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Moving Beyond Nostalgia and Motives

towards a complexity science view of medical professionalism

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ABSTRACT   Modern-day discourse on medical professionalism has largely been dominated by a "nostalgic" view, emphasizing individual motives and behaviors. Shaped by a defining conflict between commercialism and professionalism, this discourse has unfolded through a series of waves, the first four of which are discovery, definition, assessment, and institutionalization. They have unfolded in a series of highly interactive and overlapping sequences that extend into the present. The fifth wave—linking structure and agency—which is nascent, proposes to shift our focus on professionalism from changing individuals to modifying the underlying structural and environmental forces that shape social actors and actions. The sixth wave—complexity science—is more incubatory in nature and seeks to recast social actors, social structures, and environmental factors as interactive, adaptive, and interdependent. Moving towards such a framing is necessary if medicine is to effectively reestablish professionalism as a core principle.

THIS ARTICLE REVIEWS the evolution of the modern-day professionalism movement in organized medicine. What started in the early 1980s with fears related to loss of professional stature and concerns about the corrosive forces of commercialism on core professional values has evolved into a broad-

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based and formal social movement. This movement encompasses efforts that range from defining and measuring professionalism to developing curricular interventions to promote professionalism during medical training and beyond. More recently, work on professionalism has begun to consider how organizational structures might affect the ability of individuals to manifest core professional values and behaviors.

Clearly, no movement—particularly one that is taking place in an area as complex and rapidly changing as medicine—functions in isolation. Organized medicine's formal "professionalism project" is actually one of three social movements currently underway within medicine (the other two are evidence-based medicine and patient safety), all of which fall under a broader rubric of quality of care. Related to these movements is the nascent exploration of complexity science as a conceptual framework for understanding medicine and medical practice (Ahn et al. 2006; Bell and Koithan 2006).

This article traces the evolution of medicine's professionalism movement, focusing on the contemporary margins of the movement. We consider the potential for professionalism to move beyond its current focus as a discourse that stresses individual motives and behaviors to one that includes a more macro-perspective on how systems and structures affect individuals and how organizations themselves might embody professional principles. We then consider how a complexity science perspective might apply to medicine's professionalism project and use the hidden curriculum literature to frame an example of how this might take place.

The modern-day (1980s to present) discourse on medical professionalism has been dominated by a "nostalgic" view of professionalism (Castellani and Hafferty 2006). This discourse has unfolded through a series of waves. The first four—discovery, definition, assessment, and institutionalization—have been highly interactive and overlapping sequences that continue to unfold to the present. The fifth wave—linking structure and agency—is nascent, while a sixth—viewing the medical professionalism movement and medical education as taking place within a complex adaptive system—is more incubatory in nature. The sixth wave would consider professionalism through the prism of complexity science, by which we mean the study of dynamic adaptive systems consisting of interacting and interdependent variables. We view this final wave as a necessary evolution, if the stated goal of organized medicine's professionalism movement, the reestablishment of professionalism as a core principle of medical practice, is to reach fruition.

The First Four Waves in Medicine's Modern Professionalism Movement

Medicine has only recently become preoccupied with how best to define and promote "professionalism." For centuries, the Hippocratic Oath was considered a sufficient ethos to guide physicians and therefore had a commanding influence, even as modern codes of ethics were being implemented. The first American

Medical Association Code for Medical Ethics (1847) focused on the moral authority and independence of physicians in service to others, affirmed the profession's responsibility to care for the sick, and emphasized individual honor (Riddick 2003). With this code serving as a normative anchor and as a point of social legitimization, organized medicine began its evolution into the type of organizational structure that social scientists would come to label "professional" (Starr 1982). Nonetheless, and in spite of organized medicine's tenacious pursuit of professional powers and privileges, which reached its zenith in the 1950s, there was little formal emphasis within the medical training process on the tenets of professionalism. Furthermore, outside the rather limited purview of state medical boards, there was little oversight of physician work. This lacuna was fed by medicine's desire for occupational autonomy (for example, restricting the evaluation of medical work to insiders) along with a persistent vagueness about what exactly might constitute professional or "unprofessional" behaviors (Hafferty 2006b). Instead of critical scrutiny and ongoing refinement, medicine came to treat the idea of its own professionalism as something so routine and obvious as to be taken for granted. Being a professional meant having completed one's training—nothing less, but certainly nothing more. Even the "automatic attribution" linking professionalism to a degree was considered too extreme by some guild members, particularly those who believed that the core attributes of professionalism were an inherent part of one's character and therefore beyond the influence of medical training. For these people, the solution to any problems of professionalism lay not in training, but in the recruitment of applicants with exceptional character, particularly those who would prove resilient to the attenuating aspects of medical training. From this vantage point, and taken to its logical extreme, professionalism is a quality that precedes, rather than emerges from, medical training.

How then, did medical professionalism—what it means and how to teach and evaluate it—become such a hotly debated topic at the end of the 20th and the beginning of the 21st centuries? The answer, albeit simplified, is that medicine underwent a number of significant challenges to its powers and privileges during the latter half of the 20th century (Starr 1982). As summarized in Eliot Freidson's *Professionalism: The Third Logic* (2001), organized medicine had acquired both professional dominance and professional autonomy based on claims that it had developed an esoteric body of knowledge, an occupationally controlled division of labor and related labor market, the control of new member entry and their training, and an "ideology serving some transcendent value." By the 1960s and 1970s, however, these powers and privileges began to unravel, fueled by a post–World War II economic boom, the emergence of information technologies (which allowed for, among other things, the monitoring of physician practice patterns), advances in the scientific basis of medical practice, government interference in health care delivery and financing (particularly with the creation of Medicare and Medicaid), and most importantly the rise of commercialism and a substantial for-profit health-care industry (Hafferty 2006a).

One early and internal warning shot about these changes came in 1980, when Arnold Relman, then editor-in-chief of the *New England Journal of Medicine*, wrote a lead editorial expressing profound concerns about the rise of the "medical industrial complex" and its impact on the autonomy and integrity of physicians. Citing the rise in business influences on physician practice, Relman cautioned about new constraints on physician autonomy, as well as the potential for conflict of interest should physicians' financial interests affect their clinical decision-making. In many respects, Relman was eerily prophetic—for the real boom in medical commercialism would not begin to unfold until 1982, when the American stock market eased into what would evolve into this country's second longest bull market (1982–2000). Across the 1980s and 1990s, billions of dollars flowed into new and established medical companies—each promising investors a solution to the nation's health-care woes.

Relman's admonitions were echoed (although not immediately) by a bevy of other medical leaders including subsequent *New England Journal of Medicine* editors-in-chief Jerome Kassirer (1995, 1997) and Marcia Angell (1993, 2000), and long-time *JAMA* editor George Lundberg (1985, 1988, 1990, 1997). By the early to mid-1990s, evidence of unease about the growing threat of "commercialism," along with calls for physicians to "rediscover" or "return to" their "core professionalism ideals" were in full bloom (Barondess 2003; Burnham 1982; Davis 1988; McLeod 1982). This unease, with its identification of a common enemy (commercialism) and a generic solution (professionalism), constituted the first wave of the modern professionalism movement (Hafferty 2006a). By the late 1990s, Relman's warning that commercial influences were making a "hollow mockery of professional oaths" had been elevated from a solitary voice to an occupation-wide consensus (Relman 1998).

This maelstrom of concerns about the corrosive effects of industry soon gave way to a new perspective—that many of these warnings and rallying cries were vague and sometimes internally contradictory. Thus was born a second wave in the professionalism movement, as medical insiders called for more formal and succinct definitions of professionalism and related concepts (Cruess and Cruess 1997b; Swick 2000; Wynia, Latham, and Kao 1999). One notable product of this second wave was Herbert Swick's "Toward a Normative Definition of Medical Professionalism" (2000), with its set of nine requisite behaviors (such as that "Physicians respond to societal needs and their behaviors reflect a social contract with the communities served"), including a framing of altruism ("Physicians subordinate their own interests to the interest of others") as core to what it means to be a professional. Swick's definitions and conceptual framework became the basis for work on professionalism by a number of medical organizations, including the American Board of Internal Medicine (ABIM), the American Medical Association (AMA), the Association of American Medical Colleges (AAMC), and the National Board of Medical Examiners (NBME).

The ink was hardly dry on these definitional credos and charters before yet

another cry erupted from within the movement—this time to measure and assess professionalism (Arnold 2002; Arnold et al. 1998; Stern 2005; Veloski et al. 2005). Many of the concerns in this third wave were pragmatic and tied to the emergence of professionalism curricula within medical schools. Advocates advanced two related arguments. First, they claimed that any initiatives to teach professionalism in medical schools would be undermined unless students were formally assessed as a part of this effort. Advocates noted that assessment drives learning, and furthermore (in a null curriculum message), that avoiding assessment would send a message to students not to take any such professionalism initiatives seriously. The second argument (albeit related) focused more on the broader theory of professionalism, including medicine's social contract with society and the role of peer review and organizational self-assessment in that overall framing. This argument transcended pedagogical pragmatics and went to the very heart of professionalism as a social practice. As a consequence of these and related concerns, efforts surged to assess professionalism along a number of fronts. Literature reviews of assessment efforts were compiled with a focus on admissions and on linking medical school experiences to later clinical behaviors (Etienne and Jullian 2001; Ginsburg et al. 2000; Lynch, Surdyk, and Eiser 2004; Papadakis et al. 1999, 2005; Stern, Frohna, and Gruppen 2005). All the while, discussions as to whether professionalism could be *taught*, let alone *measured*, continued unabated (AAMC 1999; Cruess and Cruess 1997a, 2006; Rowley et al. 2000; Whitcomb 2005b).

The fourth wave in medicine's professionalism movement, and one concomitant with the definition and measurement crests, has been the rise of institutionalization initiatives across a broad constellation of medical organizations. Led by the ABIM's Medical Professionalism Project, a number of medical organizations, specialty groups, and private organizations such as the AAMC (2004), the NBME (2005), and the ABIM Foundation (Veloski et al. 2004) began sponsoring conferences and allocating resources in what amounts to a collective "professionalism project" (Cohen 2006). Efforts to define and assess professionalism have been core to this overall effort. Examples of products included the Physician Charter created by the ABIM Foundation, ACP-ASIM Foundation, and European Federation of Internal Medicine, and the ACGME's identification of professionalism as one of its six "core competencies" (ABIM 2002; ACGME 1999). While much of the professionalism reflected in these documents is decidedly nostalgic" in nature, some novel elements are beginning to percolate within medicine's overall professionalism discourse. For example, in addition to the more traditional calls to place the welfare of patients ahead of provider welfare (altruism) and to promote patient autonomy, the Physician Charter included "social justice" ("The medical profession must promote social justice in the health care system, including the fair distribution of health care resources") as one of its three "fundamental principles." In this way, the Charter identified (normatively) medicine's responsibility to look beyond the physician–patient dyad in framing its professional responsibilities.

A second (and already mentioned) aspect of this institutionalization wave has been the overall effort to create formal coursework on professionalism, particularly for undergraduate medical students (Curry and Makoul 1998). In short order, a wide variety of course materials were developed and implemented at medical schools throughout the United States and Canada—often in addition to curricula on medical ethics (Makoul, Curry, and Novack 1998). Researchers, in turn, began to examine the influence of such formal training experiences on student conceptions of professionalism and on subsequent practice behaviors (Ginsburg, Kachan, and Lingard 2005; Ginsburg, Regehr, and Lingard 2004; Haidet and Stein 2006).

This gaggle of discovery, definition, measurement, and institutionalization has not been without its critics. Concerns have included the lack of a curricular theory of professional development; the lack of attention to the overall learning environment for professional development (which would extend beyond the usual and customary focus on the formal curriculum); the lack of linkages between formal curricular efforts and current professionalism practices, including peer review and state medical board actions; and the lack of consistent and focused calls from within the movement to include a duty to advocate for the well-being of society and the betterment of the public health (Coulehan 2005; Wear and Kuczewski 2004). Finally, critics have cautioned that efforts to measure professionalism were creating a de facto set of implicit definitions—sometimes complementing, but sometimes clashing with, already established definitions.

WAVE FIVE: RECONCILING PROFESSIONALISM AT THE MICRO AND MACRO LEVELS

While both sociology (theoretically) and medicine (in principle) recognize that there are essential differences between conceptualizing professionalism at the level of the individual versus the organization, most discussion of professionalism generated within academic medicine during the 1980s and 1990s focused on defining, assessing, and institutionalizing professionalism at the individual level—thus promoting an agency-based framing of professionalism (Stark 1989; Todd and Horan 1989). As a consequence, relatively little attention was directed toward understanding how organizations (medical schools, clinics, hospitals, or medical centers) might enable or constrain the motives and behaviors of trainees and practitioners. Still further removed from consideration was the related question of how organizations themselves might behave in a professional or unprofessional manner.

There is, however, evidence that this conceptual cul-de-sac is beginning to change as medical education begins to explore the interactive and interdependent nature of the individual-setting relationship. One example is the aforementioned Physician Charter. The Charter opens its statement on social justice by calling upon the profession to manifest this principle; physician behavior is treated as a secondary concern. Nonetheless, the overall content of the Charter,

including materials in its Preamble and Conclusions, and the wording of all three "core principles" and 10 "commitments," is firmly embedded in a tradition that establishes professionalism as a matter of individual (physician) responsibilities.

A second and more substantial reframing of professionalism as a collective/ organizational responsibility is the high profile currently being accorded issues of conflict-of-interest (COI) within organized medicine (Ross et al. 2007; Stelfox et al. 1998). COI issues are not new to medicine. The Prayer of Maimonides (1135/38–1204), for example, exhorts physicians not to "allow thirst for profit, ambition, for renown and admiration, to interfere with my profession." Nor is COI *the* defining professionalism issue. There are a number of other themes, including confidentiality and honesty with patients, that command attention under the rubric of professionalism. Nonetheless, COI does showcase the influence of business/industry on medical work, including research, education, publishing, and clinical decision-making. COI also highlights a "primacy of patient" message, which includes the call to place altruism and the welfare of patients ahead of provider welfare ("selfless-service"), something many medical leaders continue to identify as the sine qua non of medical professionalism (Cohen 2006).

While it is true that earlier calls by key medical organizations to address COI issues did focus on physicians and their responsibility to differentiate between acceptable and unacceptable gifts and to "manage" their relations with industry (AMA 1991), this traditional framing appears to be shifting. In February 2006, *JAMA* published a "policy proposal" authored by a constellation of medical luminaries that called for academic medical centers to take the lead in adopting policies to eliminate COI within medical learning environments (Brennan et al. 2006). The proposal unequivocally challenges prior COI "myths," including the myth of small gifts (that any gift can be small enough not to evoke social norms of reciprocity) and the myth of full disclosure (that disclosing a conflict of interest neutralizes that conflict), and it urges medical schools and AHCs to adopt a series of recommended steps to eliminate a hidden curriculum of COI practices. The report's focus is clearly on organizations and organizational responsibilities with respect to COI, not on the individual, and some critics have cited the report's "sterile environment" approach to ensuring professional behavior. Several medical schools already have adopted key aspects of the report, highlighting a shift in professionalism orientations from the individual to a more macro-level focus on context.

Three months later, the American Medical Students Association issued a "report card" grading all U.S. and Canadian allopathic and osteopathic medical schools on their COI policies (AMSA 2007). Much to the chagrin of many deans and faculty schools, failures far outnumbered stars, with 42 schools receiving an "F" and 19 a "D"; only five received a grade of "A." This report has nudged many schools (including those who refused to provide AMSA with initial data) to begin developing formal COI statements governing what pharmaceutical and like companies can do within the walls of medical education.

Another framework for viewing professionalism as more than the motivations and behaviors of individual physicians is laid out in a recent article lead-authored by Jordan Cohen, former president of the AAMC and a coauthor of the *JAMA* policy article on COI (Cohen, Cruess, and Davidson 2007). The article focuses on the nature of setting and structure as barriers to the manifestation of professionalism principles by individuals, and as such points to the interactive nature (if only uni-directional) between settings and individuals. Cohen and colleagues point out that many of the principles detailed in the Physician Charter are not under the control of individual physicians, and that practices and policies of organizations often function as insurmountable barriers to individuals who might otherwise wish to manifest appropriate professional behaviors. The article also notes that some of the principles articulated in the Charter (universal access, meaningful patient safety efforts, and safeguarding patients from COI) may even fall beyond the province of medicine as a whole—with still broader social forces (such as funding streams) casting a definitive pall over the ability of organized medicine to advance professionalism as a core orienting value. Instead, the article calls for "system wide change" and a functional partnership (a "medical-societal alliance") between the medical profession and society.

Cohen's article is notable in two respects. First, his call for a partnership between society and medicine evokes a somewhat overlooked literature on professionalism—one that stands just outside the two major literatures (sociology and medicine) and is sometimes referred to as the "new professionalism" (Epstein 1999; Frankford and Konrad 1998; Irvine 2004, 2006; Mechanic 2000; Sullivan 2005; Whitcomb 2005a). Appearing under several different labels—"civic professionalism," "democratic professionalism," "responsive medical professionalism," "patient centered professionalism"—this body of literature is fairly small, at least relative to the more voluminous professionalism literature, and it is most often published in journals that are (strictly speaking) neither sociological nor medical. Within this subgenre, a common theme is the need to engage the public, proactively and systemically, in any move toward reestablishing a necessary trust between medicine and the public. Thus, when medical insider Troyen Brennan (2002) calls for a professional responsibility grounded in "civic professionalism" and "activist professionalism" and grounds his call within quality of care, we are beginning to see a shift from a professionalism conceived as "just" a matter of individual provider motives or organizational policies to one that resides within the relationships among system participants, including physicians and the public, medical and nonmedical organizations, industry and government. This more encompassing professionalism takes in other medical movements, including patient safety, evidence-based medicine, and quality of care, and extends across such broader social forces as health disparities, an aging population, and, in the United States, tens of millions of uninsured.

The Sixth Wave: A Complexity Science Approach to Professionalism

Despite an emergent recognition within the medical professionalism movement that settings, organizations, and broader social forces play a critical role in the advancement of professionalism, the operationalization of this perspective into future policies and organizational change is far from certain. As reflected in medical coursework, in documents such as the Physician Charter, and in parallel symbols of professionalism such as ethics codes, the professionalism movement's primary focus continues to be the individual—with a basic call for physicians to "just say no" to the corrosive forces that besiege it.

One problem with these calls is that they have not worked—at least to date. In spite of a decade of professionalism coursework, legions of articles, and the development of definitions, competencies, and assessment tools, evidence of problems and disjunctures continue to riddle what is assumed to be a comprehensive and coordinated professionalism initiative. For one, traditional definitions of professionalism, which often seat altruism and selfless behavior at their core, appear to be at odds with emerging conceptions of an appropriate ("professional") physician-patient relationship and issues of lifestyle and "balance" amongst the newest generation of physicians (Croasdale 2003; Dorsey, Jarjoura, and Rutecki 2003; Tholhurst and Stewart 2004). Further, there is some evidence that saturating students with curricula around this topic has had the unintended consequence of creating hostility toward professionalism education in general and a sense on the part of students that they are being "harassed" (Humphrey et al. 2007). Other tensions include a physician population that appears to endorse core ethics of professionalism in principle, including the importance of peer review, but that fails to act when it encounters impaired or incompetent colleagues (Campbell 2007). Meanwhile, medical school faculty persist in modeling unprofessional behavior—leaving students feeling "genuinely and tragically confused" (Brainard and Brislen 2007).

COI data reflect similar inconsistencies and dissonances. While clinicians and researchers appear willing to acknowledge that outside interests might influence their decision-making or behaviors, such an influence, they still insist, happens only to "the other guy." Despite operating within an occupational culture that touts "scientific evidence" and scientific decision-making, despite ample data documenting the direct evidence of industry gifts and inducements on clinical decision-making and research outcomes, and despite more generic social science research on how even the smallest of gifts can create feelings of obligation, many physicians continue to insist that their clinical decision-making stands above such influences (Alpert 2005; Brett, Burr, and Moloo 2003; Chimonas, Brennan, and Rothman 2007; Steinman, Shlipak, and McPhee 2001). Medical students, meanwhile, express a similar social invulnerability (Fein, Vermillion, and Uijtdehaage 2007). Meanwhile, relations with industry have become the rule rather

than the exception. A majority (77%) of second-year medical students have received gifts from industry (Fein, Vermillion, and Uijtdehaage 2007), and a larger majority (80.2%) believe they are entitled to such gifts (Sierles et al. 2005). Ninety-four percent of all physicians have some type of relationship with the pharmaceutical industry, including food in the workplace, drug samples, reimbursement for attending professional meetings, and payments for consulting, giving lectures, or enrolling patients in clinical trials (Campbell et al. 2007a). The same is true for departments as administrative units (67%), department chairs (60%), and members of institutional review boards (33%) (Campbell et al. 2006; Campbell et al. 2007b). Similar statistics exist for the relationships between medical school research and industry (Bekelman, Li, and Gross 2003).

The overall picture is anything but coincidental when we recognize that drug companies religiously track (on a weekly basis) the prescription-writing behaviors of physicians, by combining prescription data sold by pharmacies to specialized pharmacy-information companies with Drug Enforcement Agency numbers sold by the AMA (which makes millions per year on these information-leasing arrangements). Pharmaceutical companies, in turn, send these data to their salespeople, who, so armed, adjust their inducements accordingly. This more nuanced (and real) picture is not well countered by having organized medicine urge physicians to "embrace the principles of professionalism" or by academic medical centers adopting a set of "sterile environment" COI policies (Carlat 2007).

It is with recognition of this complexity that we suggest reframing the issue of professionalism (which, in all likelihood is not a singular issue at all) from a matter of individual motives, or even as an object of remedial actions at the organizational level, to that of a complex, adaptive system where social actors, organizational settings, and environmental factors interact. As noted in one of the few articles on professionalism and complexity science, there is a considerable benefit to viewing health organizations as "complex adaptive systems [that operate] in a professional milieu," rather than as bureaucracies in need of rational administration (Anderson and McDaniel 2000).

The Medical School as a Complex System

Building on Anderson and McDaniel's point, but refocusing on a particular setting, we wish to highlight the medical school as a complex system. In doing so, we wish to situate professionalism within the multitude of learning environments that make up this system. Specifically, we wish to focus on the impact of three such forces—the formal, informal, and hidden curricula—on medical student learning.

There are three major benefits in adopting this framework. First, this framework recasts the formal curriculum from a singular focus to one of three environmental systems, all of which impact on how students learn about and practice professionalism. Second, this shift from a singular to a multiple learning

environment perspective helps to focus on the dynamic interplay that exists among those learning environments. Third, this focus on system dynamics and interactions underscores a point basic to complexity science, namely that medical student learning is more than the sum of the respective system's parts.

Speaking to our first point, if our goal is to understand (and possibly shape) student learning with respect to professionalism, then it is both counterproductive, and ultimately distorting, to treat the formal curriculum as the sole—or even principal—seat of student learning. There are other learning domains at work that are far more influential, both overall and at certain times and in certain settings, than that formally provided to students in the classroom or at the bedside (Hafferty and Franks 1994; Haidet and Stein 2006). This point stresses the importance of conceptually grounding medical student learning within the full range of experiences that comprises the educational experience.

Our second, and more fundamental, point is that these multiple learning environments function within a web of interdependent relationships, each with its own distinctive identity, yet each dependent upon and shaped by the others. Thus, the learning that takes place in the classroom or at the bedside is shaped by what takes place within the informal social interactions among and between faculty and students as they come together in hallways, cafeteria, and on call rooms—and vice versa. This second point is about the power of interactions.

Our third benefit to adopting a complexity science perspective is that the totality of learning that takes place within the space created by these interactions and intersections is greater than the sum of its constituent parts. Just as the formal curriculum is so much more than the sum of individual courses, medical student learning involves more than stacking what takes place within the formal, informal, and hidden curricula, one on top of the other. This is a point about synergy—a key concept within complexity science.

The fact that medical student learning is both dynamic and interdependent is reflected in a frequently raised "hidden curriculum" question—how medical schools might "do away with" the hidden curriculum, with the question usually phrased so that the hidden curriculum is cast as a singular alternative to the formal curriculum. The very phrasing of this question, while admirable in its recognition of how inconsistent and contradictory messages may negatively impact student professionalism, is incorrect in depicting the hidden curriculum as a thing that can be changed in isolation—and thus changed without altering the content and structure of the other domains of learning. One can no more get rid of the hidden curriculum than one can get rid of protons, both in an absolute sense and in the sense of disrupting the fundamental nature of the overall system. One certainly can target the hidden curriculum, but one must also be willing to track the impact of these changes in the hidden curriculum as they play out within the formal and informal curricula. Furthermore, if one resists changing the formal curriculum after purposefully altering the hidden, then the overall system is placed under an additional stress, thus further distorting overall stu-

dent learning. In sum, medical student learning is multi–dimensional, multi–sit-uational, multi–contextual, and interdependent, and to treat it otherwise is to create a false and misleading picture of the overall educational environment.

CLOSING COMMENTS: LIMITS AND LIMITATIONS

Our framing of professionalism as a complex system grounded in social interac-tions and in the dynamics of multiple learning environments is distressingly in-complete. We have not, for example, even mentioned other occupations (health or otherwise) that are enveloped in their own professionalism movements. Fur-thermore, we have given short shift to the social dynamics of professionalism itself, including the successful entry of women into medicine and failed efforts to increase the number of underrepresented minorities into physician ranks. We have also neglected to discuss how professionalism, as a social movement, is heav-ily dependent on the broader socioeconomic and political context in which it evolves. One should thus expect important differences between the profession-alism movements in the United Kingdom, Canada, and the United States (Haf-ferty and Castellani 2006). While one can define a system using different units of analysis (a given medical school class, a given school, all U.S. medical schools), it is also true that professionalism functions as an overall attractor point within medicine. Thus, one can take the professionalism thread, begin to pull, and even-tually reach any topic within the medical sciences. Pull a little more and one can move beyond medicine into the broader sociopolitical arena. Everything is inter-connected.

   This is not, however, a paper "about everything." Our goal is more targeted. We seek to outline medicine's professionalism project as a social movement, and in doing so, capture the evolution of this movement as it shuffles and stutters to-wards recognizing its inherently complex nature. Even the call to recognize pro-fessionalism as a complex system is not, in and of itself, a solution to the "prob-lem of professionalism" (at least as defined by medicine). There is no one problem of professionalism, any more than there is one professionalism (Castel-lani and Hafferty 2006). While professionalism can be depicted as an ideal type for analytical purposes as did Freidson (2001), there is no ideal solution, nor can professionalism adequately be conceptualized from the viewpoint of any one participant in the system. Finally, professionalism does not reside in the motives of individuals (although such motives, particularly the internalization of core professionalism values, are a core element in any understanding of professional-ism), or within organizational structures and policies (although structure and process are inherent elements in any professionalism movement). Instead, profes-sionalism exists within the dynamic interplay of system actors, system structures, and broader environmental influences.

   Also important to note is that medicine's modern-day professionalism move-ment is in its infancy—and continuing with this metaphor, we see medicine just

beginning to recognize the existence of other players and other sandboxes outside its own. We also believe that the modern professionalism movement is shaped by its defining conflict (the dynamic interplay between commercialism versus professionalism) and that this conflict will continue to evolve. We feel quite comfortable (although not sanguine) in concluding that the discourse of professionalism 30 years from now will be a much different discourse than the one we currently face—just as today's discourse differs from that of the 1970s. Finally, we want to reemphasize that professionalism is not a thing. Rather it is a dynamic. In this respect, professionalism is much like those illusive and evanescent particles in physics that have no mass except in movement. In short, professionalism has no meaningful existence independent of the interactions that give it form and meaning. There is great folly in thinking otherwise.

References

Accreditation Council for Graduate Medical Education (ACGME). 1999. ACGME outcome project. http://www.acgme.org/Outcome/.

American Board of Internal Medicine (ABIM). 2002. Medical professionalism in the new millennium: A physician charter. *Ann Intern Med* 136:243–46.

Ahn, A. C., et al. 2006. The limits of reductionism in medicine: Could biology offer an alternative? *PLoS Med* 3(6):709–13.

Alpert, J. 2005. Doctors and the drug industry: How can we handle potential conflicts of interest? *Am J Med* 118(2):99–100.

American Medical Association (AMA). 1991. Gifts to physicians from industry. *JAMA* 265(4):501.

American Medical Student Association (AMSA). 2007. *AMSA's 2007 pharmfree scorecard*. Washington, DC: AMSA.

Anderson, R. A., and R. R. McDaniel, Jr. 2000. Managing health care organizations: Where professionalism meets complexity science. *Health Care Manage Rev* 25(1):83–92.

Angell, M. 1993. Privilege and health: What is the connection? *N Engl J Med* 329:126–27.

Angell, M. 2000. Is academic medicine for sale? *N Engl J Med* 342(20):1516–18.

Arnold, L. 2002. Assessing professional behavior: Yesterday, today, and tomorrow. *Acad Med* 77:502–15.

Arnold, L., et al. 1998. Can professionalism be measured? The development of a scale for use in the medical environment. *Acad Med* 73:1119–21.

Association of American Medical Colleges (AAMC). 1999. Professionalism in medicine: What is it? What's threatening it? Can it be taught? http://www.aamc.org/newsroom /reporter/may99/rdtbl.htm.

Association of American Medical Colleges (AAMC). 2004. Assessment of professionalism: An annotated bibliography. http://www.aamc.org/members/gea/ugmesection/ ugmeprofessionalism.pdf

Barondess, J. A. 2003. Medicine and professionalism. *Arch Intern Med* 163:145–49.

Bekelman, J. E., Y. Li, and C. P. Gross. 2003. Scope and impact of financial conflicts of interest in biomedical research: A systematic review. *JAMA* 289:454–65.

Bell, I. R., and M. Koithan. 2006. Models for the study of whole systems. *Integr Cancer Ther* 5(4):293–307.

Brainard, A. H., and H. C. Brislen. 2007. Viewpoint: Learning professionalism: A view from the trenches. *Acad Med* 82(11):1010–14.

Brennan, T. A. 2002. Physicians' professional responsibility to improve the quality of care. *Acad Med* 77:973–80.

Brennan, T. A., et al. 2006. Health industry practices that create conflicts of interest: A policy proposal for academic medical centers. *JAMA* 292(4):1044–50.

Brett, A. S., W. Burr, and J. Moloo. 2003. Are gifts from pharmaceutical companies ethically problematic? *Ann Intern Med* 163(18):2213–18.

Burnham, J. 1982. American medicine's golden age: What happened to it? *Science* 215: 474–79.

Campbell, E. G. 2007. Professionalism in medicine: Results of a national survey of physicians. *Ann Intern Med* 147(11):795–802.

Campbell, E. G., et al. 2006. Financial relationships between institutional review board members and industry. *N Engl J Med* 355:2321–29.

Campbell, E. G., et al. 2007a. A national survey of physician-industry relationships. *N Engl J Med* 356(17):1742–50.

Campbell, E. G., et al. 2007b. Institutional academic–industry relationships. *JAMA* 298(15):1779–86.

Carlat, Daniel. 2007. Dr. drug rep. http://www.nytimes.com/2007/11/25/magazine/25memoir-t.html.

Castellani, B., and F. Hafferty. 2006. Professionalism and complexity science: A preliminary investigation. In *Medical professionalism: A critical review*, ed. D. Wear, and J. M. Aultman, 3–23. New York: Springer.

Chimonas, S., T. A. Brennan, and D. J. Rothman. 2007. Physicians and drug representatives: Exploring the dynamics of the relationship. *J Gen Intern Med* 22(2):184–90.

Cohen, J. J. 2006. Professionalism in medical education, an American perspective: From evidence to accountability. *Med Educ* 40(7):607–17.

Cohen, J. J., S. Cruess, and C. Davidson. 2007. Alliance between society and medicine: The public's stake in medical professionalism. *JAMA* 298(6):670–73.

Coulehan, J. 2005. Viewpoint. Today's professionalism: Engaging the mind but not the heart. *Acad Med* 80:892–98.

Croasdale, M. 2003. Balance becomes key to specialty pick: Family practice and general surgery are taking the biggest hit, but fewer students are choosing medicine overall. http://www.ama-assn.org/amednews/2003/09/22/prsc0922.htm.

Cruess, R. L, and S. R. Cruess. 1997a. Professionalism must be taught. *BMJ* 315(7123): 1674–77.

Cruess, R. L., and S. R. Cruess. 1997b. Teaching medicine as a profession in the service of healing. *Acad Med* 72(11):941–52.

Cruess, R. L., and S. R. Cruess. 2006. Teaching professionalism: General principles. *Med Teach* 28(3):205–8.

Curry, R., and G. Makoul. 1998. The evolution of courses in professional skills and perspectives for medical students. *Acad Med* 73(1):10–13.

Davis, J. E. 1988. Let's work together! A call to America's physicians and the public we serve. *JAMA* 260(6):834.

Dorsey, E. R., D. Jarjoura, and G. W. Rutecki. 2003. Influence of controllable lifestyle on recent trends in specialty choice by US medical students. *JAMA* 290(9):1173–78.

Epstein, R. M. 1999. Mindful practice. *JAMA* 282(9):833–39.

Etienne, P. M, and E. R. Jullian. 2001. Identifying behaviors of successful medical students and residents. http://www.aamc.org/data/aib/.

Fein, E. H., M. L. Vermillion, and S. H. J. Uijtdehaage. 2007. Pre-clinical medical students' exposure to and attitudes toward pharmaceutical industry marketing. www.med-ed-online.org/pdf/Res00245.pdf.

Frankford, D. M., and T. R. Konrad. 1998. Responsive medical professionalism: Integrating education, practice, and community in a market-driven era. *Acad Med* 73(2):138–45.

Freidson, E. 2001. *Professionalism: The third logic.* Chicago: Univ. of Chicago Press.

Ginsburg, S., N. Kachan, and L. Lingard. 2005. Before the white coat: Perceptions of professional lapses in the pre-clerkship. *Med Educ* 39(1):12–19.

Ginsburg, S., G. Regehr, and L. Lingard. 2004. Basing the evaluation of professionalism on observable behaviors: A cautionary tale. *Acad Med* 79(10 suppl.):S1–S4.

Ginsburg, S., et al. 2000. Context, conflict, and resolution: A new conceptual framework for evaluating professionalism. *Acad Med* 75 (10/Oct. suppl.):S6–S11.

Hafferty, F. W. 2006a. Professionalism and commercialism as antitheticals: A search for "unprofessional commercialism" within the writings and work of American medicine. In *Healing as vocation: A medical professionalism primer*, ed. K. Parsi and M. Sheehan, 35–59. New York: Rowman and Littlefield.

Hafferty, F. W. 2006b. The elephant in medical professionalism's kitchen. *Acad Med* 81(10):906–14.

Hafferty, F. W., and B. Castellani. 2006. Medical sociology. In *Handbook of twenty-first century sociology*, ed. C. D. Bryant and D. L. Peck, 331–38. Thousand Oaks, CA: Sage.

Hafferty, F. W., and R. Franks. 1994. The hidden curriculum, ethics teaching, and the structure of medical education. *Acad Med* 69(11):861–71.

Haidet, P., and H. F. Stein. 2006. The role of the student-teacher relationship in the formation of physicians: The hidden curriculum as process. *J Gen Intern Med* 21(suppl.):S16–S20.

Humphrey, H.J., et al. 2007. Promoting an environment of professionalism: The University of Chicago "roadmap." *Acad Med* 82(11): 1098–1107.

Irvine, D. H. 2004. Time for hard decisions on patient-centered professionalism. *Med J Aust* 181(5):271–74.

Irvine, D. H. 2006. New ideas about medical professionalism. *Med J Aust* 184(5):204–05.

Kassirer, J. P. 1995. Managed care and the morality of the marketplace. *N Engl J Med* 333(11):50–52.

Kassirer, J. P. 1997. Our endangered integrity: It can only get worse. *N Engl J Med* 336(23):1666–67.

Lundberg, G. D. 1985. Medicine: A profession in trouble? *JAMA* 253(19):2879–80.

Lundberg, G. D. 1988. Editorial. American medicine's problems, opportunities, and enemies. *JAMA* 259(21):3174.

Lundberg, G. D. 1990. Countdown to millennium. Balancing the professionalism and business of medicine: Medicine's rocking horse. *JAMA* 263(1):86–87.

Lundberg, G. D. 1997. A pendulum swings and a rocking horse rocks. *JAMA* 278(20):1704.

Lynch, D. C., P. M. Surdyk, and A. R. Eiser. 2004. Assessing professionalism: A review of the literature. *Med Teach* 26(4):366–73.

Makoul, G., R. H. Curry, and D. H. Novack. 1998. The future of medical school courses in professional skills and perspectives. *Acad Med* 73(1):48–51.

McLeod, A. J. 1982. Maintaining professionalism in a material age. *Can Med Assoc J* 126(7): 847–48.

Mechanic, D. 2000. Managed care and the imperative for a new professional ethic: A plan to address the growing misfit between traditional medical professionalism and emerging health care structures. *Health Aff* 19(5):100–111.

National Board of Medical Examiners (NBME). 2005. The behaviors of professionalism. http://ci.nbme.org/professionalism.

Papadakis, M. A., et al. 1999. A strategy for the detection and evaluation of unprofessional behavior in medical students. *Acad Med* 74(9):980–90.

Papadakis, M. A., et al. 2005. Disciplinary action by medical boards and prior behavior in medical school. *N Engl J Med* 353(25):2673–82.

Relman, A. S. 1980. The new medical-industrial complex. *N Engl J Med* 303:963–70.

Relman, A. S. 1998. Education to defend professional values in the new corporate age. *Acad Med* 73(12):1229–33.

Riddick, F. A. Jr. 2003. The code of medical ethics of the American Medical Association. *Ochsner J* 5(2):6–10.

Ross, J., et al. 2007. Pharmaceutical company payments to physicians: Early experiences with disclosure laws in Vermont and Minnesota. *JAMA* 297(11):1216–23.

Rowley, B. D., et al. 2000. Can professional values be taught? A look at residency training. *Clin Orthop Relat Res* 378:110–14.

Sierles, F. S., et al. 2005. Medical students' exposure to and attitudes about drug company interactions: A national survey. *JAMA* 294(9):1034–43.

Stark, F. H. 1989. Physicians' conflicts in patient referrals. *JAMA* 262(30):397.

Starr, P. E. 1982. *The social transformation of American medicine: The rise of a sovereign profession and the making of a vast industry*. New York: Basic Books.

Steinman, M., M. Shlipak, and S. McPhee. 2001. Of principles and pens: Attitudes and practices of medicine housestaff toward pharmaceutical industry promotions. *Am J Med* 110(7):551–57.

Stelfox, H. T., et al. 1998. Conflict of interest in the debate over calcium-channel antagonists. *N Engl J Med* 338(2):101–6.

Stern, D. T. 2005. *Measuring medical professionalism*. New York: Oxford Univ. Press.

Stern, D. T., A. Z. Frohna, and L. D. Gruppen. 2005. The prediction of professional behavior. *Med Educ* 39(1):75–82.

Sullivan, W. M. 2005. *Work and integrity: The crisis and promise of professionalism in America*, 2nd ed. San Francisco: Jossey-Bass.

Swick, H. M. 2000. Toward a normative definition of medical professionalism. *Acad Med* 75:612–16.

Tholhurst, H. M., and S. M. Stewart. 2004. Balancing work, family and other lifestyle aspects: A qualitative study of Australian medical students' attitudes. *Med J Aust* 181(7): 361–64.

Todd, J. S., and J. K. Horan. 1989. Physician referral: The AMA view. *JAMA* 262(3):395.

Veloski, J., et al. 2004. *Measuring professionalism in medicine: January 2004 compendium:*

Summaries of methods reported in 134 studies published 1982–2003. Philadelphia: ABIM Foundation.

Veloski, J., et al. 2005. Measuring professionalism: A review of studies with instruments reported in the literature between 1982 and 2002. *Acad Med* 80(4): 366–70

Wear, D., and M. G. Kuczewski. 2004. The professionalism movement. Can we pause? *Am J Bioeth* 4(2):1–10.

Whitcomb, M. 2005a. Fostering civic professionalism in tomorrow's doctors. *Acad Med* 80(5):413–14.

Whitcomb, M. 2005b. Medical professionalism: Can it be taught? *Acad Med* 80(10):883.

Wynia, M. K., S. R. Latham, and A. C. Kao. 1999. Medical professionalism in society. *N Engl J Med* 341(21):1612–16.