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Patient and Medical Education on Complementary and Alternative Medicine

Sorting It Out

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INTRODUCTION

Millions of Americans use complementary and alternative medicine (CAM) therapies, often in the absence of scientific evidence of their safety and effectiveness and, in many cases, without including a medical professional in the decision-making process (1). Depending on how broadly one defines it, between 36 and 62% of the US population now relies on some form of CAM (2). Although annual visits to CAM practitioners now outnumber visits to primary care physicians (3), only 12% of those using CAM therapies seek them through certified or licensed CAM practitioners (4). CAM users are usually paying out of pocket, using one or more alternative therapies on a regular basis in combination with prescription medications, and generally not discussing their CAM use with their physicians (5).

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Although the ethical obligation to assist patients in achieving their goals for health and wellness supports providing evidence-based advice when they ask about CAM therapies, the unique way in which the use of alternative therapies has evolved highlights the importance of roles of physicians as health educators and advocates. Widespread self-medication and self-treatment with what are frequently unproven, untested, and unregulated therapies, in combination with potentially incompatible conventional therapies, raise important questions for physicians. How are patients learning about these therapies and are their information sources trustworthy, unbiased, and valid? What are the perceptions or misperceptions they bring to the decision-making process? Are patients aware of the potential adverse health consequences of these self-treatment decisions? Does the physician have an ethical obligation to proactively intervene in this process? If so, what changes are required in medical education to adequately prepare physicians for that role? This chapter examines these questions.

The first part of this chapter looks at the ways in which consumers are drawn to and learn about CAM therapies, the common misconceptions they have about the safety and regulation of CAM products, and the significant risks involved with the prevailing pattern of CAM self-treatment. The second part argues that if physicians have an ethical duty to become proactive guides for patients as they navigate the seas of CAM information, the profession has a corresponding duty to provide a core of CAM training within professional medical education. The next section explores recent developments in CAM instruction within the medical school curricula and suggests a set of core competencies that physicians need to fulfill in order to provide effective, patient-centered care with regard CAM. The fourth section is designed as a resource for health care professionals and their patients, providing a directory of authoritative CAM sources and discussing strategies for critically evaluating CAM information.

PATIENT EDUCATION: OVERWHELMING INFORMATION, MISINFORMATION, AND MISCONCEPTIONS

Evaluating whether, and what type of CAM education physicians need to best serve patients requires examining how patients currently get their CAM information, how the quality of that information varies depending on the source, and the potential for harm when patients make CAM decisions based on poor-quality information. This section examines CAM from the perspective of patient education by exploring the nature, widely disparate quality and impact of the seemingly unlimited CAM information sources available to patients; and by discussing consumer misconceptions about the current safety and regulatory protections in place with regard to CAM.

The hallmark of CAM is heterogeneity, as it encompasses a wide range of systems (e.g., chiropractic, Traditional Chinese Medicine, homeopathy, naturopathy), mind–body interventions (e.g., deep breathing, meditation, massage, relaxation therapy, prayer, and mental healing, etc.), biologically based therapies (e.g., special diets and dietary supplements), and other therapies (6). Patient goals in turning to CAM are varied as well, including improving well-being, promoting health, enhancing performance, preventing disease, relieving symptoms, or curing disease (7,8). The reasons for the dramatic increase in CAM use since the early 1990s are as diverse as the therapies themselves and include a general societal interest in asserting more personal control over health; preferences for a more natural or holistic approach to health and wellness; compatibility with personal beliefs, values and spirituality; belief that CAM therapies in combination with conventional care yield better outcomes; belief that CAM options are more effective in addressing many symptoms of chronic conditions and disabilities; increasing relative costs and lack of coverage for conventional care, and so on (9–11).

The well over 100 million patients* (12), highly motivated by multiple factors to address diverse personal health issues through a wide spectrum of CAM solutions, are at once a population at risk—in need of reliable health information—and a target market for entrepreneurial vendors of alternative therapies. As a result, they must navigate through a sea of information, from thousands of sources, both familiar and unfamiliar, of frequently indiscernible quality and with varied, sometimes hidden agendas.

Overwhelming Information and Misinformation

The informal waves of information are perhaps the most powerful. Consumers say it is family and friends who most frequently prompt them to consider trying CAM and provide information for making decisions about CAM therapies (10). Colleagues, teammates, and classmates engage in casual conversation on a daily basis about the latest product, practice, or regimen for symptom relief, weight loss, performance enhancement, memory improvement, or general well-being. The informal networks that develop among patients and families dealing with complex chronic diseases and disabling conditions share information about alternative therapies (10). Although this information is communicated with the best of intentions, its origin, scientific basis, and veracity are often unknown and impossible to assess. Making treatment decisions based solely on testimonials from family and friends can obviously be risky, as no two individuals have the same physiological or psychological makeup and each person takes a different array of prescription and over-the-counter (OTC) medications. Thus, the health consequences of the same CAM decision by different individuals are unlikely to be equivalent.

*Based on 36% of the US population using some form of CAM other than prayer for personal health reasons (*see* ref. 3) and January 1, 2005 Census bureau US population estimate of 296 million.

Consumers have expressed some preference for purchasing CAM products through pharmacies, particularly if a pharmacist is accessible for consultation (13). Although both the popular media and pharmacists themselves gave the pharmacy profession poor ratings for knowledge about dietary supplements in 1998, the profession subsequently took serious steps to increase its evidence-based knowledge. The curricula at many pharmacy schools have been expanded to cover the topic, relevant continuing pharmacy education is now common, and at least one large pharmacy chain has established an institute that has trained more than 10,000 pharmacists to counsel patients on the safe, effective use of dietary supplements (14). Patients are further protected in dealing directly with a pharmacist in that federal regulation controls the type of printed materials about dietary supplements that pharmacists may provide, prohibiting direct distribution of material that promotes a particular brand or contains false or misleading information (15). The pharmacist's knowledge of a patient's use of prescription drugs and the historic partnership between physician and pharmacist in coordinating patient care are both factors that support relying on a pharmacist as one source of information in making CAM decisions.

Public libraries can be a valuable source of books, journals, and government publications on alternative therapies and on issues such as health care fraud and consumer protection (10). Many libraries can also provide consumers with access to online CAM information sources. The National Library of Medicine at the National Institutes of Health (NIH) in collaboration with its National Network of Libraries of Medicine, makes nationwide training support available to librarians providing health information to the public to help assure consumers access to accurate, trustworthy health information through their public libraries (16).

The popular media provides much of the information on which consumers base their CAM decisions (17), covering CAM from the human interest, consumer health, and consumer protection perspectives. However, the promotion of some CAM prod-

ucts through print advertisements, infomercials, talk shows, and home shopping networks makes it difficult for even sophisticated consumers to differentiate between unbiased, fact-based CAM information and well-disguised marketing presentations. Although some CAM providers subscribe to professional codes of ethics and strive for truth and fairness in promoting their products and services (18), others are more entrepreneurial and the veracity of the promotional information they distribute can often be tainted by profit motive. There is a great deal of money at stake. The dietary supplement industry, for example, grossed almost \$18 billion in 2001 (19).

Such economic potential creates intense pressure to reach the largest possible audience with effective, positive product messages. One effective strategy is to place advertising in vehicles that patients trust, cloak it with the legitimacy of science-based consumer health information, play off vulnerable patients' longings for miracle cures and symptom relief, and perpetuate public misconceptions that "natural" means safe (20). For example, one manufacturer promoted its dietary supplement in *Parade*, *Parenting*, and *People* magazines to parents of children with attention deficit hyperactivity disorder as a proven treatment and a natural alternative to Ritalin (21). The manufacturer was eventually cited by the Federal Trade Commission (FTC) for making false claims and the ads were discontinued. Advertising appears in newspapers, magazines, direct mail, pamphlets, and on television and radio (22). Telemarketing and multilevel marketing programs are also key strategies for marketing alternative therapies, especially to vulnerable populations (20).

The internet has become a significant source of health information. More than 44 million households have internet access (23), and more than 73 million US adults use the internet to obtain health-related information (24). A Kaiser Family Foundation national survey of older Americans points to the increasing importance of the internet as a source of health information

for this growing segment of the population: 215 of those aged 65 and over and 53% of those aged 50 to 64 search the internet for health information (25). Forty-eight percent of all health information seekers have searched specifically for online information on alternative or experimental treatments or medications (24).

The internet can be a gateway to reliable information, invaluable to patients in making health care decisions. As the final section in this chapter demonstrates, government agencies, academic institutions, professional societies, and other organizations provide a wealth of well-researched, scientifically accurate free online resources on CAM research, providers, services, products and therapies. The nonprofit organizations supporting patients and families confronting specific diseases and conditions can also provide guidance about relevant CAM therapies. The Alzheimer's Association, American Cancer Society, Arthritis Foundation, Asthma and Allergy Foundation of America, Children with Diabetes, and National AIDS Treatment Advocacy Project are just a few of the organizations that provide balanced, unbiased condition-specific information about alternative treatments on their websites. These sites are especially useful in warning patients about popular products that have been proven ineffective or harmful and in providing information about many of the safe, relatively inexpensive self-healing, mind-body CAM interventions that can improve patient quality of life, but that receive little commercial attention.

Unfortunately, the internet is also an easy, cheap, loosely regulated vehicle for the fast, widespread distribution of promotional, potentially biased, misleading, and even fraudulent information. Both legitimate and fraudulent online marketers promote their products through websites, spam, and chatrooms at costs well below those associated with buying ad space or commercial air time in traditional media (26). A 2003 study of internet marketing of herbal supplements illustrates the point. Of the 443 sites examined, 81% made at least one unsubstantiated health claim,

55% claimed to treat, prevent, diagnose, or cure a specific disease, and fewer than half of those making health claims included the required standard Food and Drug Administration (FDA) disclaimer (19). These results are especially disturbing because the study authors used the most common search engines and focused on websites from the first page of search results, paralleling typical consumer research patterns (24).

The prevalence of false and misleading online health information raises particular concerns because of the high degree of trust consumers place in the internet. Seventy-two percent say they believe all or most of the health information they find online; 69% believe they have never found incorrect health information online (24). This discrepancy between overall consumer trust in internet health information and the accuracy and trustworthiness of that information points to the need for physicians to guide and empower patients in making truly informed CAM decisions.

Misconceptions About Inherent Safety and Regulatory Protections

Consumer confidence in making independent decisions to use CAM therapies is no doubt based in part on misconceptions about the degree to which practitioners and manufacturers are regulated. In fact, the licensing of alternative health practitioners is a matter of state law and there is no standardization regarding whether and to what extent a particular CAM practice is regulated. (See Chapter 6 on liability and risk management issues and CAM.) Decisions to use dietary supplements (defined in the Dietary Supplement Health and Education Act of 1994 [DSHEA] as “a product, other than tobacco, intended to supplement the diet that bears or contains one or more of the following dietary ingredients: a vitamin; a mineral; an herb or other botanical; an amino acid; a dietary substance for use by man to supplement the diet by increasing total dietary intake; or a concentrate, metabolite, constituent, extract or combination of any ingredient described above

[15]) are based on the prevailing belief that these products are inherently safe. Consumers may equate the label “natural” with safe, and mistakenly believe that if a product is for sale in a grocery, drug or health food store, that there is oversight to ensure that it contains only the ingredient(s) listed on the label in the quantities listed; that the ingredients are pure and effective for the purpose sold; and that the product is safe when used as directed (27).

The DSHEA reflects a compromise between FDA officials looking to protect the public interest by imposing firmer controls, and powerful industry/consumer opposition to those controls (14). Under the DSHEA, the FDA has no jurisdiction to require premarket testing for safety or efficacy and supplement manufacturers are not required to register with the FDA (28). Supplements are not regulated for purity or potency (15). The manufacture of dietary supplements is not strictly regulated. However, mandatory “good manufacturing practices” regarding temperature, sanitation, and equipment maintenance, similar to those in place for OTC drugs, were enacted in 2004 and are expected to be phased in by 2007 (27).

Under the DSHEA, supplements are not considered drugs and are subject only to postmarket safety, efficacy, and labeling oversight. The burden falls on the FDA to prove that a supplement poses a significant health risk before it can take action to interrupt its marketing or restrict its use (15). The postmarket oversight of the safety of dietary supplements depends in large part on the FDA’s system for collecting and reviewing adverse event reports (28). Unfortunately, the Office of the Inspector General has determined that the current voluntary adverse event reporting system provides inadequate consumer protection (29). The FDA receives reports of less than 1% of all dietary supplement adverse events and those reports lack adequate medical, product, manufacturer, or consumer information. Consequently, the FDA is rarely equipped to take safety action based on adverse event reports (28).

Misconceptions regarding the safety of alternative treatments and the level of regulatory protections in place combined with the public's growing desire to exercise autonomous control over health care decisions can leave consumers vulnerable to entrepreneurs looking to prey on the most vulnerable among us. Perhaps the most graphic example of this occurred shortly after the events of September 11, 2001, when the FTC uncovered more than 200 sites targeting the public's fears by marketing homeopathic remedies, dietary supplements, and other products as treatments for contamination by biological agents like anthrax or small pox (30). Both the FDA and a broad coalition of trade associations representing the dietary supplement industry confirmed that there was no scientific basis for any of these marketing claims (30).

Especially Vulnerable Populations

Older Americans are drawn to alternative treatments to prevent or treat illness, relieve symptoms of chronic disease, slow aging, improve memory, maintain overall health, and increase energy. Although many alternative treatments may offer symptom relief or improved quality of life for seniors, without appropriate physician guidance this population is especially vulnerable to false claims and the accompanying risk of physical and economic harm. Seniors are more likely to be suffering with multiple chronic conditions requiring several prescription medications. With as many as 40% of seniors taking dietary supplements, there is a substantial ongoing risk of interaction or interference with prescription drugs. Furthermore, some of the most popular supplements may be contraindicated for seniors with some common conditions.

The General Accounting Office reports that senior citizens spend millions of dollars on anti-aging alternative treatments that either make unsubstantiated claims or contain little or none

of the active ingredients listed on the label. They frequently use these products instead of OTC or prescription medications and have misconceptions about responsible use, including the belief that following recommended dosage guidelines is unnecessary (20).

At the other end of the spectrum, alternative treatments are becoming an increasingly important issue in pediatrics. Both the American Academy of Pediatrics (10) and the National Association of School Nurses (31) have issued policy statements. Children and their parents are increasingly being targeted by marketers of alternative treatments, particularly dietary supplements (31). The FTC (32) has become particularly concerned about advertisers targeting families coping with attention deficit hyperactivity disorder and obesity and claiming to offer safe, natural alternatives to prescription medications. Pediatricians estimate that as many as 50% of children with autism are using some form of alternative treatment (10).

Both physicians and parents need to be aware of the increasing popularity of dietary supplements for performance enhancement among student athletes. In a 2000 survey of more than 21,000 college athletes acknowledging use of performance-enhancing supplements other than multivitamins, 57% stated they began their supplement use in high school and other surveys suggest that steroid-related supplement use is occurring among middle school athletes (33). Internet-savvy students have access to a variety of supplements which marketers claim will enhance athletic performance, some of which pose serious health risks (34).

Perhaps the population most vulnerable to false or misleading promotion of alternative treatments consists of those suffering from serious illnesses such as cancer, AIDs, multiple sclerosis, diabetes, and arthritis and those coping with chronic conditions such as Gulf War syndrome, headache or back pain, for whom conventional therapy has offered only minimal relief. Many of the nonprofit organizations and government health agen-

cies that support patients and physicians dealing with these health problems track relevant alternative treatments, highlighting those that have been proven effective and issuing warnings regarding dangerous or worthless products and services. The last section of this chapter provides resource information for contacting many of these organizations.

THE ETHICAL IMPERITIVE FOR CAM IN MEDICAL EDUCATION

With regard to CAM, physicians should acknowledge that each patient they see is as likely as not to be using one or more CAM therapies, routinely self-medicating or self-treating based on the personal recommendations of friends and family, media reports, advertising or independent research. Unfortunately, the information on which these CAM decisions are based is as likely to be fraudulent as factual, biased as fair, promotional as evidence-based; and few patients have the skills in the scientific method necessary to effectively evaluate conflicting or biased information sources. The CAM treatments they choose may be helpful, neutral, toxic or otherwise harmful, and have the potential to interfere with conventional therapies or to compromise the accuracy of laboratory tests (35). Decisions to pursue alternative therapies are often not fully informed.

These realities create a need for physicians to understand and empower informed patient choices regarding alternative treatments. Physicians must be willing and able to engage patients in routine, open conversation about their use of alternative therapies (36). That will require physicians to become more informed about current CAM therapies and the state of the science of CAM. The ability to steer patients toward reliable sources of unbiased, trustworthy CAM information will require some familiarity with the CAM literature and the internet. Given that patients do not

tend to volunteer information about their CAM use, limiting counseling to circumstances when patients raise the issue is not effective.

Implicit in asking patients about their CAM use is the obligation to offer balanced information on the safety, efficacy, risks, and benefits of the therapies they have chosen. Discussions of CAM can reveal patient goals regarding promoting health, prolonging life, alleviating suffering, or re-establishing autonomy, control, or hope. Providing trustworthy referrals or information resources or simply lending an ear can strengthen a therapeutic relationship strained by the limitations of conventional treatments. Training in a patient-centered perspective, strong, clinical communication skills, and a broad overview and knowledge of CAM therapies and reliable CAM information resources will be prerequisites to providing this type of quality care.

CAM in Professional Medical Education

Although there has been substantial movement toward integrating CAM into professional medical education, the extent of that integration varies significantly and the medical profession is far from unanimous in its support. Proponents range from enthusiastic advocates of one, integrative medicine to skeptics favoring only the most rigorous evidence-based reviews of what works and what doesn't (37). The vocal opposition argues that CAM instruction constitutes an inappropriate drain of valuable time and resources from an already overburdened curriculum and that CAM's frequent lack of a scientific evidence base, questionable safety, uneven regulatory and consumer protections, and entrepreneurial foundations makes its integration into medical education a dangerously premature endorsement by the medical profession (38,39). Despite these widely divergent perspectives, medical education must foster the openness and provide the knowledge and skills required for physicians to evaluate CAM therapies and guide patients as appropriate.

The Evolution of CAM in Professional Medical Education

The increase in CAM content within the medical school curricula has paralleled the explosive growth in use of alternative treatments since the mid-1990s. In the 1996–1997 academic year, 46 of 125 US medical schools included CAM topics within required courses (38). One year later, 75 schools reported offering CAM-specific electives or covering CAM in required courses. By the 2002–2003 academic year, 98 medical schools reported providing some form of CAM-specific instruction (18). There has been a similar rise in the number of US schools offering courses on spirituality in medicine. Seventeen accredited medical schools offered courses on spirituality in 1994. By 1998, that number had increased to 39, and by 2004 courses on spirituality in medicine were available at 84 US medical schools (40).

Although these statistics provide some indication of the presence of CAM in the medical curriculum, they provide little insight into course content. Brokaw and colleagues surveyed CAM course directors at US medical schools in 2000–2002 about the details of what was being taught (41). Respondents reported on courses taught at 52 US medical schools. The majority of courses were electives, sponsored by clinical departments, and team-taught by CAM practitioners or prescribers to give students a broad CAM overview. This study raised several significant concerns. First, less than 18% of respondents emphasized a critical evaluation of CAM treatments or claims of therapeutic efficacy and only 8.2% mentioned including anything related to evidence-based medicine. More than 78% of the courses were taught by practitioners or prescribers of CAM therapies, suggesting they “may be less inclined to impart a critical perspective based on accepted standards of scientific evidence.” Finally, the selection and relative weight of course content seemed more a function of the background and interests of the instructor(s) than of scientific principles (41).

One initial area of focus for the National Center for Complementary and Alternative Medicine (NCCAM) was the development of models for incorporating CAM into the curricula of medical, dental, and nursing schools (42). Beginning in 2001, the Center funded 15 five-year projects to encourage new educational approaches to incorporating CAM information into professional school curricula, residency training programs, and continuing medical education. Each of these programs took a different approach to teaching CAM, reflecting the goals and objectives of the particular educational institution and the principal investigators, and the resources available to them. The following are examples of NCCAM funded projects:

- The University of Washington project involves a collaboration with Bastyr University (a school of naturopathic medicine in Seattle) to develop and integrate an interdisciplinary evidence-based CAM curriculum into the existing required courses, create new electives throughout the 4-year program, and foster interdisciplinary student interactions and exploration of similarities and differences between CAM and conventional approaches to healing (43).
- The Tufts University program concentrates on pain, palliative and supportive care, collaborating with the New England School of Acupuncture to focus on East Asian Medicine (18).
- In the Oregon Health and Science University (OHSU) program, a task force of faculty from OHSU, the National College of Naturopathic Medicine, Oregon College of Oriental Medicine and Western States Chiropractic College determined the core objectives for a 4-year curriculum for medical students in CAM, and then embarked on designing, implementing, and evaluating a curriculum to meet those objectives (44).

- The Georgetown University program focuses on aiming the CAM curriculum at all students through required courses and integrating CAM material into basic science courses so that all graduates of the school of medicine will be able to understand CAM advances and advise and communicate with their patients more effectively about CAM (45).
- The American Medical Student Association worked with experts in the field to develop a comprehensive CAM curriculum and then selected six medical schools (University of Connecticut, University of Massachusetts, University of California at Irvine, Kansas City University of Medicine and Biosciences, University of Texas Health Science Center at San Antonio, and Louisiana State University Health Sciences Center) to pilot that curriculum (46).

The University of Arizona has developed a comprehensive Program in Integrative Medicine that encompasses required and elective courses in the College of Medicine, an Integrative Family Medicine Residency, a fellowship program, a research program and a broad catalog of online continuing education courses (47). The Integrative Family Practice Residency program is co-sponsored with the Albert Einstein College of Medicine, the Maine Medical Center, the University of Wisconsin at Madison, the OHSU, and the Middlesex Hospital Family Practice Residency Program, and expands the traditional 3-year family practice residency to 4 years to accommodate training in integrative medicine. Arizona's extensive catalog of online courses in integrative medicine includes a nutrition series (e.g., Nutrition and Cancer, Nutrition and Cardiovascular Health), a comprehensive Clinical Integration series addressing integrating CAM and alternative therapies in the treatment of specific diseases and conditions such as asthma, depression, etc., a Consulting With... series that covers collaborating with CAM professionals for the benefit

of patients (e.g., Consulting With Mind–Body Practitioners, Consulting With Homeopaths, Consulting With Energy Medicine Practitioners, etc. [48]).

The University of New Mexico (UNM) Health Sciences Center Section of Integrative Medicine provides medical students, residents, faculty and practicing physicians with training in integrative medicine. Medical students have several elective opportunities including “Perspectives in Integrative Medicine” and a 4-week CAM elective as well as exposure to integrative medicine through a selective rotation at the UNM Integrative Medicine Clinic. Resident opportunities for integrative medicine training include grand rounds, an elective integrative medicine rotation and others. The section of Integrative Medicine also sponsors an international biennial continuing medical education conference on integrative medicine (49).

The Department of Family Medicine at the University of Texas Medical Branch at Galveston also has an ambitious program in integrative healthcare. First-year students explore the potential benefits and risks of alternative therapies from a problem-solving perspective in their clinical decision-making course, learning the importance of good medication histories including OTC medications and dietary supplements, and gaining first-hand experience in finding reliable online information sources about CAM therapies. CAM is also integrated into the clinical clerkships and required courses. A fourth-year elective in alternative and integrative medicine combines seminars, a journal club, visits to alternative practitioners, development of a self-care plan, journaling, and participation in reflective and relaxation experiential learning. Selectives enable students to spend time with holistic practitioners, do research projects on basic science in CAM modalities, or explore the legal, ethical, or cultural issues surrounding alternative care. The program also focuses on the importance of ethnic, cultural, and spiritual issues that arise in the clinical setting with regard to CAM. Alternative care is

also integrated into residency through presentations during rounds, grand rounds, lectures, ambulatory clinic report, and the like, to introduce tools for practice and resources for patient care (50).

The Harvard Medical School offers an elective in CAM that provides a general introduction to the theory and practice of CAM, requires critical reading of the literature and assessment of the state of CAM science, and involves practice in discussing CAM use with patients. The School of Public Health also offers a course titled Complementary and Alternative Medicine: Health Law and Public Policy. The Harvard Medical School Osher Institute and Division for Research and Education in Complementary and Integrative Medicine, through funding from the NIH, the Medtronic Foundation, and other private sources has developed a model for an integrative care clinical center within a major academic medical center. Although the model center will have multiple goals, the education efforts will be directed toward the interdisciplinary team of conventionally trained physicians, ancillary care providers, and licensed complementary care providers. The first educational program, currently under development, focuses on facilitating the effectiveness of that team and their shared decision making. The center will also serve as a clinical training site for the Osher Institute's NIH-supported fellows in complementary and integrative medicine (51).

Several innovative educational initiatives in integrative pediatrics evolved out of an interdisciplinary collaboration among physicians, pharmacists, dieticians, nurses, medical librarians and web specialists from the Children's Hospital Boston, Harvard Medical School, Boston Medical Center, Massachusetts College of Pharmacy and Health Sciences and the Dana Farber Cancer Institute with funding support from the National Library of Medicine and the NCCAM. One of the group's earliest initiatives was a voluntary e-mail education program on herbs and dietary supplements. On a weekly basis, the more than 500 participating dietitians, pharmacists, physicians and nurses received

a series of interactive, case-based learning modules via e-mail, followed by multiple-choice questions with appropriate feedback and e-mail discussion. This program was extremely well received, eliciting more than 300 more participants than expected. Participants completed the program despite the fact that no continuing education or other formal credit was provided. The participants praised the internet as an effective, inexpensive means of delivering case-based CAM instruction (52).

The same group started the Pediatric Integrative Medicine Education (PIME) project through the NCCAM education grant program discussed previously. The project focused on faculty development, a fellows program, and medical student and resident education. The most innovative aspects of the project are the faculty development program and the creation of the HolisticKids.org website to educate residents in integrative pediatric medicine. Kemper and colleagues developed a voluntary six-seminar faculty development program in integrative pediatrics that drew faculty from several pediatric programs in the Boston area including the Harvard Medical School, the Boston Combined Pediatric Residency Program, and the Pediatric Fellowship Program at Boston Children's Hospital (53). Each session involved a pretest of knowledge and confidence on the session topic, background reading, and discussion questions as preparation, a case-based experiential seminar, and a post-session test and questionnaire. The program goal was "to improve key faculty members' knowledge, attitudes and communications skills about 4 [*sic*] types of CAM therapies: herbs and dietary supplements, mind-body therapies, massage, and acupuncture." Although the number of participants in the first series was small, the impact was significant. The pre- and post-session tests demonstrated substantial CAM knowledge gains and increased confidence in discussing the covered CAM therapies with patients, students, trainees, and colleagues. Participants reported changes in clinical and teaching practices as a result of the program, including increasing the frequency of CAM discussions with patients and stu-

dents, initiating CAM discussions rather than waiting for patients or parents to do so, and taking specific steps to teach and disseminate course materials. Participants demonstrated leadership by incorporating integrative medicine within their own curricula (52).

Recognizing that residents frequently turn to the internet as a key resource for professional development, the PIME team created the HolisticKids.org Website to provide an educational source for quality information on CAM in pediatrics (54). The development team included a pediatrician, a pharmacist, a medical librarian, and a web specialist, among others (52). The site is divided into the following four key areas:

1. The *overview of therapies* area provides a brief description of each CAM modality with links to carefully selected websites for more in depth information.
2. The *teaching toolbox* is built around a list of common pediatric problems, allowing the visitor to select a problem and then download the corresponding chapter from *The Holistic Pediatrician*, or view related articles from PubMed, lists of appropriate OTC and prescription medications, and CAM interventions. For some illnesses, case studies are also provided.
3. The *information and resources* section provides access to a local drug information center that responds to inquiries on CAM therapies, includes a list of local libraries, their access policies and CAM holdings, links to two comprehensive CAM information resources, and provides an up-to-date listing of educational opportunities related to CAM.
4. The *practitioners* area provides several alternative methods of searching for local alternative medicine practitioners. This section has become the most frequently accessed part of the site.

This overview of ongoing efforts to integrate CAM into the medical education curriculum, although not exhaustive, has touched on undergraduate, graduate and continuing medical education at both public and private institutions in all areas of the country. Clearly, there is little consensus on what should be taught, how it should be taught, or when it should be taught. It does appear that in many instances, consistent with the observations of Brokaw and colleagues (41), the subject matter for many courses and programs seems to be driven more by the particular CAM resources available to the institution and/or by the interests of leading faculty members rather than by the academic standards applied to conventional courses. The most innovative and comprehensive programs seem to develop when interdisciplinary collaborative teams of highly motivated individuals evolve through their common interest in integrative medicine.

Recommendations, Guidelines, and Core Competencies

Educating physicians in CAM theory, practice, and patient counseling is still a relatively new and evolving process. One step in that process is the organized effort by leaders in the profession to develop recommendations, guidelines, or core competencies in an effort to standardize this aspect of medical education. Several groups have begun working in this arena.

The Society of Teachers of Family Medicine Group on Alternative Medicine issued *Suggested Curriculum Guidelines on Complementary and Alternative Medicine* in 1999 as recommendations for those wishing to incorporate CAM into residency training (55). The guidelines focus on the attitudes, knowledge, and skills residents must acquire to become “unbiased advocates and advisors to patients about CAM.” With regard to attitudes, the guidelines call specifically for educating residents to respect the ethnic and cultural influences that may draw patients to alter-

native care, to discuss use of CAM as a necessary part of practicing patient-centered medicine, and to develop a willingness to seek out and collaborate with qualified CAM practitioners to ensure patient access to appropriate care. The knowledge requirements include the prevalence and patterns of CAM use; legal issues (licensing, credentialing, referral, collaboration, documentation); reimbursement issues; application of evidence-based medicine principles to the study of CAM; the theory, philosophy, common clinical application, and indication for referral; potential adverse effects; current research evidence for efficacy and cost effectiveness; and one reputable reference source for more information for each major category of CAM. The skills component calls for residents to develop the ability to ask patients about their CAM use in an open, nonthreatening manner, to gather information on safety, efficacy and cost of CAM interventions, and to clearly communicate it to the patient to facilitate informed CAM decisions, and to interact collegially with CAM practitioners to achieve quality patient care.

The White House Commission on Complementary and Alternative Medicine in 2002 reviewed the status of professional medical education regarding CAM at that time and made the following recommendations.

- CAM taught within conventional medical education should be (a) incorporated into required courses, not relegated to electives, (b) evidence-based, (c) include the conceptual basis of CAM practices, (d) provide a critical review of safety and efficacy, and (e) include experiential opportunities in mind–body therapies.
- The education of CAM and conventional practitioners should “ensure public safety, improve health and increase the availability of qualified and knowledgeable CAM and conventional practitioners and enhance the collaboration among them.”

- Medical schools, postgraduate training programs, and continuing education programs should develop core CAM curricula to prepare conventional physicians to discuss CAM with patients and support informed choices about CAM.
- CAM and medical education should facilitate communication and foster collaboration between CAM and conventional students, practitioners, researchers, educators, institutions, and organizations (4).

Following their 2002 examination of the content being offered by CAM course directors at US medical schools, Brokaw and his colleagues stated that medical students must be trained to “consider the evidence for or against a given CAM therapy, critically evaluate the source and quality of the supporting data, and appraise the therapy’s potential for harm when used alone or in combination with conventional therapies.” They offered medical schools three suggestions for achieving those educational goals:

- Emphasize critical evaluation of the scientific literature.
- Enlist faculty from the basic science departments with expertise in experimental design and statistical analysis to help teach critical perspective and foster appreciation for medicine’s scientific basis.
- Avoid advocacy of unproven therapies by holding CAM courses to the same academic standards as other courses and requiring curriculum committee approval (41).

In 2003, Wetzel et al. reviewed the current state of CAM education in US medical schools and outlined a 10-step plan for educating physicians who are “knowledgeable and comfortable talking with patients about the entire range of allopathic and complementary therapies, familiar with local CAM practitioners and offerings, dedicated to helping their patients gain and main-

tain health through one inclusive medicine.” The steps include the following:

- Define a core curriculum in CAM, starting with the most heavily used therapies, as revealed by patients in major studies and including dietary supplements and herbal remedies owing to the safety issues.
- Teach one, evidence-based medicine, teach students to be unbiased evaluators of the evidence, to find information about clinical trials, to be discerning, critical readers of all scientific literature, to examine the methods of studies, to understand the possible placebo effect and other influences, and so on.
- Create opportunities for cross-fertilization by incorporating an exchange rotation or externship for medical students with schools of chiropractic, acupuncture, mind–body therapy, therapeutic massage, naturopathy, Traditional Chinese Medicine, and so on.
- Offer a well-designed elective.
- Include an experiential component (38).

Although the core competencies outlined in the Institute of Medicine’s (IOM) 2003 report *Health Professions Education: A Bridge to Quality* were originally drafted in relation to conventional medicine, they are especially relevant to the physician’s role in advising patients on alternative care. They stress the need to educate physicians to provide patient-centered care, which requires “the ability to communicate with patients in a shared and fully open manner; take into account the patient’s individuality, emotional needs, values and life issues; and enhance prevention and health promotion” (56). In its 2005 report, the IOM Committee on the Use of Complementary and Alternative Medicine by the American Public recommended that “health profession 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” (18). The committee also stressed the importance of evaluating all CAM educational programs according to the same standards applied to other medical school curricula topics.

The Consortium of Academic Health Centers for Integrative Medicine (CAHCIM) is a collaboration of 23 academic medical centers whose mission is “to help transform health care through rigorous scientific studies, new models of clinical care, and innovative educational programs that integrate biomedicine, the complexity of human beings, the intrinsic nature of healing and the rich diversity of therapeutic systems.” During 2002–2003, the CAHCIM Education Working Group defined a set of curriculum guidelines in integrative medicine for medical schools. Endorsed by the CAHCIM Steering Committee in 2003, the guidelines outline core competencies in terms of values, knowledge, attitudes, and skills. The values competencies address issues including (a) the physician’s philosophy and perspective on illness, (b) the definition of professionalism as it supports relationships within the health care team and with patients, (c) the importance of recognizing the pursuit of meaning as fundamental to the healing process for both patient and physician, (d) the importance of recognizing the multiple factors that influence health and healing, and so on. The knowledge competencies include the ability to (a) discuss how cultural, ethnic, personal, and spiritual beliefs impact one’s experience of disease and treatment; (b) discuss major strengths and weaknesses of conventional medical knowledge in health care; (c) distinguish between curing and healing; (d) describe the prevalence and patterns of CAM use in the patient’s community; (e) describe the basic concepts of the most commonly used CAM modalities; identify reputable information resources for CAM and IM; and (f) discuss the current regulatory status of dietary supplements. The attitudes competencies include

(a) the ability to demonstrate respect for the influence a patient's cultural, ethnic, spiritual, and personal beliefs have on clinical decision making and the experience of health and illness; (b) awareness of how one's personal beliefs impact treatment recommendations; (c) respect for the strengths and limitations of applying evidence-based medicine principles to the circumstances of particular patients; (d) respect for the potential of varied healing methods for the treatment of certain conditions; and (e) awareness of the importance of self-care to physician well-being and as an example to promote patient self-care. The skills competencies include a demonstrated ability to (a) assist patients in creating a self-care plan; (b) communicate effectively with patients about all aspects of health and illness, including psychosocial, spiritual, and physical history, and use of CAM; (c) collaborate effectively with all members of the interdisciplinary care team to facilitate quality patient care; and (d) use evidence-based principles to analyze integrative medicine approaches (55).

Concluding Thoughts on CAM in Medical Education

As the overview just presented demonstrates, substantial progress has been made in integrating CAM subject matter into all levels of professional medical education. The extent and character of that integration varies from institution to institution and from department to department within institutions. Although some argue for consistency or standardization in educational approach (58), the diversity in budgetary constraints, available CAM resources, clinical and academic priorities, and faculty strengths and limitations argue strongly for flexibility in how CAM is integrated into the curriculum. The programs discussed range from small-scale and focused, involving the introduction of a single CAM elective to the comprehensive integrative medicine programs in Arizona, Massachusetts, and Texas spanning medical school, residency, continuing medical education, and fac-

ulty development. All represent progress toward preparing physicians to provide more patient-centered care.

The crucial question is as follows, “What is the core content medical students, residents, faculty and practicing physicians must master to be prepared to support patients in making fully informed decisions about alternative treatments?” The guidelines, core competencies, and recommendations discussed here address this question in great detail. In a nutshell, it can be summarized as follows:

1. **Attitudes and Understanding:** Medical students, physicians in training, and practicing physicians must develop an understanding of the spiritual, cultural, ethnic, and personal health values that draw patients to alternative treatments.
2. **Knowledge:** Physicians should be able to demonstrate knowledge of the most commonly used CAM modalities, their benefits, risks, interactions with conventional treatments, reputable practitioners, and how they are regulated/licensed in the physician’s state.
3. **Research and Critical Evaluation:** Physicians must be skilled at researching current studies and other relevant reliable literature on CAM therapies and critically evaluating the evidence, risks, benefits, interactions with conventional therapies, costs in order to draw their own informed conclusions and to support patients in making fully informed decisions.
4. **Communication Skills:** Physicians must develop communication skills necessary to proactively raise the question of CAM use or interest in a manner that facilitates open discussion and be able to appropriately discuss the evidence with patients during the decision-making process.

Much has been said about teaching one integrated medicine (38). Given that the Cochrane Collaboration's subscriber-based database maintains information on more than 5000 randomized controlled trials involving CAM and that the number of peer-reviewed studies of alternative therapies is growing monthly, it may be appropriate to incorporate both CAM and allopathic medicine within the same curriculum and to hold them both to the same level of critical evaluation. First-year medical students could be taught, in the same course, to critically evaluate both alternative and allopathic medical literature, to examine study methods, and to consider the placebo effect and other influences. Regardless of how CAM is treated in the rest of the curriculum, introducing it in this way will place it in the appropriate context early in the aspiring physician's academic career.

One subject area that was rarely specifically stressed for inclusion in the curriculum is training in identification and evaluation of online health information resources. As previously discussed, patients obtain much of their information about both CAM and traditional therapies from the internet, and the quality of that information is variable to say the least. Physicians should help them sort through that information and be able to point them toward reliable sources of online information. Furthermore, physicians who require additional information on therapies about which their patients have inquired will often find the internet their most expedient source. Training on efficient use of the internet as a medical research tool can benefit medical students, residents, and practicing physicians alike. Collaboration with a medical librarian and a web specialist might be helpful in designing an educational session to address this topic. The final section in this chapter can also serve as a resource.

Given the level of effort already invested in integrating CAM into medical education, institutions, or departments looking to embark on new or expanded CAM education, initiatives should begin by networking with colleagues who have been most

active in the field. The NCCAM website maintains information on the Center's medical education grantees for this purpose. The authors and programs referenced in this section provide another resource. In addition, the University of Texas Medical Branch Complementary and Alternative Medicine Project maintains a CAM Education Series on its website that includes 17 articles on CAM educational initiatives across the country, each providing the names of key faculty members (59). Finally, institutions with limited resources can look to the faculty development program instituted early in the history of Boston's PIME project as a way of leveraging those resources by cultivating CAM-capable faculty throughout the conventional curriculum.

FINDING AND EVALUATING CAM INFORMATION

Physicians and patients frequently have a need for information on alternative therapies. Physicians may be seeking ways to relieve symptoms for which conventional treatments offer little help or cause intolerable side effects. A patient pursuing CAM as part of a strategy for achieving overall health goals might research multiple potential therapies before making a decision. That research should be targeted to unbiased, science-based authorities and should include thoughtful discussion with the patient's primary care physician. As previously discussed, the available CAM information sources are virtually unlimited, and range from helpful to harmful and fact-based to fraudulent. This section is intended to provide patients and health care professionals alike with a brief directory of sources of authoritative information on CAM therapies, disease-specific CAM guidance, research trials and results, and risks and warnings, and to provide a quick guide to evaluating the CAM information they encounter.

CAM Information Resources for Patients and Health Professionals

This section provides a directory of reliable information resources covering CAM from a variety of perspectives. Each source name is followed by the link to the website or CAM-specific web page.

Federal Government Resources

NATIONAL CENTER FOR COMPLEMENTARY AND ALTERNATIVE MEDICINE (<http://nccam.nih.gov/>)

Congress established NCCAM within the NIH in 1998 and charged it with exploring CAM in the context of rigorous science; focusing on basic scientific and clinical research in CAM, training and career development for CAM researchers; and public and professional outreach and education regarding scientifically proven, evidence-based CAM practices.

The NCCAM website provides a wealth of information for consumers, health care professionals, and researchers, including the following: fact sheets on specific CAM therapies; fact sheets on CAM for specific diseases or conditions; pamphlets titled “Considering CAM Therapies?”; “Choosing A CAM Service Provider”; “Financial Issues in CAM”; alerts and advisories; and grant information for researchers.

The website also provides direct search access to CAM on PubMed, a collection of more than 220,000 citations accessed through the PubMed database and to the Combined Health Information Database (CHID), which includes health-related materials not available in other government databases.

The NCCAM Public Information Clearinghouse is the public’s point of contact for scientifically based information on CAM. The Clearinghouse can be accessed online at <http://nccam.nih.gov/nccam/fcp/clearinghouse/>. Inquiries are also accepted by phone, fax, or e-mail.

Tel: 1-888-644-6226; outside United States: (301) 519-3153

Fax: 1-866-464-3616 (toll free)

TTY: 1-866-464-3615 for the hearing impaired (toll free)

E-mail: info@nccam.nih.gov.

OFFICE OF CANCER COMPLEMENTARY AND ALTERNATIVE MEDICINE (OCCAM; <http://www.cancer.gov/cam/>)

The OCCAM was established in 1998 within the National Cancer Institute (NCI) to coordinate and enhance the activities of the institute with regard to CAM. The OCCAM Research Development and Support Program stimulates research in cancer CAM. The Practice Assessment Program reviews data on cancer patients treated with unconventional and CAM therapies and allows practitioners to share their successes and have them evaluated by experts in both conventional and alternative medicine. The Communications Program disseminates information about NCI CAM initiatives, funding opportunities, clinical trials, and educational materials via the OCCAM website.

NATIONAL INSTITUTE OF DIABETES AND DIGESTIVE AND KIDNEY DISEASES (NIDDK)

NATIONAL DIABETES INFORMATION CLEARINGHOUSE, CAM THERAPIES FOR DIABETES (<http://diabetes.niddk.nih.gov/dm/pubs/alternativetherapies/>)

This web page provides a brief discussion about the current state of the science on some of the CAM therapies most frequently used by diabetes patients. It also provides direct links to the NCCAM and to an automatic search on “Complimentary and Alternative Medical Therapies for Diabetes” on the CHID, which is produced by the health-related agencies of the US government.

NIH OFFICE OF DIETARY SUPPLEMENTS

(ODS; <http://dietary-supplements.info.nih.gov/>)

The Office of Dietary Supplements is charged with conducting and coordinating research within NIH relating to dietary supplements, collecting and compiling results of research on dietary supplements, and advising the secretary and assistant secretary of health, the directors of the CDC and the NIH and the commissioner of the FDA on issues relating to dietary supplements. The ODS website provides access to a variety of information on dietary supplement use and safety; reports on research and recommendations; FDA warnings; FTC false advertising claims; and NIH and

Department of Agriculture databases. The ODS also makes the following publications available on its website to assist consumers in making informed decisions regarding dietary supplements:

- The Savvy Supplement User (FDA)
- Tips for Older Supplement Users (FDA)
- How to Spot Health Care Fraud (FDA)
- How to Evaluate Health Information on the Internet: Questions and Answers (ODS).

NATIONAL INSTITUTE ON AGING: AGEPAGE
(<http://www.niapublications.org/engagepages/healthqy.asp>)

This site warns seniors about the common problem of false health claims in advertising or marketing schemes. Identifies red flags to watch for, provides tips for protecting against health scams, and identifies resources to for additional information or obtain assistance with being victimized by a health scam.

CLINICALTRIALS.GOV (<http://www.clinicaltrials.gov/>)

This site provides a complete listing of all clinical trials sponsored by the NIH. To find a complete listing of clinical trials in CAM, search under the term “alternative medicine.”

FOOD AND DRUG ADMINISTRATION CENTER FOR FOOD SAFETY AND APPLIED NUTRITION; OFFICE OF NUTRITIONAL PRODUCTS LABELING AND DIETARY SUPPLEMENTS (ONPLDS; www.cfsan.fda.gov/~dms/supplmnt.html)

The ONPLDS within the FDA is responsible for regulation, education, and outreach regarding dietary supplements. The website provides access to up-to-date warnings and safety information, adverse event reporting information, an electronic newsletter, frequently requested information, and a variety of consumer education publications.

THE FTC BUREAU OF CONSUMER PROTECTION
(<http://www.ftc.gov/bcp/menu-health.htm>)

The FTC Bureau of Consumer Protection is charged with protecting the public against false advertising and publishes consumer

education materials on a variety of health care fraud issues through its website. Those publications include “*Miracle*” *Health Claims: Add a Dose of Skepticism*; *Offers to Treat Biological Threats: What You Need to Know*; *Promotions for Kids’ Dietary Supplements Leave a Sour Taste*; *The Truth About Impotence Treatment Claims*; and *Tipping the Scales? Weight Loss Ads Found Heavy on Deception*.

FIRSTGOV FOR CONSUMERS—HEALTH
(<http://www.consumer.gov/health.htm>)

This comprehensive site provides links, by topic, to health-related US government resources on the internet.

Academic Medical Centers

COLUMBIA UNIVERSITY, RICHARD & HINDA ROSENTHAL CENTER FOR CAM)
<http://www.rosenthal.hs.columbia.edu>)

This center is dedicated to contributing to the informed research and practice of CAM and to fostering a more comprehensive and inclusive medical system. It focuses on problems in women’s health and aging. The center also includes the Carol Ann Schwartz Initiative CAM Cancer Information Center to serve as an information source on CAM in cancer treatment for professionals and patients.

DUKE COMPREHENSIVE CANCER CENTER
(<http://cancer.duke.edu/pated/cam.asp>)

The Duke Comprehensive Cancer Center makes *A Cancer Patient’s Guide to Complementary and Alternative Medicine* available for printing. It provides an overview of CAM, includes a section on organizational, internet, and other CAM information sources, explores the integration of CAM and conventional approaches to health care for cancer patients, and provides a series of CAM information sheets covering topics such as professional degrees and titles of alternative practitioners; education, training, licensing, and accreditation of health care practitioners; how to be prepared before, during, and after appointments with a health care provider; and so on

MAYO CLINIC

(<http://www.mayoclinic.com>)

By choosing the Complementary and Alternative Medicine Center from the Mayo Clinic home page, patients and physicians move to the Mayo CAM page where they can choose to learn about CAM in general, explore specific CAM modalities, research alternative treatment options for specific health problems, and more.

OREGON HEALTH AND SCIENCE UNIVERSITY

(<http://www.ohsuhealth.com/htaz/cam>)

This site provides general CAM information, a CAM glossary, a section on safety and risks, online resources, and a link to alternative therapies for pediatric cancer.

PIME PROJECT (<http://www.holistickids.org/index.html>)

The PIME project is a center of excellence project of education and research in the provision of integrative health care to children. Based at Children's Hospital, Boston, PIME is sponsored by a grant from the NCCAM and involves a collaborative effort with Harvard Medical School, the Massachusetts College of Pharmacy, and Boston Medical Center.

UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE CENTER FOR INTEGRATIVE MEDICINE

(<http://www.compmed.umm.edu/index.html>)

This is the website for the University of Maryland School of Medicine's interdepartmental center for research, patient care, education, and training regarding CAM. The website provides two comprehensive guides available online: *Complementary Medicine Resources for Health Professionals and Researchers* and *Consumer Guide to Internet Resources in CAM*.

The center is also the coordinator of the Complementary Medicine Field of the Cochrane Collaboration, which is dedicated to promoting and facilitating the production of high-quality systematic reviews of the scientific evidence in CAM topics. Although the Cochrane Library is a subscription service available on CD-Rom

and on the internet, the Cochrane Complementary Medicine Controlled Clinical Trials Registry is accessible for searching through this site at <http://www.compmc.umm.edu/cochrane/field.html>.

UNIVERSITY OF TEXAS MD ANDERSON CANCER CENTER COMPLEMENTARY/
INTEGRATIVE MEDICINE EDUCATION RESOURCES

(<http://www.mdanderson.org/departments/cimer>)

This website is designed to help cancer patients and physicians responsibly integrate CAM into cancer care. It provides evidenced-based reviews of CAM therapies, alerts from the FDA on herb and dietary supplement interactions with drugs, and other advisories, other relevant resources and links, and so on.

UNIVERSITY OF TEXAS MEDICAL BRANCH INTEGRATIVE HEALTH CARE
WEBSITE

(<http://cam.utmb.edu/default.asp>)

This site is dedicated to providing health care professionals, students, and the public with reliable, evidence-based, authoritative information on alternative therapy topics for educational purposes. In addition to providing extensive information on CAM, the site is an outstanding resource for medical educators, providing detailed curricula, syllabi, lectures, web-based cases, and progress notes on CAM programs at other medical schools.

*Nonprofit Organizations Providing CAM Guidance
to Patients and Health Professionals*

The following is a list of nonprofit organizations and their websites.

- The Alzheimer's Association (<http://www.alz.org/Health/Treating/treatments.asp>)
- The American Cancer Society (http://www.cancer.org/docroot/ETO/ETO_5.asp)
- The Arthritis Foundation (<http://www.arthritis.org/conditions/alttherapies/nature.asp>)
- Asthma and Allergy Foundation of America (<http://aafa.org/display.cfm?id=9&sub=21&cont=293>)

- Autism Society of America (<http://www.autism-society.org/site/PageServer?pagename=Com-plementaryApproaches>)
- Diabetes123 and Children with Diabetes (http://www.diabetes123.com/clinic/alternative_concerns.htm)
- National Multiple Sclerosis Society (<http://www.nationalmssociety.org/spotlight-cam.asp>)
- The National Aids Treatment Advocacy Project (<http://www.natap.org/>)

Evaluating CAM Information

This section outlines a process for evaluating online CAM resources and identifies terms, phrases, and communication strategies that are often warning signs of potentially fraudulent information. It also introduces the Health on the Net Foundation (HON), an international nonprofit initiative that has developed a code of conduct for providing health information on the internet. Although the guidance provided focuses specifically on evaluating online CAM information, many of the underlying principles can be applied to assess the credibility of CAM information found in television, radio, and print media.

Evaluating Health Resources on the Web

As previously discussed, there is a vast amount of health-related information available on the internet. Several credible initiatives have been undertaken to establish criteria for evaluating the quality of that information (60). The 10-question evaluation process outlined below is adapted from the NCCAM Fact Sheet *10 Things to Know About Evaluating Medical Resources on the Web* (61).

1. Who runs the site? Any good health-related website should make it easy to learn who is responsible for the site and its information. The name of the sponsoring organization should be clearly marked on every major page of the site, along with a link to the organization's home page.

2. Who pays for the site? The source of a website's funding should be clearly stated or readily apparent. For example, web addresses ending in ".gov" denote a federal government-sponsored site; ".edu" indicates an educational institution; ".org" is often used by noncommercial or nonprofit entities, and ".com" usually denotes a commercial organization. How does the site cover its costs? Does it sell advertising? Is it sponsored by a drug company? The source of funding can affect what and how the content is presented.
3. What is the purpose of the site? This question is related to who runs and pays for the site. Many sites have an "About This Site" or "About Us" link. If it is there, use it. The purpose of the site should be clearly stated to assist in the evaluation of the trustworthiness of the information provided on it.
4. Where does the information come from? Many health/medical sites post information collected from other websites or sources. If the person or organization in charge of the site did not create the information, the original source should be clearly labeled.
5. What is the basis of the information? In addition to identifying the author(s) of health information, the site should provide citations to the evidence on which the material is based. Opinions or advice should be clearly distinguished from evidence-based information.
6. How is the information selected? Is there an editorial board? Do people with excellent professional and scientific qualifications review the material before it is posted?
7. How current is the information? Websites should be reviewed and updated on a regular basis. It is particularly important that medical information be current. The most recent update or review date should be clearly posted to confirm that the site owners have reviewed the information recently to ensure that it is still valid.

8. How does the site choose links to other sites? Websites usually have a policy about how they establish links to other sites. Some medical sites take a conservative approach and refuse link to any other sites. Some link to any site that requests, or pays, for a link. Others only link to sites that have met certain criteria.
9. What information about the user does the site collect, and why? Websites routinely track the paths visitors take through their sites to determine what pages are being used. However, some health sites ask users to “subscribe” or “become a member.” In some cases, this may be so that they can collect a user fee or select information about the user and her or his concerns. In all cases, this will give the site personal information about the user.

Any credible health site asking for this kind of information should specify what it will and will not do with it. Many commercial sites sell “aggregate” (collected) data about their users to other companies—information such as what percentage of users are women with breast cancer, for example. In some cases, these sites may collect and reuse information that is “personally identifiable,” such as zipcode, gender, and birth date. Users should be certain to read and understand any privacy policy or similar language on the site, and know what they are signing up for.
10. How does the site manage interactions with visitors? There should always be a way to contact the site owner for problems, questions, or feedback. If the site hosts chatrooms or other online discussions, it should post the terms for using those services. If the site is moderated who moderates it and why?

Warning Signs and Red Flags

Consumers should be aware that certain words, phrases, and communication techniques tend to signal potentially fraudulent health claims. For example, all of the following should raise suspicions:

- Promises of a miracle cure, new discovery, or satisfaction guaranteed in connection with an alternative treatment.
- Pseudo-medical terms, such as purify, detoxify, energize, often used to impress and cover up a lack of scientific proof.
- Cure-all claims where the manufacturer claims the product treats, cures, or prevents multiple diseases, conditions, or symptoms.
- Anecdotal evidence or testimonials without scientific evidence as support.
- Accusing governmental agencies or the medical profession of suppressing information about a product's benefits.
- Promotion via telephone solicitation, direct mail, or internet.
- Infomercial using talk show format.
- Newspaper ads designed to mimic news articles.

Reporting False or Misleading Health Claims Posted on the Internet

As part of its mission, the FTC investigates complaints about false or misleading health claims posted on the internet. Reports can be made by telephone (1-877-382-4357) or on the FTC website (<http://www.ftc.gov/>).

Health on the Net Foundation

The HON (accessible at <http://www.hon.ch/>) is a Swiss foundation that originated at a 1995 international conference on the use of the internet in health care. Its mission is to guide health care consumers and providers on the World Wide Web to sound, reliable medical information and expertise. HON provides a highly respected internationally governed and staffed not-for-profit portal to health information on the internet. One of its primary concerns is quality assessment, and toward that end it has developed the HON Code of Conduct for the provision of medical websites. Sites displaying the blue and red HONCode seal

have been reviewed by HON and have been found to satisfy its stringent ethical standards for authority, complementarity, confidentiality, attribution, justifiability, transparency of authorship, transparency of sponsorship, honesty in advertising and editorial policy. The HON website also offers visitors a variety of options for targeted searching of sites that have met the requirements of the HON Code of Conduct.

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