

Complexity and the Role of Ethics in Health Care

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INTRODUCTION

This article addresses the problem of organizational change in a rapidly changing institutional sector, the United States health care system. After a brief respite, the cost of health care has continued to rise. In addition, industry leaders are concerned about the rate of medical errors and other threats to quality that result in the needless deaths of between 44,000 and 92,000 Americans per year (Kohn *et al.*, 2000). Thus, the health care system and its components are under pressure to improve the quality of processes and outcomes of care, but simultaneously they are wrestling with demands to reduce, or at least constrain, costs (Kleinke, 2001; Robinson, 1999; Scott *et al.*, 2000).

Even when change is necessary, conflicts of values and goals can impede the capacity of a complex organization to implement those necessary changes. The extent to which the values of its members are congruent with and further the goals of the organization plays an important role in its success in initiating and surviving change. Congruence in values between the organization and its members can result in an ethical climate that is conducive to and supportive of change, but such congruence will depend on the appropriate identification of the systems and processes that make up the organization's culture.

The influential Institute of Medicine, a research organization devoted to problems of the US health care system, recently addressed the problem of improving that system's quality by recommending that it be approached as a complex adaptive system (Committee on Quality and Health Care in America, 2001; hereafter CQC). In what follows we accept that committee's assumption that this approach will prove fruitful in addressing the problems of this troubled sector, and focus on one segment of the larger system, the health care organization. We distinguish between an adaptive and a mechanical approach to its subsystems and processes, and describe what we mean by a positive ethical climate, and its role as an indicator of organizational culture. We discuss actual and potential damaging effects of approaching adaptive systems mechanically, and recommend an organization ethics program to increase the flexibility of the health care organization's culture in a way that does not threaten its cohesiveness.

COMPLEXITY AND HEALTH CARE

There has been considerable work done in the last few decades applying complex systems theory, the study of the dynamics of change, to social systems. Despite significant success in generating applicable models in other disciplines, complexity is not yet a science when applied to some areas of human social interactions. However, complexity theory offers a new perspective on the relationships that make up various systems, and in particular, the approach can be useful in understanding the relationships that characterize organizations. As a science applied to organizations, complexity theory recommends the empirical study of organizational populations to develop models that can explain organizational dynamics and open up the possibility of interventionist strategies (Dooley & Van de Ven, 1999: 358).

This descriptive and analytical task, which "models how microstate events self-organize into emergent aggregate structures" (McKelvey, 1999: 5) is beyond the scope of this article. Our more modest goal is to adopt a complexity *perspective*. In this approach, complexity is not a methodology, but a way of thinking about organizations (Mittleton-Kelly, 1997: 3). Scholars occupied with particular problems in the social sciences have found the approach illuminating in their own areas, and there are a growing number of influential publications on strategy and organizational complexity (Mittleton-Kelly, 1997; Olson & Eoyang, 2001; Stacey, 1995, 1996, 2000).

A "system" is a complex of interacting components, together with the relationships between them, which permits the identification of a boundary-maintaining entity or process (Laszlo & Krippner, 1988: 51). Systems may be micro (small, self-contained, relatively autonomous) or macro (complex, with a large number of interconnections). There is a difference between primarily mechanical and primarily adaptive systems. This distinction, in terms of rigidity, is fundamental. It describes how the system is designed and how it responds to external stimuli. Social systems differ from natural systems in that they incorporate human agents as components, affecting and affected by other agents and the environment, capable of free will and innovation. Approaching the health care organization as a complex adaptive system emphasizes interrelations, interactions, and connectivity (Zimmerman & Dooley, 2001: 73), an approach that is intuitively appealing when applied to health care, a service industry with human interaction at its core.

The Institute of Medicine report on quality suggests an orientation on the goal of the health care system: to continually reduce the burden of illness, injury, and disability, and to improve the health and functioning of the people of the United States (CQC: 39). It gives six specific aims to be kept in mind as values to be maximized in developing strategies for change: The resulting

system should be safe, effective, patient centered, timely, efficient, and equitable (CQC: 40). The recommendations bring into prominence the normative aspect of organizational function: the values and obligations felt by individuals within the health care organization in carrying out their activities. The recommendations of this report, conceived and forwarded in the spirit of complex adaptive thinking, can be implemented in that spirit, in which case they will forward the goals of the report, or taken more mechanically, in which case they may not be of much help.

A health care organization is characterized by a number of complex functions, processes, and roles, where objectives are often divergent, leadership roles are shared, and power is diffuse (Denis *et al.*, 2001). It is composed of interlocking micro systems, some of which may be primarily mechanical in nature. A system designed to produce predictable results where there is a strong consensus about what outcomes are desirable can usefully be viewed and treated as a mechanical system. In mechanical systems we can predict in great detail the interaction of each of the parts in response to a given stimulus. For instance, a health care organization may employ mechanical processes in its billing or in other procedures that are expected to occur in the same way time after time. When deviation from the anticipated interaction occurs, it is unexpected and generally provokes study and action to prevent recurrence (Plsek, 2001).

When a system has as its primary working parts human beings in interaction, however, the parts of the system “have the freedom and ability to respond to stimuli in many different and fundamentally unpredictable ways” (Plsek, 2001: 310). A health care organization employs teams to evaluate, treat, and monitor patients. These teams will be composed of case managers, doctors, nurses, social workers, chaplains, and others. The interactions of the team members are not always identical and so their consequences cannot always be foreseen or planned. Unplanned consequences can be perceived as an error, or as “emergent, surprising, creative behavior” (Plsek, 2001: 310) If the right conditions are present, a patient team may interact together to produce surprising and creative solutions to specific problems.

ETHICS AND COMPLEXITY

We said above that the recommendations of the Institute of Medicine report on quality bring into prominence the values and obligations felt by individuals within the health care organization in carrying out their activities. Organizations also demonstrate their values and obligations through their actions and decisions. For instance, an organization can be operating completely in accord with legal regulations and still be viewed as behaving “unethically” according to generally accepted social norms, by treating its employees unfairly, taking advantage of the ignorance of its patients, or treating objects of wider social concern—endangered species, the environment, underdeveloped societies—in ways with which constituent members of the organization feel uncomfortable. Conversely, an organization can clearly express its agreement with all the generally accepted social norms that govern its areas of activity, but fail to institute policies and procedures that accord with those values, creating dissonance in its membership between its espoused values and its actual behavior. Because the approach of the Institute of Medicine’s report focuses on goals and values to be realized, the ethical climate of a health care organization becomes an important indicator of how successfully an organization is orienting itself on its ultimate objectives.

The terminology of “ethical climate” comes from a large body of studies of organizational culture and climate in organization theory (Collins & Porras, 1994; Sims, 2000; Trevino & Nelson, 1995; Victor & Cullen, 1988). Recent scholarship has noted that the terms “culture” and “climate” are sometimes used interchangeably and often refer to the same empirical indicators (Denison, 1996; Detert *et al.*, 2000). We distinguish the *culture* of the organization—its structures, administrative style, priorities and values, degree of tightness of interrelations, and feedback loops—from the *climate*, its impacts on its constituent members. The reactions of the individuals who make up the organization to the structures, processes, and rules that instantiate its espoused values result in a positive ethical climate if the organization furthers their feelings of agency and reinforces their personal and professional values, and a negative one if it impedes them. The culture of an organization conceived as a complex adaptive system may enact a different set of values and structures than an organization that conceives of itself as a mechanical system, and its ethical climate will be different as a consequence.

A positive ethical climate will have at least two important characteristics. First, it is the reflection of an organizational culture in which the mission and vision of the organization inform the expectations for professional and managerial performance and are implemented in its actual practices. Second, it embodies a set of values that reflect social norms for what such an organization should value. In a health care organization, a positive ethical climate will result if the organization’s constituents are aware of its mission to provide excellent care at reasonable cost, and will work to bring their activities at all levels of function in line with that mission. An organizational culture that encourages, supports, and rewards excellent professional standards and expert professional judgment will have a positive ethical climate insofar as its constituent members have a wide knowledge of, and internalization of, organizational values, and perceive those values as consonant with their independent professional and individual values and standards. An organization in an environment that is forcing change upon it, or that desires to improve and adapt but has structures or rules that impede change or impose change without consensus, will have a negative ethical climate: low morale and impeded agency. In such a case, the individuals whose decisions and behavior constitute the organization will perceive it to be mouthing values on which it does not act, or to be impeding the processes that it is simultaneously demanding.

In health care organizations there are several loci for normative consideration of organizational and individual actions. The legal department attends to organizational compliance with federal, state, and local regulations and legislation. There may be a

committee of medical staff to deal with professional conduct by physicians, and hospitals of more than 200 beds are required for accreditation to maintain an institutional ethics committee or process charged with consultation on conflicts arising in decision making for patient care (Joint Commission on Accreditation of Healthcare Organizations, 1992). Institutional ethics committees as presently constituted have primary responsibility for the clinician/patient dyad and the policies associated with that relationship. This already operating normative locus in the institution, if expanded and cultivated as recommended in this article, can serve some of the wider purposes of the organization by being the custodian of the organization's ethical climate.

In what follows, we suggest that the ethical climate of an organization is an indicator for the extent to which it is adapting to the requirements for survival and success in the current environment of turbulent change; that the more a health care organization adopts a "complexity" approach to appropriate systems and processes the more positive the ethical climate will be; and, finally, that an organization ethics process, introduced in an adaptive, rather than mechanical, spirit, can encourage and sustain a positive ethical climate.

We agree with the Institute of Medicine that the current situation in health care requires flexibility, adaptability, and a strong orientation on the goals and mission of the system: precision in areas of high predictability where there is a strong consensus about what outcomes are desirable, such as quality control and efficiency of process, combined with flexibility in areas of less predictability, where successful outcomes depend on expert judgment and experience. Needless to say, one of the greatest difficulties confronting any organization in tumultuous times is properly to distinguish the areas in which greater control is an advantage from areas in which it will prove an impediment. If these areas are misidentified, they will be treated inappropriately and the goals of the system may become obscure to those whose function it is to realize them, while if the areas are appropriately identified, the goals of the system components will be clear.

QUALITY AND THE HEALTH CARE ORGANIZATION

Organization theorist Ralph Stacey calls the simultaneous presence of two self-contradictory, essentially conflicting forces a "paradox." It is possible, in some instances, to resolve the paradox by reframing the problem or by consistently choosing one force all the time. In other instances, it may not be possible to remove one or the other force; both must be accommodated at the same time, and it is only possible to do this by continually shifting priorities (Stacey, 2000: 12). The current situation in health care is rife with such competing pressures. We will discuss two such paradoxes, one a product of environmental pressures on the health care organization, one an internal one.

AN ENVIRONMENTAL PARADOX: COST CONSTRAINT VS. QUALITY IMPROVEMENT

The delivery of health care has always been a business, but in the US it has historically been a business that was generously funded by a society that believed health care was more than simply a market commodity. Despite criticisms that the industry was wasteful, and that payment mechanisms and government funding incentivized unnecessary treatment and excess capacity, it can be reasonably argued that the US health care system reflected the values of society concerning the delivery of care for most of the last century (Starr, 1982). But that has changed.

Much of the current disarray in the health care system can be traced to the reluctance of payers to continue to fund the increasing costs of care. This changing paradigm has caused assumptions about the values surrounding care to change as well. Both the costs and the quality of the system are in need of improvement. However, for an individual health care organization, the net effect can be its being subjected simultaneously to incompatible pressures: "improve quality, whatever the cost" and "constrain costs, whatever the impact on the quality of care." While use of computer-based clinical decision-support systems, for instance, can reduce errors in drug selection, dosage, interactions, and side effects, the initial expense of the technology may be prohibitive for a small hospital struggling for economic survival. Reducing staffing may save on payroll expenses, but have undesirable effects on patient satisfaction and safety.

As market problems began to have a greater impact on hospital management, market solutions began to appear as well. Health care organization leaders, faced with revenue squeezes, a radical departure from the past, looked to other industries to derive techniques that could help them restrain the costs of health care. These techniques included restructuring through merging, downsizing, consolidating to eliminate duplicate structures and excess capacity, and financial incentives to control clinician behavior. These techniques share the same goal, of controlling costs through changing the culture of the organization, and that has meant changing its ethical climate.

Many manufacturing industries have introduced various "quality improvement" technologies to improve the efficiency of their production processes, and these technologies later spread to service industries, including health care. The hope, and sometimes the promise, was that improving efficiency of process would also reduce costs. Many of these techniques were designed in the automotive and airplane industries and employed as highly mechanical systems (Grant *et al.*, 1994; Pande *et al.*, 2000). The technologies employed by these initiatives are not flexible, relying as they do on reducing waste or the misuse of resources through the elimination of variation in process, and monitoring outcomes through qualitative accountability mechanisms. Their application in health care delivery organizations is problematic, because they typically assume that

tightening up the system will improve efficiency, and improved efficiency will lead to a more effective system.

However, in health care increased efficiency in processes may or may not improve the effectiveness of outcomes. Complexity thinking reminds us that in the real world a fixed set of inputs will never produce a predictable set of outcomes, even when those inputs are apparently similar and other factors are held constant. “In social systems, there are always an infinite number of inputs that cannot be accounted for fully or held constant” (Kleinke, 2001: 110). Changes in core functions need to be introduced in a way that acknowledges the complexity of the organization and allows for flexibility, monitoring their impact and accommodating to unexpected results.

AN INTERNAL PARADOX: EVIDENCE-BASED MEDICINE VS. PATIENT PREFERENCES

Change in the social environment of health care is imposing the conflict between cost containment and quality improvement on the health care organization, because of reluctance or inability to continue to support increasing costs. However, there are also competing values that must be negotiated by individual practitioners and by organizations in evaluating outcomes and the effectiveness of care.

Improving the quality of outcomes of clinical practice tends to focus on standardizing treatments of the same disease across practitioners and practice locations, through clinical guidelines and, in the last decade, through increasing emphasis on evidence-based medicine (Kimberly, 2003: 209). Early definitions of evidence-based medicine emphasized the “conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients” (Sackett *et al.*, 1996). It recommends utilization of population-based studies of treatment outcomes in different locations, and suggests that variation in care of similar cases is a negative value and that uniformity and consistency across cases are desirable.

At the same time, there is increasing attention to patient-centered care—care customized, as the Institute of Medicine report puts it, “according to patient needs and values” (CQC: 67). In the report, both patient-centered care and evidence-based medicine are proposed as important values to be maximized in any reforms of health care delivery. Evidence-based medicine is defined as “the integration of best research evidence with clinical expertise and patient values” (CQC: 76). The emphasis on customization based on patients’ needs and values suggests variety and flexibility, giving maximal weight to clinical expertise and patient values. The emphasis on standardization for uniformity of treatment constrains that maximal flexibility. Even within one central recommendation of the report, competing tensions toward mechanization and adaptation are therefore visible. Administrative changes that move the institution toward greater uniformity in clinical function may risk constraining clinical expertise or patient values.

How this tension is resolved will depend on whether or not the health care organization appropriately distinguishes subsystems that should be approached mechanically from those that should be treated adaptively, whether it is able to distinguish those areas where greater control is appropriate from those areas where it is not appropriate. While the employment of efficiency processes in some of the mechanical functions and subsystems of the health care organization may achieve savings, approaching direct patient care in a mechanical, rather than adaptive, way may be a threat to the flexibility that is crucial if professional expertise and patient values and preferences are going to be respected in clinical decision making. These choices will affect the culture and the ethical climate of the organization, and determine the relationship that the organization has with its constituents.

Changing the culture of the health care organization to reflect efficiency through a rigid approach has produced what many Americans view as unacceptable results. Quality of care has suffered as team empowerment has failed (Bednash, 2000), the physician-patient relationship is suspect (Feldman *et al.*, 1998), nurses are leaving the field in droves (Bednash, 2000; Berliner & Ginzber, 2002), many people are frightened of health care organizations (Kao *et al.*, 1998), and flexibility in care is giving way to utilization measurements, punitive accountability mechanisms, and what some physicians call “cook-book” medicine (Flores *et al.*, 2000). Many of these results we attribute directly to the imposition of a complexity of rules formulated through the management techniques we mentioned above, and imposed without regard for their appropriateness for the system or subsystem in question, or for the beliefs, values, and obligations of those affected (Mills & Rorty, 2002).

CONFRONTING PARADOX

Balancing tensions or competing goals is nothing new. Organizations and individuals do it on a daily basis. The competing imperatives that we see in health care cannot be reconciled by reframing the issue, nor is it a simple matter of prioritization. The problem is one of balancing the provider mission of providing excellent patient care, with attention to patients' values and preferences, and the goal of achieving it at a reasonable cost, which many leaders of the "quality movement" in health care have taken to mean reducing variations in delivery (Becher & Chassin, 2001; Berkowitz & Checkley, 2000; Chassin *et al.*, 1998). Complexity theory, however, highlights the importance of deciding what kind of system design is appropriate for the task at hand. If a health care organization can appropriately identify those systems that call for mechanization and those that require adaptivity, it can make appropriate choices within the context of achieving its goal of excellent patient care, thus sustaining an appropriate culture and aligning important values.

For reasons of internal and external pressures, the health care system is in a turbulent period of change. However, if we approach the health care organization as a complex adaptive, rather than a mechanical, system, and accept the assumption of complex adaptive systems theory that the ability to change and to encourage innovation will increase the likelihood of organizational survival and success, we need to consider what structures and programs the health care organization might need to promote congruity of values among its agents. How can a positive ethical climate be developed, articulated, and maintained? We explore below a process that the health care organization can introduce to encourage the flexibility and creativity necessary for its mission.

THE ORGANIZATION ETHICS PROCESS

In 1995, the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) introduced a requirement for accreditation that requires health care organizations to conduct their business and patient care practices in an "honest, decent and proper manner," while maintaining the priority of excellent clinical care. The JCAHO called this mandate "organization ethics" (Joint Commission on Accreditation of Healthcare Organizations, 1996: 95-7). A broader, more process-oriented definition of health care organization ethics has been advanced by the Virginia Healthcare Ethics Network:

Organization ethics consists of [a set of] processes to address ethical issues associated with the business, financial, and management areas of healthcare organizations, as well as with professional, educational, and contractual relationships affecting the operation of the healthcare organization. (Spencer et al., 2000: 212)

Either approach to "organization ethics" recognizes that the quality of care experienced by patients depends in part on the relationships that the health care organization has with its stakeholders. These relationships depend on stakeholder interactions. Both approaches insist that health care organizations pay attention to these relationships and interactions by creating a positive ethical climate throughout the health care organization. This approach directs attention to how the mission of the health care delivery organization—to provide excellent care at reasonable cost—is carried out in the organization's business, clinical, and professional practices (Spencer *et al.*, 2000). Thus, it directs attention to the culture of the organization.

Although no particular structure for such a program or process is specified by the accrediting agency, a model exists in the clinical ethics committees already functioning in most hospitals. Some clinical ethics committees are expanding membership and responsibility to take on organization ethics roles; other institutions have established a separate committee to address broader organizational issues (West & White, 2001).

A program designed to meet the JCAHO organization ethics mandate could be approached mechanically or adaptively. Consonant with our approach in this article, we do not propose that an organization ethics program take on a rule-generating role, nor should it constitute yet another decision-making authority. Instead, it should include representatives of the main functions of the organization, report to either top management or the governing board, and function as a forum for the discussion of perceived conflicts of values arising in the course of organizational strategic change. It would have an advisory and educational mandate.

For instance, in the case of proposed changes to clinical functions for cost control, the program might form an *ad hoc* team to strategize about what form the changes might take to reduce costs while maximizing effectiveness. The mission and values of the organization include both financial survival and clinical excellence, so the organizational culture must include both these values, which means that the structure must have some degree of flexibility, as well as some means of adjudicating when the two conflict. The organization ethics program represents an opening for communication and adaptability—a process to bring together all stakeholders associated with difficult decisions to ensure that the voices of affected parties are represented. Conflict of values can be treated as a threat to be avoided, or as inevitable, to be utilized as an opportunity for creativity and innovation, and resolved within a broad consensus on the value of patient care. Rather than serving as a source of rules, the organization ethics program could help make many rules dispensable by supporting flexibility and creative interaction among the various agents of the health care delivery organization.

THE ADAPTIVE ORGANIZATION

The health care delivery organization is not an island, but rather a subset of a larger health care system that is itself subject to competing pressures that affect all aspects of care. It is not appropriate to assign part of its mission—excellent clinical care—to the clinical component, while leaving cost constraints to another component, the administration. The entire organization must function as an organic whole to achieve all its objectives, but that may require some adjustment of traditional roles and responsibilities. It is well advised to identify those expectations that persist through environmental alterations and define it as a health care delivery organization (i.e., reducing patient suffering, increasing clinical expertise), and work toward promoting an awareness of these expectations through the organization's beliefs, behaviors, and methods of decision making rather than through mechanical imposition of rules. However, it is important that expectations about the desired goal are clear, that the few simple rules are appropriate means to the desired goal, and that if and when the rules or expectations conflict, some way for adjudication is available.

Adaptability in an organization depends on the connections between its agents. The degree of communication and trust between organizational stakeholders is a better predictor of successful adaptation to a changing environment than are inflexible role definitions and tight compartmentalization of work units. Changes in policy or procedure will have the best chance of success if the proposed innovations are discussed in advance with those who will be most affected by them, and if their implementation is accompanied by ongoing feedback and fine tuning. Approaching the health care organization as a complex adaptive system, as recommended by the Institute of Medicine reports, will have implications for the structure, administrative style, priorities and values, degree of tightness of interrelation, and availability of options for feedback—the culture of the organization. An organization that focuses on its defining values and works to further them in a flexible and dynamic way has the best chance of surviving and thriving in a changing environment.

SUMMARY AND CONCLUSION

A new approach to the health care delivery organization is needed—one that creates the conditions for fostering information flow, connectivity, relationships, and the emergence of creative problem solving from the members of the organization (Olson & Eoyang, 2001: 19). "Complexity is not a methodology or a tool," one advocate writes, "but a way of thinking" (Mittleton-Kelly, 1997: 3). Industry leaders are beginning to adopt this way of thinking about the health care system and are urging that all of its components adopt a few simple rules to support the goal of reducing the burden of illness in the US.

We have accepted the premise of the Institute of Medicine report that problems of quality improvement in the health care system can best be addressed by adopting an adaptive, rather than a mechanical, model of that system, and have examined some implications for the health care organization, itself viewed as a complex adaptive system. To view the health care system as a complex adaptive system, as the Institute of Medicine report recommends, or the health care organization as a complex adaptive system, as we have attempted to do in this article, is to adopt a perspective on an organization that foregrounds processes, not structures, relations, and interactions, not rigid institutional roles or atomistic individuals. It takes rules and roles as thumb rules, goals, and guidelines for action, not rigid prescriptions or constraints, and emphasizes the extent to which any locus of agency, be it an individual or organization, reacts to and can influence the whole of which it is a part.

Focusing on two possible sources of conflict that affect the daily functioning of the health care organization, we have recommended adopting an organization ethics program, conceived as an internal forum for addressing conflicts of value. Positioning an organization ethics program as facilitator and guardian of a positive ethical climate can increase the health care organization's chances of attaining its long-term goals while simultaneously preserving enough flexibility to allow beneficial emergent behavior.

NOTE

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