and bedside clinical teaching takes place reliably, consistently, and over the long term. Such an organizational entity should involve faculty members from several disciplines, such as medicine, psychology, nursing, and social work.
- Training and practice in prevention, screening, brief intervention, diagnosis, referral, and treatment for substance use disorders must play an integral role in the still evolving Patient-Centered Medical Home model of primary care medicine, including universal training in screening, brief intervention, and referral to treatment for all primary care physicians.

Figure 2. Academic recommendations for the integration of addiction medicine and science into primary care, as presented at A Critical Issues Consensus Conference, held in December 2008 at the Betty Ford Institute in Rancho Mirage, California.³⁰

Financial Reimbursement

Osteopathic physicians should welcome financial incentives rewarding the identification and management of SUDs. Evidence-based approaches that demonstrate improved treatment outcomes, such as the Screening, Brief Intervention, and Referral to Treatment (SBIRT) paradigms,³¹ offer compelling arguments supporting reimbursement for SUD-related treatments. Such reimbursement is now available, in part through the establishment of Current Procedural Terminology (CPT) codes for SBIRT.³² These codes (CPT code 99408 for screening, CPT code 99409 for brief intervention³²) have been accepted by Medicare and Medicaid programs and by some private insurers.

Compensation for clinical work is important, but the real take-home message is that education on principles of addiction medicine improves patient care.

Conclusion

Addiction medicine is an exciting field of research, education, and treatment. Unfortunately, a message of hope and optimism regarding this field is often not imparted to medical students, leaving students and healthcare practitioners encumbered by a clinical nihilism out of synch with the scientific advances in addiction medicine. The importance of providing patients with screening for SUDs—and brief interventions when indicated—is now recognized as a clinical service deserving of reimbursement.

Educators at some medical schools, including COMs, have designed robust addiction medicine courses. Collaborations among specialists in addiction medicine and other medical professionals can promote a dialogue that produces conjoint training recommendations.

Prevention of illness and injury, which is central to any discussion of SUDs, will probably become an increasingly important issue as Americans debate the future of US healthcare delivery. Osteopathic medical schools, honoring the osteopathic concepts of holistic medicine and disease prevention, are well poised to develop the model addiction medicine curriculum.

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