Introduction

Religion and medicine were intertwined throughout most of human history. The wise men, scribes, and rabbis of ancient Israel concerned themselves with bodily healing as did India’s gurus, ancient Greece’s philosopher-physicians, and the shamans of traditional societies the world over (McNeil 1951; Clebsch and Jaekle 1975). Virtually every human society has accorded special status to practitioners of what is often called the ‘cure of souls’—that is, healing actions rooted in ‘the resources, wisdom, and authority of religion’ (Clebsch and Jaekle 1975: 5). Practitioners of the cure of souls have historically engaged in curative activities over and beyond physical healing. They have also concerned themselves with sustaining (i.e. providing support during periods of crisis), guiding (i.e. counselling and providing advice), and reconciling (i.e. restoring broken relationships) troubled persons whose troubles are thought to arise in the contexts of ultimate meanings and concerns (ibid., 4).

The fact that medicine (as practised in accredited hospitals or clinics reimbursed by governments or private insurance) is today almost completely divorced from specifically religious practices reminds us that healing is a profoundly cultural activity. Labelling a disease and prescribing treatment express a healer’s commitment to a particular set of beliefs about the physical universe—beliefs that go to the very core of a culture’s conception of the forces governing the universe. The notion of orthodoxy thus pertains to medical systems as much as it does to religious or political traditions. A given medical system will be considered culturally orthodox precisely to the degree that its assumptions about the causality of illness cohere with the era’s prevailing worldview. Thus insofar as academic institutions and governmental agencies throughout the world have abandoned belief that supernatural agencies exert causal influence in everyday life, the boundaries of medical practice have been redrawn. Healing practices that operate on the basis of overtly religious conceptions of disease now find themselves outside the boundaries of medical orthodoxy (which is defined by the scientific traditions underlying biomedicine).

The emergence of a secular core of physicians throughout both Europe and North America who heal without regard to the resources, wisdom, and authority of religion did not happen by accident. There were human actors who pursued strategies carefully designed to banish competitors—including religious competitors—from the institutional structures of an
Robert C. Fuller

emerging medical science. Their strategies make for fascinating cultural history because they forced proponents of ‘secular’ medicine both to articulate culturally compelling explanations of the ‘true’ cause of human suffering and to smear competing causal theories by proclaiming them to be some form of pseudoscience. Combating non-scientific conceptions of disease was one of the principal means by which modern-leaning physicians demarcated and defended the theoretical boundaries separating them from their competitors. In this sense ‘pseudoscience did not simply run afoul of scientific orthodoxy—it helped to create such orthodoxy’ (Numbers and Thurs 2011: 284). By the early twentieth century religious considerations of healing had been almost completely expelled from the various realms of medical orthodoxy (e.g. accredited medical schools or hospitals), though religious ideas and beliefs continue to guide many forms of sustaining, counselling, and reconciling that transpire on the periphery of medical orthodoxy (e.g. pastoral counselling or hospital chaplaincy).

What makes the historical process whereby biomedicine progressively expelled religious healing all the more fascinating is that many forms of unorthodox medicine—now often referred to as ‘alternative’ or ‘complementary’ rather than unorthodox—have recently found their way back inside some of the social and economic structures that ensure professional viability (Goldstein 1999; Ramsey 1999; Johnston 2004; Bivens 2007). Both government and private health insurance agencies across the world have made some accommodation to patients’ desires to avail themselves of healing practices that fall outside the theoretical boundaries of medical science. And, more fascinating still, many of these healing practices have managed to return religious conceptions of health and healing back into the general public’s vocabularies of twenty-first-century healing practices even though these conceptions remain problematic within the realm of biomedicine.

The rise of medical science: cultural history and conceptions of causality

Even the most learned individuals in the ancient world knew nothing about germs, viruses, or bacteria. Most thought that disease was due to spirit intrusion. Thus, for example, first-century writers dramatized their faith in Jesus’ spiritual powers by likening him to the era’s healers who claimed the power to discern and cast out the spirits thought to be responsible for such debilitating ailments as paralysis or blindness. The New Testament reflects the era’s dominant worldview or episteme by providing dramatic accounts of Jesus’ ability to heal by casting out demons. Supernatural conceptions of illness and healing were thus a central feature of the Christian church’s ministry (Porterfield 2005). To this day Roman Catholic priests are ordained with the power to perform exorcisms as a continuation of the early church’s institutionalization of Jesus’ supernatural healing abilities (Kittle 1978: 194–215; Clebsch and Jaekle 1975) and some fundamentalist Protestant sects still spawn faith healers who claim to heal in supernatural ways grounded in New Testament narratives.

Historian Henri Ellenberger notes how a showdown between a Bavarian priest by the name of Johann Joseph Gassner (1727–1779) and Viennese physician Franz Anton Mesmer (1734–1815) symbolized a major shift in Western understandings of medicine (Ellenberger 1970). Ordained with the powers of the Roman Catholic priesthood, Gassner was believed to have healed thousands of people by casting out the demons ostensibly responsible for their ailments. Mesmer, however, considered himself a champion of Enlightenment science. Mesmer believed he had discovered the presence of a superfine fluid or energy that had previously eluded scientific notice. He referred to the invisible fluid as animal magnetism and postulated that it permeated the physical universe. Mesmer deduced that sickness results
whenever individuals are deprived of a continuous inflow of animal magnetism into their physical systems. He further claimed to have discovered techniques for putting patients into trancelike states in which they become especially receptive to the inflow of this vital and health-bestowing energy. Mesmer argued that exorcists such as Gassner had been unknowingly healing through the use of animal magnetism all along. His science of animal magnetism rendered religious references to spirit possession and divine intervention obsolete. Mesmer had publicly charged Gassner with propounding now-outmoded superstitions about the cause of disease. In the court of the educated public’s opinion, the kinds of arguments that Mesmer made won (Ellenberger 1970).

A few decades later, both Mesmer and his theory of animal magnetism had fallen into scientific disrepute. But the tide had nonetheless turned. From this time forward university-educated physicians would attempt to explain both illness and healing in empirical, scientific terms. The example of Mesmer’s science of animal magnetism shows that scientific medicine is not necessarily more ‘rational’ than religious healing practices. Strictly speaking, any healing system is rational insofar as its methods of treatment are logically entailed by its fundamental premises about the causal sources of disease. We therefore need to recognize at least three different types of explanations that could ‘rationally’ be used to describe the cause of disease: physiological, mental/attitudinal, and supernatural (i.e. caused by the activity of entities or forces that are considered to be both extrasomatic and more-than-worldly). The shift that was occurring in Western culture was thus not so much about becoming more rational as it was about focusing its conceptions of medical causality on physiological (and to a lesser extent mental/attitudinal causes insofar as these can be empirically implicated in psychosomatic interaction) sources of disease.

Cultures are based, at least in part, on epistemes or paradigms that define what is real or what can exert causal influence. What we today know as biomedicine emerged alongside the gradual secularization of the epistemes or paradigms that guide scientific reasoning within the academic institutions that have played such an important role in shaping contemporary understandings of the powers or forces that affect human wellbeing. Even if Ellenberger’s identification of the medical debates surrounding Mesmer’s ‘triumph’ over the church’s historic supernaturalism exaggerates its actual historical significance, it helpfully draws attention to the way that the Enlightenment ushered in a new episteme which forefronts the physiological causes of illness and healing. As this new episteme gradually gained prominence throughout the academic world, medical theory had to become anchored in empirical, scientific discourse about the physiological causes of disease or risk being deemed a form of pseudoscience.

The rise of epistemes or paradigms that privileged ‘physiological-cause’ understandings of healing simultaneously encouraged religion to turn its attention away from healing and to concentrate instead on the other three curative functions of sustaining, guiding, and reconciling. The boundaries between religious and medical healing were thus gradually redrawn. The proper sphere of medical science—especially insofar as medical science was understood and taught in secular universities—was now understood to be that of treating the direct physiological causes of illness (what Aristotle would have termed the material and efficient causes of disease) while religion was deemed more properly concerned with indirect causes of disease such as individuals’ attitudes and emotional wellbeing. And thus, for example, most proponents of biomedicine and most Western religious officials are comfortable with a division of labour whereby medical doctors are entrusted with healing people’s physical bodies while clergy and hospital chaplains continue such traditional curative activities as sustaining, guiding, and reconciling (Klassen 2011).
Professionalization of scientific medicine

The historical process whereby biomedicine emerged as the dominant or orthodox form of medical practice was long and complicated. Even into the nineteenth century, science-aspiring healers struggled to identify the fundamental cause(s) of diverse physical ailments. It must be remembered that it was not until 1876 that Pasteur and Koch finally discovered the role of microorganisms in producing disease. Nineteenth-century physicians did not—in fact, could not—concern themselves with diagnosing the specific causes of disease. Medicine was instead thought to be a more or less empirical effort to discern regular patterns in the way that the body interacts with the physical environment. Health was equated with equilibrium in these interactions. Disease was thought to arise when the equilibrium between the body and its surroundings was in some way disrupted. What was often termed ‘regular’ medicine consequently amounted to a set of procedures (e.g. bloodletting or the use of drugs that induced vomiting or diarrhoea) for regulating the systems of ‘intake’ and ‘outflow’ whereby individuals assimilate or discharge substances from the environment (Rosenberg 1979).

Steps toward more scientifically informed medical theories were taken after the 1830s as European medical schools such as those in Paris, Vienna, and Berlin forged increasingly sophisticated connections between medical lectures, laboratory study, and clinical practice (Rothstein 1987: 105; Brockliss and Jones 1997: 826). The invention of the stethoscope enabled physicians and patients alike to believe that empirically grounded diagnoses informed therapeutic practice. Discoveries in both anatomy and bacteriology were integrated into medical school curricula so that by the end of the nineteenth century orthodox physicians were immersed in both scientific theory and experimental methods. A few decades later medical science had discovered the roles of insulin, vitamin B12, thyroxine, and the bacteria-fighting power of sulfa drugs. Added to these advances were the discovery of new anaesthetics, surgical instruments, X-rays, and aseptic surgical techniques. This steady progression of information and technology underscored the public’s perception that the principal criterion differentiating modern medical science from its historical forebears was the possession of academically generated knowledge about the physiological causes of disease (Boyle 2013).

The emergence of biomedicine as the dominant or orthodox model of medical practice was also propelled by social and economic forces. Practitioners of ‘regular’ medicine were almost always males and tended to come from wealthier families. As a consequence, ‘regular physicians’ enjoyed greater social and economic status than other healers and their charges of quackery or pseudoscience were often fraught with the cultural politics of race, class, and gender. This fact alone enabled ‘regular physicians’ to gain advantage in early efforts to organize medical societies, establish medical schools, and enact regulatory legislation that would advance their professional interests (Warner 1986: 182). Although the stated objective of the regulatory legislation they advocated was to protect the general public from the harmful or simply fraudulent treatments offered by competitors such as Thomsonians or hydropathists, it didn’t escape public notice that such legislation was also designed to preserve their own preeminent social status (Shyrock 1967; Bynum and Porter 1987; Rothstein 1987). Overall, the creation of medical societies and the enactment of regulatory legislation enabled orthodox physicians to standardize medical practice and protect their preeminent cultural status. Both courts and elected officials occasionally eased or reversed these restrictions to ensure that citizens in a democratic society could avail themselves of any treatment they desire—but the steady secularization of medical practice continued (see the chapter by Mike Saks, this volume).
The proliferation of medical schools greatly enhanced the efforts of medical societies and regulatory legislation to solidify the boundaries of medical science. To be sure, medical school education during the nineteenth and even early twentieth centuries differed greatly from what we know today. At first curricula varied widely from school to school. Few required a bachelor’s degree. But, significantly, the very existence of medical schools served to standardize medical practice by the early twentieth century. New textbooks designed to complement the basic lecture sequence promulgated a common core of medical knowledge. And as the established medical schools finally endorsed the need for clinical training, they began entering into cooperative agreements with hospitals to establish internships and residencies. This intimate connection between medical schools and hospitals invariably affected who was allowed—or denied—full access to the major institutional settings associated with medical practice. Thus, without question, the physicians promulgating a physiological-cause outlook on health and disease had attained the status of medical orthodoxy by the beginning of the twentieth century.

Driving all of these activities was the insistence that scientifically generated knowledge was the defining characteristic of a medical doctor. Medical theory, more than any particular set of practices, differentiated medical doctors from other kinds of healers. From the 1870s onward, medical orthodoxy aligned itself with the knowledge spawned by the biological sciences. Advances in physiology, chemistry, and pharmacology lent ever-greater precision to both the diagnosis and the treatment of diverse diseases. Accompanying this reliance on knowledge generated by scientific disciplines was an implicit endorsement of a secularist and rationalist worldview (i.e. a worldview sceptical of claims concerning the supernatural or other indemonstrable influences). The experimental foundations of scientific medicine give it a ‘public’ character insofar as its theories arise through a series of statistically quantifiable and replicable studies. Its theories and therapeutic practices were thus more susceptible to empirical verification, and disputes could at least potentially be resolved by an appeal to observable and quantifiable sets of data. This is also why scientific medicine found itself more amenable than many of its competitors to the economic and legal institutions of modern governments. Government officials and private insurance executives charged with allocating limited economic resources can more readily justify policies that favour empirically grounded arguments of scientific medicine over and against treatments advanced without such empirical grounding.

Eric Boyle adeptly notes that while most historians of the medical profession highlight the roles played by licensing legislation, reforms in medical education, advances in biological science, and technological innovation in forming today’s medical orthodoxy, they have typically ‘undervalued the important role that combating quackery, and redefining the boundaries of therapeutic orthodoxy, played in establishing the modern medical profession as we know it’ (Boyle 2013: 16). Quackery meant many different things to nineteenth-century ‘regular physicians.’ Often the term was used to discredit competitors suspected of engaging in deliberately fraudulent practices solely for economic gain (Porter 1989). ‘Regular physicians’ also used this or similar terms to besmirch competitors’ social reputations for the purpose of enhancing their own income, status, and social power (Porter 2001). And, importantly, charges of quackery were first and foremost allegations that ‘irregular’ healing practices operated on pseudoscientific understandings of the causal sources of bodily illness. Failure to espouse scientifically grounded notions of causality was ipso facto grounds to be expelled from the boundaries of the medical establishment. As unequivocally stated in the 1957 version of Principle 3 of the American Medical Association’s (AMA) Principles of Medical Ethics: ‘A physician should practise a method of healing founded on a scientific basis; and he [sic] should not voluntarily professionally associate with anyone who violates this principle.’ This principle expressed the AMA’s professional stance toward alternative medical practices (especially chiropractic)
before it was revised in 1980 to acknowledge mounting pressure to cease exclusionary professional practices (Kelly 1997).

Policing the scientific status of rival healing systems is a form of boundary-posturing. Humans, like many other species, engage in behaviours designed to identify, maintain, and defend the territory claimed as their own. These behaviours intensify in the presence of threat—real or imagined. ‘Regular physicians’ found the continued presence of unorthodox healing practices sufficiently threatening to engage in an ongoing series of behaviours designed to identify, maintain, and defend the cultural territory they deemed biomedicine’s rightful domain. Historical perspective allows us to see how this boundary-posturing behaviour, though frequently reflecting a mixture of motives, nonetheless advanced modern-looking perspectives on what distinguishes a medical practice as scientific.

**Border skirmishes**

Biomedicine’s efforts to police its borders are mostly focused on healing practices it deems quackery or pseudoscience for reasons unrelated to the advocacy of religious or supernatural causality. Many healers whose practices fall outside biomedical orthodoxy employ therapeutic treatments that are based on unvalidated assumptions about human physiology. Many also tout therapeutic successes that have not yet been validated in clinical studies. Homeopathy, for example, propounds a physiological-cause theory despite the fact that the pharmaceutical substances (and doses) it utilizes have not been experimentally validated. Various nutritional, massage, or exercise therapies similarly become candidates for biomedical charges of quackery since they propound material or physiological approaches to healing that have yet to receive scientific confirmation.

Yet twenty-first-century medical science remains especially wary of religious or supernatural-cause explanations of physical healing. The progressive secularization of academic and governmental institutions has made it extremely rare for representatives of formal religious traditions such as Christianity or Islam to engage in specifically religious (i.e. making recourse to causal agencies not recognized by the natural sciences) forms of healing. Individuals such as exorcists or Pentecostal faith healers who claim to heal on the basis of miraculous divine intervention are as likely to be deemed unorthodox or even fraudulent by religious authorities as they are by biomedical authorities. As a consequence, many of the healing systems that continue to propound religious or supernatural understandings of disease and healing do so outside of mainstream religion (Fuller 1989). Thus, instead of making explicit use of terminology or causal conceptions rooted in Western scriptures, most alternative medical systems that do propound some form of supernatural-cause explanation of physical healing instead utilize alternative metaphysical terms such as *qi*, *prana*, *animal magnetism*, or *Innate*.

Helpful examples of the kind of border skirmishes that arise when healing systems evoke ‘alternative’ metaphysical terminology are the histories of osteopathic and chiropractic medicine. Osteopathic medicine emerged from the healing philosophy of Andrew Taylor Still (1828–1917). A former spiritualist and mesmeric healer, Still developed techniques for manipulating vertebrae along the spine in ways that he thought removed obstructions to the free flow of ‘the life-giving current’ that promotes health throughout the body. Still explained the healing principles of osteopathy (a term derived from two Greek words meaning ‘suffering of the bones’) in overtly metaphysical terms that described the origin and nature of ‘the life-giving current’ ultimately responsible for human wellbeing. His followers were less enthusiastic about the metaphysical philosophy underpinning osteopathic practice and more interested in obtaining the economic and social rewards that come with full acceptance by the wider
medical profession. They knew that osteopathy’s metaphysical conceptions of disease and healing would prevent their assimilation into the higher echelons of the medical establishment. As a consequence, osteopaths jettisoned the occult-sounding dimensions of Still’s philosophy and instead insisted that osteopathic medical education be grounded in scientifically based courses of anatomy and physiology. Although osteopaths originally relied only upon manual manipulations of the spine as a means of restoring health, they soon added surgery and eventually drug therapy to their medical practice. Osteopaths thus moved within the perimeters of medical orthodoxy to the degree that they abandoned religious or metaphysical notions of causality in favour of the kinds of material conceptions defining scientific medicine (Gevitz 1982).

By the 1950s, so few differences existed in the training or practice of osteopaths and MDs that their two national organizations agreed to cease their antagonisms toward one another and instead to cooperate in such matters as access to hospitals, residency programmes, and professional recognition. Having jettisoned the alternative worldview of its founder, osteopathy no longer bore any overt signs of unorthodoxy and consequently found itself within the medical mainstream. Today, for example, over 20 per cent of all students studying medicine in the United States are enrolled in one of the thirty-four osteopathic medical schools (this is partially owing to the fact that requirements for acceptance are slightly less stringent than MD schools of medicine). The website for the American Osteopathic Association states that there are more than 110,000 osteopathic physicians operating in the United States. Currently sixty-five nations around the world recognize degrees earned at American osteopathic medical schools and will license osteopathic physicians provided that they satisfy other statutory regulations for the licensing of foreign doctors.

In the 1960s, many osteopaths became concerned about being absorbed into allopathic medicine and gave renewed focus to osteopathy’s philosophical origins. Their commitment to osteopathy’s historical concern with enhancing the body’s powers for recuperation made them champions of holistic medicine long before the term holistic became commonplace among alternative healers. Many osteopathic physicians are thus more likely than MDs to include a wider range of therapeutic strategies even when these strategies have as yet to be scientifically validated.

The case of chiropractic medicine is more complex. As is more fully explained in Holly Folk’s chapter, included in this volume, chiropractic medicine originated in the work of Daniel David Palmer (1845–1913), a mesmerism-inspired magnetic healer in Iowa. Palmer, who knew of Still’s osteopathic techniques, theorized that dislocations of the spine are able to block the free flow of the life force, which he called Innate (his nomenclature for animal magnetism). Palmer and his son, B. J. Palmer, explained that Innate is a part of the Divine Intelligence that fills the universe, bringing full physical health whenever it flows freely through the human body. Palmer’s medical theory was thus simple and precise: blockages or what he called ‘subluxations’ of the spine are the cause of all human ailments and spinal manipulations are thus their sole cure. Chiropractic medicine represents Palmers’ technique for adjusting the spine in ways that remove obstructions to the free flow of Innate within the body.

Most chiropractors began downplaying the movement’s metaphysical origins and instead emphasized the causal role of musculoskeletal disorders. By the mid-twentieth century only a minority of chiropractic physicians (often referred to as ‘straights’) remained committed to D.D. Palmer’s theory concerning blockages in the free flow of Innate as the sole cause of all physical disorders while most (often referred to as ‘mixers’) broadened their conceptions to include scientific information about musculoskeletal anatomy and pain management. In this way, chiropractic physicians have minimized their theoretical unorthodoxy and identified an
area of medical practice largely ignored by most medical doctors. Chiropractic physicians’ sustained attention to this void in the ‘orthodox’ medical system has earned them a viable niche in the medical marketplace, particularly in the United States, Canada, and Australia. According to the website of the American Chiropractic Association, there are now approximately 70,000 chiropractic physicians practising in North America and the World Federation of Chiropractic website states that an additional 30,000 chiropractic physicians practise in Australia, the United Kingdom, and across continental Europe. In 1974, the American Medicare system approved payment for chiropractic treatments and all fifty states soon included chiropractic treatment as part of their workers’ compensation programs. By 1979, the AMA conceded that some chiropractic treatments might be of benefit for particular ailments despite the fact that the theory (i.e. references to Innate and the unsubstantiated claims about subluxations as the cause of medical problems) behind it has never been scientifically validated. Most importantly, governmental and private insurance programs in Canada, Australia, and the United States have all responded to consumer demand for relief of musculoskeletal pain by agreeing to cover manual manipulation of the spine if deemed medically necessary (but do not cover other services or tests such as X-rays, massage therapy, or acupuncture when ordered by chiropractors).

Even though most medical insurance programs (private and public, though the latter often requires authorization by a medical doctor) have come to recognize the medical functions performed by chiropractic medicine, most MDs are still wary of chiropractic medicine because it has failed to elucidate an empirically validated theory that would substantiate its therapeutic claims. This professional tension provides a fascinating example of a continuing theme in the history of alternative medicine: the clash between orthodox medicine’s scientific empiricism (i.e. its insistence on an acceptable scientific theory concerning the causation and cure of illness) and alternative medicine’s pragmatism (i.e. the discovery of therapies that—at least anecdotally—produce beneficial results regardless of whether they have been validated in scientific studies). Medical doctors in the United States have used their state and national associations to criticize publicly the unscientific nature of chiropractic principles and consequently to argue against their inclusion in private or public programmes for medical insurance. Chiropractic physicians pushed back with legal challenges to the American Medical Association’s exclusionary tactics which they perceived to be motivated more by the pursuit of the AMA’s economic self-interest than professional concern for patients’ wellbeing.

In 1987, the United States District Court for the Northern District of Illinois (Wilk v. AMA) found the AMA guilty of a conspiracy against chiropractors and in violation of federal antitrust laws. The AMA’s sustained opposition to chiropractic had focused on chiropractic’s unscientific theories rather than its therapeutic outcomes. The court acknowledged that the AMA had fought chiropractic out of ‘a genuine concern for scientific methods in patient care’ yet concluded that the AMA had failed to prove that its repudiation of chiropractic as unscientific was ‘objectively reasonable’ (Whorton 2004: 299). This decision, later allowed to stand by the US Supreme Court, included an injunction which permanently forbade the AMA ‘from restricting, regulating or impeding’ any of its members of any hospitals or other medical institutions from associating professionally with chiropractors. It is important to note here that the AMA and its membership had sought to exclude chiropractic from the boundaries of approved medical practise on the grounds that its theories lacked scientific foundations. Yet the courts—like the general public—were more concerned with patients’ access to therapeutic practices they desired. Moreover, evidence suggested that chiropractic treatments alleviated many people’s ailments. Medical orthodoxy, while priding itself in being concerned with evidence-based medical theory, deflected attention away from the evidence indicating that many alternative
healing practices were efficacious. The court thus understandably deemed that the boundaries defined by practitioners of medical science to be both artificial and even hypocritical. The courts and a sizeable portion of the general public were more concerned with perceived efficacious practice than they were with evidence-based theory.

Osteopathic and chiropractic medicine are hardly the only alternative medical systems that operate on the basis of alleged supernatural forces. In the United States, for example, religiously charged healing systems exist alongside scientific medicine in such forms as powwow, an eclectic tradition using charms, prayers, and rituals, to prevent and cure disease, continue to be practised by Pennsylvania Dutch, curanderismo which as Brett Hendrickson’s chapter (this volume) explains still flourishes among Mexican-American communities in the American Southwest, and rekindled forms of African American folk medicine practices among recent immigrants from the Caribbean.

Both North America and Europe have also witnessed continued public interest in the many manifestations of India-born Ayurvedic medicine and forms of traditional Chinese medicine. As the articles in this volume written by Elisabeth Hsu and Maya Warrior explain, virtually all traditional Indian and Chinese medical systems assume the existence of healing energies (variously referred to as prana, ojas, kundalini, or qi) not recognized by scientific medicine. The National Institutes of Health’s National Center for Complementary and Alternative Medicine (NCCAM) in the United States has classified them as alternative medical systems or whole medical systems, explaining that they are ‘complete systems of theory or practice that have evolved over time . . . apart from conventional or Western medicine’ (2008). NCCAM distinguishes such systems, which also include homeopathy and naturopathy, from biologically-based therapies such as supplements and diets, manipulative therapies such as chiropractic and osteopathic manipulation, mind-body therapies such as meditation and breathing exercises, and energy healing therapies such as Reiki and Therapeutic Touch. The fact that Chinese medicine includes therapies from the other four categories (e.g. herbs, massage, and internal and external qigong) demonstrates the arbitrariness of this delineation. Orthodox medicine’s relationship with these systems lies somewhere between its acceptance of osteopathy and its continued mistrust of chiropractic, as therapies like acupuncture are considered efficacious even though practitioners’ explanations of how it works are still largely rejected.

Practitioners of medical science are as wary of Ayurvedic and traditional Chinese medicine’s (TCM) references to ‘subtle energies’ as they are those used by the early founders of both osteopathic and chiropractic medicine. The existence of these subtle energies—let alone their therapeutic efficacy—has yet to be scientifically verified. These medical systems therefore seemingly belong more to the realm of religious belief than the empirical reasoning of scientific medicine which focuses on the physical and mental/attitudinal causes (as opposed to supernatural causes) of human illness. Yet many people throughout the world nonetheless find medical systems predicated on the role of supernatural energies to be conceptually attractive. Such individuals, especially when they have limited access to scientific medicine or scientific medicine has proven ineffective in abating symptoms, embrace these non-scientific therapies as viable options in their pursuit of health or wellbeing. Of note is the fact that in 2019 the World Health Organization listed TCM treatments in its updated (eleventh) version of the International Statistical Classification of Diseases and Related Health Problems (ICM). Insofar as the World Health Organization sets the norms and standards for medical treatment around the globe, its inclusion of TCM treatments seemingly endorses increased use of its treatments. It is thus not surprising that the highly prestigious publication *Scientific American* immediately responded to the WHO’s actions with an editorial sharply criticizing the decision ‘to include TCM in the ICD as an egregious lapse in evidence-based thinking and practice’
(Scientific American 2019). The editorial denounced any endorsement of TCM, including acupuncture, on the basis that its claims have not been experimentally validated. Twenty-first-century spokespersons for biomedicine find themselves still engaged in policing the boundaries of scientifically grounded medical theory against incursions from therapies whose patients claim to have received therapeutic benefits.¹

Cultural accommodations: the regulatory labyrinth

By the end of the twentieth century, one thing had become abundantly clear to those concerned with policing the boundaries of scientific medicine: alternative therapies were not going away. Even in the most economically and technologically advanced nations a full one-third of adults used at least one unconventional medical system (Boyle 2013: 172). A landmark report in the New England Journal of Medicine found that ‘the estimated number of visits made in 1990 to providers of unconventional therapy was greater than the number of total visits to primary care doctors nationwide, and the amount spent out of pocket on unconventional therapy was comparable to the amount spent out of pocket by Americans for all hospitalizations’ (Eisenberg et al. 1993: 247). These unconventional medical practices could be located on a wide spectrum that included homeopathy, osteopathic, chiropractic, herbal medicine, acupuncture, and sundry mind-body regimens. If prayer was also included as an alternative healing practice, then 62 per cent of adult Americans used some form of alternative medicine in 2000 (Barnes et al. 2008).

Scholars have pondered why people residing in highly technological societies continue to opt for therapeutic practices outside those endorsed by scientific medicine (Inglis 1965; Young 1967; Gevitz 1988; Fuller 1989; Frohock 1992; Astin 1998; Callahan 2002; Ernst 2008). Among the most commonly cited reasons are easier access, lower cost, more emphasis on how to achieve high levels of wellbeing, and sheer desperation when conventional therapies aren’t effective. Modern cognitive science suggests that humanity’s most spontaneous or intuitive modes of thinking favour religious or supernatural conceptions of causality (Boyer 2001; Atran 2002; Barrett 2004). Religiously or supernaturally phrased understandings of human wellbeing might intuitively appeal to many regardless of their empirical foundations.

The 1960s and 1970s witnessed a cultural pushback against scientific reductionism. The era’s counterculture reached far beyond youthful hippies and included people from all walks of life who rejected a purely scientific account of human nature in favour of more romanticized views that celebrated humanity’s creative potentials. Both Mike Saks’ and Markus Hero’s chapters in this volume further depict this shift away from the reductionist paradigms that guided mid-century modernism and how it expressed itself in the medical field among advocates of what was commonly referred to ‘holistic medicine.’ The basic premise of holistic approaches to healing is relatively straightforward and at first glance appears to be little more than an effort to rehumanize what was fast becoming a highly materialistic understanding of human wellbeing: ‘Every human being is a unique, holistic, interdependent relationship of body, mind, emotions, and spirit’ (Belknap et al. 1975: 18). Practitioners of biomedicine agreed that there are mental and emotional components of physical health—though generally viewed these as indirect causes (e.g. their indirect effect on the immune system). To this extent, alternative therapies seeking to foster optimal ‘mind-body’ interaction didn’t overtly cross the boundaries drawn by practitioners of biomedicine and gained increasing respect as ‘complementary’ therapeutic systems. Yet ‘holistic’ approaches to healing such as Reiki and Therapeutic Touch which are predicated on the causal role of ‘spirit’ (e.g. qi, prana, Innate, or...
Policing the boundaries of medical science

divine intervention) have continued to evoke condemnation by those entrusted with policing biomedicine’s professional boundaries.

By the 1990s, the cultural climate in both Europe and North America had become more conducive to alternative medical systems and their holistic approaches to healing. Both everyday citizens and government regulatory agencies seemed to acknowledge paradigms that strayed beyond the epistemological strictures of the natural sciences. Political and cultural conservatives in this era favoured a consumer market free of regulations that stifle competition. Political and cultural liberals in this era urged toleration of different worldviews, noting that medicine itself had become a white and male-dominated profession at risk of stifling gendered and racialized diversity. The result was a political and cultural environment conducive to accommodating a wider variety of healing practices within the network of private and public health providers.

In 1998, the American National Institutes of Health (NIH) renamed its Office of Alternative Medicine, signifying that alternative medical practices had gained a stronger foothold in the world’s medical mainstream. The agency’s new name, the National Center for Complementary and Alternative Medicine (NCCAM), expressed the prevailing sentiment that these previously ostracized therapies might be provided alongside and even in combination with those of medical science. Many governments across the world have made at least some accommodations to medical systems that had previously found themselves economically, legally, and culturally disenfranchised from the socially empowered institutions of scientific medicine. But the accommodations are often vague, inconsistent, and vary greatly from country to country.

Governments have long recognized the need to regulate the quality, safety, and efficacy of medical treatments. They do so, however, in largely idiosyncratic ways, making it next to impossible to identify normative patterns in the regulation of complementary and alternative medicine. Europe is a paradigmatic example of the inconsistencies and ambiguities in modern nations’ accommodation of complementary and alternative medicine (CAM) since the 32 EU and EEA member states (including Switzerland) employ different models for regulating medical practice. There are numerous reasons why European states draw different boundaries between medical systems. Md. Nazrul Islam’s chapter on Malaysia and Elisabeth Hsu’s chapter on traditional Chinese therapies in this volume illustrate the fact that while countries may have long cultural connections with some alternative conceptions of medical causality, they often lack much awareness of therapies spawned in other parts of the world. Osteopathy and chiropractic, for example, are more widely known and utilized in North America and Australia while European countries have greater familiarity with homeopathy, phylotherapy, anthroposophic medicine, naturopathy, and TCM. Further complicating efforts to establish clear and consistent regulations is the fact that while osteopathic and chiropractic physicians have gone through formal post-baccalaureate training and licensing programs, this is less common for other CAM practitioners. It is thus somewhat understandable that there are wide variations in how European national health systems cover the costs of CAM treatment. Even when statutory regulations permit a specific CAM practice to be reimbursed, there are wide variations concerning whether such reimbursements are limited to licensed medical doctors who have taken additional training in a specific CAM practice or whether reimbursements extend to services provided by CAM providers whose training occurred outside established academic institutions.

There are some regional (and thus also cultural) patterns in how European health systems have accommodated alternative or complementary healing practices. In most middle and southern European nations, CAM is primarily provided by medical doctors who have taken additional training in one or more alternative form of practice. In contrast, the majority of CAM

401
practitioners in most northern European countries were not trained in scientific medicine—but their treatments may or may not be eligible for reimbursement depending on the country and the specific kind of alternative medical practice. There are, for example, as many as 80,000 physicians in Europe who practise acupuncture. Yet national health insurance covers acupuncture treatments only in Austria, Denmark, France, Germany, some regions of Italy, Slovakia, one region of Spain, and Sweden. Partial coverage is available in Hungary, the Netherlands, and other regions of Italy, while private insurance companies pick up some of the expense in Bulgaria, Greece, Portugal, Switzerland, and United Kingdom. Three countries (Austria, France, and Spain) cover prescribed traditional Chinese herbal medicine while such prescriptions are covered by private insurance companies in eight more European nations.

A less-known form of alternative medicine, anthroposophic medicine, illustrates the difficulties facing healing systems whose conceptions of the causal factors influencing human health have little connection with biological science. Coming out of the ideas of metaphysical theorist Rudolf Steiner, anthroposophic medicine focuses on strengthening the patient’s sense of individuality and vitality with various art, body movement, and music therapies (Ernst 2007). Despite having trained approximately 4,800 anthroposophic doctors, it has faced greater resistance from medical physicians and governmental regulatory agencies. In only five countries (Finland, France, Germany, the Netherlands, and Sweden) are fees for consultation with an anthroposophic physician reimbursed by the public sector of the national healthcare system, while private insurance companies in several more countries might provide partial coverage. Thus, despite efforts to accommodate to patients’ preferences and providers’ requests for full participation in healthcare networks, many forms of CAM medicine still find themselves outside the boundaries defined by practitioners of medical science.

It is, then, difficult to generalize about recent efforts to accommodate CAM practices within existing national healthcare systems. While some governments across the world assume responsibility for policing medical practice, others delegate such regulatory activities to recognized medical societies or associations. And while some restrict reimbursable CAM treatments to medical doctors who have voluntarily undergone additional training in less common treatment specialties, others permit a wider range of health practitioners direct access to their nation’s medical institutions. It is, however, clear that the closer a given medical system comes to operating on the basis of scientifically validated notions of causality, the greater its likelihood of being fully assimilated into medical orthodoxy.

**Policing medicine’s borders: summary and ethical/legal considerations**

Practitioners of medical science are understandably concerned with ensuring the quality of healthcare. So, too, are government officials and private insurance companies. All three groups strive to protect patients from potentially harmful (or even ineffective) treatments while maintaining large organizations working to ensure medical doctors’ high social prestige and high incomes. It is true that all three are susceptible to self-serving agendas at the expense of the public’s access to a wider range of medical treatments. Yet, however imperfect regulatory practices might be, the need for them is real and pressing. Monetary resources for medical expenditures are finite and need to be allocated judiciously. Patients rarely have access to all the knowledge necessary for avoiding ineffective or even potentially harmful treatments. For these reasons, the boundaries of medical orthodoxy must be demarcated and policed. It thus seems prudent to conclude by listing at least a few of the legal and ethical considerations which should hopefully guide such efforts.
The central question is whether effective medical treatment can be distinguished from various forms of quackery. Except for isolated instances in which individuals engage in deliberate medical fraud, quackery is difficult to identify or prove. Practitioners of medical science typically critique competing healing practices by arguing that they don’t effectively remedy the factors ‘known’ to affect human wellbeing. Practitioners of various alternative healing systems—especially those with religious or metaphysical overtones—counter by arguing that medical science operates according to narrow understandings of the factors affecting human health. They charge that a suitably expanded scientific outlook would recognize additional causal agencies (e.g., qi, Innate, botanical substances) operative in human physiology. They also argue that alternative therapies better understand the holistic nature of human wellbeing and that they address the mental, emotional, moral, and spiritual factors that go well beyond scientific medicine’s narrower understandings of physical health. And, as illustrated in the court’s injunction against medical science’s campaign against chiropractic medicine, they offer myriad patient testimonials as proof of their therapeutic efficacy.

Dominant professional groups tend to employ predatory tactics to ensure their continued supremacy and keep potential competitors at a distance. We might consider, for example, the way that mid-twentieth century biomedicine pushed both chiropractic and massage therapies to the periphery of mainstream medicine largely because it didn’t have particular interest in musculoskeletal pain, whose causes and treatments lay outside its standard therapeutic regimens. The philosophical and institutional blinders erected by practitioners of medical science have the unfortunate consequence of thwarting potentially innovative approaches to human health. Alternative and complementary health systems can thus sometimes be safeguards against the kinds of complacency and narrowness of vision that frequently creep into economically entrenched professions. Many provide a range of services that address both curative and preventive issues typically neglected by biomedical physicians. And, too, many represent competing cultural conceptions of what it means to achieve optimal human health and wellbeing.

Establishing criteria for assessing medical systems is further complicated by the fact that we acquire our basic beliefs and assumptions about the universe through socialization more than through rigorous intellectual analysis. What constitutes evidence when it comes to belief in the existence of spiritual realities? Who are the experts? Decisions about such matters turn less on objective, rational criteria than on the ways we were socialized into one belief system or another. Who, then, is in a position to decide what is an ‘irrational’ medical choice? With what degree of philosophical integrity can orthodox physicians seek to dissuade persons from seeking alternative treatments? Do persons have a right to what seems on scientific grounds to be an utterly ineffective therapy simply because it conforms to their personal belief system?

Medical ethics is concerned not only with protecting persons from intended or inadvertent harm, but also with the allocation of limited medical resources in ways that maximize human health and wellbeing. Government agencies, healthcare facilities, and insurance companies must be prepared to make reasonable assessments of a medical system’s therapeutic efficacy. Twenty-first-century medicine differs from its predecessors not because we have become more rational but because we have learned to use experimental protocol (e.g. control groups and rigorous statistical analysis) to determine the relative merits of competing treatments. Any therapeutic system wanting acceptance into our mainstream medical institutions (i.e. treatments reimbursed by state healthcare systems and private insurance companies with fiduciary responsibilities to its paying customers) should be expected to demonstrate its effectiveness in such empirical and public ways. Biomedicine and governmental agencies have been understandably wary of religious or supernatural conceptions of disease or healing. They
are entrusted with distinguishing between more and less efficacious medical practices. They do so at least in part as a means of ensuring public modes of discourse and evaluation among their diverse citizenry. It thus seems reasonable that any and all medical systems be expected to demonstrate empirically that their distinctive practices are sufficiently efficacious to deserve public endorsement.\(^2\)

**Notes**


2 Much of the preceding section is adapted from an earlier article coauthored with Justin B. Stein, ‘Alternative Therapies’ (2014).

**Bibliography**


Policing the boundaries of medical science


