CAM in Medical Education: Has the Time Come?

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Key words: complementary and alternative medicine, medical education, mind-body medicine skills

IMAJ 2005;7:607–610

Public interest in and use of complementary and alternative medicine is rapidly increasing in the western world [1–3]. In Israel too, use of CAM increased from 6% in 1993 to 10% in 2002 [4]. It has become patently clear that medical students [5–7] and physicians [7–10] are interested in studying CAM. Twenty years ago not a single CAM course was taught in any American medical school; by 1996, 64% of these medical schools offered courses in CAM [11], rising to 88% within just 2 years [12]. The percentage of British medical schools offering courses in CAM increased from 10% in 1995 to 40% in 1997 [13]. Moreover, the number of publications on CAM in peer-reviewed journals has increased dramatically from 6 in 1963 to nearly 4,000 forty years later [14].

Public interest has also had an impact on health policy. In 1993 the U.S. National Institutes of Health established an "office" of Alternative Medicine, with a budget of two million dollars. Its mission was to support research on CAM and to disseminate information to professionals as well as to the public. The "office" has now evolved into a "center," with an annual budget of over 100 million dollars [15]. One would be hard-pressed to explain this trend as due solely to the time and attention CAM practitioners provide their patients.

History

Paradigmatic changes have swept science in the last 400 years. Descartes, Newton, Bacon and others ushered in the mechanistic paradigm in the 17th century. Excised from the hand of God, nature was described as acting according to rigid mechanistic rules; all natural phenomena were explained by the order and motion of their parts. Central to this concept was the measurability of all components, albeit by methods available at the time [16]. To understand a system, one needed only to dissect it to its components, study them individually, and an understanding of the whole would emerge. The totality was allotted no inherent value beyond the sum of its parts [17].

CAM = complementary and alternative medicine

This mechanistic model gradually expanded to encompass the organic as well as the inanimate. Plants, animals and humans grew to be treated as "sophisticated machines," with interrelated yet separable parts. Reductionism – attempting to explain all biological processes as purely chemical and physical – came to dominate science. Reductionism in medicine was embodied in the supposition that all illness – cultural, social, physical, and emotional – could be reduced to its biological components [18]. Health and disease were perceived solely as material functions; the body was viewed as an organic machine [19]. Mind and body were separate and disparate [16].

In the early 20th century, physics entered the realm of the sub-atomic; the reductionist approach faltered in the face of the new phenomena. The entities of the sub-atomic world did not obey deterministic, mechanistic laws; instead their behavior was statistical, stochastic, and indeterminate [16]. This was the nidus for a great transition in worldview, a "discontinuous… revolutionary break," to borrow the words of Thomas Kuhn [19]. The new paradigm conceived the universe as an indivisible whole, a network of dynamic relationships involving the observer and his consciousness in an essential way; a world in which systems were more than the sum of their parts [20]. This model now encroaches on all walks of human endeavor: sociology, economics, philosophy, information technology [20] and, to no less an extent, medicine.

An important byproduct of this paradigmatic shift has been the rise of complementary and alternative medicine. CAM includes several hundred professions generally sharing a holistic approach well adapted to the new paradigm. Their underlying philosophy emphasizes the move from quantitative to qualitative and from substance to pattern. Medical practice around the world has been profoundly affected by the changing paradigm. In this article we will use Israeli attitudes toward and usage of CAM, and American CAM initiatives in medical education as cases in point.

The Israeli experience

Healthcare, viewed in its most comprehensive context, includes a combination of forms: a well-structured advanced system of biomedical care along with a loosely structured but far from negligible system of CAM care. In Israel, as in many other countries, these operate independently but also in symbiosis: because in many cases the same patients utilize both systems and because the biomedical system has in fact opened its doors to include under its auspices many forms of CAM.

What does the evidence show on utilization patterns and attitudes of consumers with regard to CAM? Between 1993 and 2000, non-conventional medicine in Israel changed from a cottage industry to a mainstream health commodity. The most recent survey data on CAM use in Israel were based on two samples of the Jewish urban population aged 45–75: in 1993 (n=2,203) and in 2000 (n=2,505) [4]. In 1993, 6.1% of the population reported consulting with non-conventional medical practitioners at least once during the previous year. In 2000, that proportion increased to 9.8%, an increase of 61%. This change reflects an approximate 8% average annual increase. The main reason stated for consulting non-conventional medicine was a reluctance to ingest too many drugs or to undergo invasive procedures.

Increases in CAM usage are evident in several sociodemographic groups: women, younger people, persons with 12 or more years of schooling, persons with higher economic status, and residents of large cities. There is a significant inverse relationship between the level of overall satisfaction with conventional medical care and the propensity to use CAM medicine. In 2000, 75% of users reported that CAM treatment helped them. Large sectors of the population use conventional medicine and CAM concurrently or serially.

Despite the lack of legal regulation [21], over 20 forms of CAM are used widely in Israel. In 2003, CAM professional organizations in Israel estimated that a total of 8,800 persons were engaged in full or part-time practice [J. Shuval, Personal communication, 2003]. Among family practitioners in Israel, 42–60% reported referring patients to CAM practitioners.

In addition to the large number of CAM practitioners offering care in private clinic settings, by the year 2000 all four health management organizations in Israel had established outpatient CAM clinics in one-third of hospitals and in the community. CAM practitioners also provide care to inpatients in many Israeli hospitals [22–24]. In 2000, 45% of the population had purchased policies for supplementary health insurance that provide at least partial coverage for CAM care [25,26].

Like their peers in most developed countries [27–29], Israeli medical students show a high level of interest in CAM medicine. In the academic year 1999/2000, a survey was conducted among first-year medical students at Ben-Gurion University of the Negev (n=53), at Tel Aviv University's Sackler Faculty of Medicine (n=75) and at the Hebrew University-Hadassah Medical School (n=81) to examine knowledge and attitudes toward CAM [J.H. Bernstein, Personal communication, 2001]. The findings show that the attitudes of first-year medical students in Israel are similar to those of medical students and primary care physicians elsewhere in the world.

Prior exposure has a positive effect on students' attitudes toward CAM. The greater their exposure, the greater their self-assessed knowledge, belief in the efficacy of CAM, desire to learn about CAM in medical school, and intention to use CAM in the future. Eighty-six percent agreed that "a physician should know enough about CAM in order to answer his/her patients' questions about CAM therapies." These students clearly wanted to know more about CAM medicine, with 88% stating that they would like to learn about CAM in medical school. This finding is strikingly similar to that reported by Schachter et al. [22] in their study of the attitudes of Israeli family physicians toward non-conventional medicine. They found that 87% wanted to know more about CAM therapies and 78% believed that CAM should be taught in medical school.

In summary, CAM use is rising rapidly in Israel, particularly among women, young adults, and the better educated. Half of family practitioners have referred patients to CAM, and all HMOs and many hospitals offer CAM services. Importantly, medical students, Israel's future physicians, appear very interested in learning about CAM.

The medical establishment in Israel has not yet addressed the question of integration of CAM education into medical schools. However, since 2000, the United States, under the auspices of the NIH, has been actively fostering initiatives aimed at integrating CAM into medical school curricula.

The American experience

U.S. initiatives to integrate CAM training into conventional medical education

Many academic leaders of institutions and organizations in the United States share the notion that CAM should be integrated into the training of physicians and other health professionals. Dr. Jordan Cohen, president of the Association of American Medical Colleges, stated in an editorial: "our students… must have sufficient knowledge of the commonly employed alternative remedies to counsel patients about those that are harmful, those that might interact adversely with prescribed medications, those that are harmless and can be used with impunity, and those that have been shown to be beneficial" [30]. While this goal is laudable, educators in the U.S. are incorporating CAM into the curriculum because they realize that CAM education in medical school can advance conventional medical educational goals.

In 2002, eleven highly reputed academic health centers formed the Consortium of Academic Health Centers for Integrative Medicine (www.imconsortium.org). This organization, now numbering close to 30 institutions, defines its mission as helping transform medicine and healthcare through rigorous scientific studies, new models of clinical care, and innovative

HMO = health management organization
NIH = National Institutes of Health

educational programs that integrate biomedicine, the complexity of human beings, the intrinsic nature of healing, and the rich diversity of therapeutic systems. The educational working group of the Consortium recently published a set of recommended competencies in Integrative Medicine for medical school graduates [31].

The NIH has also developed initiatives to fund curricular development in CAM. Over the past 4 years, the National Center for Complementary and Alternative Medicine (NCCAM) funded innovative curricular projects (R25 grants) at 14 academic institutions and at the American Medical Student Association. The common goal of all the projects is to seamlessly integrate CAM information and practices into the curriculum of these allopathic medical schools and, in some cases, graduate medical programs. The following is a report of the experience at one of these institutions, the Georgetown University School of Medicine.

Curricular approaches at Georgetown University School of Medicine

Georgetown University School of Medicine has embarked on an initiative to integrate CAM into the curriculum as a way to advance conventional medical education goals in knowledge, skills, attitudes and values. Efforts are made to identify CAM-relevant topics in each of the basic science courses, with the goal of dedicating at least one hour to CAM in every course given at the school. Anatomy of acupuncture and introduction to massage are taught in the "Gross Anatomy" course. Elements of biofeedback and neuromuscular manipulation are taught in the "Human Physiology" course. Psychoneuroimmunology is now part of the "Microbiology and Immunology" course. In "Human Endocrinology," students are exposed to a number of stress-reducing approaches (meditation, imagery, and various breathing exercises, etc.) alongside a didactic discussion of the science of stress physiology. Botanicals, dietary supplements and herb-drug interactions are discussed in both the "Human Pharmacology" and "Clinical Pharmacology" courses. CAM research papers also present an excellent opportunity for teaching the rules of evidence-based medicine, combining critical analysis of research with familiarity with CAM.

In addition to CAM-based knowledge, the faculty at Georgetown views integration of CAM material as an opportunity to improve conventional clinical and analytical skills, stress-management, and mind-body awareness. CAM can also encourage open-mindedness, foster patient-doctor communication, and lead to improved attitudes and values. These goals have been furthered in several institutions using a variety of teaching approaches: case-based format (e.g., nutritional supplements in sports and exercise, botanicals for menopausal symptoms, or learning cases on lower back pain), observed structured clinical examination (OSCE), guest practitioners at the institution, and trips to centers that use CAM modalities in practice. These experiential modes of learning help demystify CAM. At Georgetown, CAM is introduced in an objective, non-advocacy manner, but with an understanding of the importance of scientific rigor. In this way, respect for CAM disciplines and practitioners is advanced along with the desire for evidence regarding efficacy and safety.

The highlight of the initiative at Georgetown University has been the introduction of an experiential, 11 week mind-body medicine skills course. The goal of this course is to use mind-body techniques as an instrument to gain self-awareness, with an emphasis on self-care. Since spring 2002, the Georgetown Mind-Body Medicine Skills program has enrolled over 300 medical and graduate students. In addition, approximately 20 faculty members (both clinicians and scientists) have been trained to lead these groups. High profile individuals were chosen (course or clerkship directors, or prominent educators, researchers or clinicians) in order to underscore the importance the institution attaches to this initiative.

During each 2 hour session over the 11 weeks, students learn a new mind-body technique designed to foster student self-awareness. The students (and facilitators) share their reflections on their personal journey of self-discovery. The response from virtually all the student participants has been overwhelmingly positive. Students point to the skills they acquired as important to their work as physicians, for themselves as well as for their future patients. As academic leaders and educators at other institutions learn of this program, many now include mind-body medicine skills as part of their institution's curriculum

Conclusion

In western nations as in Israel, public interest in and use of CAM modalities has grown markedly over the last decade. Israeli medical students want to learn about CAM. Western medical schools are offering CAM courses in increasing numbers, although the preferred approach by many is to smoothly incorporate CAM material into the required curriculum. Funding for CAM research is also increasing dramatically.

A significant number of medical schools in the United States have embarked on initiatives to integrate CAM into conventional medical education. The experience of at least one of these programs has been that CAM training has gone beyond the worthy goal of familiarizing medical students with CAM. The experience at Georgetown University School of Medicine indicates that integrating CAM into the curriculum helps advance several goals of *conventional* medical education, such as critical analysis of evidence, ability to manage stress, empathy and compassion, as well as increasing student's satisfaction and ability to cope with medical training.

We emphasize that our intention is not to train medical students as CAM practitioners, but rather to familiarize them with the principles of CAM and its common modalities in order to meet the needs of their patients who use or contemplate using CAM.

The experience at Georgetown University and other institutions points to the following recommendations which are consistent with the recommendations of the recent report from the Institute of Medicine on CAM use in the U.S. [32,33]:

- *Teach one medicine*: Avoid labels. There is no CAM, only one medicine which helps patients. The question is not where the approach comes from, but whether there is evidence for its safety and efficacy.
- *Practice open-minded skepticism*: One must remain open to discourse on any topic, but claims must be supported by evidence.
- *Focus on the required curriculum*: Decide what every student needs to know about CAM and make it required.
- *Create opportunities for interdisciplinary activities*: Build collaborations with accredited CAM institutions in the community. Students should hear directly from CAM practitioners about the philosophy of CAM. However, CAM practitioners should be careful to distinguish "beliefs" from evidence.
- *Faculty development*: It is essential that efforts be extended beyond the classroom to the staff and faculty throughout the institution. This may take the form of institution-wide seminars, grand rounds, and faculty development classes.
- *Include "experiential" components*: Experiential learning can be very powerful, and can supplement "knowledge" aspects in a profound way.
- *Use* CAM *to teach "rules of evidence"*: Even in the most skeptical environment CAM material presents an excellent opportunity to teach critical analysis of data.

We recommend that Israel join the developed world in familiarizing its future physicians with CAM, for the benefit of medical education as well as for their patients.

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