Today’s health economics often drives the cost of modern medications, treatments, and therapies. Increasingly, these dynamics polarize the patient-consumer roles and alienate patients in the same system from which they seek care. Patients diagnosed with chronic disease, or illnesses, are particularly vulnerable to the economics of healthcare. For example, issues such as polypharmacy significantly escalate the cost of care for patients. As a result, patients are driven to seek other alternatives. Consequently, healthcare practitioners and health educators, whose patients have begun to explore more self-regulated and less expensive options afforded through complementary, alternative, and integrative health (CAIH) approaches, increasingly find themselves in need of knowledge related to these models of care. In today’s society, these modalities can represent a more accessible treatment option and a lower financial burden for already economically challenged and chronically ill consumers.

Despite a young and limited body of formal research, as well as mixed conclusions regarding treatment efficacy, several motivations have fueled the patient/consumer’s desire to use complementary and alternative treatments
for addressing physical problems and for maintaining good health. This chapter explores the reasons patients/consumers are driven to engage in CAIH practices and the factors that have led to the continued historical prevalence of complementary and alternative medicine (CAM) use. It also provides a contemporary overview of CAIH, a discussion of modern controversies surrounding CAM, and the need for healthcare providers to increase their education related to CAIH modalities.

Throughout this chapter and the others in this book, the names National Center for Complementary and Alternative Medicine (NCCAM) and National Center for Complementary and Integrative Health (NCCIH) are both utilized due to the 2014 name change of the major federal organization related to CAIH and CAM in the United States. In addition, the term *Complementary, Alternative, and Integrative Health* will be used under the acronym CAIH to reflect an emphasis on health and wellness.

In this book, the acronym CAM is replaced by CAIH to adhere to the current emphasis on complementary and integrative health. Although NCCIH refers to these practices as complementary and integrative health (CIH) approaches, the editors of this book added the word *Alternative* in the acronym to acknowledge that consumers are still using some of these practices as alternative forms of care.

While we recognize the value that the denomination CAM (Complementary and Alternative Medicine) has brought historically to our understanding of traditional health and alternative models of care, the acronym CAM is currently being abandoned and will only be utilized in this book when used by the bibliographical references consulted for this publication. For additional clarification on the terms used in this book, please read the preface.

### Theoretical Concepts

The National Center for Complementary and Alternative Medicine (NCCAM), known since December 2014 as the National Center for Complementary and Integrative Health (NCCIH), is the leading federal agency on CAIH approaches in the United States. It is one of the 27 institutes and centers of the National Institutes of Health within the US Department of Health and Human Services. Its mission is to “define, through rigorous scientific investigation, the usefulness and safety of complementary and integrative health interventions and their roles in improving health and health care” (NCCIH, 2015a). Throughout this book, both names (NCCAM and NCCIH) will appear according to the term used by the bibliographical references.
The NCCIH (2015a) defined *integrative health* as the incorporation of complementary approaches into mainstream healthcare, bringing conventional and complementary modalities together in a coordinated way. 

*CAM* is defined as the integration of biomedicine, complementary, and alternative modalities used together with safety and efficacy (NCCAM, 2009). According to NCCIH (2015a), “complementary” medicine is when a nonmainstream practice is used together with conventional medicine; “alternative” medicine is when a nonmainstream practice is used in place of conventional medicine.

*Complementary, alternative, and integrative health* is a term that includes complementary, alternative, and integrative approaches to prevent and manage disease as well as to maintain or restore health and wellness. This term is congruent with the 2014 name change of the National Center for Complementary and Alternative Medicine to the National Center for Complementary and Integrative Health. The NCCIH (2015a) defines complementary health approaches as practices and products of nonmainstream origin.

The classification of CAM therapies by the NCCAM and the NCCIH has varied throughout the years. Initially, NCCAM divided CAM modalities into five categories:

1. Alternative medical systems
2. Mind-body interventions
3. Biologically based treatments
4. Manipulative and body-based methods
5. Energy therapies

Later, NCCAM (2014) grouped CAM practices into four categories:

1. Natural products
2. Mind and body medicine
3. Manipulative and body-based practices
4. Other CAM practices

This classification was revised again. The NCCIH (2015a) divided complementary health approaches into three subgroups:

1. Natural products
2. Mind and body practices
3. Other complementary health approaches
Natural products include products such as herbs, botanicals, vitamins, minerals, probiotics, and dietary supplements. Mind and body practices include procedures and techniques such as yoga, chiropractic and osteopathic manipulation, meditation, massage therapy, acupuncture, tai chi, qi gong, healing touch, hypnotherapy, movement therapies (Feldenkrais method, Alexander technique, Pilates, Rolfing Structural Integration, and Trager psychophysical integration), and relaxation techniques (breathing exercises, guided imagery, and progressive muscle relaxation). Other complementary health approaches include traditional healers, ayurvedic medicine, traditional Chinese medicine, naturopathy, and homeopathy (NCCIH, 2015a).

**Complementary, Alternative, and Integrative Approaches and CAM in Contemporary US Society and around the World**

It is important for healthcare practitioners to have knowledge regarding the wide range of treatment modalities associated with CAIH. Understanding the role of CAIH in health management can be a powerful tool for practitioners and consumers. CAIH therapies can be instrumental in disease prevention and treatment. For this reason, many consumers are showing increasing preference for such practices that used to be called CAM (NCCAM, 2008).

Understanding or assisting patients in integrating CAIH modalities into their healthcare does not necessarily indicate acceptance on the part of the health educator or healthcare practitioner. Rather, it indicates a willingness to allow patients to have more autonomy and control over their care.

There has been an expansion of wellness programs in the United States over the last few decades, and many of these programs utilize CAIH modalities. Increasingly, such modalities have appealed to the US population because of some promising findings for improved health and wellness (Gebhardt & Crump, 1990). The concept of health awareness enabled people to be more proactive and responsible for their own health. Wellness programs, which surfaced decades ago, offered incentives to employees who chose to live healthier lifestyles and included initiatives such as weight loss and smoking cessation programs (Erfurt, Foote, & Heirich, 1992).

Other venues beyond the work setting also began in the 1990s to promote health and wellness programs for populations. Research reinforced the value of wellness programs by showing that they could improve health and, in some cases, reverse chronic conditions. Many occupational settings,
such as community and state health departments, hospitals, universities, and schools, began to promote healthy lifestyle programs to gain long-term health benefits (Institute of Medicine of the National Academies [IOM], 2005; National Institute for Health Care Management Research and Educational Foundation, 2011).

As a result of strong public interest in natural treatment modalities, two governmental entities emerged: NCCAM in 1999, formerly known as the Office of Alternative Medicine [OAM], and the White House’s Commission on Complementary and Alternative Medicine Policy in 2000. This commission was formed to aid in the creation of public policy regarding CAM and served as a beneficial force in assisting the public’s safe and efficacious use of CAM (Health and Human Services, n.d.).

President Clinton appointed several physicians, nurses, PhDs, and CAM providers to serve on the White House’s Commission on Complementary and Alternative Medicine Policy. Both the NCCAM and the White House’s Commission were intended to make recommendations and advise on public policy regarding the safety and efficacious promotion of products labeled as CAM. The NCCAM proved, over time, to be the most important initiative that gave scientific credibility to CAM therapies. Currently, the NCCIH (2015a) promotes the development of scientific evidence that will “inform decision making by the public, by health care professionals, and by health policymakers regarding the use and integration of complementary and integrative health approaches.”

Ultimately, the White House Commission introduced several guidelines in regard to CAM, including documented findings from research to support CAM use, product efficacy and safety for CAM-associated treatments, access to proper training for medical providers practicing CAM statewide, and increased dialogue among CAM providers and physicians practicing Western medicine (IOM, 2005).

This chapter examines US behaviors related to CAIH therapies; however, it is important to note that developments regarding CAM practices are not germane to the United States and that in fact, these efforts mirror what is happening on an international scale. For example, the use of CAM modalities has risen by 40% in patients with chronic illness and in primary care worldwide (Ben-Arye & Visser, 2012). The World Health Organization (WHO) reported that 70% to 80% of the population use CAM as their primary form of medicine (WHO, 2013).

To respond to the growing use of CAM practices around the world, WHO developed the WHO Traditional Medicine Strategy 2014–2023. In the document, the terms traditional medicine (TM) and complementary
medicine (CM) were combined under the acronym T&CM. This strategy was developed as a result of the World Health Assembly resolution WHA.62.13 on traditional medicine to help nations around the world acknowledge “the potential contribution of TM to health, wellness and people-centered health care; (and promote) the safe and effective use of TM by regulating, researching, and integrating TM products, practitioners, and practice into health systems, where appropriate” (WHO, 2013, p. 11).

**Use of CAM in the United States**

Over the past few decades, the use of CAM has become increasingly appealing for US consumers, as documented by the National Health Interview Surveys (NHIS). The 2012 NHIS is currently the most comprehensive source of data on complementary and integrative health use in the United States. The NHIS Surveys are conducted by the National Center for Health Statistics from the Centers for Disease Control and Prevention. The surveys from 2002, 2007, and 2012 report data on CAM use among US populations (NCCIH, 2015b).

According to the NHIS, in 2012, 33.2% of US adults used complementary health approaches; the rates were 35.5% in 2007 and 32.3% in 2002. For children, the 2012 NHIS showed that 11.6% of US children aged 4 to 17 used complementary health approaches; in 2007, 12.0% used them. Aggregate results from a sample of 88,962 adults aged 18 and above in the 2002, 2007, and 2012 NHIS showed that the most common complementary health practice used among adults in the United States is natural products, such as nonvitamin, nonmineral dietary supplements (17.7% in 2012 and 2007; 18.9% in 2002), followed by deep-breathing exercises (10.9% in 2012; 12.7% in 2007; 11.6% in 2002). Yoga, tai chi, and qi gong were used by 10.1% of adults in 2012, 6.7% in 2007, and 5.8% in 2002 (NCCIH, 2015b).

The 2002 and 2007 surveys examined CAM use over a 12-month period. They showed an increase of 2.3% over a 2-year period for use of CAM therapies (from 36% to 38.3%) among adults ages 18 or older (NCCAM, 2008, 2013a).

The National Institutes of Health (NIH) reported in 2008 that approximately 12% of children in the United States were using a variety of complementary and alternative medicine treatments (Barnes, Bloom, & Nahin, 2008). Similarly, the National Health Survey reported that 38% of US adults used CAM therapies (Goldbas, 2012).

Data obtained by the NHIS indicated that there has been a substantial increase in out-of-pocket expenditures for self-care CAM therapies by US adults (Nahin, Barnes, Stussman, & Bloom, 2009); however, even
more compelling was the fact that 629 million visits were made to CAM providers, which is an exceptionally high number compared to the 386 million who sought traditional medical services from primary care physicians annually (Gaylord & Mann, 2007). Another survey in 2007 found that 40% of Americans were using some form of CAM therapies (Nahin et al., 2009). Data compiled from 15 national centers for CAM show that consumers utilized such therapies largely based on their perceived positive effects and outcomes (Gaylord & Mann, 2007). Yet these are not the only motivators. According to research, consumers rate CAM therapies favorably as prevention tools and indicate that some therapies could be utilized safely to treat medical conditions (Gaylord & Mann, 2007).

It has been suggested that those who utilize CAM practices hold holistic values and beliefs because of their view of health from an integral perspective. Furthermore, those who use CAM are more likely to favor it, because it incorporates a health focus rather than an illness focus. CAM modalities increase the likelihood of improved outcomes, and CAM is effective for specific health problems, particularly chronic illnesses. Some of the chronic illnesses cited in the literature include cardiovascular disease, arthritis, and diabetes (Gaylord & Mann, 2007). The most frequently used CAM therapies are relaxation techniques, herbal medicine, massage therapy, and chiropractic services, which made up 42% of US patient consumption of CAM interventions (NCCAM, 2008).

**Factors Leading to Increased Use of CAM**

It is clear that CAM use is no longer contained to one small, well-defined segment of the US population. Studies have reported the use of CAM therapies among diverse socioeconomic, age, gender, and ethnic groups (NCCAM, 2008).

According to Clarke et al. (2015) in their discussion of trends in the use of complementary health approaches in the United States between 2002 and 2012, nonvitamin, nonmineral dietary supplements remained the most popular complementary health approach used. Yoga, tai chi, and qi gong use increased linearly in the three NHIS surveys in 2002, 2007, and 2012, with yoga accountable for an estimated 80% of the use prevalence.

Clarke et al. (2015) revealed that age and education are factors associated with an increased use of CAM. Older and more educated populations are more likely to use CAM. Between 2002 and 2012, an estimated 18.6% of adults with less than a high school diploma reported CAM use in 2002, and the figures were 18.9% in 2007 and 15.6% in 2012; 26.6% of adults with a high school diploma or equivalency diploma reported CAM use in 2002, 28.1%
in 2007, and 24.4% in 2012; 35.6% of adults with some college education reported CAM use in 2002, 41.3% in 2007, and 36.5% in 2012. In addition, 42.1% of those with a college degree or higher reported CAM use in 2002, 46.7% in 2007, and 42.6% in 2012 (Clarke et al, 2015). The remainder of this chapter focuses on data from the 2002 and 2007 NHIS. Later chapters in this book will present information reported by the 2012 NHIS.

According to the 2007 NHIS, women were more frequent CAM users, as were those with higher education levels and socioeconomic means. Data on the ethnic distribution of CAM use in the United States identified American Indian/Alaska Native CAM use to be as high as 50.3%, with Caucasians the next highest at 43.1%, followed by Asians at 39.9%, and Blacks and Hispanics at 25.5% and 23.7%, respectively (NCCAM, 2008).

Other groups in the United States that practice CAM do so because of their strong ancestral ties to these practices. These practices are often the only intervention individuals may know or are willing to consider. Some of these ancestral practices include traditional Chinese medicine, Indian ayurvedic medicine, herbal medicine, and shaman consultations. The association between ancestral practices and CAM exemplifies the strong CAM use among ethnic minority groups in the United States (NCCAM, 2008).

Early factors leading to the increased use of CAM were related to economic means, cultural predisposition, and specific health mind-sets; however, overall, contemporary CAM use seems to be moving away from patterned use toward a dispersed use that ranges from the elderly to the college age; from the highly educated to the less educated; from the higher socioeconomic groups to lower socioeconomic groups; and from migratory to American-born groups (Astin, 1998; IOM, 2005; NCCAM, 2007). The motivation for CAM use may vary from group to group. For example, immigrant individuals may use CAM simply because it is what they are familiar with and what they have access to. Asian Americans may favor traditional Chinese medicine practices that include acupuncture and acupressure because of previous positive cultural exposure to these practices (Astin, 1998; Synovitz & Larson, 2013).

As morbidity and mortality rates from chronic illnesses, such as diabetes, hypertension, and arthritis increase in the United States, many patients continue to look for therapies that improve health (Marks, Murray, Evans, & Estacio, 2011). Patients aspiring to improve their overall health may rely on CAM as a treatment option. For example, many of the current biomedical therapies do not manage chronic pain successfully. Several studies have shown yoga, acupuncture, massage, guided imagery, and chiropractic to be effective in pain relief (Goldbas, 2012).
Additionally, CAM therapies offer the autonomy element, which allows the patients to make informed decisions and choices in the management of their health. The integration of these methods promotes well-being and can lead to improved health (Marks et al., 2011). Early researchers on CAM, such as Kaptchuk and Eisenberg (1998), described four reasons that motivated use among the general public. The first reason is the association of CAM with natural and holistic methods of treatment. Many people today want to manage their health and disease patterns naturally, and they find in CAM an option to achieve this goal. Second is the concept of vitalism, or the belief that the body is capable of returning to optimal health naturally and through its own internal mechanisms. This perception supports the idea that energy from the body allows natural healing from within and that it is this natural ability that restores good health. Third is the concept of alternative medicine as a science. Alternative medicine is described as holistic and connects the physical, mental, spiritual, and emotional components of health. Biomedicine or traditional medicine focuses on the treatment of each subsystem; in contrast, CAM aims to treat the clients and their health as a whole unit. Fourth is the aspect of spirituality, which is defined in terms of a balance between the physical and the spiritual experience. This idea allows clients to connect the scientific side of medicine to the more personal, religious, or spiritual side and to make a connection with what is natural in the universe (Kaptchuk & Eisenberg, 1998).

**Role of the Federal Government in CAIH**

The leading governmental organization for CAIH and CAM in the United States is the NCCIH, which as mentioned before, was known until December 2014 as the NCCAM. This center traces its origins to 1991, when the US Congress passed Public Law 102-170, which provided $2 million in funding for fiscal year 1992 to establish an office in the NIH to investigate and determine the scientific value of promising unconventional medical practices. In 1992, Dr. Joseph J. Jacobs was named the first director of the Office of Alternative Medicine (OAM). In 1993, the NIH Revitalization Act of 1993 (PL 103-43) officially established the OAM within the NIH to facilitate the study of complementary and alternative medical practices as well as to educate the public on the results of related research (NCCIH, 2015c).

In October 1998, the NCCAM was established by Congress under Title VI, Section 601 of the Omnibus Appropriations Act of 1999 (PL 105-277). This bill amended Title IV of the Public Health Service Act and converted the OAM into an NIH center. In May 2007, the NCCAM created a Complementary and Integrative Medicine Council Service at the NIH
Clinical Center. In December 2014, Congress authorized the change in the name of this organization from National Center for Complementary and Alternative Medicine to the National Center for Complementary and Integrative Health (NCCAM, 2013b; NCCIH, 2015c).

Another governmental organization related to CAIH and CAM is the Food and Drug Administration (FDA), which is responsible for the regulation of all medications, finished dietary supplement products, and dietary ingredients sold in the United States. The Dietary Supplement Health and Education Act (DSHEA) of 1994 regulates dietary supplements. The regulations for dietary supplements are not the same as for drugs and over-the-counter (OTC) medications. Two key considerations should be noted in regard to dietary supplements. First, manufacturers do not have to prove that their supplements work. This is in contrast to prescription drug and OTC medications, for which manufacturers are obligated to prove that the medications are effective for their intended use. In addition, the FDA simply requires dietary supplement manufacturers to assure the safety of their products and not make untrue claims about their efficacy (FDA, 2015b).

According to the FDA, if a manufacturer does make a claim, it must also provide wording that suggests that the claim has not been evaluated by the FDA and that the product is not intended to diagnose, treat, or cure disease. A worrisome consideration is that dietary supplements do not give warnings as to possible side effects, when they could potentially be harmful, what can be the effects on surgical procedures, and what could be the results if taken in combination with over-the-counter medications or prescription drugs (NIH, 2013). The Federal Trade Commission (FTC) also has the responsibility to monitor some elements related to CAM use, specifically the truthfulness of ads published via internet, television, radio and print media (NIH, 2013).

**The Affordable Care Act and CAM/CAIH**

The future of CAM/CAIH under the Affordable Care Act (ACA) does not seem to be altogether clear. Some sources indicate that CAIH therapies may be covered by healthcare plans due to the lobbying efforts of groups such as the Integrative Healthcare Policy Consortium (IHCPC, 2013), among others. It appears that CAIH coverage may be directly determined by state regulations.

According to the Non-Discrimination in Health Care Provision of the Affordable Care Act, Section 2706(a), Title XXVII of the Public Health Service Act, patients ought to be protected in their rights to choose among a variety of healthcare providers, such as naturopathic physicians
and acupuncturists. It also states that insurance plans cannot discriminate against providers who are acting within their scope of practice as determined by their licenses or certifications (American Association of Naturopathic Physicians, 2014; IHCPC, 2013).

Much of the future of CAIH inclusion and integration into the milieu of mainstream biomedicine in the United States may be based on two critical factors. First, CAIH interventions must establish their efficacy just as biomedicine has done and must do. Second, well-defined practice guidelines for research, for development, and for CAIH implementation must be established sustainably over time within society. For example, the addition of the OAM as an official branch of the NIH, within the Department of Health and Human Services in 1992, was an early step in the creation of a sustainable mechanism for the creation and dissemination of evidence about CAM. The establishment of the National Center for Complementary and Integrative Health will continue to provide guidance through the allocation of federal resources designed to conduct research that will guide decision making regarding coverage of CAIH and CAM practices under the ACA.

**Consumer Issues**

Ill people seeking any possible relief or cure are vulnerable to deception and are likely to use CAIH. The more serious the conditions, the more likely people are to use CAIH. If Western medicine has had very little benefit or no longer offers effective treatments, people tend to look for help elsewhere. These users of CAIH are more vulnerable to deception and misperception about the efficacy of these treatments. Consumers with chronic debilitating diagnoses, such as cancer, HIV, and diabetes, often use CAIH as a viable alternative.

These serious and chronic conditions have a high associated economic cost. This financial burden encourages patients to look toward CAM modalities as a hopeful and financially feasible possibility, which makes them more vulnerable to deception and misrepresentation (Gaylord & Mann, 2007).

Other groups that may be vulnerable to deception and misrepresentation are the poor and underprivileged groups within our society. These individuals may be vulnerable simply because they do not have access to the mainstream Western medical system, and their options are very limited. For example, new immigrants, minority groups, and lower socioeconomic groups have been found to be frequent users of CAM therapies. We do not know whether this comfort with CAM is due to preexposure or whether it is a simple manifestation of not having access to Western medical practices (Gaylord & Mann, 2007).
Quackery

Quackery, which is synonymous with health fraud, has been defined by the FDA (2015a) as:

[T]he deceptive promotion, advertising, distribution or sale of articles, intended for human or animal use, that are represented as being effective to diagnose, prevent, cure, treat, or mitigate disease (or other conditions), or provide a beneficial effect on health, but which have not been scientifically proven safe and effective for such purposes. Such practices may be deliberate, or done without adequate knowledge or understanding of the article.

The major conditions in the United States in which quackery is most prominent are treatments for cancer, Alzheimer’s, arthritis, and diabetes, as well as diagnostic tests, weight-loss products, and sexual performance products (FDA, 2009). Data from the FDA (2009) suggest that fraud and quackery attempts may in fact target many of the most vulnerable populations. In some cases, consumers are at risk of being taken advantage of monetarily and left without an intervention that offers any tangible benefit.

More worrisome, however, is that not only are people being taken advantage of financially, they also may be exposing themselves to unproven and damaging so-called “treatments” that may worsen their health status. Unproven treatments can cause physical harm and can leave patients physically impaired or even dead. For example, although shark cartilage was advertised as a natural cancer therapy, there is little to no evidence to support its effectiveness (FDA, 2009).

An example of these deceptive practices is illustrated in the case United States v. Syntrax Innovations, Inc. and described by the FDA (2008). In this case, a drug known as Triax Metabolic Accelerator was sold as a dietary supplement for weight loss. FDA scientists found that this drug represented a significant health risk because it contained triatricol, a potent thyroid hormone that is not classified as a dietary supplement according to the DSHEA and can carry a real risk for heart attack and stroke if not used properly. This case also brought class-action suits against three other dietary supplements that contained products not in compliance with DSHEA standards.

Box 1.1 presents some FDA recommendations to consumers in relation to CAM use. The FDA warns consumers that fraudulent products are not easy to identify and that it is important to consult with a doctor or healthcare professional before starting to use any new health product (FDA, 2013).
BOX 1.1 FDA TIPS TO HELP YOU IDENTIFY RIP-OFFS

- **One product does it all.** Be suspicious of products that claim to cure a wide range of diseases. A New York firm claimed its products marketed as dietary supplements could treat or cure senile dementia; brain atrophy; atherosclerosis; kidney dysfunction; gangrene; depression; osteoarthritis; dysuria (difficult urination); and lung, cervical, and prostate cancer. In October 2012, at the FDA’s request, US marshals seized these products.

- **Personal testimonials.** Success stories, such as “It cured my diabetes” or “My tumors are gone,” are easy to make up and are not a substitute for scientific evidence.

- **Quick fixes.** Few diseases or conditions can be treated quickly, even with legitimate products. Beware of language such as “Lose 30 pounds in 30 days” or “eliminates skin cancer in days.”

- **“All natural.”** Some plants found in nature (such as poisonous mushrooms) can kill when consumed. Moreover, numerous products promoted as “all natural” contain hidden and dangerously high doses of prescription drug ingredients or even untested active artificial ingredients.

- **“Miracle cure.”** Alarms should go off when you see this claim or others like it, such as “new discovery,” “scientific breakthrough,” or “secret ingredient.” If a real cure for a serious disease were discovered, it would be widely reported through the media and prescribed by health professionals—not buried in print ads, on TV infomercials, or on Internet sites.

- **Conspiracy theories.** Claims such as “The pharmaceutical industry and the government are working together to hide information about a miracle cure” are always untrue and unfounded. These statements are used to distract consumers from the obvious, common-sense questions about the so-called miracle cure.

*Source: Food and Drug Administration (2013)*.

In order to better serve their constituents, health educators and medical providers now recognize the need for CAIH training and to incorporate holistic concepts in their professional practice (Ben-Arye & Frenkel, 2008; Ben-Arye, Frenkel, Klein, & Scharf, 2008). Medical providers must improve their knowledge of CAIH therapies because of the high number of patients in the United States who utilize CAIH therapies. One out of every five persons in the United States has a disability. Many patients who experience disabilities are likely to use CAM therapies to augment their current medical treatment, to decrease the progression of their illness or comorbidities, and/or to keep their current health at its optimal level (Okoro, Zhao, Li, & Balluz, 2011). Accordingly, as patient use increases, providers must
be educated on CAIH therapies and how they can be integrated into a whole-treatment approach.

According to research reports, patients have a difficult time discussing their use of CAIH therapies with medical providers. While no literature exists, it is expected that the same holds true for discussions with health educators. Health educators are trained practitioners who promote individual and community health by planning, implementing, monitoring, and evaluating programs and interventions designed to improve health and encourage healthy lifestyles (National Commission for Health Education Credentialing, 2008). Health educators can serve as a source of information for individuals and communities on a variety of topics including CAIH. As more people are exploring the use and benefits of CAIH, health educators, like other healthcare professionals, must be knowledgeable about these healing modalities in order to educate the public they serve.

Research suggests that knowledge and usage of CAM by a group of clinical nurse specialists impacted their likelihood of recommending and integrating alternative treatments into their patient care. It was reported that those nurse specialists who used CAM personally were also likely to recommend it professionally. The therapies most recommended by clinical nurse specialists were humor and laughter, massage, prayer, acupuncture, and music therapy (Cutshall et al., 2010).

There are many reasons why patients may not be forthcoming with their provider regarding their CAIH use. Many patients feel it is not important for their provider to know or that the provider would not understand and/or would disapprove of their alternative therapy use. Some patients feel that the provider may discourage the use of CAM therapies (Ben-Arye et al, 2008). As a result, there is a need to further the patient-provider dialogue and enhance the partnership and trust that comes with shared care. Both of these factors—partnership in care and trust—would yield a more positive future outcome for patients (Gaylord & Mann, 2007).

Medical professionals have begun to incorporate the use of CAIH into their educational curriculum due to the increased interest and use of these therapies. Studies have shown that hospitals, medical programs, and insurance providers also have begun to increase their services in the area of CAM (IOM, 2005; National Institute for Health Care Management Foundation, 2011).

In May 2004, the Consortium of Academic Health Centers for Integrative Medicine began a foundation with the primary purpose of educating healthcare students in the area of CAM. As a result of the advocacy efforts of foundations such as the Consortium of Academic Health Centers, by 2010, 82 medical schools in the United States had incorporated CAM education...
into the curricula. The curricula in these programs includes theory, practice, and efficacy, and safety for patients (Bravewell Collaborative, 2010; Witt, Brinkhaus, & Willich, 2010). The proposed educational curriculum on CAM included different therapies and modalities and the integration of treatments in complementary and alternative medicine (Witt et al., 2010).

Other healthcare professions, such as psychology, social work, nursing, and pharmacy, have also begun to incorporate CAM education in their core curriculum (Tiralongo & Wallis, 2008). The objective of this education for healthcare providers is to increase their medical knowledge of CAM practices and to help them become comfortable with patient inquiries about CAM therapies. An ultimate goal is to enhance the scientific knowledge among traditional CAM providers to improve overall patient health via an open dialogue in which the client feels safe in disclosing CAM-related behaviors (Gaylord & Mann, 2007).

**Limits and Controversies**

Although CAIH use continues to grow among the general public, there is a lack of continuity and collaboration on the regulation, use, and efficacy of CAIH treatments among the medical community, patients, and policymakers. Concerns have been expressed regarding the use of CAM and its effects on doctor-patient communication (Ben-Arye & Visser, 2012; Zhang, 2012). These challenges sometimes put patients and medical providers at odds with each other.

Patients may have compelling reasons for using CAM modalities. For example, one reason for CAM use is patients’ dissatisfaction with Western medical approaches and their lack of a holistic emphasis on prevention and wellness (Gaylord & Mann, 2007). Most consumers want a treatment that does not focus solely on the illness but also on the psychological and social aspects that affect pathological processes. In addition, patients may be disappointed with the adverse side effects of mainstream treatments and their lack of efficacy. Yet the counterargument of using CAM approaches points to an ongoing controversy. Many CAM modalities lack strong empirical evidence to support their use. Health professionals, including health educators, need to find a balance in which cultural and scientific evidence are acknowledged and valued.

Another reason mentioned by patients who seek CAM treatments is the perception of autonomy that CAM gives them in managing their own symptoms. When using these modalities, patients feel they have more control over their health and their choices. In contrast to this perceived autonomy, patients may feel that the Western medicine approaches, which are based on the medical model, are the driving force in the delivery of today’s
healthcare in America (NCCIH, 2015d). Since most healthcare providers have been trained in the medical model, providers usually must struggle to find a middle ground between advocating for scientific approaches and acknowledging the value of CAM modalities.

Due to their dissatisfaction with Western approaches and a desire for holistic interventions, healthcare consumers often do not share their use of CAM with their providers, believing they could respond negatively to their use of alternative medicine therapy (Zhang, Peck, Spalding, Jones, & Cook, 2012). Patients also state that the physician’s lack of CAM knowledge hinders patients’ willingness to disclose CAM use. In addition, medical providers often do not ask if their patients are using CAM therapies, nor do patients believe that medical providers support the use of these therapies (Gaylord & Mann, 2007).

Patients today are more knowledgeable about their medical conditions and treatment options due to the Internet and social media. For this reason, there is a need for continued efforts toward educating the medical community, health educators, and consumers on appropriate sources of information. An increase in communication between allopathic medical providers, CAM providers, and patients is imperative to build partnerships based on a comprehensive understanding of the healthcare goals of both patient and primary-care providers (Ben-Arye & Vissar, 2012).

One of the major controversies surrounding the use of CAILH is the lack of evidence-based research to support its efficacy. The gold standard in biomedical research has been testing through the scientific method; however, this is not always possible with CAILH. Health educators and other healthcare practitioners ask whether research on CAILH therapies can be performed at the same level of safety and efficiency as research in biomedical therapies. The answer to this question is that in some cases it can, but in other cases it cannot because it will take major efforts to compile evidence. For example, according to Holt (2011), it can take around 10 years from the time regular research findings are published to the time they become a part of practice. In the case of CAM therapies, it can take even longer.

Not all research has supported the efficacy of CAM, particularly in the area of herbal medications. There is a very rapid growth in the use of herbals (Kraft, 2009). Thus, an increasing number of providers will encounter patients utilizing herbal medicines in all clinical settings (Zhang et al., 2012). Similarly, herbal medications can interact with Western medications that patients are taking for their medical conditions (Kraft, 2009). Finally, many herbal medications have been shown to contain impurities, such as contaminants and long-term toxins (Kraft, 2009), and are advertised
falsely. In addition, many herbal medications have been shown to contain contaminants not found in conventional Western medications, such as toxic metals, pesticides, and microbes (Zhang et al., 2012). For example, the FDA (2014) has stated that US manufacturers of dietary supplements often do not meet standards in various ways. In addition, as mentioned, most CAM therapies are not regulated by the FDA.

The efficacy of many CAM therapies has been tested through randomized clinical trials (RCTs) and meta-analyses. Evidence points to some CAM therapies, such as the regular use of Omega-3, as being as safe and effective as medical therapies. CAM therapies usually cost less than conventional medications, ultimately decreasing the cost of healthcare in general (Holt, 2011).

In many cases, there is mixed or a lack of empirical evidence surrounding CAM therapies. Given the multitude of resources that show continued growth in CAM use, simply dismissing all of these therapies prematurely as being ineffective may do a disservice to patients (Holt, 2011).

Bridging the Gap

Bridging the gap between CAIH and Western medicine most likely requires work in three major fronts: (1) research on the efficacy of widely used CAIH interventions since currently there is not enough evidence; (2) education of both healthcare professionals and customers on the use of proven CAIH practices; and (3) a paradigm shift that allows for a collaborative plan of care including an integrated approach of CAIH and Western medical practices. Individuals often integrate CAIH therapies with Western medicine; however, on many occasions that integration happens without the knowledge and collaboration from the healthcare provider. A paradigm shift would allow for an integrated approach that actively involves patients and healthcare providers, hence reducing the likelihood of negative effects.

An important step is to create a collaborative dialogue between governmental and public agencies to develop initiatives that promote a reduction of the gap between the increasing use of CAM and the limited data supporting its efficacy (Segar, 2012; Synovitz & Larson, 2013). Gaylord and Mann (2007) suggested that there is a high growth rate in the area of CAM intervention research. For instance, a portion of the NIH budget is now allocated to the NCCAM (now known as the NCCIH), to perform further research on the efficacy of CAM interventions. Segar (2012) and Gaylord and Mann (2007) concluded that although there is a tremendous growth in CAM research, there are continued concerns as to whether
evidence-based research through RCTs is an appropriate model to use with CAM modalities. Some believe that because RCTs are the gold standard in drug research, they also should be used in CAM research; however, other experts believe there are many reasons that CAM does not lend itself to RCTs. It is suggested that the placebo effect plays a strong role in CAM and that many of these therapies are perceived to be effective as a result of the placebo effect. The NCCIH plays a vital role in bridging the gap between CAIH and Western medicine. This center was created to define, with rigorous scientific investigation, the efficacy and safety of complementary and integrative health approaches (NCCAM, 2013a, 2013b). In addition, the center seeks to improve health and healthcare for the public who utilize CAIH practices and approaches. The center is working to fulfill its vision that scientific evidence informs decision making by the public, by healthcare professionals, and by health policymakers regarding the use and integration of these approaches (NCCAM, 2013a, 2013b). This institution represents the most organized government-supported effort to promote the safe and efficacious use of CAM modalities (Gaylord & Mann, 2007).

The NCCIH is closing the gap between CAIH and Western medicine, specifically in several key areas, including evidence-based research, public and provider education, and research agendas at home and abroad that incorporate scientific methodology. Finally, the center plays a critical role in disseminating current information regarding CAIH practices through research funding and publication of up-to-date information (NCCIH, 2015a).

With an organized infrastructure to promote research and disseminate it, the NCCIH will continue to create critical mechanisms to bridge the gap between traditional and Western medicine by stimulating research initiatives, training holistic care providers and Western medicine providers, and educating consumers. As the ACA is implemented, the NCCIH will most likely remain the major inspector and advocate for the successful promotion and protection of patients’ options to use Complementary and Integrative practices and to be reimbursed for their use.

According to Gaylord and Mann (2007), critical education initiatives must be implemented. The first is to broaden core competencies attached to medical schools’ curricula as they relate to CAIH practices. As discussed earlier in this chapter, some medical and nursing programs now include curricula related to CAM alongside allopathic training. In many cases, CAIH is linked to cultural competency, although this practice may be misleading since it stereotypes the use of CAM modalities and may not indicate that it is used by wide segments of the population. More curricula need to be developed on CAIH.
Another way to bridge the gap is increased communication between allopathic and CAIH practitioners. Improved communication should protect against the risk of drug interactions and negative effects that may result from the concomitant use of CAIH and Western medical practices. For example, better communication among patients, Western medical providers, and CAIH providers would avoid negative effects derived from the simultaneous use of prescribed and herbal medicines. Sometimes these two types of medicines may interact in a harmful manner.

In addition to the ongoing efforts to educate healthcare providers in medical schools about CAIH practices, there is also a drive to improve the communication between providers and patients. Both CAIH and conventional providers need to learn to be open and share information with respect to patient care, which will result in a significant improvement in customers’ health status and the rapport built with the healthcare provider.

**Caveat Emptor**

Cognitive biases—emotional or psychological predispositions to utilize or support certain practices, in this case CAIH practices—can be quantified as a cultural exposure, a mainstream-media effect, and a health behavior preference (Gaylord & Mann, 2007). Cultural perspectives and personal experiences are major reasons cited as factors biasing individuals toward the use of CAM. Those healthcare consumers who are predisposed to use CAM interventions may have had a cultural experience that exposed them to such treatment. These individuals are more likely to support the use of CAM approaches in the future once they are integrated into mainstream healthcare (Cutshal et al., 2010). For example, American Indians on reservations who utilize Western medical facilities and recent Hispanic immigrants to the United States both use traditional cultural practices that are labeled as CAM modalities by mainstream practitioners (Gaylord & Mann, 2007). Therefore, cultures in which CAM usually is practiced tend to be more frequent users of CAM interventions. This may be true in part because of their predisposed cognitive bias to look favorably toward CAM based on past experience.

In addition, another practical reason CAM use has grown exponentially is due to media’s role in developing a particular mind-set toward health practices in general. For example, the NIH and the Centers for Disease Control and Prevention have developed websites that contain a variety of resources to help consumers make informed decisions. The creation of these resources has been prompted by the increasing volume of information on the Internet regarding CAM therapies (NCCAM, 2013a).
Research about medical conditions and treatments once accessible only to physicians through medical journals is now accessible to the general public through media and the Internet. This exposure has catapulted the general public’s understanding of healthcare options, such as CAM therapies. This relationship between growing media exposure and the ideas of quicker and promising natural treatments most likely has created a cognitive bias in the population. Many healthcare practitioners believe this cognitive bias is dangerous and consequently are developing educational programs to raise the general public’s awareness of the risks of magical thinking and unreliable media-induced bias (NIH, 2013).

Several authors have suggested that another major cognitive bias has to do with health behavior preferences (Kraft, 2009). People attracted to CAM modalities tend to be populations who already practice healthy behaviors. These individuals are attracted to CAM practices because of their real or perceived holistic nature. Healthy, holistic, and natural approaches to care have been spurred by the discussion on the negative impact of Western approaches. As the general public has become more aware of the negative side effects associated with Western medical treatments, CAM has gained more attention.

Currently, there is growing advocacy for the inclusion of CAM in the educational curriculum of new generations of healthcare providers. There is also a growing movement for a comprehensive research agenda that provides evidence on the efficacy of CAM practices. The process of including CAM in medical school curricula and creating stronger regulatory standards must be formalized.

There is very little information on what will be covered under the ACA with regard to CAIH. Portions of the law, such as Section 2706, seem to indicate support for CAM coverage. In addition, while more research money is being allocated to study CAM practices, the traditional research designs, such as RCTs, are not always considered optimal for researching CAM therapies. A deeper discussion is needed as to how CAM would best be researched and what would be the best practice for integrating it into medical school and allied health curricula. Therefore, there is uncertainty as to the best practices for CAM research and didactic integration as well as a consistent and strong political support under the advent of the ACA (Integrative Healthcare Policy Consortium, 2013; Mader, 2013; Weeks, 2012).

Given these factors, the assurance that CAIH will continue to be integrated with mainstream medicine depends on the successful political support for an organized and comprehensive research agenda, the creation of formal educational standards, and the development of mechanisms for
healthcare reimbursement for complementary, alternative, and integrative health practices.

**Conclusion**

*Complementary, alternative, and integrative health* (CAIH) is a term that can be used to denote the current complementary, alternative, and integrative approaches to prevent and manage disease and to maintain or restore health and wellness. The term *complementary and alternative medicine* (CAM) has had a historical significance but is now outdated since the name change of the National Center for Complementary and Alternative Medicine to National Center for Complementary and Integrative Health. Never before has there been a more organized initiative to integrate Complementary, Alternative, and Integrative Health (CAIH) into mainstream society and medicine. This initiative requires stronger regulatory standards for CAIH practices and more inclusive approaches. This chapter explored the reasons why patients and consumers engage in CAIH practices. It provided a contemporary overview of CAM and a cursory discussion of modern controversies surrounding its use. In addition, this chapter addressed the need for healthcare providers’ education on the risks and benefits of CAIH, as they serve as primary resources for their patients.

**Summary**

- With the name change of the National Center for Complementary and Alternative Medicine (NCCAM) to National Center for Complementary and Integrative Health (NCCIH) in December 2014, a need for going beyond the term Complementary and Alternative Medicine (CAM) has arisen. The term *complementary, alternative, and integrative health* (CAIH) may be more appropriate, as it emphasizes health and wellness.
- Health educators and other healthcare practitioners are finding that many of their patients are exploring more self-regulated and less-expensive options afforded through CAIH.
- There is an increasing need to educate healthcare providers on CAIH modalities.
- The NCCIH, a subdivision of the National Institutes of Health, emphasizes the importance of incorporating complementary and integrative modalities with biomedicine in a safe and effective manner (NCCIH, 2015a).
• Understanding the role of CAIH in everyday treatments can be a powerful tool for practitioners. CAIH therapies can be instrumental in disease prevention and treatment. Many patients show an increased preference for CAIH practices (NCCAM, 2008).

• The integration of CAIH modalities by healthcare providers does not necessarily indicate acceptance, but rather indicates an overall willingness to allow patients to have more autonomy and control over their care.

• Research indicates that consumers rate CAM therapies favorably for use as prevention tools. People who utilize these approaches are likely to have holistic values and beliefs. Some CAM therapies can be utilized safely to treat specific medical conditions, while others can pose risks to health.

• Healthcare professionals have begun to incorporate CAM into the curriculum for training future practitioners due to patients’ increased interest and use of CAM modalities. Studies have shown that hospitals, medical programs, and other interested parties have begun to increase their CAM services; however, more CAM curricula should be developed.

• It is important to instruct patients on FDA guidelines for protection when they use complementary and alternative products.

**Case Study**

**Description**

Chris is a 16-year-old high school junior. He currently is one of the highest-scoring athletes on his basketball team. Chris feels that wearing a balance wristband will give him increased strength, balance, and coordination. The wristband claims to work synergistically through the user’s natural energy. Chris and his basketball friends ordered balance wristbands on the Internet.

**Questions**

1. What concepts or topics should be discussed with Chris about the CAIH modality he is using?

2. As a medical professional, would you share any personal bias you have about the product with Chris? Why or why not?

3. What valid resources or reputable websites would you give Chris for further education and information?
KEY TERMS

**Affordable Care Act.** Federal statute signed into law in March 2010 that contains two parts: the Patient Protection and Affordable Care Act (PL 111-148) and the Health Care and Education Reconciliation Act of 2010 (PL 111-152), intended to expand medical coverage to millions of economically challenged Americans and to make improvements to multiple programs, such as Medicaid and the Children’s Health Insurance Program (CMS, n.d.).

**Allopathic.** Conventional medicine, also known as Western medicine (NCCIH, 2015a).

**CAIH (complementary, alternative, and integrative health).** Term used to denote complementary, alternative, and integrative approaches to prevent and manage disease as well as to maintain or restore health and wellness. This term is congruent with the 2014 name change of the National Center for Complementary and Alternative Medicine to National Center for Complementary and Integrative Health (NCCIH, 2015a).

**CAM (complementary and alternative medicine).** It refers to therapies not usually taught in US medical schools or generally available in US hospitals. They include a broad range of practices and beliefs, such as acupuncture, chiropractic care, relaxation techniques, massage therapy, and herbal remedies. They are defined by the National Center for Complementary and Integrative Health as a group of diverse medical and healthcare systems, practices, and products that are not generally considered to be part of conventional medicine (NCCIH, 2015a).

**Cognitive biases.** Tendencies to make decisions based on attachment to past experiences (Taylor, 2013). In this chapter, cognitive biases relate to experiences that would wrongfully change an individual’s thought process toward using CAM.

**Vulnerable groups.** In regard to CAIH use, these groups include populations most likely to be taken advantage of because of serious chronic conditions. It also includes groups such as non-English speakers, children, or persons who are illiterate (NCCAM, 2012).

References


National Institute for Health Care Management Research and Educational Foundation. (2011, May). Building a stronger evidence base for employee wellness programs. Final document of meeting brief. Retrieved from http://r.search.yahoo.com/_ylt=AwrSbgwe8JNW9BEA4zJXNyoA;_ylu=X3oDMTByb2lvbXVuBGNgG8DZ3ExBHBwcwMxBHZ0aWQDBHNlYwNzcg--/RV=2/RE=1452564639/RO=10/RU=http%3a%2f%2fwww.nihcm.org%2fpdf%2fWellness%2520FINAL%2520electronic%2520version.pdf/RK=0/RS=jBX9fIjDA5XIIE.rb3lxBOAqYY-


