

# Understanding the Convergence of Complementary, Alternative & Conventional Care

*“Clearly, an organized and rational integration of the conventional and complementary is needed in the long term to create the best possible medical system, one that is both cost effective and therapeutically effective.”*

Michael P. Milburn, PhD  
*The Future of Healing*

Defined for nearly a century by a biomedical model, health care in the United States is now in transition. Although biomedicine continues as the dominant model in 21st century Western culture, the widespread use of complementary and alternative medicine (CAM) signals a major shift. Nearly half of Americans use CAM—often in conjunction with conventional care (Eisenberg, et al., 1998; Barnes, Powell-Griner, McFann, & Nahin, 2004), and this trend is likely to continue (Kessler, et al., 2001).

The appeal of these non-conventional therapies is understandable. They appear to offer what biomedicine does not: a holistic approach to healing; treatments for chronic pain and illness that are often accessible, low-tech, and inexpensive; and a focus on disease prevention and optimal health. Exploring the reasons for the growing use and popularity of many alternative therapies may provide clues to the limitations of the current system as well as indicate future directions for health care.

Although the United States leads the world in health technology and biomedical research, these undeniable accomplishments do not appear to translate into better health. Chronic, systemic, and degenerative diseases are now the predominant concerns facing our society, and biomedicine’s record is poor with respect to health care access, humanistic care, and effective treatment of chronic disease (Starfield, 2000). Mounting pressure from the public and dissatisfaction of health-care professionals are signs of the growing strain on the biomedical paradigm.

Increasingly, conventional health care professionals acknowledge that the public’s interest in complementary and alternative medicine is more than a passing phenomenon (Kessler, et al., 2001), and that they have a responsibility to become better acquainted with CAM philosophies, therapies, and practitioners. There is also a growing appreciation of the need to understand the implications—in terms of safety and efficacy—of the interaction between alternative and conventional forms of care (Curtis, 2004).

### TABLE 1 PRINCIPLES EMPHASIZED IN MANY COMPLEMENTARY & ALTERNATIVE THERAPIES

While a disparate array of alternative therapies and healing systems fall under the umbrella term “CAM,” what they typically have in common are fundamental principles of health and healing. These principles are not unique to CAM (conventional medicine ascribes to some), nor do all CAM therapies embrace them equally. But, taken together, they provide a framework for understanding CAM approaches to healing that contrast with the biomedical model of care. Many CAM therapeutic systems emphasize some or all of the following principles to a greater degree than conventional medicine. Effective integration of CAM and conventional care can rest on acknowledgment, appreciation, and application of these principles in a patient-centered context.

- **PROMOTING THE BODY’S SELF-HEALING ABILITIES.** (This is perhaps the most important principle, influencing all others.)
- **EMPHASIZING EFFECTIVE COMMUNICATION BETWEEN PATIENT AND HEALER,** which builds trust and promotes integration.
- **EMPHASIZING SELF-CARE** and empowerment of the patient in the healing process.
- **RECOGNIZING MIND, BODY, AND SPIRIT AS INTERACTIVE** and inseparable.
- **ADDRESSING UNDERLYING CAUSES OF ILLNESS**—including emotional, environmental, and spiritual factors—rather than just clinical manifestations.
- **PREVENTING ILL HEALTH** by remaining in balance and harmony with the psychosocial and physical environment.
- **ENHANCING WELLNESS** with optimal diet, exercise, and a reduced-stress lifestyle.
- **INDIVIDUALIZING TREATMENT** to the particular patient, rather than focusing on the disease condition.
- **EMPHASIZING THE USE OF NATURAL NON-PHARMACEUTICAL SUBSTANCES** or non-surgical techniques in the care of the patient.
- **APPRECIATING THE ELECTROMAGNETIC AND ENERGETIC NATURE OF THE HUMAN ORGANISM** and the importance of vitality in healing.
- **APPRECIATING THE IMPORTANCE OF INTUITIVE AWARENESS** and the individual’s unique experiences in determining pathways to healing.
- **ACKNOWLEDGING THE HEALING JOURNEY** and that the return to wholeness can be a gentle and gradual developmental process.

*(adapted from Gaylord & Coeytaux, 2002)*

### seeking a third path

The convergence of conventional and complementary and alternative medicine presents a complex challenge to the health care community. Although the popularity and apparent effectiveness of many CAM therapies tend to highlight the deficiencies of conventional care, few would deny the great strengths of the biomedical system or argue that CAM should totally supplant conventional care.

Nor is it possible, even if desirable, to simply adopt CAM into mainstream medicine. First of all, despite many commonly held values (*see Table 1*), “CAM” is not one approach, but many—an exceptionally wide variety of healing philosophies, systems, and therapies (Curtis & Gaylord, 2004). Further, mainstream health care providers—deeply committed to a methodical, scientific approach—express a legitimate desire for proof of safety and efficacy of these unfamiliar theories and practices.

Thus, a tension exists between two different healing worlds—arising not only from diverse therapeutic approaches, but from fundamentally different beliefs about science and healing.

The clash resembles the meeting of diverse cultures, and the analogy extends to the need for increased openness, communication, respect, and understanding, as a bridge to integrating these cultures. The view presented here is that the creative tension produced by these converging cultures of healing provides a unique opportunity for a shift within biomedicine to a new, integrative health-care system—a third path—that acknowledges and utilizes the accumulated wisdom and skill of many healing traditions.

## united states health care: where are we?

Ultimately, the task facing United States health care today is to devise a better way of providing healing services and promoting health for our society. Biomedicine's shortcomings show us the work to be done; CAM's strengths may help show us how. To see clearly where we might go, we must review where we are and, in particular, note the special challenges we now face.

Three fundamental questions guide that review. The first—*Where are we?*—can be answered by examining the two worlds of American health care: the dominant conventional health care system, and the emerging array of CAM care options. How “healthy” is our existing health care system? What are its underlying problems and what are its strengths? What are the motives and forces driving the growing trend to use CAM therapies? Is there a connection between problems with conventional care and increased interest in alternative healing options?

The second question—*How are we challenged?*—relates to the specific problems confronting healers right now at this time of transition. Questions about the safety and efficacy of CAM therapies raise still more questions about the safety and efficacy of *all* therapies. The demands from mainstream health care for scientifically based, high-quality standards for alternative therapies increase the pressure for more and better research, including creative new research methodologies and scientific hypotheses and access to funding sources.

Finally, we begin the process of exploring *What comes next*. The 21st century health care system can become one that integrates the powerful research capabilities of biomedicine and the holistic healing approaches of CAM. The first steps along that path are to understand more fully the philosophies and techniques of various healing modalities, the barriers to change, the education and training required, and the costs and benefits of change.

## where are we now?

Describing ours as a health care “system” is misleading. More accurately, health care in the United States is provided by a wide variety of non-integrated healing approaches. And, although its economic, political, and regulatory power predominates and thus influences the accessibility and role of many CAM therapies, biomedicine does not *coordinate* health care. The result is a non-system that is at best confusing and at worst dangerous.

Two major trends characterizing health care today are pertinent to this discussion. The first is the declining “health” of the conventional health care system. The second is the significant and continuing increase in the use of complementary and alternative medicine (CAM). To understand “where we are” we must acknowledge the problems of conventional care, the appeal of CAM, and the complexities that arise as conventional health care and CAM converge.

## the health of united states health care: what is ailing in conventional care?

It is commonly acknowledged that western medical and public health practices have contributed to many of the 20th century advances in global health, including prevention and treatment of infectious diseases, improved workplace safety, sanitation, and life-saving surgical procedures. In some sense, biomedicine is one of western medicine's greatest triumphs. Pharmaceutical advances and technological innovations such as organ transplants, microscopic surgery, *in vitro* fertilization, high-tech trauma care, and diagnostic tools—to name a few—have saved and extended lives, eradicated diseases, and offered hope and health to millions.

### EXCESSIVE USE OF PHARMACEUTICALS

One enormous cost in the health care system is generated by the pharmaceutical industry. In any given week, 50 percent of U.S. adults consume at least one prescription drug, with 7 percent consuming 5 or more. Of the highest using group, women 65 and older, 80 percent consume at least one prescription drug per week, with 23 percent consuming 5 or more (Kaufman, Kelly, Rosenberg, Anderson, & Mitchell, 2002). It is estimated that another 9 million people aged 12 and older use prescription drugs for non-medical reasons (Kaufman, et al., 2002). Chronic use of multiple medications often taxes the resources of patients and families, adding to the overall cost of health care.

One of the leading causes of death in the United States is from adverse reactions to FDA approved drugs. A 1998 study in *JAMA*, analyzing 39 studies conducted over 30 years, concluded that an average of 106,000 people die in hospitals each year from prescription medications, with the number rising to 140,000 per year when deaths outside the hospital are included (Lazarou, Pomeranz, & Corey, 1998). Adverse reactions to prescription drugs are the fourth leading cause of hospital admission in the United States, and 2.2 million Americans are estimated to have suffered severe side effects from FDA approved drugs, at an estimated cost of \$78 billion in 1997 (Lazarou, et al., 1998).

Another side-effect of the pharmaceutical industry worldwide is the inappropriate overuse of antibiotics, which is contributing to the growth of antibiotic resistance (Swartz, 1997).

Nonetheless, there are signs and symptoms of unhealthiness in our health care system. These include disappointing comparisons with other developed countries in health-status indicators, uneven access to care, increasingly impersonal care, high costs and high rates of error, and a variety of other negative side effects of our biomedical industry (MacKay, 2003; Starfield, 2000).

Indeed, the characteristics of biomedicine that contribute to its successes are also the source of its inadequacies. Enchantment with high-tech, pharmacological control of disease has resulted in relatively low interest in promoting health. Although public health measures and life-saving drugs and technologies have enhanced life expectancy in the United States, longer lives have not always led to healthier lives. There has been a concomitant rise in chronic diseases that contribute to sub-optimal healthy life expectancy, including cardiovascular disease, cancer, diabetes, metabolic syndrome, arthritis, and obesity (Arias & Smith, 2003).

While the U.S. is renowned for life-saving technologies, there is less emphasis on and skill in the treatment and prevention of chronic illness. The Institute of Medicine's report *Crossing the Quality Chasm: A New Health System for the 21<sup>st</sup> Century* states that the U.S. health care industry has "foundered" in its ability to provide safe, high quality care consistently to all Americans, but particularly to those with chronic conditions (IOM, 2001). The report recommends that health

care efforts focus more on improving care for common, chronic conditions such as heart disease, cancer, diabetes, and asthma, currently the leading causes of disability and death in the United States, that consume significant proportions of health care resources.

### health-status indicators

When compared with other developed countries on a range of health-status indicators, the United States fares significantly below average. The United Nations World Health Organization (WHO), comparing life expectancy among developed countries, found the United States ranking 17th in life expectancy at birth, and 19th in terms of infant mortality rates. Moreover, in terms of healthy life expectancy (HALE), which adjusts life expectancy for time spent in poor health, the United States falls to 26th place, behind virtually every other developed country. For example, the Japanese, in first place, have a healthy life expectancy at birth of 73.6 years, compared with just 67.6 years in the United States (WHO, 2002).

### health-care costs

These mediocre health-status indicators continue despite skyrocketing health-care costs. The United States spends more than \$1.4 trillion dollars per year on health care—14 percent of the U.S. gross domestic product—with no other nation spending more than 10 percent. Although these high costs have often been blamed on inefficiency, fraud, and the expense of malpractice suits, a major factor is the high cost of investment in technology and personnel. The United States leads the world in expensive diagnostic and therapeutic procedures, such as magnetic resonance imaging, coronary bypass surgery, and organ transplants.

### access to health care

It is in regard to access to health care that the high cost of high-tech medical care is felt most acutely. In spite of its large health care budget, the United States is the only industrialized country that does not guarantee health care to every citizen. Over 40 million working-age adults (almost 15 percent) have no health insurance and therefore have extremely limited access to health care services (US Census Bureau, 2002). Ironically, because of their costs, the very best benefits of the system—advanced surgical procedures such as organ transplants, high-tech trauma care, and sophisticated therapies for life-threatening conditions—are inaccessible to many of those who need them most.

### impersonal, disconnected care

The emphasis on standardization of care has produced a system more focused on statistical averages and probabilities than on individual patients. Emphasis on technological expertise often sacrifices attention to patients' emotional needs. Treatment is often targeted to diagnosis and symptoms rather than individual patients' well-being. Furthermore, specialization in specific diseases and systems may result in patients' having to visit multiple providers who may not communicate with each other effectively about the patients and treatments employed. The result may be an inefficient, fragmented system of care that is impersonal and frustrating to the patient seeking help (Halstead, 2001).

## medical errors & adverse events

The complexity of technological medicine with its requirement for extensive, specialized training, the potency of pharmaceutical products, and the potential for multiple providers and multiple prescriptions per patient, increase the system's vulnerability to medical error. One estimate is that the annual deaths from medical errors and medication errors exceed those from motor vehicle accidents or breast cancer, and are more than triple the deaths from AIDS (Kohn, Corrigan & Donaldson, 1999). The adverse effects of nonsteroidal anti-inflammatory drugs have been estimated at 103,000 hospitalizations and 16,500 deaths a year, as well as over \$2 billion in costs (Wolfe, Lichtenstein, & Singh, 1999). A Kellogg Foundation study examined 30,195 patients in the United States and reported a 3.7 percent medical error rate. A 1998 meta-analysis of 39 prospective studies reported adverse drug reactions (ADRs) occurring in 6.7 percent of hospitalized patients. The authors estimated that, in 1994, 10,600 fatal ADRs occurred (Lazarou, et al., 1998). A 1999 Institute of Medicine study estimated that 225,000 iatrogenic deaths occur each year in the U.S. Of these, 12,000 deaths are associated with unnecessary surgery. The study also reported that of 106,000 non-error, adverse effects of drugs, 50 percent were preventable (Kohn, et al., 1999).

## dissatisfaction with the health care system & the search for options

Signs of growing dissatisfaction with conventional health care include decreased job satisfaction among physicians and nurses (Landon, et al., 2002; McBride, 2002); large numbers of patient complaints (Simini, 1999); distrust of physicians (Thom, Bloch, & Segal, 1999); and soaring malpractice lawsuits, with concomitant malpractice-insurance rate increases for providers (*Medical Malpractice*, 2003). The steady increase in alternative health care use may also indicate dissatisfaction with the dominant system (Kessler, et al., 2001). Nearly half of American adults use unconventional health care modalities for at least some of their health care needs, visiting alternative therapy practitioners more frequently than primary care physicians, even though much of this care is not covered by insurance (Eisenberg, et al., 1998).

## the health of united states health care: why CAM?

Perhaps partly in response to the problems that beset conventional medicine, the last two decades have seen a remarkable increase in the use of complementary and alternative therapies. Since most CAM treatments are not covered by conventional insurance programs and must be paid for out-of-pocket, it is reasonable to conclude that patients are seeking such treatments because of their perceived benefits. The fact that CAM continues to be popular (Barnes, et al., 2004) suggests further that patients' expectations are being met. CAM, in short, appears to be providing services and outcomes that conventional medicine does not. It is important, therefore, to understand who is using CAM, why, and what these therapies offer.

## use of complementary & alternative health care in the united states

Understanding CAM begins with an appreciation that the term is an umbrella concept for an eclectic array of healing modalities "not presently considered an integral part of conventional medicine" (NCCAM, 2002). These therapies include highly specialized methods such as biofeedback, millennia-old practices such as meditation, and comprehensive traditional healing systems

such as Traditional Chinese Medicine, encompassing a wide variety of skills and training, with widely varying certification and licensure requirements.

The reasons why these disparate therapies are currently outside of mainstream health care in the United States are numerous and complex. However, a brief summary of the evolution of health care in the 20th century is helpful in understanding the current situation. The dominant medical paradigm of biomedicine emerged during the 20th century with the successes of antibiotics and other life-saving drugs and technologies. These coincided with major achievements in public health. Industrialization and 20th century world wars may have popularized the metaphors of “attacking” disease, the powerful “magic bullet” drug, and the mechanical model of the body, with parts that could be removed, repaired or replaced (Curtis & Gaylord, 2004). Focus on materialism shifted attention away from appreciation and understanding of the energetic and spiritual nature of the human being. Pharmaceutical successes in allopathic treatments predominated over the sometimes slower and gentler methods of homeopathic and other natural healing approaches. Research dollars and medical interest focused on the search for new drug therapies and better diagnostic and treatment technologies, and there was little funding or motivation for research in natural, low-cost therapies. It is no wonder that many of these therapies, some popular for centuries, until recently lacked adequate scientific evidence of their efficacy or safety.

In 1991, the Office of Alternative Therapies, under the National Institutes of Health, was created to investigate the increasingly popular and controversial phenomenon of alternative therapies. In 1997, this office was transformed into a Center, with a greatly enhanced research budget. The NIH National Center for Complementary and Alternative Medicine (NCCAM, 2002) categorizes the vast variety of alternative therapeutic modalities into five broad areas:

- alternative medical systems
- mind-body interventions
- biologically based therapies
- manipulation and body-based methods
- energy therapies.

While the NIH has popularized the acronym “CAM” for “complementary and alternative therapies,” some providers of “alternative therapies” object to this term, because it lumps their discipline together with other diverse therapies and may inappropriately imply some common attributes. Other professions object to the term CAM because the word “medicine” focuses on the medical profession, marginalizing other health professions such as nursing, pharmacy, public health and dentistry. The term “complementary and alternative *health care*” is broader and more inclusive of not only all the clinical health professions but also the systems that administer them.

## widespread use of complementary & alternative modalities

For the last half century, there has been a consistently growing trend in the use of CAM, including, for example, acupuncture, chiropractic, energy healing, herbal medicine, homeopathy, and massage; this trend is likely to continue (Kessler, et al., 2001; Wootton & Sparber, 2001). In the 1998 Eisenberg, et al. study, overall CAM use was 42 percent, with the most frequently used therapies being relaxation techniques (16 percent), herbal medicine (12 percent), massage (11 percent), and chiropractic (11 percent). Folk remedies, energy healing, homeopathy, hypnosis, bio-

**TABLE 2**  
**USE OF CAM FOR PRINCIPAL MEDICAL CONDITIONS BY US ADULTS, 1997**

(adapted from Eisenberg, et al., 1998)

CONDITION	PERCENT WHO REPORTED CONDITION	PERCENT WHO USED CAM FOR CONDITION IN PAST 12 MONTHS	PERCENT WHO SAW CAM PROVIDER FOR CONDITION IN PAST 12 MONTHS	WHO SAW MD & USED CAM THERAPY FOR CONDITION IN PAST 12 MONTHS*	WHO SAW MD & CAM PROVIDER FOR CONDITION IN PAST 12 MONTHS	MOST COMMONLY USED THERAPIES FOR THE CONDITION
<b>Back Problems</b>	24.0	47.6	30.1	58.8	39.1	Chiropractic; massage
<b>Allergies</b>	20.7	16.6	4.2	28.0	6.4	Herbal; relaxation
<b>Fatigue</b>	16.7	27.9	6.3	51.6	13.1	Relaxation; massage
<b>Arthritis</b>	16.6	26.7	10.0	38.5	15.9	Relaxation; chiropractic
<b>Headaches</b>	12.9	32.2	13.3	42.0	20.0	Relaxation; chiropractic
<b>Neck Problems</b>	12.1	57.0	37.5	66.6	47.5	Chiropractic; massage
<b>High Blood Pressure</b>	10.9	11.7	0.9	11.9	1.1	Megavitamins; relaxation
<b>Sprains or Strains</b>	10.8	23.6	10.3	29.4	15.9	Chiropractic; relaxation
<b>Insomnia</b>	9.3	26.4	7.6	48.4	13.3	Relaxation; herbal
<b>Lung Problems</b>	8.7	13.2	2.5	17.6	3.4	Relaxation; spiritual healing; herbal
<b>Skin Problems</b>	8.6	6.7	2.2	6.8	0.0	Imagery; energy healing
<b>Digestive Problems</b>	8.2	27.3	9.7	34.1	10.7	Relaxation; herbal
<b>Severe Depression</b>	5.6	40.9	15.6	40.9	26.9	Relaxation; spiritual healing
<b>Anxiety Attacks</b>	5.5	42.7	11.6	42.7	21.0	Relaxation; spiritual healing
Weighted Average Across All Conditions		28.2	11.4	31.8	13.7	

feedback and acupuncture were used less commonly. A more recent national survey, funded by the Centers for Disease Control (CDC), found that, in 2002, 35 percent of Americans used some form of CAM (excluding megavitamin therapy and prayer); 21 percent used biologically based therapies (excluding megavitamin therapy); 17 percent used one or more forms of mind-body therapies (excluding prayer); 11 percent used manipulative and body-based therapies; 3 percent used alternative medical systems; and 0.5 percent used energy therapies (Barnes, et al., 2004).

From 1990 to 1997, annual visits to alternative practitioners grew from 470 million to 629 million (Eisenberg, et al., 1998). Those estimated 629 million visits to complementary care providers far exceeded the 386 million visits to all U.S. primary-care physicians that year. Out-of-pocket expenditures for CAM therapies were an estimated \$27 billion, comparable to those of all U.S. physician services.



## conditions for which CAM therapies are used

Medical conditions for which alternative therapies are commonly used, as found in the Eisenberg, et al. (1998) study, are shown in Table 2 (*on page 8*). The highest use was for back problems, allergies, fatigue, and arthritis; other conditions included headaches, neck problems, high blood pressure, sprains or muscle strains, insomnia, pulmonary problems, dermatological disorders, digestive disorders, depression and anxiety. The CDC study found that CAM was used most frequently to treat back problems, colds, neck problems, joint pain or stiffness, and anxiety or depression (Barnes, et al., 2004).

Perhaps the most significant finding of these reports is that complementary and alternative modalities are often used, not instead of, but in addition to conventional care. This fact raises concerns for conventional clinicians and new challenges in health care.

## subgroups using CAM

It is revealing to examine not only the numbers of Americans using CAM therapies, but the population sub-groups who regularly use these treatments and practices. Eisenberg's survey found CAM use was higher among women (49 percent) than men (38 percent); less common among African Americans (33 percent) than other racial groups (45 percent); and highest among the 35-49 year age group (50 percent) compared with older (39 percent) or younger (42 percent) age groups. Greater use was reported among those with college educations (51 percent) than with no college education (36 percent); and with annual incomes above \$50,000 (48 percent) than with lower incomes (42 percent) (Eisenberg, et al., 1998). These statistics are similar to those found in the recent CDC study, where CAM (excluding prayer and megavitamin therapies) was used by 40 percent of females and 30 percent of males; by 26 percent of blacks, 36 percent of whites, 43 percent of Asians, 55 percent of Hispanics or Latino subgroups; and in higher proportions among those who had attended college.

Although, overall, more highly educated and socioeconomically advantaged segments of the population use CAM, those with limited access—both financial and geographic—to conventional health services also are among those regularly using CAM. For example, those living in isolated, rural areas, particularly those who are impoverished, are often high users of folk remedies (Becerra & Iglehart, 1995; Cook & Baisden, 1986; Planta, Gundersen, & Pettitt, 2000; Arcury, Preisser, Gesler, & Sherman, 2004). A few studies have looked at CAM use in the United States with a focus on other under-sampled, lower socioeconomic groups such as urban minorities (Rhee, Garg, & Hershey, 2004). Members of cultural minorities or new immigrants from other cultures in which CAM therapies have traditionally been practiced also use CAM regularly. For example, Native Americans living on reservations and Hispanic populations recently immigrated to the United States are high users of their traditional health systems (Marbella, Harris, Diehr, & Ignace, 1998; Pearl, Leo, & Tsang, 1995).

## reasons for the growing use of CAM modalities

A number of factors influence patients to seek CAM services. In this information age there is increased awareness of other systems of care and greater public access to health information. Philosophical preferences also play a role: many are attracted to natural/organic products

### REASONS FOR USING CAM

- Congruence with holistic values and philosophies
- Awareness and interest in new health care options
- Belief in effectiveness of CAM treatment
- Concerns about safety, effectiveness or costs of conventional medicines
- Belief in wellness and health-promoting practices

and treatments and to the philosophies and beliefs associated with many alternative practices (Astin, 1998; Giordano, Boatwright, Stapleton, & Huff, 2002).

One national survey (Astin, 1998) found that for those 96 percent who used *both* CAM and conventional care, significant predictors of use of CAM therapies (other than poor health status and higher education) were primarily based on holistic values and belief systems. For example, those who agreed with the statement that “the health of my body, mind and spirit are related, and whom-ever cares for my health should take that into account” were more likely to use CAM (46 percent) than those who did not endorse this item (33 percent).

Other significant predictors were having had a transformational experience, and being a “cultural creative” (commitment to cultural change and innovation, including environmentalism and personal growth). These philosophical perspectives are found in most CAM therapies. Thus, for users of CAM and conventional care, it is likely that congruence with the patient’s values and philosophies of life is a motivator of CAM use.

In the Astin (1998) survey, those who relied primarily on alternative forms of care were a minority (4 percent), and although the results must be interpreted with caution due to the small sample size (45 people were in this subset), the following independent variables were significant predictors of use of CAM:

- Distrust of conventional physicians and hospitals,
- Desire for control over health matters,
- Dissatisfaction with conventional practitioners, and
- Belief in the importance and value of one’s inner life and experiences.

Here, education and health status were not significant predictors, nor was a holistic philosophy of health or being a cultural creative. The Astin study’s findings confirm results of earlier studies (e.g., Furnham & Smith, 1988) that found that subgroups whose health beliefs and philosophies differ from those of mainstream medicine, whether or not they are cultural minorities, are major users of alternative therapies.

Common responses regarding perceived benefits of CAM indicate that people use CAM therapies because they feel that it works for their particular health problem, or that the CAM treatment promotes health rather than just focusing on illness (Astin, 1998). Additionally, those who use CAM may be motivated to maximize wellness or enhance the likelihood of a successful health-care outcome. For example, particular CAM therapies, such as herbs, hypnosis, visualization, homeopathic remedies, or energetic therapies are often used by those undergoing surgery.

The national CDC survey of CAM use (Barnes, et al., 2004), asked CAM users about their reasons for using a particular CAM therapy, giving them options for selecting more than one answer: Positive responses included:

- Therapy combined with conventional medical treatment would help (55 percent)

- Thought it would be interesting to try (50 percent)
- Conventional medical treatments would not help (28 percent)
- Suggested by a conventional medical professional (26 percent)
- Conventional medical treatments were too expensive (13 percent)

Frequent users of CAM include those who seek effective treatment for chronic or incurable diseases. For example, patients in rehabilitation clinics and with diagnoses of cancer, HIV/AIDS, multiple sclerosis, and Alzheimer's Disease use CAM therapies in greater percentages than the general population (Sparber, Wootton, et al., 2000; Nayak, Matheis, Shoenberber, & Shiflett, 2003; Page, Verhoef, Stebbins, Metz, & Levy, 2003; Sparber, Bauer, et al., 2000; Coleman, Fowler, & Williams, 1995). In addition, those people suffering from chronic diseases with symptoms that are poorly understood or treated by conventional care—such as chronic fatigue syndrome or fibromyalgia—may seek benefit from alternative therapies (Arcury, Bernard, Jordan, & Cook, 1996; Astin, Pelletier, Marie, & Haskell, 2000; Ernst & Cassileth, 1998; Foster, Phillips, Hamel, & Eisenberg, 2000; Krauss, Godfrey, Kirk, & Eisenberg, 1998; Stys, Stys, Kelly, Lawson, 2004; Jazieh, et al., 2004).

### patient-provider communication about CAM

One striking research finding is that most people who use CAM also use conventional care, often simultaneously (Astin, 1998; Eisenberg, 1997; Eisenberg, et al., 1993). Another finding is that the vast majority of patients—about 70 percent (Eisenberg, et al., 1998; Eisenberg, et al., 1993)—do not tell their conventional practitioners about their use of alternative modalities. Reasons given by patients for not discussing alternative therapy use with their physicians include the belief that physicians would not understand or be knowledgeable about the therapy; that they are not asked; fear of disrespect or disapproval; and their belief that the physician is uninterested (Kessler, et al., 2001). Research affirms that conventional providers often fail to ask their patients about their use of alternative modalities (Murtaza, Singh, Dimitrov, & Soni, 2001). This lack of communication may result in increased medical errors, noncompliance, possible duplication of services and greater health care costs, in addition to obscuring our understanding of the exact causes of specific outcomes.

## united states health care: risks & challenges of a pluralistic system

An individual's use of two or more systems of care—one a dominant or conventional system, the other a folk or unconventional system—is common in most societies, as is the ability to hold multiple and sometimes conflicting health beliefs (King, Sobal, & DeForge, 1988; Mathews, 1992; Hufford, 1992). This phenomenon is particularly evident as cultures merge, due to immigration or other factors. The frequent use of alternative therapies among those who visit conventional providers is not surprising, since the holistic values and philosophies held by many are found in traditional healing systems, such as Traditional Chinese Medicine, Ayurvedic medicine, and Native American healing traditions. Nor is it surprising that the vast majority of those who use alternative

therapies (96 percent) also visit conventional care providers (Eisenberg, et al., 1998), since different needs are often being met. For example, a patient who uses primarily homeopathic care may still seek conventional practitioners for diagnostic tests.

### the risks of uncoordinated care

It seems clear that patients seek the benefits of both systems, rather than choosing one over the other. Unfortunately, management of this ad hoc approach to health care falls largely to patients rather than health care professionals. To do so, patients must navigate the conflicting claims and recommendations of different health care providers, compensate for the poor communication among caregivers, and contend with limited information about local options and a confusing excess of general information via the Internet and other media.

Although there is a “team leader”—the patient—in this effort, the various team members (one or more from conventional settings and from various alternative practices) may be unaware of each other. Neither conventional nor CAM practitioners may be well informed about each other’s therapeutic approach or about interactions of treatments. Lack of communication about

CAM use among conventional and alternative practitioners inhibits good health care. Without informed and compassionate prompting from providers of all types, patients may not communicate the fact of their use of alternative therapies to their conventional providers, and may choose not to communicate use of conventional care to their CAM practitioners. Treatment may therefore be redundant or at cross-purposes, even dangerous. For example, drug-herb interactions may occur, producing symptoms for which the cause is not known or understood, either by patient or providers.

Such a situation poses numerous problems. At a minimum, it creates great inefficiencies—duplication of therapies, lengthy searches for the “right” treatment, or multiple diagnostic procedures. And there are more serious concerns about excessive costs and interactions between different treatments.

In addition to communications problems, other safety issues emerge as CAM use becomes more widespread. Conventional medicine has developed a systematic, rigorous process for testing and—many would argue—assuring the safety and efficacy of medicines and diagnostic and therapeutic treatments. Extensive research—particularly the randomized control trial—has become the principal tool for assessing product and procedure safety, with standardization the ultimate objective.

Conventional medicine expects the same validation of alternative therapies. From a scientifically based perspective, there are legitimate concerns about the safety and efficacy of products and treatments whose use has not been widely tested or whose production is unregulated. However, others would argue that since many of these therapies have stood

#### CLINICIANS ADVISED TO LEARN ABOUT CAM

The final report of the White House Commission on Complementary and Alternative Medicine (2002) advises clinicians and patients to “become more knowledgeable about the potential benefits and harms of CAM approaches” and urges “physicians and other health professionals [to] make significant efforts to open lines of communication with their patients about their use of CAM. . . .” The reason for this recommendation is simple. Although not integrated with conventional care, complementary and alternative therapies form a major component of contemporary health care and the uncoordinated, ill-informed blending of these practices poses safety risks.

the test of time, are in common use, and are not likely to be funded for research, they should remain available as therapeutic options unless and until harm is proven.

### confronting safety issues

Statistics on medical errors and pharmaceutical risks attest to the need for alarm about safety in conventional medicine (*Medical Errors*, 2000). Widespread CAM use raises additional questions and concerns, including unknowns about the safety of specific therapies and methods, as well as unknowns related to the combining of particular alternative and conventional treatments. Minimal regulation in the production and use of herbals and supplements, and lack of standards for providers, adds to the perception of risk by conventionally trained providers. In addition, inaccessibility to or lack of available information on effectiveness of alternative therapies can be frustrating (Curtis, 2004).

Until recently, major funding for research on alternative therapies has been limited. Moreover, the randomized double-blind placebo-controlled trial, the gold standard of biomedical research, while suited for drug studies, is challenging to apply to some alternative therapeutic systems and interventions. Accumulating high-quality data on safety and effectiveness of so many different systems and types of care, and comparing them with safety and effectiveness data on conventional care, is a daunting task. To date, research has varied in quantity and quality, and solid outcome data is available for only a fraction of therapies that are in common use in the U.S. Not surprisingly, many conventional practitioners, insurers, and health care organizations—unfamiliar with many CAM options—are concerned that there is not adequate or convincing data to provide confidence for clinical recommendations or therapeutic implementation (*see box, page 13*).

It is important to keep in mind, however, that many conventional therapies in common use have less than adequate research to back up their clinical recommendations (“What Proportion,” n.d.). The fact that many of these therapies are part of the established medical culture may make their uncritical use more acceptable to conventionally trained health care providers. Hence, there is an urgent need to raise awareness and increase research on safety and effectiveness of conventional

### SEEKING ANSWERS ABOUT CAM SAFETY

Many questions face conventional practitioners as decisions are made regarding recommendations for use of complementary therapies, their integration with conventional care or referral to an alternative-care provider.

- While some herbal medicines have been used for thousands of years, they have not been tested via randomized controlled studies. What convincing evidence is there that such therapies are clinically active beyond the placebo?
- With the wide variability of the contents of particular herbal products, how can a health practitioner feel confident in a recommendation?
- Since research is limited on most drug-herb interactions, how can the conventional provider reassure a patient about their safe use?
- There is great variation in training among alternative-care providers; how can the conventional practitioner feel confident in recommending a particular practitioner?
- Licensure is often not available for certain CAM providers in certain states. What is the ethical and legal requirement for referral to unlicensed practitioners?
- Education about CAM therapies may not have been part of the conventional educational curriculum. What ethical obligations does the provider have to seek continuing education about these topics?

**TABLE 3**  
**RE-EVALUATING CLINICAL APPLICATIONS OF FINDINGS FROM**  
**RANDOMIZED CONTROLLED TRIALS (RCTS)**

Among the concerns raised about RCT-based research:

- RCT results obtained with great rigor in very controlled conditions (known as “high internal validity”) may be of limited value in clinical practice where patients are more diverse and often have more complex clinical problems than the original research subjects.
- Specific effects (i.e., a single drug) may not be the most valuable therapeutic intervention for the patient.
- Selection of variables in the study may omit other factors that are not understood or cannot be measured under these conditions. These excluded factors might influence the outcomes, and are not necessarily controlled for in a clinical trial.
- Medical studies do not usually clarify how, in each patient, the mind affects the body (placebo effect) or how this may vary among individuals or different cultural groups. Accounting for the placebo effect using a control procedure or inert substance may be inadequate.
- Large-scale studies tend to obscure each individual’s interactions with the drug/intervention, so these data do not reveal to the clinician how an individual patient will react to treatment. The question, “What is really best for this patient sitting in front of me?,” is never addressed by large randomized studies.
- Treatment based only on inferential statistics and RCT designs may harm some people, because of events that cannot be predicted, and many studies are not large enough to identify significant adverse events. A recent example is the withdrawal in 2001 of Baycol (a statin drug for lowering cholesterol) because of serious adverse effects reported only after the drug was widely marketed and not noted or reported in development and assessment (FDA, 2001).
- The scientific study of therapies using RCTs systematically ignores any analysis or understanding of how people feel about their illnesses. Each patient has a unique view of his or her own problem, a perspective that plays a role in clinical outcomes. This is not accounted for in RCTs.
- In randomized, controlled studies of conventional interventions, there is an emphasis on “equipoise”—the emotional distancing and ignorance of the subject and researcher regarding the treatment outcomes. Equipoise is rarely achieved in those studies in which the experienced clinician strongly believes in effectiveness, and subjects have often entered the study because of their specific preferences.

*(Heron, 2001)*

as well as alternative therapies and their interactions. In addition, since all therapies carry at least the potential of some risk, it is important to include consideration of relative risk in any comparison of CAM and conventional care.

### rethinking medical research

The demand for research evidence of CAM safety and efficacy has given rise to serious concerns about the adequacy of conventional research methodology. Although the RCT is the optimal method for proving the efficacy of a specific drug or treatment, the objectivity of the classic experimental method and the reductionist approach to assessment have recently come under scrutiny and criticism (Heron, 2001). Criticisms of RCT methodology range from concerns about the selection of participants and adequacy of the control group, to problems in measuring

important variables. At the heart of the criticisms is the question of whether evidence of experimental validity translates into practical clinical validity for *individual* patients. These concerns are particularly relevant with respect to research on CAM treatments (see Table 3, page 14).

## united states health care: where are we going?

This is a time of transition for health care—and a moment of great opportunity. On the one hand, we are seeing the beginning of what is likely to be a revolution in biomedical research and its applications. Discoveries in genetics, for example, offer the promise of new solutions to difficult health problems. At the same time, translational research in CAM may yield a multitude of insights and discoveries that will affect patient care, such as new understanding of the body's self-healing capabilities and energetics.

However, despite such promise, the current dominant model for delivering health and healing services is increasingly unsuccessful; meanwhile, complementary and alternative therapies appear to be gaining in popularity as a path to health. In response to this situation, a growing number of clinicians—and their patients—are exploring ways to meld conventional practices with traditional approaches and innovative therapies, thus expanding therapeutic options and creating new models of care.

## foundations of an integrated system of care

Because so many patients use both CAM and conventional care and because their uncoordinated use is costly, inefficient, and possibly unsafe, it seems appropriate—perhaps inevitable—for individual health care providers to not only seek education about CAM but to learn strategies to appropriately integrate CAM and conventional care in their practices (Mann, Gaylord, & Norton, 2004).

A further consideration is the possible progression toward a health care system that brings together conventional and alternative systems in a coordinated, collaborative way. Such an integrated model of care would draw on the strengths and balance the limitations of the individual systems. Development of such a system would require:

- respect for and understanding about other healing systems;
- integrative educational curricula;
- new ways of conducting and understanding research on effectiveness and safety issues;
- new methods for assessing and assuring safety of conventional, alternative, and integrated healing methods; and
- significant changes in the policies that shape the economic and political structures of the current health care system.

## need for understanding & respect for other systems of healing

Integration requires awareness and understanding of the many concepts, paradigms, and approaches to healing. Practitioners of various healing models must learn to appreciate the power of belief to heal or harm, and learn ways to harness belief for healing. They must learn to respect

each other's beliefs and the healing practices that flow from them. To use the cultural analogy, health care providers, both conventional and CAM, must be willing to become "bilingual," or even "multilingual," with regard to alternative care systems. Ultimately, a shared understanding of the healing processes that are common to all human beings and a common "vocabulary" with which to communicate will enhance cross-disciplinary collaboration and integration.

### need for education about complementary & alternative principles and practices

Comprehensive educational curricula in CAM and integrative principles and practices are needed at all levels of health-professions education. Although the majority of U. S. medical schools offer one or more elective courses in CAM, the total number of students receiving more than a superficial introduction to CAM is still quite small (Brokaw, Tunnick, Raess, & Saxon, 2002). The NIH National Center on Complementary and Alternative Medicine has funded research initiatives in CAM health-professions education at 14 health institutions; these are still at the modeling stage without substantial published results covering outcomes and behavioral change. One study found that 77 percent of baccalaureate nursing programs included content or experiential learning in complementary health and healing in the curriculum (Richardson, 2003). Information about education in complementary modalities at schools of dentistry, pharmacy, and public health is limited (Sierpina, 2000).

Alternative therapy schools could enhance communication with conventional providers by more consistently including content pertaining to conventional care in their curricula. A review of the curricula of schools of homeopathy, massage, herbal medicine, and acupuncture reveals variable levels of instruction in basic human anatomy, biochemistry, physiology, contemporary pharmacology, pathology, or clinical presentations of common disorders. Major exceptions are naturopathy and chiropractic, which have four-year programs with substantial content in these areas, comparable to that of conventional medical education (<http://www.bastyr.edu/academic/profiles>, accessed 12/31/04; <http://www.ncnm.edu/a4academics/doctorofnd.cfm-national>, accessed 12-31-04).

Training institutions, and, ultimately, the professional associations of the respective healing modalities, must take responsibility to expand the "core competencies" of healing professionals to include specific knowledge, skills, and attitudes related to both CAM and conventional care.

Interdisciplinary education involving various alternative and conventional health-care providers would enhance cross-disciplinary communication and understanding. For example, case-based discussions would highlight the various disciplines' diagnostic strategies, information needs, and ways of viewing the human being.

### need for more & better research on efficacy

Since both consumers and clinicians need access to good information about appropriate uses of CAM therapies, additional research on alternative modalities is imperative. Research takes money, facilities, training, and appropriate methodologies, and CAM research faces challenges on all these fronts. Only in the last decade has the United States government begun to make funding in CAM a major priority, with the research budget from the National Institutes of Health's Na-



tional Center for Complementary and Alternative Medicine steadily mounting, providing an impetus for new and experienced researchers to enter the field.

Yet, even experienced researchers may lack the understanding necessary to design a valid study of a specific alternative therapy. While the randomized controlled double-blind clinical trial (RCT) has long been accepted as the “gold standard” in biomedicine, it works best for pharmaceutical-type products, which can be administered in pill form. For other interventions involving human beings as an integral part of the therapy, this type of research design may be impossible to implement fully. How does one conduct a randomized, double-blind placebo study of acupuncture or mindfulness meditation, for example? How does one test the efficacy of an active ingredient of a complex herbal medicine product, and does it make sense to do so when the standard of care is the complex herb? And how does one meet the challenge of testing a system of care for which the primary *modus operandi* is individualizing the remedy to match the unique characteristics of each patient, as in classical homeopathy?

The fact that holistic and integrative methods do not lend themselves to RCT study does not mean that they are ineffective or even that they are not measurable. What is evident is that the established standard for biomedical research—the RCT—needs to be reevaluated, and its usefulness understood in the context of the multiple healing modalities in use. It is also clear that new approaches are needed to measure the effectiveness and safety of healing practices that work in an integrated rather than an isolated way.

There are other research-related challenges faced by alternative modalities, including collaborations with investigators who may be operating with different belief systems, levels and types of training, and language barriers, or who may be practicing without legal status in a particular state. Publication bias against alternative-therapy research appears to have decreased in the last several years, but is still a substantial consideration for researchers who must maintain careers based on numbers of publications and quality of journals in which their research is published.

### need to address safety concerns

Issues of safety and compatibility of treatments arising from different medical systems are a concern to both patients and providers considering integrative care. Since for many treatments—both CAM and conventional—the underlying mechanisms of action are not well understood, it may be especially difficult in these cases to predict outcomes or side effects.

Information about therapeutic outcomes is useful for addressing possible safety concerns. Understanding is hampered by insufficient or inaccessible sources of evidence-based information on such topics as herbal medicine, drug-herb interactions, manual therapies, homeopathy, and acupuncture. Conventional health-care professionals often rely primarily on reports in U.S. peer-reviewed journals and are unaware of foreign or non-mainstream publications. Much of side-effect reporting related to alternative therapies in the conventional medical literature is in the form of case reports of drug-herb interactions. Evaluating these reports is often difficult given the limited space afforded to case reporting. Negative reports may be emphasized over positive outcomes in the name of safety. Likewise, many alternative providers are alarmed by the documented side effects and risks of conventional medicine. In either instance, fears about the safety and risks posed by unfamiliar therapies may slow the process of integration significantly.

### THE ELEMENTS OF EFFECTIVE INTEGRATION AVAILABLE TODAY

- **FIRST:** informed and motivated consumers
- **SECOND:** a growing body of CAM providers
- **THIRD:** a supported educational effort in the health sciences schools
- **FOURTH:** Research funding for the study of integrative health care

Quality assurance for products, services, and practitioners is an important issue to address in moving to an integrated health care delivery model. *How* to accomplish that goal is an open question in most states. For example, one concern relates to the credentialing of CAM providers in the name of both competency and patient safety. Among conventional health professionals, quality standards are established under a system of licensure that reflects their training and practice. However, while licensing is standardized for conventional medicine, and therefore a familiar method of addressing quality issues, it may not be an appropriate method for many alternative care providers. Practitioners of some CAM disciplines, such as chiropractors, have well established educational and licensure standards, while some, such as homeopaths, are self-regulating through mechanisms including nationally recognized certification programs (Eisenberg, et al., 2002).

Others, such as Reiki practitioners, undergo training programs that are recognized by consumers and health providers. For still others, such as mindfulness instructors, there are multiple styles and degrees of competency set by a variety of schools and programs, but uniform standards are not established.

The “health freedom” laws passed in several states (Minnesota, California, Rhode Island, Oklahoma, Idaho) distinguish between medical professions and alternative healing, recognizing the wide diversity of approaches these many practices take to assure quality. Under health freedom laws, alternative healing professions and lay health advisors are exempt from their state’s medical practice legislation, and their own individual methods for evaluating, credentialing, and certifying their members are accepted (<http://www.minnesotanaturalhealth.org/index.htm>; [http://floridahealthfreedom.org/main/miller\\_interview.php](http://floridahealthfreedom.org/main/miller_interview.php)). A number of states are considering laws intended to assure the availability of a broad diversity of health care options for consumers.

Herbs are at the forefront of the debate over CAM safety for a number of reasons, including the variability of their purity and content. Current U. S. regulations classify these products as “dietary supplements” and exempt them from the pre-marketing testing required of food additives and pharmaceuticals (Dietary Supplement Act of 1994, 1995; Burdock, 2000). Standardization of herbal products is challenging due to the lack of information about their active constituents. In addition, in contrast to Canadian standards, requirements for good manufacturing practices for herbal products and other dietary supplements are still voluntary in the United States. Thus, strength, bioavailability, purity, and composition of these products can be highly variable. Those readers interested in the history of dietary supplement regulations may refer to the 2004 *Report of the Committee on the Framework for Evaluating the Safety of Dietary Supplements* published by the National Academies Press.

Finally, in a system of integrated health care, it will be necessary to determine what constitutes appropriate standards for labeling, disclosure of training and informed consent so that consumers and providers are assured access to information critical to treatment for each discipline. What governing body or bodies should determine safety standards, safety violations, and disciplinary actions for providers? And since safety is always relative, an integrative perspective must broaden definitions and standards of safety to include the concepts of relative risk and

relative efficacy. For example, when surgery is proposed for chronic low back pain, what is the relative risk and relative efficacy compared with acupuncture or craniosacral therapy? Without a shared definition of safety standards, integration efforts will falter.

## need for political & financial changes in health care

Many of the greatest challenges to integration stem from the political and economic policies and structures that shape the conventional health care system. The U.S. health-care system's commitment to a model of high-tech care carries with it soaring expenses for the development and administration of complex and costly therapies. Advanced medicines and groundbreaking surgical techniques are possible as the result of major financial investment. A pharmaceutical company will invest years and millions of dollars to develop a patented medicine, but cannot practically invest in testing the efficacy of a commonly available, non-patentable plant. The economic outcome is that patients pay the sometimes-exorbitant price of medicines so that the manufacturer's investment will be repaid while little or no information is available on the effectiveness and safety of what might be a low-cost, accessible alternative.

Similarly, hospitals, physicians, and insurers operate, by necessity, as competitive businesses, intent on capturing "market share" in order to cover the cost of the high-tech services they offer. Unwittingly or not, they also become partners in marketing pharmaceutical products. Pharmaceutical companies are now the primary drug-product educators of physicians through drug-company sponsored lunches and free-sample distribution programs. The ethical dilemmas escalate as pharmaceutical firms pay for clinical research on their own products and control data analysis and publication (Angell, 2000; Angell, 2004). In this context, it is challenging indeed to find ways to introduce the typically low-cost, low-tech alternative therapies that may also mean lower revenues for a powerful economic interest.

Indeed, a major barrier to integration is the affordability of alternative-care services. Reimbursements for conventional care are largely under the control of insurers, while reimbursement for CAM comes primarily from direct payment by consumers. This situation further limits integration at the practice level, despite the sometimes excellent rapport that can exist between CAM and conventional providers.

## what next? steps toward integrated health care

The process of integrating CAM and conventional care is likely to be an incremental one, influenced by many social, economic, and cultural factors. Since the U. S. health care system is market-driven, continued consumer demand could accelerate integration. Models of collaboration and integrative care are emerging and can offer guidance and insight for moving forward. The first steps typically are taken by conventional practitioners seeking better understanding of alternative healing options. For some this takes the form of a network of collegial and referral relationships; for others the path may be to acquire specialized training in a CAM practice, such as acupuncture or homeopathy (Mann, Gaylord, & Norton, 2004).

More complex models are also appearing in greater numbers, particularly in academic settings. These may include an association of conventional and CAM practitioners focusing on a particular disease or condition—such as pain; or a fully integrated primary care practice where

practitioners from many disciplines collaborate on all patient care. Research also is needed to determine the effectiveness, including cost-effectiveness, as well as outcomes, of such integrative care models. Finally, and perhaps foremost, educational venues are needed to inform conventional and alternative providers about the variety of systems of care available and their safety and effectiveness, and to improve cross-disciplinary communication.

Appropriate integration will require the participation of informed consumers and informed providers, as well as policy makers and health care administrators. Together, we can foster new and better ways of providing health care services—ways that draw on the knowledge, experience, and perspectives of many healers and healing traditions.

## recommended reading

The publications listed below provide an excellent foundation for further study of complementary and alternative health care.

***Essentials of Complementary and Alternative Medicine.*** By Wayne B. Jonas, MD, and Jeffrey S. Levin, PhD, MPH (Philadelphia: Lippincott, Williams, & Wilkins, 1999). This book provides an excellent introduction to complementary and alternative medicine for the conventional health care practitioner, focusing specifically on the issues and alternative practices that are most applicable to mainstream health care. It is comprised of three main sections: *Social and Scientific Foundations of CAM*, covering issues such as ethics and the evidence basis of CAM; *The Safety of CAM Products*; and *Practices and Major Systems of CAM*, including chapters on the more common CAM systems such as homeopathy, naturopathy, massage therapy, Ayurveda, acupuncture, biofeedback, meditation, and hypnotherapy.

***Integrative Health Care. Complementary and Alternative Therapies for the Whole Person.*** By Victor S. Sierpina (Philadelphia: F. A. Davis Company, 1999). Sierpina's book offers expert knowledge and practical guidance for conventional clinicians on integrating complementary and alternative therapies into their practices. Written in a personable style, it covers definitions and terms, how to talk with patients about integrative health care, the importance of self-care and of role modeling wellness care for patients, patient-centered and relationship-centered care, using integrative medicine in clinical practice, and descriptions of specific therapies and approaches to common illnesses. An appendix contains tools and resources.

***Clinician's Complete Reference to Complementary and Alternative Medicine.*** By Donald W. Novey (New York: Mosby, 2000). This book is an excellent resource for both clinicians and consumers, featuring clear and factual information on more than 60 CAM treatment modalities, each written by expert practitioners in that field. In addition, the book provides an introductory discussion of the history and principles of CAM, evidence-based and best-evidence coverage of the biomedical and pharmacological mechanisms of action of various therapies, cross-references to common conditions and treatment options, and suggested readings and Internet resources for additional information.

***Nurse's Handbook of Alternative and Complementary Therapies.*** By Matthew Cahill (Philadelphia: Springhouse Corporation, 1999). This practical and scholarly text provides concise information about more than one hundred CAM therapies and systems of care, including therapeutic

uses, equipment needed, procedures, potential complications, nursing perspectives, and references. The Appendix lists uses for specific conditions, organizations sponsoring specific therapies, and a glossary of CAM terms.

***American Medicine as Culture.*** By Howard F. Stein (Boulder, CO: Westview Press, 1990). Stein's book describes biomedicine, and the organization and practice of medicine, as practiced in the United States, as a cultural system, and links it to the wider society and historical epoch in which it is situated.

## references

- Angell, M. (2000). Is academic medicine for sale? *New England Journal of Medicine*, 342, 1516-1518.
- Angell, M. (2004). *The truth about drug companies: How they deceive us and what to do about it.* NY: Random House.
- Arcury, T. A., Bernard, S. L., Jordan, J. M., & Cook, H. L. (1996). Gender and ethnic differences in alternative and conventional arthritis remedy use among community-dwelling rural adults with arthritis. *Arthritis Care Research*, 9(5), 384-390.
- Arcury, T. A., Preisser, J. S., Gesler, W. M., & Sherman, J. E. (2004). Complementary and alternative medicine use among rural residents in western North Carolina. *Complementary Health Practice Review*, 9(2), 93-102.
- Arias, E., Smith, B. (2003). *Deaths: Preliminary Data for 2001* (National Vital Statistics Reports 5): Centers for Disease Control and Prevention, Division of Vital Statistics.
- Astin, J. A. (1998). Why patients use alternative medicine: results of a national study. *JAMA*, 279(19), 1548-1553.
- Astin, J. A., Pelletier, K. R., Marie, A., & Haskell, W. L. (2000). Complementary and alternative medicine use among elderly persons: one-year analysis of a Blue Shield Medicare supplement. *Journal of Gerontology Series A: Biological Sciences and Medical Sciences*, 55(1), M4-9.
- Barnes, P., Powell-Griner, E., McFann, K., & Nahin, R. (2004). *CDC Advance Data Report #343.* Complementary and alternative medicine use among adults: US, 2002. May 27, 2004.
- Becerra, R. M., & Iglehart, A. P. (1995). Folk medicine use: diverse populations in a metropolitan area. *Social Work in Health Care*, 21(4), 37-58.
- Brokaw, J. J., Tunnicliff, G., Raess, B. U., & Saxon, D. W. (2002). The teaching of complementary and alternative medicine in U.S. medical schools: a survey of course directors. *Academic Medicine*, 77(9), 876-881.
- Burdock, G. A. (2000). Dietary supplement and lessons to be learned from GRAS. *Regulatory Toxicology and Pharmacology*, 31(1), 68-76.
- Coleman, L. M., Fowler, L. L., & Williams, M. E. (1995). Use of unproven therapies by people with Alzheimer's disease. *Journal of the American Geriatric Society*, 43(7), 747-750.
- Cook, C., & Baisden, D. (1986). Ancillary use of folk medicine by patients in primary care clinics in southwestern West Virginia. *Southern Medical Journal*, 79(9), 1098-1101.
- Curtis, P. (2004). *Safety issues in complementary & alternative medicine*, in S. Gaylord, S. Norton, P. Curtis (Eds.), *The convergence of complementary, alternative & conventional health care: Educational resources for health professionals*. University of North Carolina at Chapel Hill.

- Curtis, P., & Gaylord, S. (2004). *Concepts of healing & models of care*, in S. Gaylord, S. Norton, P. Curtis (Eds.), *The convergence of complementary, alternative & conventional health care: Educational resources for health professionals*. University of North Carolina at Chapel Hill.
- Dietary Supplement Health and Education Act of 1994. (1995). US Food and Drug Administration, Retrieved November 29, 2004 from <http://www.cfsan.fda.gov/~dms/dietsupp.html>.
- Eisenberg, D. M. (1997). Advising patients who seek alternative medical therapies. *Annals of Internal Medicine*, 127(1), 61-69.
- Eisenberg, D. M., Cohen, M. H., Hrbek, A., Grayzel, J., Van Rompay, M. I., & Cooper, R. A. (2002). Credentialing complementary and alternative medical providers. *Annals of Internal Medicine*, 137(12), 965-973.
- Eisenberg, D. M., Davis, R. B., Ettner, S. L., Appel, S., Wilkey, S., Van Rompay, M., et al. (1998). Trends in alternative medicine use in the United States, 1990-1997: results of a follow-up national survey. *JAMA*, 280(18), 1569-1575.
- Eisenberg, D. M., Kessler, R. C., Foster, C., Norlock, F. E., Calkins, D. R., & Delbanco, T. L. (1993). Unconventional medicine in the United States. Prevalence, costs, and patterns of use. *New England Journal of Medicine*, 328(4), 246-252.
- Ernst, E., & Cassileth, B. R. (1998). The prevalence of complementary/alternative medicine in cancer: a systematic review. *Cancer*, 83(4), 777-782.
- FDA. (2001). Baycol Information. <http://www.fda.gov/cder/drug/infopage/baycol/default.htm>.
- Foster, D. F., Phillips, R. S., Hamel, M. B., & Eisenberg, D. M. (2000). Alternative medicine use in older Americans. *Journal of the American Geriatric Society*, 48(12), 1560-1565.
- Furnham, A., & Smith, C. (1988). Choosing alternative medicine: a comparison of the beliefs of patients visiting a general practitioner and a homoeopath. *Social Science of Medicine*, 26(7), 685-689.
- Gaylord, S., & Coeytaux, R. (2002). Complementary and alternative therapies in family practice. In P. D. Sloane, L. M. Slatt, M. H. Ebell, & L. B. Jacques. (Eds.), *Essentials of family practice*. Philadelphia: Lippincott Williams & Wilkins, pp. 97-113.
- Giordano, J., Boatwright, D., Stapleton, S., & Huff, L. (2002). Blending the boundaries: steps toward an integration of complementary and alternative medicine into mainstream practice. *Journal of Alternative and Complementary Medicine*, 8(6), 897-906.
- Halstead, L. S. (2001). The John Stanley Coulter lecture. The power of compassion and caring in rehabilitation healing. *Archives of Physical Medicine and Rehabilitation*, 82(2), 149-154.
- Heron, J. (2001). The placebo effect and a participatory world view. In D. Peters (Ed.), *Understanding the placebo effect in complementary medicine: Theory, practice and research* (pp. 189-212). New York: Churchill Livingstone.
- Hufford, D. J. (1992). Folk medicine in contemporary America. In J. Kirkland, H. F. Mathews, C. W. Sullivan, III., and K. Baldwin (Eds.) *Herbal and magical medicine: Traditional healing today* (pp. 14-31). Durham, NC: Duke University Press.
- IOM. (2001). *Crossing the Quality Chasm: A New Health System for the 21st Century*. Washington DC: National Academy Press.
- Jazieh, A. R., Kopp, M., Foraida, M., Ghouse, M., Khalil, M., Savidge, M., & et al. (2004). The use of dietary supplements by veterans with cancer. *Journal of Alternative and Complementary Medicine*, 10(3):560-4.

- Kaufman, D. W., Kelly, J. P., Rosenberg, L., Anderson, T. E., & Mitchell, A. A. (2002). Recent patterns of medication use in the ambulatory adult population of the United States: the Slone survey. *JAMA*, 287(3), 337-344.
- Kessler, R. C., Davis, R. B., Foster, D. F., Van Rompay, M. I., Walters, E. E., Wilkey, S. A., et al (2001). Long-term trends in the use of complementary and alternative medical therapies in the United States. *Annals of Internal Medicine*, 135(4), 262-268.
- King, D. E., Sobal, J., & DeForge, B. R. (1988). Family practice patients' experiences and beliefs in faith healing. *Journal of Family Practice*, 27(5), 505-508.
- Kohn, L. T., Corrigan, J.J., Donaldson, M. (Ed.). (1999). *To err is human: Building a safer health system*. Washington, D.C.: National Academy Press.
- Krauss, H. H., Godfrey, C., Kirk, J., & Eisenberg, D. M. (1998). Alternative health care: its use by individuals with physical disabilities. *Archives of Physical Medicine and Rehabilitation*, 79(11), 1440-1447.
- Landon, B. E., Aseltine, R., Jr., Shaul, J. A., Miller, Y., Auerbach, B. A., & Cleary, P. D. (2002). Evolving dissatisfaction among primary care physicians. *American Journal of Managed Care*, 8(10), 890-901.
- Lazarou, J., Pomeranz, B. H., & Corey, P. N. (1998). Incidence of adverse drug reactions in hospitalized patients: a meta-analysis of prospective studies. *JAMA*, 279(15), 1200-1205.
- MacKay, D. (2003). Can CAM therapies help reduce antibiotic resistance? *Alternative Medicine Review*, 8(1), 28-42.
- Mann, J. D., Gaylord, S. A., & Norton, S. N. (2004). *Integrating complementary & alternative therapies with conventional care*, in S. Gaylord, S. Norton, P. Curtis (Eds.), *The convergence of complementary, alternative & conventional health care: Educational resources for health professionals*. University of North Carolina at Chapel Hill.
- Marbella, A. M., Harris, M. C., Diehr, S., & Ignace, G. (1998). Use of Native American healers among Native American patients in an urban Native American health center. *Archives of Family Medicine*, 7(2), 182-185.
- Mathews, H. F. (1992). Doctors and root workers: Patients who use both. In J. Kirkland, H. F. Mathews, C. W. Sullivan, III, & K. Baldwin (Eds.) *Herbal and magical medicine: Traditional healing today* (pp. 68-98). Durham, NC: Duke University Press.
- McBride, E. L. (2002). Employee satisfaction: code red in the workplace? *Seminars for Nurse Managers*, 10(3), 157-163.
- Medical Errors: The Scope of the Problem*. (Publication No. AHRQ 00-P037) (2000). Agency for Healthcare Research and Quality. Available: <http://www.ahrq.gov/qual/errback.htm>, accessed 5/7/2003.
- Medical Malpractice*. (2003). Insurance Information Institute. Available: <http://www.iii.org/>.
- Murtaza, M., Singh, M., Dimitrov, V., & Soni, A. (2001). Awareness of CAM among residents: A long way to go. *Archives of Internal Medicine*, 161(13):1679-80.
- Nayak, S., Matheis, R. J., Shoenberber, N. E., & Shiflett, S. C. (2003). Use of unconventional therapies by individuals with multiple sclerosis. *Clinical Rehabilitation*, 17(2), 181-191.
- NCCAM. (2002). *What Is Complementary and Alternative Medicine (CAM)?* (NCCAM Publication No. D156), [website]. NIH. Available: <http://nccam.nih.gov/health/whatiscam/>, accessed 5/7/2003.
- Page, S. A., Verhoef, M. J., Stebbins, R. A., Metz, L. M., & Levy, J. C. (2003). The use of complementary and alternative therapies by people with multiple sclerosis. *Chronic Diseases in Canada*, 24(2-3), 75-79.

- Pearl, W. S., Leo, P., & Tsang, W. O. (1995). Use of Chinese therapies among Chinese patients seeking emergency department care. *Annals of Emergency Medicine*, 26(6), 735-738.
- Planta, M., Gundersen, B., & Pettitt, J. C. (2000). Prevalence of the use of herbal products in a low-income population. *Family Medicine*, 32(4), 252-257.
- Rhee, S. M., Garg, V. K., & Hershey, C. O. (2004). Use of complementary and alternative medicines by ambulatory patients. *Archives of Internal Medicine*, 164, 1004-1009.
- Richardson, S. F. (2003). Complementary health and healing in nursing education. *Journal of Holistic Nursing*, 21(1), 20-35.
- Sierpina, V. S. (2000). Progress notes: University of Texas medical branch. *Alternative Therapies in Health and Medicine*, 6(6), 94-95.
- Simini, B. (1999). Patients' perceptions of intensive care. *Lancet*, 354(9178), 571-572.
- Sparber, A., Wootton, J., Bauer, L., Curt, G., Eisenberg, D., Levin, T., & et al. (2000). Use of complementary medicine by adult patients participating in HIV/AIDS clinical trials. *Journal of Alternative and Complementary Medicine*, 6(5), 415-422.
- Sparber, A., Bauer, L., Curt, G., Eisenberg, D., Levin, T., Parks, S., & et al. (2000). Use of complementary medicine by adult patients participating in cancer clinical trials. *Oncology Nursing Forum*, 27(4), 623-632.
- Starfield, B. (2000). Is US health really the best in the world? *JAMA*, 284(4), 483-485.
- Stys, T., Stys, A., Kelly, P., & Lawson, W. (2004). Trends in use of herbal and nutritional supplements in cardiovascular patients. *Clinical Cardiology*, 27(2):87-90.
- Swartz, M. N. (1997). Use of antimicrobial agents and drug resistance. *New England Journal of Medicine*, 337(7), 491-492.
- Thom, D. H., Bloch, D. A., & Segal, E. S. (1999). An intervention to increase patients' trust in their physicians. Stanford Trust Study Physician Group. *Academic Medicine*, 74(2), 195-198.
- U. S. Census Bureau (2002). *Health Insurance Coverage 2001* [web page]. Housing and Household Economic Statistics Division. Available: <http://www.census.gov/hhes/www/hlthins/hlthin01.html>.
- What proportion of health care is evidence-based? Resource Guide. (n.d.) Accessed 12/17/04, from [shef.ac.uk/scharr/ir/percent.html](http://shef.ac.uk/scharr/ir/percent.html).
- White House Commission on Complementary and Alternative Medicine Policy. (2002). Final Report. Health and Human Services, August 11, 2002. <http://www.whccamp.hhs.gov/finalreport.html>
- WHO. (2002). WHO global strategy on traditional and alternative medicine. *Public Health Reports*, 117(3), 300-301.
- Wolfe, M. M., Lichtenstein, D. R., & Singh, G. (1999). Gastrointestinal toxicity of nonsteroidal antiinflammatory drugs. *New England Journal of Medicine*, 340(24), 1888-1899.
- Wootton, J. C., & Sparber, A. (2001). Surveys of complementary and alternative medicine: part I. General trends and demographic groups. *Journal of Alternative and Complementary Medicine*, 7(2), 195-208.