Why Physicians Are Unprepared to Treat Patients Who Have Alcohol- and Drug-related Disorders

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**Abstract**

Most primary care physicians do not feel competent to treat alcohol- and drug-related disorders. Physicians generally do not like to work with patients with these disorders and do not find treating them rewarding. Despite large numbers of such patients, the diagnosis and treatment of alcohol- and drug-related disorders are generally considered peripheral to or outside medical matters and ultimately outside medical education. There is substantial evidence that physicians fail even to identify a large percentage of patients with these disorders.

Essential role models are lacking for future physicians to develop the attitudes and training they need to adequately approach addiction as a treatable medical illness. Faculty development programs in addictive disorders are needed to overcome the stigma, poor attitudes, and deficient skills among physicians who provide education and leadership for medical students and residents. The lack of parity with other medical disorders gives reimbursement and education for addiction disorders low priority. Medical students and physicians can also be consumers and patients with addiction problems. Their attitudes and abilities to learn about alcohol- and drug-related disorders are impaired without interventions. Curricula lack sufficient instruction and experiences in addiction medicine throughout all years of medical education. Programs that have successfully changed students’ attitudes and skills for treatment of addicted patients continue to be exceptional and limited in focus rather than the general practice in U.S. medical schools.

The authors review the findings of the literature on these problems, discuss the barriers to educational reform, and propose recommendations for developing an effective medical school curriculum about alcohol- and drug-related disorders.


Despite the enormous costs to individuals and society from alcohol- and comorbid drug-related disorders (see the sidebar for the disturbing statistics) a recent study found that the average four-year medical school devoted a total of only 12 hours of curricular time to these disorders. Studies conducted a decade apart showed a consistent pattern of increasingly negative attitudes toward such disorders on the part of medical students and residents as their levels of training and clinical experience increased. Studies show that physicians generally have negative and pessimistic views about these disorders and do not routinely screen patients in general practice for them. In general, physicians do not feel competent treating alcohol-related disorders, do not like working with patients who have these disorders, and do not find treating these patients rewarding. Essential role models are lacking for future physicians to develop attitudes and skills to treat patients with addictive diseases, resulting in an endless loop of physician ignorance and neglect regarding addictions. We review the findings of the literature with respect to these problems, the many deficiencies in medical school and residency addiction education, and the barriers to educational reform. We conclude by proposing recommendations for developing an effective medical school curriculum about alcohol- and drug-related disorders.
Drug and Alcohol Disorders: A National Problem

In the Epidemiological Catchment Area (ECA) study, a survey of mental health and substance disorders in almost 20,000 adult Americans, the lifetime prevalence of alcohol abuse/dependence was 13.5% in the general U.S. population in the 1980s. A decade ago, the Institute of Medicine reported that approximately 6.4% of the U.S. population over the age of 12 probably need treatment for alcohol-use disorders. During the same period, the lifetime incidence of alcohol and comorbid drug disorders affected approximately 20% of the population. We see no evidence that these percentages have improved.

The use of alcohol is associated with increased morbidity and mortality. A survey of causes of death in the United States between 1977 and 1993 found that alcohol was responsible for 100,000 deaths. By comparison, heart disease accounted for 720,000 deaths, and cancer, 505,000. The study classified alcohol disorders as "external (nongenetic) factors," despite the similarities of alcohol disorders to coronary artery disease and cancer in terms of genetic influences and lifestyle behaviors. Unfortunately, such an extraneous classification reflects the prevailing attitude that these disorders are personal choices. Early diagnosis and treatment can significantly change the course and outcome of each of these chronic diseases, including alcoholism.

Surveys in the early 1990s showed that 5% of all deaths in the United States were directly attributable to alcohol-related problems. Alcohol use and alcoholism also contributed to 60–90% of deaths from cirrhosis, 40–50% of motor vehicle fatalities, two million nonfatal motor vehicle injuries, 16–67% of home and job injuries, drownings, and fire fatalities, and 3–5% of deaths due to cancer. One study estimates that alcohol use and alcoholism are responsible for 15% of the years of life lost before age 65. In 1987, a total of 105,095 deaths were caused by alcohol, including 30,000 from unintentional injuries, 19,600 from digestive diseases (including cirrhosis), 17,700 from intentional injuries, and 16,000 from cancers.

Alcohol and drug use have a substantial economic impact, accounting for 25% of the national health-care budget in 1995 and costing the U.S. economy $300 billion per year in 1994, when both direct and indirect costs such as crime and impact on mental health are considered; even accounting for inflation, these costs have not gone down and probably have gone up. Thirty-four billion of these dollars are ascribed to direct health-care costs. A small percentage of these dollars goes to prevention and treatment: in 1993, an estimated $20 billion were spent on treatment of addictions and $5 billion were spent on prevention. In 1998, alcoholism and comorbid drug addiction were associated with 25–50% of general medical admissions and 50–75% of psychiatric admissions, and contributed to costs and medical complications of patients admitted to hospitals for other reasons.

According to the ECA study, 30% of alcoholics qualify for a comorbid drug dependence. This figure may be lower than the true prevalence, since it was based on self-report, which tends to be lower than actual usage. Over 80% of alcoholics in treatment populations are dependent on at least one other drug. Concurrent use of alcohol, marijuana, and cocaine is typical among alcoholics admitted to inpatient and outpatient treatment programs.

Lack of Curricular Change

Curriculum deans at all (at that time) 124 accredited allopathic medical schools in the United States were surveyed in 1996 regarding their curricula in alcohol- and comorbid drug-related disorders. Responses were received from 66 (53%) of the schools on the first mailing. Below are highlights of the findings:

Severe deficiencies existed in the amounts of time dedicated to these disorders, especially when considered in light of their prevalence in the general population. Distributions of both lecture hours and discussion hours were positively skewed, with a mean number of lecture hours of 6.9 (median 5.0 hours) and mean discussion hours of 5.4 (median 4.0). The mean of combined lecture and discussion hours was 12.9 (median 11.5). Both lecture and discussion were used at 36% of the schools. Lecture alone was used at 20% of schools, and discussion alone at 3%. The remaining 41% of schools indicated neither lecture nor discussion hours.

Static curricula reflected another deficiency in addiction education. When asked how hours devoted to this topic had changed over the three years prior to the survey, 57% of schools responding to the question said that the hours had remained the same. Thirty-six percent said that the hours had increased, and 6% said that the hours had decreased. Nineteen schools did not respond to this question.

Identification of Barriers

There are a number of studies of barriers to changing the attitudes and practices of medical students, residents, and physicians with respect to the treatment of addictive disorders. We categorized these studies according to the following hypotheses of what the barriers are: (1) Lack of acceptance by faculty and physicians of the medical model for addictive diseases, (2) lack of faculty and physician role models, (3) curricular deficits in medical schools and residencies, (4) lack of parity and physician advocacy in medical education,
that include addictive use in humans and animals. Identification of neuroreceptors responsible for drug effects (opioid, GABA, serotonin, and glutamate) are leading to receptor ligand techniques for neurotransmitters (dopamine, alcohol and drugs have been identified in animal and human brains. Response to administration of alcohol and other addicting pathways that are activated and permanently altered in response to the behavioral syndromes of addiction. Neural (mesolimbic) control over alcohol and drug use and that correlate with are clearly neurosubstrates in the brain that mediate loss of evidenced the disease concept of alcohol and drug addiction. There the view of addiction as a “brain disease” had led to earnest efforts to find biologic explanations of addictive use of alcohol and drugs and to develop medications for physicians to use in treating addictive disorders.

Recent advances in neurobehavioral science have solidified the disease concept of alcohol and drug addiction. There are clearly neurosubstrates in the brain that mediate loss of control over alcohol and drug use and that correlate with behavioral syndromes of addiction. Neural (mesolimbic) pathways that are activated and permanently altered in response to administration of alcohol and other addicting drugs have been identified in animal and human brains. Receptor ligand techniques for neurotransmitters (dopamine, opioid, GABA, serotonin, and glutamate) are leading to identification of neuroreceptors responsible for drug effects that include addictive use in humans and animals. Various imaging techniques (i.e., computed tomography, magnetic resonance imaging, positron emission tomography, and single-photon emission computed tomography) have identified specific areas in the limbic system of the human brain that reflect behavioral cravings for alcohol and drugs. Furthermore, acute and chronic administration of alcohol and other addicting drugs in humans is documented to result in reversible and irreversible focal and diffuse changes in the brain.

Lack of Acceptance of the Medical Model for Addictive Diseases

Identification and discussion of research on and education about biologic change in the brain antecedent to the behaviors of alcoholism and drug addiction are lacking in medical education curricula. Exclusion of information about such basic biologic factors inhibits students’ adoption of the disease concept of addiction. Physicians may be more likely to detect addiction and intervene in the management of addicted patients if they understand the physical effects of and medical approaches to addictive disorders in addition to being aware of other effective interventions. For instance, the view of addiction as a “brain disease” had led to earnest efforts to find biologic explanations of addictive use of alcohol and drugs and to develop medications for physicians to use in treating addictive disorders.

Lack of Positive Attitudes and Role Models among Faculty and Physicians

Studies have shown that physicians generally have negative and pessimistic attitudes about patients with alcohol-related and other drug-related problems. Physicians do not actively screen for these disorders as a part of routine practice, and they accept the prevalent stereotype of the alcoholic or drug addict as a patient whose social and medical prognosis is poor. As mentioned earlier, studies conducted a decade apart showed a consistent pattern of trainees’ increasingly negative attitudes, with progressive increases as their levels of training and clinical experience increased. Attitudes of housestaff were more negative regarding the alcoholic than were those of second-year medical students, who in turn were more negative than first-year medical students.

During the development of a substance-abuse curriculum for five medical schools in North Carolina, several factors were listed as having the potential to adversely affect physicians’ abilities and willingness to respond to students’ demands for more information and experience in addressing issues surrounding substance abuse: (1) the amount of information physicians have about substance abuse, (2) their levels of comfort in addressing these issues, (3) their attitudes, and (4) their reluctance to admit their own lack of knowledge or skills in this area. It was found that continuing medical education about drug- and alcohol-related disorders was necessary in order for physicians to “feel confident in implementing the appropriate intervention.”

According to a 1991–92 survey on substance-abuse education, a total of 386 physicians (from 116 of 124 accredited U.S. allopathic medical schools) had responsibility for teaching students and residents about substance abuse. The numbers of faculty who taught about addictive disorders by specialty training averaged 1.4 faculty per school for psychiatry, 0.75 for family practice, 0.30 for internal medicine, 0.28 for pediatrics, 0.22 for obstetrics–gynecology, and 0.21 for emergency medicine. The small numbers of faculty impeded the development of role models and mentors for students and trainees. Ineffective or inadequate teaching about the care of addicted patients resulted in the development of poor confidence and negative attitudes and behaviors in students and trainees.

Although lack of involvement and negative attitudes and perceptions run deep, there was widespread agreement that alcohol- and drug-related disorders are chronic diseases that require effective patient management by physicians. Factors that Rush and colleagues found to be associated with more positive attitudes toward treating such disorders among family physicians are (1) the number of alcoholic patients where alcoholism was the focus of treatment, (2) the physicians’ perceived effectiveness at managing alcohol-related problems, (3) the number of hours of CME on alcohol-related problems, and (4) the number of patients who were given literature about alcohol. However, this and two other studies showed that the majority of physicians, particularly pediatricians, who were studied did not ask their patients about problems relating to drinking. In an additional study, few general practitioners regularly advised patients to reduce alcohol consumption.

Given the prevalence of alcoholism, Rush and colleagues...
state that the number of alcoholic patients that family physicians diagnose suggests that physicians do not recognize alcoholics in either outpatient or inpatient settings. Guebaly and colleagues surveyed family physicians regarding the diagnosis and management of alcohol addiction in their practices. Although they report that a typical general medical practice contains 25–50% of patients diagnosable with alcohol- and drug-related problems, over 70% of physicians reported that fewer than 10% of their patients had alcohol-related problems. Perhaps explaining this discrepancy is that most physicians (59.3%) reported that they did not use any standard diagnostic instruments. These physicians reported that, along with patient management, screening and detection were the most challenging alcohol-related problems.

Another study used the Michigan Alcohol Screening Test to screen patients on medical and surgical wards of a university teaching hospital. The investigators concluded that physicians and nurses did not take adequate alcohol- and drug-use histories. Physicians did not identify chemical dependency as a medical problem even when they knew it was present, and they did not involve themselves in treatment or treatment recommendations when the problem was identified. In other studies, physicians defined alcoholic patients as management problems rather than as patients with a medical illness to be diagnosed and treated. Successful outcome was defined not by medical criteria, but by holding the expenditure of staff time and resources to a minimum.

In a study of admissions at a large inner-city teaching hospital, patients were seldom screened for substance abuse, and were rarely referred for treatment even when diagnosed. The authors concluded that physicians are failing to adequately screen for substance abuse, and are failing to evaluate and refer patients who are known substance abusers.

### Curricular Deficits throughout the Medical Education Continuum

Participants at a national conference on medical education aimed at preventing alcohol-related problems were surveyed about their views of physicians’ roles and current training. The respondents agreed that physicians and medical schools play important roles in the prevention and treatment of alcohol- and drug-related disorders. However, current education and training were variable and viewed as inadequate, with a disproportionate amount of time spent on treatment instead of prevention. These respondents felt that there should be uniform standards for evaluating medical students’ abilities to deal with alcohol-related problems.

Surveys of medical schools indicate that the time devoted to addictive disorders is substantially less than time given to other subjects, especially when considered in light of the prevalence of drug- and alcohol-related disorders compared with those of other illnesses. A 1976 survey of curricula for substance-abuse disorder in 105 U.S. medical schools found that required hours over all four years of medical school ranged from 0 to 126. The mean number of required hours was 25.7, and the median was 16.5. Required hours in alcohol-and drug-related disorders accounted for 0.0% to 3.1% of the required curriculum, with a mean of 0.6% and a median of 0.4%.

A follow-up survey of 40 schools in 1981 found that the presence of Career Teachers made a difference in the provision of drug- and alcohol-related education. The Career Teachers Program, which ran from the 1970s to the early 1980s, supported training of established faculty to develop and implement curricula in drug-related disorders in their medical schools. The 1981 survey found that programs with Career Teachers showed significant improvement in the “richness” of their programs (defined as having multiple involved departments, affiliated clinical programs, numerous required hours, and available elective courses). Schools with limited programs that did not have Career Teachers showed modest improvements. However, the average number of hours devoted to drug- and alcohol-related disorders still accounted for well below 1% of the required curriculum hours.

A 1992 survey examined teaching about drug- and alcohol-related disorders in U.S. medical schools. Substantial increases in required and elective curriculum units (CUs) were found relative to findings in a 1986–87 survey, with tenfold increases in total curriculum units in the departments of family medicine and pediatrics (from 0.3 CUs to 3.0 and 3.5 CUs, respectively), and a fourfold increase in internal medicine (from 1.0 to 3.9 CUs). A curriculum unit was defined as any formal block teaching on substance abuse (including a lecture, seminar, or clinical rotation). Only eight schools offered a separate required course in substance abuse, compared with 59 required courses in biostatistics, 51 in ethics, and 40 in nutrition. The conclusion of the study was that despite positive changes in teaching about addictive disorders, there remained a dearth of coverage of this area compared with that given other medical disorders with similar prevalences.

In 1986–87, Davis and colleagues surveyed 294 departments in 98 medical schools and 1,124 residency programs to identify the numbers and types of curriculum units on substance abuse offered by four specialties: family medicine, internal medicine, pediatrics, and psychiatry. Eighty percent of the medical school departments and 74% of the residency programs responded to the survey. Of those, 70% of the departments in the medical school and 58% of the residency programs reported offering at least one curriculum unit on substance abuse. Psychiatry was the only specialty to integrate substance-abuse units into the curriculum. Most CUs
were required, covered both alcohol and drugs, and included clinical experiences. Prevention received low priority relative to other topics at both educational levels. Importantly, the conclusion from the study was that comprehensive substance-abuse instruction across clinical specialties in medical school and residency was still lacking.\textsuperscript{23}

**Lack of Parity and Physician Advocacy in Medical Education**

Greater involvement by the physicians in the treatment of alcohol- and drug-related problems may not occur unless there is substantial public concern about such problems to serve as an incentive.\textsuperscript{6,24} For change to occur, political support and physician advocacy must arise in response to the lack of parity of addictive disorders with other medical and mental disorders. Even though public concern may trigger future efforts to involve physicians, these efforts must be initiated by the physicians themselves and their medical school curricula, residency training, and continuing medical education. Outside efforts will facilitate those efforts that physicians themselves create and integrate into their education and medical practice.\textsuperscript{24,25}

Physician’s support is pivotal to establishing credibility for and acceptance of treatment of addictive diseases. Health plans will exclude reimbursement for addiction treatment from traditional physician networks without physicians’ support for services for their addicted patients.\textsuperscript{6,26,27} Without faculty leadership in medical schools and residencies to promote education about drug- and alcohol-related disorders, it will be very difficult to implement policies to support prevention and treatment of these disorders in physicians’ practices.\textsuperscript{6,24} Medical schools are unlikely to provide leadership or advocacy for ensuring parity in the diagnosis and treatment of alcohol- and drug-related disorders: they have neither sufficient faculty nor the interest to do this.\textsuperscript{6,24}

Physicians who provide addiction treatment will be the key to improving the standard of medical care and to stimulating the need for medical education. These physicians must educate private practitioners, program managers, deans, chairs, and other administrators; provide evidence of the effectiveness and value of treatment; and help to generate new information about the outcomes, quality, and cost-effectiveness of treatment. Physicians are also in a position to help their patients become better advocates for themselves.

Prejudices and misunderstandings about addictive diseases, along with ungrounded fears of huge costs connected with addiction treatment, have influenced decisions made by both health-care providers and insurance companies. For example, although may insurers cover extensive treatment for most medical illnesses, they limit or restrict benefits for the treatment of addictions. Rather than making decisions about the importance of addiction treatment based on patients’ needs and the effectiveness of outcomes, these decisions were made based on politics and prejudice without physicians’ support and advocacy.\textsuperscript{29}

Inexplicably, addiction treatment is perceived as having a low ratio of benefits to costs. This idea is not supported by data, which indicate that cost savings are greater than expenditures: medical costs for alcoholics and drug addicts drop dramatically after they receive treatment for their addictions, even when they experience relapses. In 1997, coverage for addiction treatment cost only $45–$60 per person per year, compared with over $200 per person per year for mental health benefits.\textsuperscript{24,28}

Patients who have addictive diseases are rarely effective advocates for themselves. The psychological, social, and medical effects of drug- and alcohol-related disorders make many patients too impaired to do this. Also, the stigma of having an addictive disorder keeps many patients from disclosing their identities. Family members of such patients are often angry, disillusioned, or absent, making them unable or unwilling to be advocates for the patients. The burden of advocacy then rests in the hands of the physician.\textsuperscript{24}

**Personal and Family History of Drug and Alcohol Problems**

Medical students and physicians, as consumers of alcohol and drugs and as patients who have alcohol- and drug-related disorders, can be intimidated by efforts to educate and train them about such disorders. They may perceive attempts at instruction as accusatory and threatening, particularly if they themselves have such problems. Having to learn about, diagnose, and treat these disorders might require physicians to confront their denial of their own disorders. For similar reasons, these students, trainees, and physicians may resist diagnosing and treating these disorders in their patients.\textsuperscript{26,29}

A survey of medical students in the early 1990s regarding use of alcohol found that one third of students screened positive on the Alcohol Use Disorders Identification Test (AUDIT) questionnaire.\textsuperscript{30} These scores were interpreted to mean that drinking on college campuses remained a major health concern. The authors stated that prevention of alcohol misuse should start at medical universities, and that medical school curricula must include education about alcohol. In addition, the attitudes of medical professionals toward alcohol use must be addressed in order to affect alcohol misuse in society at large. Since the time of that study, evidence shows that campus drinking continues to be a major problem.\textsuperscript{31}

Another study found that medical students had about the same prevalence of alcohol dependence as persons of equivalent age in the general population, with 20% of students
meeting the criteria for alcohol abuse or dependence in the year prior to the study. The use of tranquilizers, alcohol, and psychedelics among medical students, residents, and physicians was about the same as for their age mates in the general population, while use of other drugs was less among these medical groups than among their age mates. The main predictive factor for alcoholism among physicians is a family history of alcoholism, just as in the general population.

In a survey of first-year medical students, 7% showed patterns suggesting either past or present misuse of alcohol or drugs, 6% indicated alcohol and drug addiction both in themselves and in members of their immediate families, and 31% reported patterns of alcohol- or drug-related disorders in parents, siblings, or grandparents. The denial that often accompanies drug addiction and alcoholism, both in the addict and in family members, may lead students to minimize problems associated with these disorders and negatively influence their ability or willingness to refer addicted patients for treatment. These students should be provided with emotional support while learning about these issues in order to help them cope with the effects of personal or family alcohol- and drug-related disorders.

In the early 1990s, the prevalence of addictive disorders among U.S. physicians was estimated to be about 8–12%, about the same as that in the general population. A national survey at that time found that physicians were less likely than their age and gender counterparts in the general population to have used cigarettes or illicit drugs; however, they were more likely to have used alcohol, minor opiates, and benzodiazepines.

Physicians have easy access to addictive substances. Those who misuse addictive substances tend to be more susceptible to grandiosity and can be quite defensive about their drug use. Often they very efficiently use denial as a mechanism that prevents them from obtaining treatment for their own disorders or delivering treatment to addicted patients.

Intervention and treatment of addictive disorders in physicians must be approached in a caring rather than punitive manner. Extended treatment and long-term monitoring are effective in assisting physicians with issues of accountability, denial, and accessibility of prescription medications. Recovery rates can be enhanced by specialized treatment, family and peer support, involvement of the state medical society, contingency contracts, and treatment of psychiatric issues. In order to reduce the negative impact of physicians’ addictions on patients, medical schools, residencies, hospitals, and physician organizations must be proactive in preventing such problems and in addressing problems that exist.

**Efforts to Overcome Barriers**

Studies of medical education related to addictions have focused on particular aspects of curricula, faculty roles, and students’ education at particular schools. These efforts have had limited impact on medical education and are not readily generalized to medical schools in the United States. No overall integrated approach in all years and involving a variety of disciplines has been offered in medical schools. No model curriculum can be extracted from these efforts for use by faculty and students in medical schools.

However, several studies have yielded findings that provide general principles for guiding the development of future curricula in alcohol- and drug-related disorders. For example, as part of a plan to emphasize health promotion and disease prevention and offer educational experiences that enable medical students to be active, independent learners, second-year students applied their own innovative methods of teaching to a substance-abuse–prevention program aimed at adolescents. Medical students developed and presented a prevention program to middle-school students, using demonstrations, role-playing, and commercials created by the adolescents for their peers. After this experience, the medical students had more understanding of the thinking and behavior of teenagers, in addition to more confidence in their abilities to teach prevention to adolescents.

In 1985, The John Hopkins University School of Medicine showed that education and experience can influence students’ attitudes. Four medical school classes (1989–1992) were surveyed to measure the effects of a model curriculum on alcohol abuse. Significant improvements occurred in the students’ attitudes, beliefs in responsibility, and confidence in skills during their preclinical years. These positive changes were stronger and better sustained during the clinical years in students who had participated in special programs or elective programs focusing on substance abuse during the preclinical years. The positive changes were not always sustained in other students, who had not received educational programs in the preclinical years. The conclusions were that enhanced experiential sessions and educational programs, and greater emphasis during the clinical years on issues relating to substance abuse, are necessary for maintaining the desirable educational outcomes of substance-abuse curricula.

Efforts to develop education and training about alcohol- and drug-related disorders for physicians are notable for their successes as well as their limitations. Project ADEPT, developed at Brown University, was aimed at integrating alcohol/drug-abuse education (seven to 13 hours per medical school) into existing curricula, particularly in general hospitals and ambulatory care settings. Project CORK at Dartmouth College is aimed at developing a model undergraduate medical curriculum on alcoholism. Other efforts to integrate training in management of alcoholism for physicians have been in the Department of Family Medicine at the University of Washington School of Medicine.
efforts were not widely adopted by undergraduate medical curricula and faculty, perhaps because of their specialized focus on prevention and treatment rather than on an overall integration of these efforts into medical education and practice.\textsuperscript{6,7}

In a survey of medical students at the Royal Free Hospital School of Medicine in Great Britain regarding disease prevention and health promotion, fewer than 50% of the students reported that units on smoking and health and on alcohol use and health were taught in detail. The majority of both students and instructors believed that information about disease prevention and health promotion should be covered in all years of the curriculum. In addition, students were more likely than instructors to believe that students should learn more about disease prevention and health promotion, and that these topics were just as important as diagnosis and treatment. Conclusions include a suggestion that disease prevention and health promotion be integrated both horizontally and vertically into medical curricula.\textsuperscript{38}

A project at Vanderbilt University School of Medicine integrated education about drug- and alcohol-related disorders into the curriculum. The goal of the project was to train medical students in the skills, knowledge, and attitudes necessary to diagnose and treat addictive disorders in primary care settings. A committee composed of addiction specialists and faculty members from each of the primary care departments identified basic competencies and assessed the current training being offered to students. This project was unique in its approach to integrating education about addictions throughout the four years of medical school, with the result being reinforcement of previous education as students developed clinical skills. An essential element of the success of this program was the identification of a staff member dedicated to training and research in drug- and alcohol-related disorders.\textsuperscript{39}

A study of computer-assisted instruction (CAI) in a family medicine rotation for third-year medical students involved three modules on early diagnosis, attitudes, and screening questionnaires, followed by a discussion and review session and then a tutorial and role play. Each student then performed an evaluation of an ambulatory patient whom he or she identified as at risk for drug- or alcohol-related disorders. Factors contributing to the success of this program included clear delineation of goals, objectives, and expectations; a clinically relevant curriculum; and CAI used in conjunction with role playing and clinical exercise.\textsuperscript{40}

**Readiness of Curriculum Deans for Change**

Some of us recently carried out a survey that showed that little change has occurred in increasing curricular coverage of alcohol- and drug-related disorders.\textsuperscript{1} The survey revealed that curriculum deans affirmed the general lack of medical education about addictive diseases to prepare physicians to treat these patients. Following the demonstration of deficiencies in curricula relating to alcohol- and drug-related disorders in our 1996 survey, we asked curriculum deans their views on the need for integrated curricula covering drug- and alcohol-related disorders in their medical schools and also asked them what barriers they anticipated to the implementation of such curricula. In other words, did the curriculum deficiencies reflect a lack of interest by the medical school, or did they reflect a need for guidance in improving curricula? A three-item instrument was developed (1) to assess the need for integrated curricula for drug- and alcohol-related disorders in U.S. medical schools and (2) to identify barriers to implementing such a curriculum. These questions were e-mailed to the curriculum deans at 30 randomly selected medical schools. Seventy-three percent of these deans responded.

The overwhelming majority of the responding curriculum deans (96%) reported that an integrated curriculum in drug and alcohol disorders would be at least somewhat helpful. Specifically, 14% said it would be very helpful, 41% said helpful, 41% said somewhat helpful, and 5% (one respondent) responded that it would not be very helpful. (Totals add to more than 100% due to rounding error.)

Nine barriers to the implementation of a drug-and-alcohol-disorders curriculum or of additional training in the management of drug- and alcohol-related disorders at medical schools were identified by the curriculum deans: lack of curricular time (70%), lack of coordination of efforts among departments (26%), lack of qualified faculty (13%), lack of interested faculty (13%), students’ resistance to learning about drug- and alcohol-related disorders (13%), students’ lack of interest in learning about these disorders (9%), lack of sites in which to provide relevant clinical experiences (9%), lack of relevant content in the curriculum (9%), and lack of faculty time to develop an integrated curriculum (4%).

**Conclusions and Recommendations**

Our review of the literature and our own investigations convince us that there is a consensus that a medical school curriculum covering alcohol- and drug-related disorders should be taught incrementally within a given year and integrated with other courses and rotations throughout all years of medical school. A graphic analogy is the insertion of beads of such a curriculum into an overall necklace of medical school education. Curricular content should be required and include medical and factual materials as well as nonmedical and subjective experiences. Format for teaching should include case studies, small-group discussions, semi-
nars, workshops, role playing, and direct contact in clinical supervision with patients. An interdisciplinary approach is desirable, and faculty role models should be developed in all disciplines.

To achieve these goals, we make the following recommendations for medical educators:

- Define the role of the physician in the diagnosis and treatment of alcohol- and drug-related disorders.
- Require physicians to possess adequate knowledge and skill for the diagnosis and treatment of alcohol- and drug-related disorders.
- Institute "affirmative action" for the development of curricula in alcohol- and drug-related disorders in medical schools, residency training programs, and continuing medical education.
- Support research and revise discriminatory policies that create barriers to the implementation of curricula in alcohol- and drug-related disorders in medical schools.
- Support parity for addictive disorders with other medical and psychiatric diseases.
- Provide detection and intervention for students, residents, and physicians who have alcohol- and drug-related disorders.

**REFERENCES**

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