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Natural and Traditional Medicine in Cuba: Lessons For U.S. Medical Education

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ABSTRACT

The Institute of Medicine's (IOM's) Academy of Science has recommended that medical schools incorporate information on CAM (complementary and alternative medicine) into required medical school curricula so that graduates will be able to competently advise their patients in the use of CAM. The report states a need to study models of systems that integrate CAM and allopathic medicine. The authors present Cuba's health care system as one such model and describe how CAM (or natural and traditional medicine) is integrated into all levels of clinical care and medical education in Cuba. The authors examine the Cuban medical school curriculum in which students, residents, and practicing physicians are oriented in the two paradigms of CAM and allopathic medicine. Only health professionals are permitted to practice CAM in Cuba; therefore, Cuba's medical education curriculum incorporates not only teaching about CAM, but it also teaches basic CAM approaches and clinical skills. Both the theory and practice of CAM are integrated into courses throughout the six-year curriculum. Similarities and differences between the U.S. and Cuban approaches to CAM are examined, including issues of access and cost, and levels of acceptance by the medical profession and by the public at large in both countries. The authors conclude that there is potentially much to learn from the Cuban experience to inform U.S. medical educators and institutions in their endeavors to comply with the IOM recommendations and to incorporate CAM into medical school curricula. Acad Med. 2006; 81:1098–1103.

In January 2005, the Institute of Medicine's (IOM's) Academy of Science Committee on the Use of Complementary and Alternative Medicine (CAM) recommended that health professional schools (e.g., schools of medicine, nursing, pharmacy, and allied health) "incorporate sufficient information about CAM into the standard curriculum at the undergraduate, graduate and postgraduate levels to enable licensed professionals to competently advise their patients about CAM."[1] Presently, at least 75 of the 125 allopathic medical schools in the United States currently offer some teaching about CAM, usually as an elective or as an adjunct to the conventional curriculum.[2] The significance of the current IOM recommendation is the emphasis that CAM be included in the *required* curriculum.

The Society for Teachers in Family Medicine has established guidelines to incorporate CAM into family medicine residency programs.[3] The American Academy of Pediatrics is developing similar guidelines (K. Kemper, personal communication, 2003). In 2004, the Consortium of Academic Health Centers for Integrative Medicine offered the first set of guidelines for CAM in the medical school curriculum.[4] The recent IOM report echoes these recent trends to move CAM from the margins; however, "there is no consensus on what should be taught and how to fit it into an already crowded set of courses."[1] The report further states: "It is important to understand how CAM and conventional medical treatments (and providers) interact with each other and to study models of how the two kinds of treatments can be provided in coordinated ways. In that spirit, there is an urgent need for health systems research that focuses on identifying the elements of these integrative models, their outcomes and whether they are cost-effective when compared to conventional practice."[1] The Cuban health care system may represent one such model for the integration of CAM—or natural and traditional medicine (NTM), as it is known in Cuba—into conventional systems of medical care. For the past 12 years, Cuba has been incorporating NTM into clinical practice, medical education, pharmaceutical production, and medical research. As in most cultures, there is a substantial history of informal NTM and folk medicine in Cuba. However, the Cuban government established a national mandate for the integration of NTM into the health care system in 1992, and by 1995 the Ministry of Health had created a state commission for the development of NTM.[5] As of 2002, 86% of Cuban physicians practiced some form of NTM, with 100% of Cuban hospitals offering acupuncture anesthesia.[5] Today, the teaching of both the theory and practice of many NTM modalities is part of the core curriculum in all 23 of Cuba's medical schools.

In January 2005, we (faculty members from several U.S. medical schools) traveled legally to Cuba for a week to examine firsthand how NTM is incorporated in the national public health system. We were primarily interested in exploring three specific areas that would have relevance to medical educators in the United States:

1. How is NTM being integrated into the Cuban health care system, and what are the implications for health professionals and for patient care?
2. How is NTM being integrated into medical education in Cuba? What is the impact of a mandate from the national regulatory agency on the integration of CAM into medical education?

3. What aspects of the Cuban experience in integrating CAM into medical education can provide useful lessons for medical educators in the United States?

We participated in a series of meetings over the course of one week in Cuba, where we visited numerous training and clinical sites in Havana and Matanzas, a community of 125,000 inhabitants located 60 miles from Havana. We met with a wide range of medical educators, health care providers and administrators, and patients using NTM services. Meetings were facilitated by a translator in all cases. Each of the authors independently recorded impressions, and these notes were then collated and synthesized into the consensus impression presented here and organized around the three areas listed above.

CAM in the Cuban Health Care System

How is CAM being integrated into the Cuban health care system, and what are the implications for health professionals and for patient care?

Historical Context

The Cuban health care system has often been referred to as a paradox because Cuba is a poor, "developing country," but it has excellent health indicators. From 1959 to the present, Cuba passed through a period where chronic diseases replaced infectious diseases as the primary causes of death. Of note, the infant mortality rate decreased from 50/100,000 in 1959 to 6.2/100,000 in 2004.[6] Projected life expectancy is 75.5, similar to that in the United States. Cubans like to say, "We live like poor people, but die like rich people." Postrevolution health care reforms were based on the principles that the responsibility for the nation's health lies with the government, that health care should be available to all Cuban citizens, and that health care should be free of charge. During the 1960s and 1970s, extending health care to rural areas was emphasized by training physicians, building hospitals and clinics, expanding medical education, and creating programs for both infectious and chronic conditions. By 1998, there was one medical school in each of Cuba's 23 provinces, and today there is one doctor for every 175 citizens.[7]

In the late 1970s and early 1980s, Cuba's community-oriented primary care program evolved, and neighborhood consultorios (small clinics) were established. In this model, a doctor–nurse team provides preventive and curative primary care for approximately 150 families (500 people) who live in the surrounding geographic area. The consultorios are modest three- or fourroom structures, often with a second floor, where the physician lives and is "on call" 24 hours a day. Home visits are usual, not only for individual patient attention, but for health promotion, education, and assessment of an entire family's health status. Cuba's outstanding health indicators have often been attributed to this innovative community-based system. Patients receive secondary care at the *polyclinicos*, which are clinics equipped with specialty physicians, including specialists in NTM, and diagnostic equipment. Tertiary care is provided in hospitals and specialty institutions.

In the 1990s, with the collapse of the Soviet Union and the strengthening of the economic embargo of Cuba by the U.S. government, different kinds of reforms were instituted. These included increasing community participation and involvement in health promotion, focusing limited resources on vulnerable populations, and manufacturing pharmaceuticals in Cuba. It was during this period of economic hardship (termed the "Special Period" in Cuba) that the previously predominant Western, allopathic medical system began to integrate NTM into all aspects of health care in Cuba.[7]

Access to NTM Therapies

The NTM therapies offered inside the Cuban health care system were, and continue to be, accessible to all regardless of socioeconomic status. It was clear to us that health professionals working at the municipal and provincial NTM centers often see hundreds of patients per day. Many hundreds more receive care in their local polyclinics, and thousands have access to some basic NTM approaches—acupressure, herbal medicines, and mind–body approaches—through their neighborhood family doctors.

Although much of the impetus for incorporating NTM into Cuba's medical system arose from economic need, Cuban health professionals assert that this has led to a better system of health care—using the best of different paradigms to practice one medicine. They also affirm that teaching health professionals the essentials of NTM could be invaluable in the case of a natural disaster, by which Cuba's limited resources could be even further compromised. Ensuring access to NTM is central to the Cuban commitment to access for all. Many Cuban doctors currently provide medical care and training in remote areas of other poor countries, where less costly NTM treatments make more sense. These economic considerations in Cuba and elsewhere in the developing world are greatly contrasted with the development of CAM in the United States. In the United States, most consumers of CAM from health professionals come from middle to high economic groups because most CAM is not covered by insurance. Low-income populations in the United States typically do not have access to CAM provided by health care professionals, although they often actively use traditional therapies prescribed by family members or healers in their communities. In the United States in 1998, total out-of-pocket expenditures for CAM in the United States were estimated to be $27 billion.[8]

The lack of reimbursement for even evidence-based CAM therapies through government and third-party insurers poses a major impediment to the effective integration of these approaches into the U.S. health care system for low-income and underserved populations. Of course, because of the commitment to universal health care, Cuba also does not have an uninsured population, in contrast to the approximately 50 million uninsured persons in the United States who do not have reimbursed access to any medical care, let alone CAM therapies.

A challenge for us was how to address the lack of published research supporting the Cuban claims that the integration of NTM has led to better outcomes for their patients. Although many of the clinics and hospitals visited provided numerous in-house small studies of specific NTM therapies, resources for carrying out the large-scale research trials that would be necessary to substantiate this claim are lacking. For example, although there is a concentrated endeavor to standardize NTM throughout the country, there are some provinces whose medical schools and clinical staff have embraced both the teaching and practice of NTM, but

there are others where implementation is slow. A study comparing health outcomes in a province where NTM is very widely used by primary care physicians versus health outcomes in a province where NTM is less widely used would provide interesting information regarding the specific impact of NTM on the health of the Cuban population. The lack of such research does not necessarily mean that the claims of the impact of NTM on the health of the Cuban population are not valid, but it does pose a major barrier to the potential for incorporation of the Cuban experience into the health care education and delivery systems here in the United States, where evidence from clinical studies is currently the standard criterion that dictates which therapies should be widely incorporated into the health care system.

Role of the MD Regarding the Other Healing Professions

A major obstacle to the integration of different health care approaches in the United States is the existence of separate and parallel CAM and conventional health care education and delivery systems. The mistrust and suspicion that has characterized and helped foster this "separateness" is in some instances being replaced by a commitment to a model in which health care practitioners from conventional and CAM disciplines practice in collaboration (termed "pluralism" by Kaptchuk and Miller[9]). However, competition and turf battles between the health care disciplines continue to create fragmentation and incoherence in the care of many patients who opt for both CAM and conventional medicine.

In the Cuban model of health care delivery, it is the medical professional who learns and practices NTM and becomes the coordinator of best practices. NTM stays in the hands of universities and medical professionals—specifically physicians, and, to a lesser extent, nurses and physical therapists. Cuban health system representatives argue that there should be standards for health professionals for NTM practice, just as there are for conventional medicine – including which modalities are to be included in the curriculum, and how they should be taught. The responsibility for delivering NTM therapies is absorbed into the role of the medical doctor. Clearly, from our current culture of health care delivery in the United States, the Cuban physician dominated system of "integration" does not seem like a practical model for us to embrace. For the most part, in the United States, CAM approaches will continue to be practiced by CAM professionals, and the emerging role of the physician is more likely to be that of providing (hopefully) well-informed guidance to patients regarding their use of these CAM therapies.

A critical question is whether CAM modalities such as Chinese medicine are actually more effective in the hands of more thoroughly trained licensed acupuncturists than in the hands of medical doctors with some training in acupuncture. In fact, this would be another fruitful area for outcomes research in Cuba, where acupuncture is practiced both by primary care doctors with relatively limited training and by NTM specialists with significant specialty training in this area. However, the issue of access to effective NTM approaches, as discussed above, is extremely well served in Cuba by the integration and delivery of NTM services into the hands of the "conventional" health care system. Of course, one solution to pursue in the United States, given the cultural differences, is to press for government and third-party reimbursement for those evidence-based CAM therapies delivered by CAM professionals, rather than pushing for the delivery of those therapies only by physicians and nurses. Nevertheless, the Cuban system has addressed the issue of access to NTM much more effectively to date than has the U.S. system.

There are a few areas in which the Cuban approach to NTM does incorporate practitioners of other healing arts. In particular, *santeros*—the practitioners of Santeria, one of the indigenous religions of Cuba—are often consulted by patients before or in parallel to their work with their conventional physician. Santeros typically dispense spiritual advice and often use herbal remedies as well. *Yerberos*—herbalists, some of whom are santeros and others not—are granted a license to provide (and sell) herbs for medicinal and spiritual healing; however, before granting the license, the Ministry of Agriculture mandates a two-week course that addresses the benefits and potential dangers of certain herbs. Also, the Ministry of Health routinely enlists cooperation from the santeros and yerberos in coordinating major healtheducation campaigns. NTM is reinforced in education as well, with school children given a "green medicine plant" to grow and care for and being taught the medicinal properties of the plant.

CAM in Cuban Medical Education

How is CAM being integrated into the medical education in Cuba? What is the impact of a mandate from the national regulatory agency on the integration of NTM into medical education?

As discussed above, for political, economic, and philosophical reasons, the medical education system in Cuba has committed itself to training physicians capable of actually practicing NTM approaches. In the United States, we are moving in the direction of training physicians who are not competent to practice CAM but who are competent to advise patients on its safe and effective uses. Clearly, these are very different goals, and as such, the model of how NTM is being integrated into medical education in Cuba is in some ways relevant to medical educators in the United States, and in other ways it is not. It was evident in all of our encounters that the clear commitment of the Cuban Ministry of Health and other governing agencies has had a huge impact on advancing the integration of NTM into medical training. In Cuba, NTM is not seen as something to be learned "in addition" to medical training, but rather as a valid body of knowledge to be integrated into the curriculum at all levels. Implicit in this approach is that (1) there is time in the curriculum to include NTM teaching, (2) it is not necessary to teach everything about a system all at once: different aspects of NTM can be introduced at different levels, and (3) health professionals can accept other medical paradigms without sacrificing their Western, scientific training. Continuing education for faculty and practicing physicians is acknowledged as a key priority in this process. Recently, Cuba has implemented a requirement that every professor teaching health professionals must have training in NTM.

Even if our goal in the United States were not to produce physicians competent to practice CAM—as is the goal in Cuba—but rather, as the IOM report recommends, to produce physicians "competent to advise" about CAM, such a commitment at the national level, and an acknowledgment among medical educators that this is material worth teaching to our students, would greatly enhance our educational efforts in this area.

Undergraduate NTM Curriculum

Cuba is still striving toward a unified curriculum for all 23 of its medical schools. As opposed to the United States, where elective course offerings still dominate the landscape of CAM education for undergraduate medical students, in Cuba, NTM is integrated into required curriculum hours throughout the six years of medical school. The primary modalities emphasized in the undergraduate curriculum are herbal therapies, acupuncture, moxibustion, massage, mind/body modalities, and hypnosis. During years 1 and 2, students are introduced to acupuncture and to some basic medicinal plants. For example, meridians and acupuncture points are taught on cadavers in basic anatomy. In pharmacology, students learn the properties, actions and contraindications, and drug interactions of 49 medicinal herbs that the Cuban medical authorities have approved for use within the medical system.

As in the United States, students learn the basics of a routine physical exam on a normal adult in year 2. In year 3, students focus on systems and learn to perform a more integrated history and physical exam, incorporating NTM. They learn how to approach the patient, looking for signs from different paradigms. For example, integrated into the examination of the mouth, students include inspection of the tongue according to Chinese medicine principles. Vital signs include not only the one radial pulse taught in allopathic medicine, but also two radial pulses, divided into three zones, according to Chinese theory.

Fourth-year rotations include internal medicine, pediatrics, and obstetrics/ gynecology, each of which incorporates NTM approaches learned in earlier years. For example, in internal medicine, when learning about hypertension, in addition to learning about conventional antihypertensives, students are schooled in diet, exercise, hypnosis techniques, herbs, and acupuncture points for lowering blood pressure and reducing stress.

The fifth- and sixth-year curriculum consists of rotations in various specialty areas, much like in the United States. Here, more advanced diagnostic NTM techniques of history taking and physical exam are taught, as well as further practical treatment skills. Rotations vary in length from 3 to 10 weeks, and approximately 20 hours of NTM are integrated into each rotation. Massage and digital acupuncture (acupressure) are introduced into pediatrics. In surgery, students study acupuncture points for anesthesia.

In addition to clinical rotations, students study the philosophy of Chinese medicine, including Tao, Yin Yang, the five elements, and the theory of Zan Fu (physiology). They also complete a 40-hour intensive course in NTM, consisting largely of clinical rotations in a municipal NTM clinic, under the preceptorship of an NTM specialist. During this rotation, students integrate the philosophy and practice of NTM using therapies that have been introduced to them during the first four years. This is where they are best able to integrate allopathic and NTM and apply in real-life settings what they have learned.

Postgraduate NTM Curriculum

After six years of medical school, all graduating physicians are required to complete a two-year residency program in *medicina general integral*, which is very similar to a family medicine residency in the United States. During the first year of this residency, 120 hours of NTM are integrated into the curriculum, usually taking place in a municipal NTM center. During this time, residents are taught more complex concepts and treatment plans using Chinese medicine and medicinal plants. Residents learn clinical applications using four pairs of opposites: interior–exterior, cold– hot, deficient–excess, and Yin–Yang. Residents also learn different techniques of needle insertions and forms of stimulation, electrical impulses and the mechanism of action of electroacupuncture, chemical action of the active ingredients of medicinal plants, and contraindications of specific groups of plants. During the second year of the family medicine residency, residents spend three weeks full time, or six weeks part time, deepening their basic knowledge of NTM, both in theory and practice, andpracticing a more comprehensive approach that integrates various paradigms.

After completing the required family medicine rotation, Cuban doctors may choose to do a second specialty residency, which usually takes three or four years. NTM teaching has not been included in all of the residencies, and some emphasize NTM more than others. For example, surgery residents are often taught acupuncture anesthesia. NTM, especially massage and acupuncture, is also included in rehabilitation medicine. There is presently a four-year NTM residency, which offers a deeper incorporation of different philosophies of healing, and more advanced techniques for diagnosis and therapy. Modules within the NTM residency include Chinese medicine (acupuncture, moxibustion), Cuban herbal medicine, physical medicine (massage, physical therapy), and psychotherapies (hypnosis, meditation, biofeedback). Homeopathy and use of flower essences are also included in the NTM residency curriculum. Presently, there are approximately 50 specialists in Havana who have completed an NTM residency, and there are dozens in the rest of the country.[5]

Continuing Education in NTM

A research-oriented two-year masters degree in NTM is open to health professionals in medicine, nursing, pharmacy, and physical therapy. This program emphasizes research methods and testing NTM therapies. At the time of our visit, more than 400 health professionals had completed a masters in NTM and were carrying out research projects throughout the country. Hopefully in the coming years this will lead to the type of research output that will facilitate the incorporation of those NTM approaches that prove to be effective into our care here in the United States as well.

Practicing physicians and nurses may pursue and receive academic credit for a variety of NTM continuing education courses. Courses of 25 to 200 hours are offered in a variety of subjects, such as NTM history and philosophy, or courses on acupuncture or auricular therapy. A basic course of 160 hours is offered to health professional wishing to seriously pursue NTM training, followed by a diploma course, consisting of at least 240 hours in which the theory and clinical practice of a variety of NTM modalities are taught.

There is a philosophical debate in the United States and elsewhere that to respect a cultural tradition of CAM therapies, “the entire tradition” should be embraced—not just a part of the tradition or a technique. In Cuba, while respecting cultural traditions, protocols have been established for introducing aspects of NTM at different levels of pre-and postgraduate education, depending on interest, need, and context.

Challenges in Medical Education

Despite the Ministry of Health mandate, Cuban medical educators acknowledge that the incorporation of NTM into the Cuban health care system has been challenging, with issues familiar to medical educators and practitioners in the United States. For example, although the NTM curriculum is now mandated, it is not always clear what the content of the curriculum should be, or which faculty members are qualified to teach it. The issue of herb–drug interactions, of great concern to physicians in the United States, is an important area in Cuba as well. With the introduction of the teaching of botanical medicines into medical schools in all the provinces, there are unique challenges in standardizing and regulating this new curricular material. As in the United States, lack of a well-defined curriculum in NTM, lack of faculty adequately trained to teach this curriculum, skepticism within the medical schools about some of the material, and an incomplete evidence basis continue to pose major challenges.

Lessons for Medical Educators in the United States

What aspects of the Cuban experience in integrating CAM into medical education can provide useful lessons for medical educators in the United States?

In some ways, the cultures of health care in Cuba and the United States are so different that the Cuban experience may have only limited relevance to CAM integration in the United States. On the other hand, there are several potentially useful lessons.

First, the government mandate to incorporate NMT into medical education has been critical to the Cuban experience.If the American Commission for Graduate Medical Education (ACGME) and the Liaison Committee for Medical Education (LCME) moved to require education in the evidence-based aspects of integrative medicine for U.S. medical schools sufficient to produce physicians "competent to advise patients" on their CAM choices—as the recent IOM report suggests that they should—the goal of producing a generation of physicians with enough knowledge to counsel patients effectively about NTM would be moved within reach.

Second, the idea that time can be found in the medical school curriculum by integrating different aspects of CAM into existing courses at different levels challenges some of the primary objections of U.S. medical educators with regard to including CAM in the curriculum could be highly relevant to the work of medical educators in the United States. A physician-in-training does not need to embrace and understand every dimension of the Chinese medical paradigm of health and illness to see the potential usefulness of acupuncture for patients with osteoarthritis.[10] It is reasonable to teach about different aspects of CAM approaches at different points in the medical education process.

Third, educating all physicians more effectively about CAM could serve to address the problem of access to effective, evidence-based CAM therapies for underserved groups. What if every primary care doctor in the United States knew the concepts and practice of basic acupressure—which, if not necessarily evidence-based, is a safe and useful self-care technique for patients? What if these doctors knew the evidence-based uses of common medicinal herbs and the appropriate indications for referral to experts in Chinese medicine or massage therapy, as doctors do in Cuba? What does every doctor need to know about acupuncture, and what should a doctor with a specific focus in integrative medicine know? What is the knowledge base required for all physicians to adequately advise and refer patients to CAM therapies? There is potentially much to learn from the Cuban experience, if the resources can be found to support research on clinical outcomes there as they relate to NTM access and approaches.

Fourth, the emerging system of "pluralism" that seems destined to become the primary model in the U.S, with conventional MDs and CAM practitioners working in parallel and at times in poorly coordinated systems, seems to have no place in Cuba. Clearly, the Cuban concept that only physicians should deliver and/or coordinate NTM care is not translatable because of political and socioeconomic dynamics in the United States. However, the idea that every physician can become versed in the diversity of effective approaches to healing—and that a respect for and appreciation of these diverse approaches might be a required part of the education of every medical student—is of great relevance to U.S. medical education.

The recent IOM report, the convergence of public demand, the emerging evidence base of CAM research, and an intellectual openness in many academic medical settings have set the stage for change among medical educators in the United States. The lessons that our U.S. team learned from the Cuban experience may be helpful as medical educators find the next steps toward the respectful and intelligent integration of diverse approaches to health and healing into a coherent and accessible health care system for all Americans.

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