Chapter 4: Education and Training of Health Care Practitioners

Since the public utilizes both conventional health care and complementary and alternative medicine (CAM), the Commission believes that this reality should be reflected in the education and training of all health practitioners. Thus, the education and training of conventional health professions should include CAM, and the education and training of CAM practitioners should include conventional health care. The result will be conventional providers who can discuss CAM with their patients and clients, provide guidance on CAM use, collaborate with CAM practitioners, and make referrals to them, as well as CAM practitioners who can communicate and collaborate with conventional providers and make referrals to them.

Reaching this goal will require development of CAM faculty, curricula, and programs at both CAM and conventional institutions. Because of increased consumer demand for CAM services and products, national curricular elements should be established for CAM education and training. However, the Commission recognizes the barriers to and voluntary nature of such national curricular elements. An evaluation should be undertaken of whether postgraduate training should be established for appropriately educated and trained CAM practitioners. Continuing education programs should be developed for and required of all practitioners who provide CAM services and products. Finally, students of CAM want to participate in loan and scholarship programs, and it is important that this participation be evaluated.

Recommendation 10: The education and training of CAM and conventional practitioners should be designed to ensure public safety, improve health, and increase the availability of qualified and knowledgeable CAM and conventional practitioners and enhance the collaboration among them.

Education in CAM for Conventional Health Care Professionals

In 1995, a national conference on complementary and alternative therapy education recommended that CAM be included in nursing and medical education.[1] Although there has been notable progress in introducing CAM into medical, nursing, and other fields of conventional health care education in recent years, more needs to be done. For example, in 1997, 64 percent of allopathic medical schools reported offering elective courses in CAM or including such topics in required courses.[2] Data from all 125 allopathic medical schools in response to the 2000-2001 Liaison Committee on Medical Education Annual Medical School Questionnaire indicate that although no medical school requires a separate CAM course, 91 schools include CAM in required conventional medical courses, 64 offer CAM as stand-alone elective, and 32 include CAM as

part of an elective. Required and elective courses included acupuncture, herbal medicine, homeopathy, meditation, manual healing techniques, nutritional supplement therapy, and spirituality, according to the questionnaire. (Table 1).

In a study of an allopathic medical school with no formal or elective courses in CAM, third-year medical students were found to have insufficient knowledge about the safety of 10 common CAM modalities.[3] These modalities included massage therapy, herbal medicine, meditation, chiropractic, hypnosis, spiritual healing, acupuncture, homeopathy, reflexology, and naturopathy. The authors of this study recommended including CAM topics in the medical school curriculum to better prepare the practicing physician for soliciting information from patients about current CAM use, responding to patients' inquiries about CAM, and assessing the merit of introducing a CAM modality into, or removing it from patients' care plans.

Courses in CAM offered at conventional medical schools differ widely in content, format, and requirements.[4] In light of this variation, consensus needs to be reached on the essentials of a core curriculum.1 In November 2000, the Josiah Macy, Jr. Foundation convened a conference to develop guidelines for teaching CAM in medical and other health professional schools. The participants concluded that efforts to expand knowledge about CAM should extend beyond the education of medical students to all conventional health professionals.[5] Addressing the myriad conventional health professions and programs will require a range of educational options.

CAM Conventional Health Care Professions Curricula in

While CAM can be taught in stand-alone courses, it may be more effectively and efficiently integrated into allopathic medical school curricula by combining it with current initiatives such as evidenced-based medicine, cultural competence, and interdisciplinary collaboration. CAM in medical education has evolved to the point where two fundamental questions need to be answered: What should be taught, and how should it be taught?

CAM taught in the context of conventional medical education should be evidence-based.[6] New educational programs for physicians need to be developed that include the conceptual basis of CAM practices, along with a critical review of the safety and efficacy of CAM practices and products. This information should be incorporated into required courses of medical school curricula and graduate training programs, not relegated to electives, whose content may not be critically evaluated.[7] While many CAM courses are taught from either an advocacy or neutral view, all CAM courses should be taught critically.[8]

More than one response could be chosen, so the total number of responses does not equal the number of respondents.

Georgetown University School of Medicine plans to integrate CAM into the entire medical school curriculum as part of a recent grant from the National Institutes of Health's (NIH) National Center for Complementary and Alternative Medicine (NCCAM). Other innovative efforts to integrate CAM with existing medical school curricula are already underway; however, these efforts are geographically dispersed, not well known, and not systematically studied. They range from informal CAM seminars, such as brown bag lunches with CAM practitioners sponsored by student groups, to formal symposia or debates of controversial CAM issues by authorities with opposing views. While survey and other lecture courses are efficient ways of presenting a large volume of information, CAM is being integrated into a variety of courses. For example, information on acupuncture is being integrated into basic science courses, such as anatomy or physiology, as well as clinical courses, such as neurology, while herb-drug interactions are being included in pharmacology.

All of these methods of teaching about CAM offer opportunities to present the history, culture, and philosophy of CAM and training of CAM practitioners as well as a critical analysis of published research on its safety and effectiveness. They also provide opportunities to communicate effectively with CAM practitioners and discuss CAM comfortably and accurately with patients. However, these didactic opportunities can be coupled with opportunities to experience CAM personally, particularly mind-body approaches and stress management, as part of self-care. This is being done at the George Washington University Center for Integrative Medicine through a Department of Education Fund for Improvement of Post-Secondary Education grant. A cogent argument for including self-care in medical education is that the health and well-being of medical students has been so neglected that by the end of their training, they often feel drained of the compassion and spirit that drew them to medicine.[9] In addition, students who learn the fundamentals of self-care will be better able to teach their patients to care for themselves. Medical education should include opportunities to experience CAM approaches, such as meditation and relaxation therapy, for students who personally may benefit from these approaches during their stressful journey through medical school.

Postgraduate and Continuing Education

Although the Society of Teachers of Family Medicine has published suggested curriculum guidelines on CAM and recommended that CAM knowledge, skills, and attitudes be incorporated into family practice residency training,[10] very few postgraduate CAM training opportunities exist for physicians and other conventional health care providers. One of the most extensive postgraduate CAM training programs is at the University of Arizona. This two-year fellowship in integrative medicine is limited to four allopathic or osteopathic physicians per year who have completed residency training. To expand the availability of training in integrative medicine, the University of Arizona recently created an

associate fellowship program. Combining distributed-learning and on-site training, this two-year associate fellowship is available to 50 allopathic and osteopathic physicians and a small number of nurse practitioners per class at a cost of $27,500 for the class entering in 2003.

Other postgraduate training opportunities are evolving. One is at The Continuum Center for Health and Healing at New York's Beth Israel Medical Center, which has developed not only a required rotation in integrative medicine for a family medicine residency, but also a two-year fellowship in integrative medicine. Even though the number of postgraduate training opportunities in CAM is very small indeed, there are more CAM postgraduate educational opportunities for physicians than for other conventional health care professionals.

The number of continuing education programs in CAM for conventional health professionals appears to be growing. This is an important trend, since continuing education is one of the chief means by which the current generation of conventional health professionals learns about CAM.

Despite these efforts and the creation of the Consortium of Academic Health Centers for Integrative Medicine, more needs to be done to move from discourse to implementation of CAM in the education, postgraduate training, and continuing education of not only allopathic physicians, but also osteopathic physicians, dentists, nurses, pharmacists, and all other conventional and allied health professions. A catalyst could be a conference or series of workshops facilitated by the Department of Health and Human Services (DHHS) and other Federal Departments and Agencies. These gatherings would bring together individuals and representatives of institutions, professional and accrediting organizations, and the Federal government who have been involved with recent and on-going efforts to develop core curricula of knowledge about CAM for conventional health professionals. The elements of these core curricula should be developed in conjunction with CAM experts and institutions and implemented in conventional health professional schools, postgraduate training programs, and continuing education programs. The core curricula, educational models, evaluations, recommendations, and other relevant information could be compiled and posted on the Internet at a variety of Federal and non-Federal websites, with links to related websites.

However, this strategy does not address the education and training needs of conventional health care students and providers who desire an integrative approach and wish to go beyond learning about CAM to learning how to provide CAM. This type of practice-oriented education and training in CAM should be obtained in appropriate conventional health care postgraduate training and continuing education and at CAM institutions.

The challenges to developing core curricula of knowledge about CAM for conventional health professional schools, postgraduate training programs, and continuing education programs include:

- Professional, organizational, and institutional difficulty changing,
- Lack of funding,
- Provision of adequate incentives to adopt these curricula,
- Logistical design, development, and implementation issues,
- Consensus on curricula,
- Availability of adequately trained faculty and faculty development, and
- Limited ability to add to already very full curricula.

Action

10.1 Conventional health professional schools, postgraduate training programs, and continuing education programs should develop core curricula of knowledge about CAM that will prepare conventional health professionals to discuss CAM with their patients and clients and help them make informed choices about the use of CAM.

Education in Conventional Health Care for CAM Practitioners

CAM education should be a symmetrical process. That is, the education and training of CAM practitioners should include exposure to conventional health care and its related sciences just as the education and training of conventional health professionals should include CAM.[11] CAM students should attain basic competency in the biomedical sciences and understand the components and functions of the conventional health care system, including public health. This foundation should be augmented by an evidence-based approach to education and training to achieve minimal competency in interpreting CAM and conventional literature and critiquing CAM research, particularly clinical trials.

The core curriculum for CAM students should include clinical competencies such as medical record keeping, knowledge of medico-legal aspects of care, practice in a referral environment, collaboration with conventional providers, and communication within a health care team. Students should learn to recognize the limits of their clinical expertise as well as potential complications of CAM interventions, the circumstances under which patients or clients should be referred to conventional health care providers, and the means of doing so. Additional competencies should include a basic knowledge of other CAM systems, modalities, practices, and approaches as well as when and how to refer patients or clients to those CAM practitioners.

The elements that should be contained in the core curriculum for CAM education and training and the best methods of incorporating them into existing curricula could be determined by conferences facilitated by DHHS and other Federal

Departments and Agencies or by a series of demonstration projects conducted at representative CAM education and training programs. These demonstration projects could be supported, for example, by NCCAM, Health Resources and Services Administration's (HRSA) Bureau of Health Professions (BHPr), the Department of Education, foundations, and innovative partnerships. Since these two approaches are not mutually exclusive, both conferences and demonstration projects could be undertaken, if adequate funding were available. These models, evaluation results, and recommendations should be compiled and made available through several sources, including the Internet.

The challenges to developing a core curriculum about conventional health care for CAM education include:

- Professional, organizational, and institutional difficulty changing,
- Lack of funding,
- Provision of adequate incentives to adopt curriculum,
- Logistical design, development, and implementation issues,
- Consensus on curriculum,
- Availability of adequately trained faculty and faculty development, and
- Limited ability to add to already very full CAM curricula.

Action

10.2 CAM education and training programs should develop curricula that reflect the fundamental elements of biomedical science and conventional health care relevant to and consistent with the practitioners' scope of practice.

Communication and Collaboration between CAM and Conventional Health Care Professionals

The language of biomedicine is currently as foreign to many CAM professionals as much of CAM terminology is to conventional health care professionals. Therefore, commonality of language should be the initial focus of improving communication between CAM and conventional health care professionals, and it should begin in CAM education and training programs. Minimal fluency in biomedical language should be foremost in a core biomedical curriculum for CAM education and training programs.

CAM organizations could be the point of contact for conventional institutions seeking CAM practitioners to teach CAM courses and provide relevant examples of practice. These organizations also could help locate CAM practitioners to participate in CAM research projects conducted at conventional institutions. At the organizational level, joint conferences could be held between CAM and conventional organizations representing students, practitioners, researchers, educators, or institutions.

The challenges to attaining and improving communication and collaboration between CAM and conventional students, practitioners, researchers, educators, institutions, and organizations include:

- Achieving consensus on biomedical fluency and other educational strategies,
- Professional, organizational, and institutional difficulty changing,
- Securing sufficient funding,
- Designing, developing, and implementing logistics involved with joint activities, and
- Providing adequate incentives to improve communication and collaboration.

Action

10.3 CAM and conventional education and training programs should develop curricula and other methods to facilitate communication and foster collaboration between CAM and conventional students, practitioners, researchers, educators, institutions and organizations.

Increased Support for CAM Faculty, Curricula, and Program Development

Access to increased funding and other resources for CAM faculty, curricula, and program development at both CAM and conventional institutions could result in better CAM education and training. This, in turn, could translate into more skilled practitioners, improved CAM services, and greater patient satisfaction and safety. Although CAM faculty, curricula, and program development can be regarded as a continuum, faculty development is the most important and pragmatic point at which to begin. Faculty development is not only absolutely essential for any educational improvement, but also the cornerstone of CAM education and improved training at CAM and conventional institutions. However, the current, limited funding for this purpose appears to be directed toward only a small number of curricula and program development projects at largely conventional institutions.

The type of faculty development needed by CAM and conventional institutions may be different and may vary from institution to institution. For conventional institutions, it can include providing experience in CAM systems, modalities, and therapies; teaching faculty how to collaborate with CAM practitioners and educators; and instructing them how and what to teach about CAM. For CAM institutions, faculty development can include how to teach using evidence-based, problem-based, and competency-based approaches and other educational techniques appropriate for their students and how to collaborate with conventional providers and educators.

Conventional institutions include not only allopathic medical schools, but also osteopathic medical schools and dental, nursing, pharmacy, and all other health professional and allied health schools

CAM programs at conventional health care institutions could encompass a variety of activities, including the development of CAM, integrative health, or integrative medicine clinics or centers, integrative medicine residencies and fellowships, and CAM research programs. These clinics or centers can be sites for student clinical rotations, residency and fellowship training, and clinical research and research training, particularly health services research. Juxtaposing CAM education, training, and research with conventional approaches can focus CAM research on clinically relevant topics, improve the quality of research, especially that conducted by CAM practitioners, and link CAM research with evidence-based education and training. This juxtaposition is essential for acceptance of CAM by evidenced-based conventional health care.

Because CAM institutions are more heterogeneous than conventional institutions, the program needs of CAM institutions are significantly more varied. Although CAM institutions ought to be able to pursue support of their unique program needs, some CAM institutions may be more successful by forming partnerships with conventional institutions to undertake joint activities and programs. Examples of successful partnerships between CAM and conventional institutions include the Bastyr University and University of Washington and the National College of Naturopathic Medicine and the Oregon Health Sciences University.

According to the available data, most support from NCCAM for education and training has been given to conventional institutions. Between fiscal years 2000 and 2001, 10 CAM Education Project Grants (R25) were made by NCCAM to accelerate the development, refinement and expansion of innovative educational approaches to incorporate CAM into medical, dental, nursing, and allied health professional school curricula, into residency training programs, and into continuing education courses. Grant recipients in 2000 were the Boston's Children's Hospital, the University of North Carolina - Chapel Hill, the University of Minnesota - Twin Cities, the Rush-Presbyterian - St. Luke Medical Center, and the University of Texas Medical Branch-Galveston. Recipients in 2001 were the Maine Medical Center, the Georgetown University School of Medicine, the Tufts University School of Medicine, the University of Michigan School of Medicine, and University of Washington School of Medicine/Bastyr University. It is important to note that NCCAM is considering a similar program for CAM institutions, but this program has not gone through the concept clearance process.

NCCAM established the CAM Education Project Grant (PAR-00-027) in response to Public Law 105-277, which mandated that the director of NCCAM "study the integration of alternative treatment, diagnostic and preventive systems, modalities, and disciplines with the practice of conventional medicine as a complement to such medicine and into health care delivery systems in the United States."

Limited support of CAM training and education programs also has been provided by BHPr. The Bureau's Division of Nursing has funded three graduate programs that contain content on CAM, as well as the Chiropractic Demonstration Project Grants Program. The latter supports research projects in which chiropractors and physicians collaborate to identify and provide effective treatment for spinal and low-back conditions. All of the BHPr education and training programs are established legislatively through Titles VII and VIII of the Public Health Service Act. These programs are directed toward specific health disciplines delineated in the legislation and allow very little, if any, latitude in allocation of funds. Currently, chiropractic research is the only BHPr CAM activity that is legislatively authorized.

Both NCCAM and BHPr examples illustrate how legislation drives funding of CAM education and training. Therefore, it ultimately may be necessary to pass new legislation or amend current legislation to support CAM education and training. Before that can be done, however, it is necessary to identify effective CAM education and training strategies and programs. This can be accomplished through a series of demonstration projects for CAM faculty, curricula, and program development at accredited CAM and conventional institutions and subsequent evaluation of the various models and publication of the findings in print and on-line.

Since faculty, curricula, and program development at both CAM and conventional institutions can benefit from collaborations and the economies of scale they provide, collaboration should be an essential element of these demonstration projects. Wherever possible, joint demonstration projects should be undertaken to take full advantage of combining programs and sharing faculty, expertise, facilities, and resources.

Additional sources of funding sources for CAM education and training need to be found. It may be possible to obtain funding from other NIH institutes and Federal Agencies, such as the Centers for Disease Control and Prevention, Agency for Health Care Quality and Research, and Department of Education. Funding from states, foundations, and other public and private sources should be explored also.

Bringing funding sources together with organizations such as the Association of American Medical Colleges, the American Association Colleges of Osteopathic Medicine, the American Dental Education Association, the American Association of Colleges of Nursing, the Association of Schools of Allied Health Professions, the Association of Schools of Public Health and comparable CAM organizations can help in identifying programs, faculty, resources, and opportunities to improve CAM education and training. Identification of funding sources, collaboration between funding sources and organizations, and development of selection criteria for competitive awards for CAM faculty, curricula, and program

development at accredited CAM and conventional institutions could be achieved through Federally sponsored workshops and conferences.

The challenges facing efforts to increase support for CAM faculty, curricula, and program development at accredited CAM and conventional institutions include:

- Limited availability of funding in an era of diminishing resources and increased competition,
- Resistance from conventional health professions' organizations and institutions,
- Equitable identification and prioritization of appropriate recipients for funding, and
- The need for Federal legislation and appropriations to support such programs.

Action

10.4 Increased Federal, state, and private sector support should be made available to expand and evaluate CAM faculty, curricula, and program development at accredited CAM and conventional institutions.

CAM Student Participation in Existing Loan and Scholarship Programs

CAM students, institutions, and professional organizations have expressed considerable interest in participating in loan and scholarship programs. Chiropractic students were eligible for participation in the Health Education Assistance Loan (HEAL) program, the program has been phased out, and no initial loans are available. Chiropractic students at participating institutions now may be eligible for Stafford loans. Currently, the only CAM students eligible for the Scholarship for Disadvantaged Students (SDS) program are chiropractic students. No CAM students are eligible for the National Health Service Corps (NHSC) scholarship program at this time, because it is limited to U.S. citizens enrolled in or accepted for enrollment in fully accredited U.S. allopathic or osteopathic medical schools, nurse practitioner programs, nurse-midwifery programs, physicians assistant programs, or dental schools. In other words, only students of a health profession that is named specifically in authorizing legislation can be awarded an NHSC scholarship.

The purpose of the NHSC scholarship program is to provide primary health care to underserved and vulnerable populations in rural and urban areas designated by the Federal government as health professions shortage areas. As a result of program requirements and limitations as well as other factors, NHSC, which recently was transferred within HRSA from the Bureau of Primary Health Care to

As authorized by the Public Health Service Act, Title VII, Section 705.
As authorized by the Public Health Service Act, Title VII, Section 737.
As defined in the Public Health Service Act, Title III, Section 301.

BHPr, meets approximately 12-15 percent of the identified need for health care in underserved areas. Because of the enormous unmet need, especially for primary care, and the limited number of NHSC positions and funds available, the government's and medically underserved communities' clear preference for conventional health care providers should not be unexpected.

Any policy changes regarding CAM participation in Federal loan and scholarship programs would have to be mandated legislatively. Expansion of eligibility for loan programs administered by BHPr, such as Loans for Disadvantaged Students, Health Professions Student Loans, or Primary Care Loans, to CAM students would require, at a minimum, financial impact analyses by the Congressional Budget Office (CBO), determination of which CAM professions should participate, determination of which loan programs should be expanded, and amendment of the Public Health Service Act, Title VII. Since participation in these programs is based in part on financial need, only CAM students meeting the financial eligibility criteria would be eligible. Expansion of eligibility for the Stafford loan program administered by the Department of Education would have to be preceded by similar CBO evaluations, determination of which CAM professions should participate, and legislative changes. In addition, CAM institutions would have to be accredited by an approved accreditation agency, apply and be approved for participation in Title IV of the Higher Education Act student assistance program, and sign a participation agreement.

In general, expansion of Federal loan programs to CAM students appears easier than participation in the NHSC scholarship program. However, before considering any changes in NHSC policy or legislative, a number of critical aspects of CAM participation must be examined. Since the chief purpose of this program is not education, but the provision of health care to medically underserved and vulnerable populations, current participants must be able to provide the necessary health care services, which generally are described as or included as a component of primary care.

Section 330 of the Public Health Service Act defines primary care by delineating required community health center primary care services and provides examples of representative clinical competencies. These include:

- Health services related to family medicine, internal medicine, pediatrics, obstetrics, or gynecology that are furnished by physicians and where appropriate, physicians assistants, nurse practitioners, and nurse midwives;
- Diagnostic laboratory and radiologic services;
- Preventive health services (including prenatal and perinatal services; screening for breast and cervical cancer; well-child services; immunizations against vaccine-preventable diseases; screenings for elevated blood lead levels communicable diseases, and cholesterol; pediatric eye, ear, and dental screenings to determine the need for vision and hearing correction and dental care; voluntary family planning services; and preventive dental services);

- Emergency medical services; and
- Pharmaceutical services.

The Department of Health and Human Services should conduct a feasibility study to determine whether appropriately educated and trained CAM practitioners enhance and/or expand health care provided by primary care teams. These primary care teams typically consists of family practitioners, internists, pediatricians, and obstetrician gynecologists as well as physicians assistants, nurse practitioners, nurse midwives, dentists, and mental health professionals. The feasibility study could be followed with demonstration projects to determine the type of practitioners, their education and training requirements, appropriate practice sites, minimal clinical competencies, and health outcomes attributable to the addition of these practitioners and services to comprehensive care. Then, the CBO should estimate the financial impact of CAM practitioner participation in these programs. Guidelines have been set for determining the number of a given type of conventional health care provider for a defined population size or geographic area (for example, an area that has a population to full-time-equivalent primary care physician ratio of at least 3,500 to 1), but not for CAM practitioners. Such guidelines would need to be developed for each type of CAM practitioners.

The challenges to expanding the eligibility of CAM students to participate in existing loan and scholarship programs include:

- A preference for conventional health care providers to fill the largely unmet need,
- Required changes in legislation and appropriations changes,
- Identification of specific CAM disciplines and practitioners, and
- Difficulty in administering CAM-inclusive programs particularly in the absence of population and geographic guidelines for CAM practitioners and financial impact data.

Action

10.5 Expansion of eligibility of CAM students at accredited institutions for existing Federal loan programs should be explored.

10.6 The Department of Health and Human Services should conduct a feasibility study to determine whether appropriately educated and trained CAM practitioners enhance and/or expand health care provided by primary care teams. This feasibility study could lead to demonstration projects to identify: 1) the type of practitioners, 2) their necessary education and training, 3) the appropriate practice settings, and 4) the health outcomes attributable to the addition of these practitioners and services to comprehensive care.

Typically, these primary care teams consists of family practitioners, internists, pediatricians, and obstetrician gynecologists as well as physicians assistants, nurse practitioners, nurse midwives, dentists, and mental health professionals.

National Guidelines for CAM Educational and Training

Questions about national guidelines for CAM education and training are by no means unique to the United States. In Great Britain, the House of Lords Select Committee on Science and Technology considered a number of issues related to CAM education and training.[12] Despite the exceedingly complex mosaic of CAM practices, therapies, modalities, disciplines, and professions, the committee recommended that CAM training courses, whether for conventional health professionals or CAM professionals, should be made more uniform and should be accredited by appropriate professional bodies.

National standards for CAM education and training may not be attainable in the United States for a number of reasons. For example, each of the 50 States has varying educational requirements for licensure for a multiplicity of professions. In addition, a given CAM modality or therapy may involve numerous CAM and conventional disciplines; but there may be no agreement among or between disciplines on accreditation requirements, processes, or body for that particular modality or therapy.

In an attempt to provide some uniform guidance, the Federation of State Medical Boards' Special Committee for the Study of Unconventional Health Care Practices has begun to develop guidelines for the use of CAM. These guidelines address education, but they focus on the scientific basis of treatment methods without delineating any specific education or training requirements. Simultaneously, nascent efforts by physician organizations to standardize CAM education and training for allopathic and osteopathic physicians have emerged. The American Board of Holistic Medicine, for example, has administered a board certification examination covering 13 areas of holistic medicine, including exercise medicine, nutritional medicine, environmental medicine, biomolecular medicine, behavioral medicine, spiritual medicine, energy medicine, social medicine, manual medicine, homeopathic medicine, botanical medicine, ethnomedicine including acupuncture, and conventional medicine. For physicians practicing medical acupuncture, the American Board of Medical Acupuncture has developed and administered a board certification examination.

Chiropractic has the most extensively developed and implemented national education and training standards of any CAM profession. Traditional Chinese acupuncture, therapeutic massage, and naturopathic medicine perhaps have moved closer than other CAM professions to establishing national education and training standards. Because of their progress, these CAM professions are appropriate candidates for conferences convened by DHHS and other Federal Departments and Agencies, although CAM professions and disciplines that are still in the process of developing standards should be included as well. Such conferences would assemble the leadership of CAM, conventional health, public

health, evolving health professions, and the public; educational institutions; and appropriate organizations to facilitate establishing CAM education and training guidelines. Subsequently, these guidelines would be made available to the states and professions for their consideration.
The challenges of establishing national CAM educational and training guidelines include:

- Their similarity to education and training requirements for licensure and therefore perceived encroachment on states' rights,
- Complexity-that is, the numerous disciplines or professions that may be associated with a given modality,
- Lack of educational standardization within professions,
- Absence of a clearly delineated scope of practice for each profession;
- Funding requirements, and
- Resistance from CAM and conventional professions and organizations.

Action

10.7 The Department of Health and Human Services and other Federal Departments and Agencies should convene conferences of the leaders of CAM, conventional health, public health, evolving health professions, and the public; of educational institutions; and of appropriate organizations to facilitate establishment of CAM education and training guidelines. Subsequently, the guidelines should be made available to the states and professions for their consideration.

Demonstration Projects of Postgraduate Training for Appropriately Educated and Trained CAM Practitioners

To improve education and training, the competency of practitioners, and the quality of services, CAM education and training should continue beyond the entry, professional school, or qualifying degree level. However, as previously noted, there are very few opportunities for postgraduate CAM education and training. Currently, the chiropractic profession appears to have the most extensive full-time postgraduate CAM education and training, offering residencies in radiology, orthopedics, family practice, and clinical sciences. A typical chiropractic residency program is two to three years in duration and includes outpatient care and inpatient clinical rotations at chiropractic and conventional medical facilities, along with classroom and research experiences.
Residencies in naturopathic medicine are less well developed. Postgraduate training has been in existence since 1979 and consists of a limited number of mainly one-year and some two-year residency programs with an emphasis on naturopathic family practice. Most of these residencies are based in outpatient clinics, some of which are affiliated with a hospital. Utah now requires at least a one-year residency for licensure of naturopathic physicians.

Before establishing new or expanding current CAM postgraduate education and training programs, appropriate CAM candidates for postgraduate education and training should be identified and the feasibility, type, duration, and impact of postgraduate education and training for these CAM practitioners should be determined. For example, should one-year postgraduate training programs be available for traditional Chinese acupuncturists or doctors of oriental medicine? Should three-year primary care or family practice residencies be available for naturopathic, Ayurvedic, or Tibetan medicine physicians?

The process of determining likely candidates could include demonstration projects of residencies and postgraduate training for appropriately educated and trained CAM practitioners. Federal Agencies and Departments such as NCCAM, BHPr, the Bureau of Primary Health Care, the Department of Defense, and the Department of Veterans Affairs could sponsor the projects. Because community health centers represent a unique opportunity for combining education in ethnically, racially, and culturally diverse learning environments with service to medically underserved populations who otherwise might not have access to CAM, any current or proposed CAM postgraduate education and training program affiliated with such centers should be given special consideration.

Demonstration projects should be awarded on a competitive basis and funded with monies that are distinct from the current graduate medical education funding streams. In addition, projects should include funds for financial analyses and longitudinal studies to assess the types of CAM practitioner, feasibility of residencies and postgraduate training, competency-based educational effectiveness, impact on health care quality, and collaboration between CAM and conventional providers.

The challenges to establishing demonstration projects of residencies and postgraduate training in CAM for appropriately educated and trained CAM practitioners include:

- Determining which practitioners should participate in postgraduate education and training demonstration projects,
- Developing and applying selection criteria and processes,
- Funding, and
- Limited availability of a sufficient number of training sites, patients, and faculty.

Action

10.8 Feasibility studies of postgraduate training for appropriately educated and trained CAM practitioners should be conducted to determine the type of practitioners, practice setting, and their impact on clinical competency, quality of health care, and collaboration with conventional providers.

Continuing Education in CAM for All Practitioners Who Provide CAM Products and Services

Continuing education represents a powerful means of affecting conventional and CAM practitioners' behavior, thereby enhancing public health and safety. Britain's House of Lords affirmed the importance of continuing education for CAM practitioners.12 The Josiah Macy, Jr. Foundation Conference on Education of Health Professionals in Complementary/Alternative Medicine recommended that professional and educational health care associations include high-quality, evidenced-based CAM information in continuing education programs.5

There are more programs in CAM continuing education for conventional health professionals than for CAM practitioners. However, the number, type, and availability of programs with content appropriate for all practitioners who provide CAM services and products are not sufficient to enhance and protect the public's health and safety regarding CAM. Therefore, continuing education needs to be improved and made available to all conventional health professionals as well as all practitioners who provide CAM services and products.

Action

10.9 Practitioners who provide CAM services and products should complete appropriate CAM continuing education programs that include critical evaluation of CAM to enhance and protect the public's health and safety.

REFERENCES:

1 Berman B. Complementary medicine and medical education. British Medical Journal. 2001;322:121-122.

2 Wetzel MS, Eisenberg DM, Kaptchuk TJ. Courses involving complementary and alternative medicine at US medical schools. Journal of the American Medical Association. 1998;280:784-787.

3 Chez RA, Jonas WB, Crawford C. A survey of medical students' opinions about complementary and alternative medicine. American Journal of Obstetrics and Gynecology. 2001;185:754-757.

4 Bhattacharya B. M.D. programs in the United States with complementary and alternative medicine education opportunities: An ongoing listing. The Journal of Alternative and Complementary Medicine. 2000;6:77-90.

5 Chairman's Summary of the Conference, Education of Health Professionals in Complementary/Alternative Medicine, Josiah Macy, Jr. Foundation, 44 east 64th Street, New York, NY 10021 Grollman AP. Is

there wheat among the chaff? Academic Medicine. 2001;76:221-223.

6 Marcus DM. How should alternative medicine be taught to medical students and physicians? Academic Medicine. 2001;76:224-229.

7 Sampson W. The need for educational reform in teaching about alternative therapies. Academic Medicine. 2001;76:248-250.

8 Gaudet TW. Integrative medicine: The evolution of a new approach to medicine and medical education. Integrative Medicine. 1998;1:67-37.

9 Kligler B, Gordon A, Stuart M, Sierpina V. Suggested curriculum guidelines on complementary and alternative medicine: Recommendations of the society of teachers of family medicine group on alternative medicine. Family Medicine. 1999;31:30-33.

10 Caspi O, Iris RB, Rychener D, Gaudet TW, Weil AT. The tower of Babel: Communication and medicine. Archives of Internal Medicine. 2000;160:3193-3195.

11 House of Lords Select Committee on Science and Technology. Sixth Report: Complementary and Alternative Medicine, 21 November 2000, Chapter 6: Professional Training and Education.

Table 1. CAM Topics Included in Required or Elective Courses at Medical Schools Accredited by the Liaison Committee on Medical Education.

Medical Schools Covering Topics

Topics	Required Course Only	Elective Course Only	Both
Acupuncture	18	54	28
Herbal medicine	28	45	33
Homeopathy	17	48	18
Meditation	13	53	17
Manual healing techniques	15	50	11
Nutritional supplement therapy	30	42	36
Spirituality	25	43	35

Source: 2000-2001 Liaison Committee on Medical Education Annual Medical School Questionnaire.