Improving the Quality of Health Care in the United Kingdom and the United States: A Framework for Change

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HEALTH SYSTEMS THROUGHOUT THE WORLD ARE searching for more cost-effective ways of delivering care. While the focus in the past has been on constraining the growth in cost of care, new emphasis is being given to improving the quality and outcomes of care. This is in large part due to advances in health services research, which has demonstrated wide variation in both process and outcomes of care even in the most technologically advanced countries such as the United States (Wennberg 1996; Chassin, Galvin, and National Roundtable 1998; Schuster, McGlynn, and Brook 1998; Kohn, Corrigan, and Donaldson 1999) and the United Kingdom (National Health Service 1999). Another mobilizing factor has been the high-profile incidence of gross medical errors in both the United Kingdom (Bristol Royal Infirmary Inquiry Team 2000; see Dingwall and Fenn 2000) and the United States (Moore 1997). A recent survey of physicians in each country revealed that 45 percent of U.K. generalists and 49 percent of U.K. specialists believe that the quality of care provided has deteriorated over the past five years, and the figures for U.S. generalists and specialists are 56 percent and 60 percent, respectively (Commonwealth Fund 2000). The result has been a number of initiatives in both countries to improve the quality and outcomes of care.

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In the United Kingdom, efforts have included creation of a new National Institute for Clinical Excellence (NICE) to assess the cost effectiveness of new drugs and treatments, a Commission for Health Improvement (CHI) to provide technical assistance and review of individual organizations' quality-improvement efforts, and a Modernization Agency to give national leadership to patient-process redesign work. In the United States, increased attention has been given to patient safety, with proposals for creation of a national patient safety agency, creation of a national quality forum and a national committee for quality measurement and reporting, and incorporation of quality process and outcome measures for accrediting health plans (National Committee for Quality Assurance 1996) and for evaluating hospital performance for selected conditions (Bentley and Nash 1998; Hannan, Kilburn, Raca, et al. 1994; Schneider and Epstein 1998; Romano, Rainwater, and Antonius 1999; Marshall, Shekelle, Leatherman, et al. 2000). Both countries have also placed increased emphasis on the use of "breakthrough collaboratives" based on rapid-cycle small-scale "experiments" to improve quality for selected conditions (e.g., asthma, diabetes, and orthopedic surgery) and underlying processes (e.g., waiting times and medication errors) (Institute for Healthcare Improvement 1997; Nolan 1998).

What is needed to improve quality in a nation's health care system? In this paper, we take an independent look at the quality strategies in the United Kingdom and the United States and argue that these well-intentioned efforts will fail to realize their potential unless both policymakers and practitioners consider and implement a more comprehensive, multilevel approach to change. As we will show, most efforts to date have relied on relatively narrow, single-level programmatic change strategies that have been largely unsuccessful (Blumenthal and Kilo 1998; Shortell, Bennett, and Byck 1998). Further, we argue that the multilevel approach must recognize the importance of *four essential core properties* of successful quality-improvement work: (1) leadership at all levels; (2) a pervasive culture that supports learning throughout the care process; (3) an emphasis on the development of effective teams; and (4) greater use of information technologies for both continuous improvement work and external accountability.

The following sections outline the multilevel change approach and the core properties, giving examples from the United Kingdom and the United States. We then highlight some factors that will influence how

each country might adapt this framework and associated properties to fit its own political system and culture. We conclude by offering suggestions for comparative research that might inform each country's efforts.

Multilevel Approach to Change

The topic of change is one of the most studied in the social sciences. Goes and colleagues (2000) have summarized the literature along three dimensions: level of change (within the organization versus multi-organization or industry) (Meyer, Goes, and Brooks 1993), type of change (incremental first-order versus radical second-order change) (Watzlawick, Weakland, and Fisch 1974) and mode of change (top-down by deterministic logic versus bottom-up, voluntaristic, and generative) (Van de Ven and Poole 1995). Our major focus is on levels of change, but on a greater number of levels than is usually examined in the literature. Specifically, we suggest *four levels of change*: the individual, the group or team, the overall organization, and the larger system or environment in which individual organizations are embedded. We suggest that whether changes to improve quality and outcomes of care in the United Kingdom or the United States are top-down or bottom-up, whether they occur incrementally or radically, they will have to consider all four levels of change in order to maximize the probability of success. Table 1 shows the four levels, with some examples of the more prevalent approaches for quality improvement being used in both the United Kingdom and the United States. Note that some of these approaches, such as continuous quality improvement/total quality management (CQI/TQM), can operate at multiple levels; in fact, we argue that the more successful organizations will implement CQI/TQM at multiple levels. In addition to recognizing the interdependence of the various levels, it is also important to note that the effectiveness of the different approaches will be situationally determined by the problem being addressed within the context of specific organizations and environments.

Individual Approaches

Rogers' (1983) work on diffusion suggested that there were five different categories of individuals in terms of their attitude to innovation,

TABLE 1
Four Levels of Change for Improving Quality

Levels	Examples
Individual	Education Academic detailing Data feedback Benchmarking Guideline, protocol, pathway implementation Leadership development
Group/team	Team development Task redesign Clinical audits Breakthrough collaboratives Guideline, protocol, pathway implementation
Organization	Quality assurance Continuous quality improvement/total quality management Organization development Organization culture Organization learning Knowledge management/transfer
Larger system/environment	National bodies (NICE, CHI, AHRQ) Evidence-based practice centers Accrediting/licensing agencies (NCQA, Joint Commission) Public disclosure ("report cards," etc.) Payment policies Legal systems

ranging from innovators to laggards. However, strategies focusing on individuals alone in efforts to improve quality are seldom effective by themselves (DiBella and Nevis 1998). For example, efforts in the United Kingdom and United States to improve clinical performance through traditional continuing medical education, or through dissemination of practice guidelines and protocols, have not had a marked impact (Davis, Thomson, Oxman, et al. 1995; Greco and Eisenberg 1993). Educational strategies may be more powerful if used in conjunction with other interventions (Griffiths and Feder 1999). This is because individual

approaches fail to recognize that medicine is largely practiced as part of a group or team embedded within a complex organizational structure. For example, experience with academic detailing as a method to get physicians to change treatment practices (e.g., for acute myocardial infarction) found a beneficial effect only as part of an overall staged intervention that first identified opinion leaders within the organization and then initiated a series of small group meetings with physicians and nurses throughout the organization (Soumerai, McLaughlin, Gurwitz, et al. 1998).

Groups, Teams, and Microsystems

Most health and medical services are delivered in groups or teams. Teams represent a potentially powerful lever for change (Pettigrew, Ferlie, and McKee 1992). Teams are the basic building block of "microsystems." A microsystem is the smallest replicable unit within an organization; replicable in the sense that it contains within itself the necessary human, financial, and technological resources to do its work (Quinn 1992). The microsystem concept is emerging as the focus for clinical quality-improvement work (Institute of Medicine 2001). There is evidence that effectively functioning teams or microsystems are generally associated with higher quality of care (Aiken, Sochalski, and Lake 1997; Fargason and Haddock 1992; Mitchell, Fife, Chochia, et al. 1996; Shortell, Zimmerman, Rousseau, et al. 1994) but the challenge is in developing effective teams. For example, the team-based clinical audits in the United Kingdom have had mixed results to date, due to incomplete participation on the part of physicians, difficulty in measuring significant variations in practice, and lack of information sharing or communication with service managers (Scally and Donaldson 1998). Further, the overall organizational environment needed to develop such teams has been missing (Johnston, Crombie, Davies, et al. 2000). These findings illustrate the limitation of overreliance on group or team approaches to change—namely, the failure to sufficiently recognize the interdependence of teams with other parts of the organization, as well as the lack of a detailed, systematic approach to team development (Ovreitveit 1999). Given the projection of a growing elderly population with multiple chronic illnesses, the need to coordinate and improve care across teams will become more important.

Organization Level

There has been increased interest in recent years in the use of CQI/TQM approaches to improve care at an organizational level. In both the United Kingdom and the United States, early applications were focused on non-clinical business office, managerial, and financial functions. More recent applications to clinical areas have met with mixed success and little overall impact (Joss and Kogan 1995; Blumenthal and Kilo 1998; Shortell, Bennett, and Byck 1998). Among the primary barriers have been:

1. The lack of a consistent external force or driver for continuous improvement (whether political demands in the United Kingdom or market-based competition in the United States);
2. Inadequate information systems;
3. The lack of physician involvement;
4. Insufficient senior management leadership and support; and
5. Problems in adapting the principles and practices of industry-based CQI/TQM to the health care sector (Blumenthal and Kilo 1998).

Nonetheless, 93 percent of reporting U.S. hospitals claim to have adopted the basic features of CQI/TQM (American Hospital Association and Arthur Andersen 1998). Adoption rates are less clear in the United Kingdom, but the Department of Health sponsored important TQM programs in demonstration sites in the early 1990s (Joss and Kogan 1995), and a recent review of TQM adoption across the public sector argued that health care was leading the way (Morgan and Murgatroyd 1997). In the United States, there is increased use of "benchmarking collaboratives" focusing on the redesign of physician office practices targeted to patients with selected chronic conditions such as asthma, diabetes, congestive heart failure, and depression (Institute for Healthcare Improvement 1997; Wagner, Davis, Schaefer, et al. 1999). In the United Kingdom, many hospitals have been involved in a form of accreditation called "Organisational Audit."

It can be argued that these efforts to improve quality are little more than "ritualistic" responses to the institutional demands of accrediting and governmental bodies (Cole and Scott 2000; Cole 2000). Indeed, there is some evidence to suggest differences between hospitals in

regard to substantive changes made by early adopters versus the more mimetic and less substantive changes made by later adopters (Westphal, Gulati, and Shortell 1997). However, the persistence of quality-improvement initiatives in both countries and the variety of different forms are evidence against a strict or exclusive institutional argument. Rather, they suggest that a more adaptive strategic change perspective is needed, as represented by the multilevel approach advanced in this paper.

The importance of the organization as a lever of change to improve quality lies in the organization's ability to provide an overall climate and culture for change through its various decision-making systems, operating systems, and human resource practices. Pettigrew and colleagues (1992) suggest that identifying receptive contexts for change may be more important than identifying effective levers for change that might work across all contexts. The underlying culture of the organization may be an important conditioning factor for identifying receptive contexts (Garside 1999). Such organizational capacity can be built up over time, but this is slow and complex work. For example, in both the U.K. and U.S. health sectors, there has been growing interest in the extent to which "learning" organizations, which can adapt better to rapid environmental change and implement quality-improvement practices more quickly, can be developed (Senge 1990; Garside 1999). Learning organizations are "skilled at creating, acquiring, and transferring knowledge, and at modifying [their] behavior to reflect new knowledge and insights" (Garvin 1993, p. 80). Such organizations rely heavily on developing their ability to generate and manage knowledge (Nonaka 1996). Ideas about learning organizations are currently exerting influence in some of the emerging National Health Service (NHS) organizations within Britain's primary care sector. In the U.S. health sector, the idea of learning organizations has not yet become widespread, perhaps due partly to a "crisis management" mindset induced within the past couple of years by the Balanced Budget Amendment Act of 1997 and partly to cutbacks in pivate-sector managed care payments. Nonetheless, as we will suggest, developing a culture that emphasizes learning, teamwork, and customer focus may be a "core property" that health care organizations in both countries will need to adopt if significant progress in quality improvement is to be made.

Larger System and Environment

Strong change strategies may require that organizational-level shifts be reinforced by macro-level changes in the wider political economy or market of health care. Such changes are occurring in both countries. Yet, while the United Kingdom and United States differ in how they finance and pay for care, neither country currently has sufficient financial incentives for improving the quality or outcomes of care, or developing such incentives swiftly. Nor has either country yet achieved the degree of accountability or transparency (openness) of information on quality that its respective publics appear to be demanding (Millenson 1997; Davis 1999).

While professional autonomy and clinical freedom remain guiding ideologies in both countries, they appear somewhat stronger in the United Kingdom, with the result that British physicians may be in a better position to resist corporate management systems and interventions designed to improve quality. While U.K. physicians are coming under increasing challenge, and their failings are now being "named and shamed" in high-profile public inquiries, the basic institutions that underpin self-regulation have not yet been dismantled or eroded to the extent that has occurred in the United States. If the medical profession in the United Kingdom could be convinced of the need for fundamental breakthroughs in quality improvement and adopts the approaches for doing so, the chance for more rapid implementation and diffusion appears far greater than in the more loosely organized physician community in the United States.

Putting the Levels Together

While it is possible to achieve a small, limited impact by focusing on only one of the four levels for change, we believe that the greatest and longest-lasting impact will be achieved by considering all four levels simultaneously. This would mean that changes in the larger political economy of financing, payment, and regulatory policy under consideration would be aligned with and supportive of the goals and objectives of health care organizations to deliver better care. Organizations, in turn, would be designed to promote and not inhibit the work of groups or teams (the microsystems), where most care is provided. In turn, groups or teams that try to implement the new changes would take into account

the varying needs, skills, and preferences of individual members and build on each person's comparative advantage.

The multilevel approach to change does not mean that every change effort must be directed to all four levels simultaneously. Rather, it means that a change aimed primarily at one level would be considered within the context of the other three levels. For example, "outside/in" approaches involving publication of performance data on outcomes, intended primarily to affect the organizational level (individual hospital or physician practice), would have profound implications for teams and microsystems as well as individuals (Marshall, Shekelle, Leatherman, et al. 2000). It is unlikely that health care organizations would be able to respond to the publication of such performance data without initiating "secondary" levels of change at the team and individual levels. Similarly, "inside/out" approaches, such as collaborations aimed at improving the performance of individuals and teams, are unlikely to succeed without a supportive organizational environment and a favorable payment and regulatory environment. The issue is one of anticipating the barriers to change at levels proximate to the primary level of the change intervention and to implement strategies for dealing with resistance.

It is also important, however, to recognize that there are times and situations in which comprehensive change directly involving all four levels simultaneously may be needed. This occurs most frequently in times of crisis and serious emergency conditions. Whether there is a health care quality "crisis" in the United Kingdom or United States or both countries is subject to debate. If such a crisis exists, we suggest that a comprehensive multilevel change strategy is more conducive to the cultural and political environment of the United Kingdom than of the United States. This is because the British NHS exists as a system with some degree of focus and relative simplicity, as compared with the pluralistic, decentralized system in the United States. Thus, efforts to change individual physician behavior through education, team and microsystem behavior through clinical audits and quality-improvement collaboratives, organizational behavior through clinical governance and organizational audits, and the external environment through the creation of NICE, CHI, and the Modernization Agency could be viewed and implemented as a "package" designed to create an aligned set of resources and incentives for concerted improvement action at all levels. What is not clear is whether U.K. policymakers and practitioners either intended or see the emergent potential of such alignment.

In the United States, efforts toward such massive change face significant hurdles, due to the complex, competing groups of stakeholders and the relative lack of focus of the system at large. The U.S. analogue to the British National Health Service is not the U.S. health system at large but rather individual systems, such as Kaiser-Permanente or the Veterans Administration. It is more possible that marked changes to improve quality and outcomes of care will be accomplished within such systems.

In addition to more explicit consideration of the multilevel approach to change, the literature and recent experience suggest that both countries must give greater attention to issues of leadership, culture, team or micro-system development, and information technology. Quality-improvement initiatives that have neglected these issues have largely failed (Joss and Kogan 1995; Pointer and Sanchez 2000; Fried, Rundall, and Topping 2000; Charns and Gittell 2000; Shortell, Bennett, and Byck 1998; Institute of Medicine 2001). We consider these to be core properties or attributes of any successful change strategy to improve quality and outcomes of care.

Core Properties Underlying Quality Improvement

Leadership

While there are many definitions of leadership, one of the most useful is to think of leadership as an ongoing conversation among people who care deeply about something of great importance (Kouzes and Posner 1988). If enough key stakeholders in the United Kingdom and United States are genuinely upset about the state of quality in their respective countries, then forums could be developed in which these ongoing conversations can be held and the will to implement the agreed-upon solutions can emerge.

While much has been written about leadership, the most effective leaders appear to be those who use a portfolio of leadership approaches and are able to adapt these approaches to fit the needs of different situations, groups, and individuals (Hershey and Blanchard 1977; Pointer and Sanchez 2000). Some situations call for sharing technical expertise by showing people how to do things and exercising relatively close

supervision. Others call for delegation and empowerment while still ensuring accountability for results.

For making changes to improve quality, an important distinction needs to be made between transactional leadership and transformational leadership (Burns 1978). Transactional leadership works within the status quo and existing rule structures. It tends to emphasize incremental change by focusing on symptoms or "single-loop" learning (Argyris and Schon 1978). Transformational leadership, in contrast, works to upset the status quo and existing rule structures and to replace them with a "new order" and way of doing things. It challenges existing assumptions and, as such, represents "double-loop" learning, focusing on "breakthrough" changes. A major issue for both U.K. and U.S. policymakers and practitioners is to determine whether improvements in quality can be made within the current set of rules and assumptions (in which case transactional leadership will suffice) or whether these changes require a new set of rules and new assumptions (in which case transformational leadership approaches will be needed).

To improve fundamentally the overall quality of care in a country, leadership must be addressed at all four levels previously discussed—the individual, the group or microsystem, the organization, and the larger environment. Political leaders and the government must provide an environment that is conducive to quality-improvement work in relation to payment and regulatory policies. There must be a demand for quality. Organizational leaders must establish a vision for quality improvement, provide a supportive environment with the necessary resources, and insist on accountability for results. Groups or microsystems must assume leadership to implement the characteristics of effective teams discussed previously. And individual clinicians, managers, and policymakers need to look within themselves and decide whether, when, and how they want to "step up to the plate" to meet the difficult challenges of changing how medicine is practiced.

Empirical support is growing for the importance of leadership by top management and government to sustained quality-improvement efforts (Weiner, Alexander, and Shortell 1996; Weiner, Shortell, and Alexander 1997). The importance of physician involvement in clinical leadership is also underscored (Blumenthal and Scheck 1995). Leadership may come from many quarters, and may take the form of small groups or networks as well as heroic individuals. We believe that sole reliance on the charismatic individual as a source of leadership is a mistake, epecially in

multiple-stakeholder-based systems such as health care, where the different groups may expect different management styles. Strategic leadership is a task that is likely to involve core skills in communication, networking across conventional boundaries, analytic and diagnostic skills, creating a shared vision, and effective system design as well as performance management.

Both countries need leadership development programs that focus on quality improvement. While it is understandable that these programs are likely to be developed separately—some aimed at clinicians and others aimed at managers and boards—we believe this would be a mistake. We suggest that a more effective approach would be to conduct such training with groups of physicians, nurses, managers, and board members from each institution participating. Such a team- or group-based approach reinforces the group/team microsystem approach to care delivery discussed earlier, helps build greater understanding among the organization's leaders, and spreads leadership practices more rapidly within the organization than programs aimed at each group separately. Moreover, while leadership is important, structural and contextual factors (e.g., organizational culture and incentives systems) are also likely to exert effects, so we caution against radical subjectivism and the belief that "all you need is strong leadership" to implement quality systems effectively.

Organizational Culture

Organizational culture has been defined as "a set of basic tacit assumptions about how the world is and ought to be that is shared by a set of people and determines their perceptions, thoughts, and feelings and, to some degree, their behavior" (Schein 1985). It involves the norms, values, beliefs, and behaviors of an organization reflecting "how we do things around here." There is growing recognition of the importance of organizational culture in effecting organizational change in both the United Kingdom (Garside 1998) and the United States. Organizational culture is a fundamental yet intangible element within health care organizations, where planned change strategies are much more complex than for a simple change in structure. The development of an organizational culture that truly valued quality is an important force for change.

It is important to recognize that culture operates at multiple levels from the macro political/institutional level to the organizational and

small group levels. At the macro political/institutional level, one can consider the culture of the NHS or the culture of the medical profession at large. Attempts to change culture at these levels is a massive undertaking that usually requires either a significant change in political leadership or a marked shift in how a given profession thinks of itself. One might well ask whether the culture of the NHS in the United Kingdom or the culture surrounding the role of the federal versus state versus private-sector approaches to health care delivery in the United States is conducive to making the changes needed for breakthrough improvements in quality to occur. The same question can be asked regarding the cultures of the medical profession in each country.

At the organizational level, it is important to recognize that health care organizations are inherently "multicultural," given the wide variety of professionals, subgroups, divisions, and teams operating within them. A major cultural divide that can serve as a deterrent to quality-improvement work is that between the organization's clinical culture and its managerial culture. The clinical culture is based on the deep socialization experience in professional school in which knowledge is based primarily on the biological sciences, more or less direct cause-effect relationships, relatively short time-frames for action, responsibility for one's individual patients, and the need for professional discretion in deciding how best to treat one's patients. In contrast, the managerial culture is based primarily on the social and behavioral sciences, less-clear cause-and-effect relationships, longer time horizons in planning, and a focus on groups and populations. The tacit knowledge and culture of practicing physicians often resists efforts by "managers" (including those with clinical backgrounds) to standardize practices and impose rules and regulations designed to achieve organizational objectives. Simply put, while managers view physicians and other professionals as a means for achieving the organization's overall patient care goals, physicians view organizations as a means for achieving their goals for individual patients as well as promoting the physicians' professional career.

The cultural divide, of course, exists not only between medicine and management but within the medical and health professions as well. A large part of the challenge of forming effective teams lies in bringing together professionals from very different backgrounds and cultures. The challenge in both the United Kingdom and the United States is in getting physicians and other health professionals to adopt a truly patient-centered quality-improvement focus that attempts to eliminate

unnecessary variation in clinical practice and continually identify new practices that improve care and patient outcomes.

Developing a culture conducive to quality improvement will require "double-loop" learning (noted earlier), which questions underlying assumptions, and "meta-learning," in which the organization evaluates how it learns best and makes efforts to improve on its learning practices (Argyris and Schon 1978; Davies and Nutley 2000). Newly evolving research is beginning to identify such cultures and establish their relationship to the implementation of continuous quality improvement, clinical guidelines and protocols, and quality and outcomes of care. For example, a group-oriented culture emphasizing affiliation, teamwork, coordination, and participation appears to be associated with greater implementation of continuous quality-improvement practices (Shortell, O'Brien, Carman, et al. 1995). A group-oriented culture was also associated with higher physical and mental functional health status scores in patients six months following coronary artery bypass graft surgery (Shortell, Jones, Rademaker, et al. 2000). There is also some evidence that a patient-centered culture in the presence of aligned compensation incentives is positively associated with the implementation of clinical guidelines (Shortell, Zazzali, Burns, et al. 2001). In almost all cases, an overly hierarchical culture emphasizing rules, regulations, and reporting relationships is negatively associated with implementation of quality improvement and related practices.

Team/Microsystem Development

As previously noted, the creation of quality-oriented health care teams or microsystems represent a key leverage point for change. One of the most important skills of all health professionals is their ability to work together in teams, and this appears to vary markedly from one local clinical group to another (Ferlie, Fitzgerald, and Wood 2000). The need for these skills will only increase in importance as the percentage of people with multiple chronic illnesses continues to grow.

The factors associated with making teams effective are reasonably well identified. They include determining the right team size given the problem or task at hand; working to reduce the negative effect of status differences; clarifying the norms that will govern team performance; clearly establishing the roles of individual team members, as well as

the overall role of the team within the larger organization; promoting cohesiveness, particularly when the work is highly interdependent (e.g., chronic-care management teams, rehab teams); providing leadership that emphasizes standards of excellence, encourages interaction, communicates clear goals and expectations, responds to changing needs, and acquires needed resources; implementing timely, accurate, and open communication among members; encouraging creative solutions to problems; and having the ability to manage conflict constructively (Fried, Rundall, and Topping 2000). The challenges of the task itself—such as the degree of autonomy, feedback on how well one is doing, task significance, and skill variety—can also influence team effectiveness (Hackman and Oldham 1980). Teams that can be self-managing tend to be associated with better performance because self-management increases members' responsibilities and ownership of the work (Cohen and Bailey 1997).

There are a number of challenges to the development of effective teams to improve quality in both the United Kingdom and United States. Of particular note is the reallocation of tasks and responsibilities that is occurring as a function of new technology and treatment techniques, new licensure and certification laws, new modes of payment, and efforts to cut costs, as well as efforts to better meet patient needs and expectations. For example, in the United Kingdom, the reallocation of tasks to senior and experienced nurses from junior nurses is a major issue. A new group of nurse "consultants" has been announced within the NHS, and nurse managers will be given additional budgetary powers. This could aggravate tensions and disputes between the professions unless it is handled sensitively. On the positive side, it could help promote more rapid patient access and reduce waiting times. From a quality perspective, a key development will be the emergence of more effective multidisciplinary teams, where knowledge can be shared across clinical boundaries. At present, knowledge is "sticky"—that is, contained within a particular profession or clinical segment—and does not flow to other occupational groups (Ferlie, Fitzgerald, and Wood 2000). Primary patterns of education and socialization too often remain within individual disciplines, and the importance of multidisciplinary work emerges much later in health professionals' careers.

For breakthrough improvements in quality to occur in the future, some policymakers believe it is necessary to redesign health care teams as microsystems (Institute of Medicine 2001). Examples of microsystems

include primary care, case management, and disease management teams. Organizations in other sectors have used microsystems to improve efficiency, product quality, service quality, and customer and employee satisfaction (Quinn 1992). The essential elements of a health care microsystem include: (1) a core team of health professionals; (2) a defined population that they care for; (3) an information environment to support the work of the caregivers and patients; and (4) support staff, equipment, and facilities (Nelson, Batalden, and Mohr 1998). The job of the microsystem is to standardize care where possible, based on the best current evidence; to stratify patients based on medical need, and provide the best evidence-based care within each stratum; and to customize care to meet individual needs for patients with complex health problems.

If microsystems develop truly patient-centered cultures, then the "rules of engagement" between health care professionals and patients begin to change. For example, rather than care being provided only between 8 a.m. and 5 p.m., care is provided on an as-needed basis—24 hours a day, 7 days a week, 365 days a year. Rather than providing care based on one's personal experience and expertise, care is provided based on evidence of best practices and the shared knowledge of the health care team and the system at large. Rather than variance in care being driven by professional autonomy, variance is driven only by differences in patient needs and values. Rather than providing care based exclusively on office visits, care is provided based on ongoing information-rich healing relationships facilitated by the Internet (Institute of Medicine 2001). Facilitating these changes will require incorporating advances in information technology.

Information Technology

The health care sector lags behind most other sectors in the use of information technology (IT) to conduct its activities. For example, in the United States, about 2 percent of hospital operating budgets are devoted to information systems (IS), versus 7 to 10 percent in most other sectors of the economy (Dorenfest and Associates 1995). While business office and financial transactions are increasingly computerized, clinical transactions are not. The NHS has been slow to adopt e-mail, compared with private-sector providers and some other parts of the U.K. public sector (notably universities). There is perhaps a fear of large-scale investments in IT/IS, given that some previous large projects did not fulfill

their promise. In both countries, information technology represents a powerful untapped force for changes that can improve the quality of care.

There are four general ways in which information technology can improve care. The first is in providing more accurate and timely information on the results of patient treatment in real time so that corrective, continuous improvement action can be taken. Application of the electronic patient record (EPR) is the best example of this application. The second is the use of the Internet to connect patients with their physicians and the health care team at large for multiple purposes: health education, disease prevention, health promotion, and disease management (Sennett 2000). Patients can provide information directly through a Web browser to the physician's office, where relevant findings can be summarized and treatment plans developed and communicated. This is currently occurring on a small-scale basis for patients with asthma, diabetes, congestive heart failure, and related conditions. Rather than having multiple in-person visits scheduled across a year, these patients maintain ongoing continuous contact with their physician that can result in less need for in-person visits. When in-person visits are needed, physicians can spend more time with the patient than is currently the case. Third, information technology can facilitate the tracking of patients over time for purposes of epidemiological research and continuous improvement of care for designated populations or subpopulations. This requires information systems that can track populations of patients and the ability to develop disease registries. Finally, information technology can facilitate accountability to purchasers and external reporting agencies in regard to quality and outcome data (Milbank Memorial Fund 2000).

At present, information systems within most health care organizations lack the ability to integrate financial and clinical data and process and outcome data. Existing systems typically do not collect and store the right information; are not sufficiently automated or computerized; are not integrated in the sense of being able to link to each other; and lack the hardware, software, and data entry support for retrieval and analysis of information (Kaluzny and Shortell 2000). Specific barriers that must be addressed include: (1) issues of privacy and confidentiality of patient records; (2) sufficient capital to pay for the new systems; (3) fear and/or inexperience in using new information technology; and (4) concern about what the data might show. Governments in both countries can play a leadership role in regard to the first two concerns by developing national

standards that would be agreed to by all parties, and by making available set-aside funds for investment in IT projects that meet agreed-upon criteria (Detmer 1997; Dick, Steen, and Detmer 1997). In the United States, this would require that such funds be viewed as a public good, not to be left solely to the marketplace. The third and fourth barriers, involving fear of change, must be addressed by the organizations involved and will require considerable leadership.

Contingent Factors Influencing U.K. and U.S. Quality-Improvement Efforts

The multilevel approach to change and implementation of the core properties will be influenced by a number of factors that operate somewhat differently in each country. Examples include the historical context for the locus of decision making in each country, insurance coverage and purchasing behavior, and the current status of the medical profession and views of evidence-based medicine. These areas provide clues to why the quality-improvement efforts in each country will prove so challenging. They also illustrate the value of comparative analysis.

Historical Context: United Kingdom

An interest in quality has been slowly growing in the U.K. health policy system for almost 20 years. Soliciting consumer opinion was a major theme of the Griffiths Report (1983) in the early 1980s. Sporadic efforts to implement quality circles and total quality management (TQM) approaches were made in the NHS in the 1980s and early 1990s but with little sustained impact, lacking both sufficient senior management commitment and clinical ownership (Joss and Kogan 1995; Morgan and Murgatroyd 1997; Bennett and Ferlie 1996; Klein 1995; Kitchener and Whipp 1995; Rosen and Mays 1998; Enthoven 1999). Mays and colleagues' (2000) review of studies conducted on the introduction of the U.K. internal market included quality as a key dimension, but they found only partial and inconclusive evidence available on quality consequences. The internal market debate revolved around questions of efficiency, choice, and equity (rather than quality) as key outcome dimensions (Ham 1996; Light 1997).

However, some developments in public policy in the 1990s helped pave the way for the future development of a more substantial quality agenda. These included the emergence of governmental targets for NHS waiting times, as part of the Citizens' Charter program by the governments that John Major launched, and the growth of a research and development base, which provided better data with which to assess clinical performance.

Since the change of government in 1997, quality has moved higher up the policy agenda, but through a policy-led and organizational approach rather than being promoted through internal market forces. Ensuring consistently high quality has emerged as a central theme within the NHS Plan (CM 4818 2000). The vision behind the new NHS Plan is that of a patient-centered service that would provide "fast and convenient care delivered to a consistently high standard." Central government has increasingly taken on a prescriptive role in the design of *new* quality systems, given weak market forces or consumer voice. Traditional systems of discrete professional self-regulation through the General Medical Council have failed to retain the public's confidence, and the authority of the medical profession is now being seriously questioned. The public outcry over serious neglect within pediatric cardiac services in Bristol is reflective of the concern (Bristol Royal Infirmary Inquiry Team 2000). Unprecedentedly, as part of the Bristol Inquiry, a Web site has been set up that outlines the progress of the inquiry and even contains daily transcripts and witness statements online (www.bristol-inquiry.org.uk). The NHS is now tasked to ensure that services are driven by a cycle of continuous quality improvement (CQI) that will include the clinical aspects of care and also the whole patient experience. This CQI approach is being supported by a number of new systems and institutions, including more national targets for quality, such as shorter waiting times for appointments; a broadened performance assessment framework that places more emphasis on quality; an increasing number of "breakthrough collaboratives," inspections, and reviews from the newly created Commission for Health Improvement; and the proposed national-level NHS Modernization Agency, which will lead process redesign. Local systems of clinical governance (Scally and Donaldson 1998) have been designed to spot poorly performing clinicians much earlier, as well as new mechanisms for clinician support (Department of Health 1999). Health care CEOs have now been given a statutory duty for quality

assurance, in addition to their historic duty to ensure budgetary control. National changes to the consultants' job contracts will include more explicit appraisal, job planning, and restrictions on the right to private practice, and also more investment in continuing professional development. National Service Frameworks have been announced in some key clinical areas such as cancer, cardiovascular disease, and mental health, with elderly care and diabetes to follow soon. These frameworks set explicit minimum standards to which the localities are expected to adhere. The use of standardized clinical protocols is also expected to roll out (CM 4818 2000).

Thus, quality pressures within the United Kingdom continue to come primarily from the national ministerial and governmental systems, rather than from market forces, a strong consumer movement, or empowered local managers or clinicians. Health practitioners have expressed concerns about the drift since 1997 to ever-tighter central control and the proliferation of audit and performance management mechanisms. CM 4818 (2000) recognizes these concerns about overcentralization, and proposes a system of earned autonomy "where intervention is in inverse proportion to success." There should be progressively less central control as performance improves. But critics will ask whether such substantial devolution will ever really take place in a system that continues to be highly politicized, media sensitive, and government-controlled.

Given that the process for change in the United Kingdom is primarily top-down, we suggest that greater attention be given to the individual, group/team/microsystem, and organizational levels. This is recognized in several of the new initiatives, such as clinical governance and quality-improvement collaboratives designed to involve and empower local providers, managers, and boards. But an early assessment of clinical governance suggests little change in policy or practice, although it may still be too early to observe such an impact (Latham, Freeman, Walshe, et al. 2000; Walshe, Wallace, Freeman, et al. 2001). Also, the government's principle of "earned autonomy" begs the question of whether the core properties of leadership, culture, team development, and information technology are sufficiently in place at the local level among the health authorities and primary care trusts for earned autonomy to have a reasonable chance of succeeding.

Historical Context: United States

In the United States, quality historically has been "assumed" to be uniformly high, as "guaranteed" by rigorous scientifically based medical education and systems of both individual and institutional accreditation, certification, and licensure. For the most part, accountability for quality has been the responsibility of the voluntary nongovernmental sector, and placed at state and local levels. For eample, hospital eligibility to receive payment for Medicare patients depends on accreditation of hospitals, which is done not by the federal government but, rather, through the voluntary Joint Commission on Accreditation of Healthcare Organizations (JCAHO).

In recent years, a growing body of research demonstrating wide variation in practice (Wennberg 1996) and a high rate of errors and mistakes relative to other sectors (Kohn, Corrigan, and Donaldson, 1999; Schuster, McGlynn, and Brook 1998) has led to increased concern by policymakers, providers, and the public over the quality and outcomes of care that Americans receive. Efforts have also been made to tie quality improvement concerns to cost containment and cost reduction, citing as examples the ability of (CQI) to achieve such dual objectives in other sectors (cf. Berwick, Godfrey, and Roessner 1990; Laffel and Blumenthal 1989).

As a result of these concerns, both the governmental and voluntary sectors have launched several new efforts and initiatives over the past five years. At the governmental level, a National Practitioner Data Bank, containing information on all disciplinary actions and paid malpractice claims against physicians, has been created. Hospitals are required to check with the National Data Bank before granting privileges to individual physicians. More recently, the President's Commission on the Quality of Care has proposed various regulatory approaches to safeguard quality, including consideration of a patient's bill of rights. A National Forum for Quality has also been created, along with a Forum for Health Care Quality Measurement and Reporting charged with developing standardized quality measures that could be used as national benchmarks for comparison. Most recently, the Institute of Medicine has recommended creation of a Center for Patient Safety within the Agency for Health Care Research and Quality, and a nationwide reporting system organized at

the state level for reporting on adverse events that lead to deaths or serious harm (Kohn, Corrigan, and Donaldson 1999, pp. 6, 7).

In the voluntary sector, the Joint Commission on Accreditation of Healthcare Organizations remains the major quality-review body for hospitals and some other facility providers. Some states—such as New York, Massachusetts, Pennsylvania, and California—have initiated selective public reporting of treatment outcomes. The National Committee for Quality Assurance (NCQA) is the major reviewer of quality for HMOs and health plans, using its Health Plan and Employer Data and Information Set (HEDIS) measures. Most recently, the American Medical Association has proposed review criteria for physician organizations. Finally, a growing number of health care organizations are participating in voluntary quality-improvement collaboratives (e.g., Institute for Healthcare Improvement 1997).

Thus, in the United States, more centralized efforts to address quality issues have been growing but, unlike the situation in the United Kingdom, U.S. policymakers must deal with 50 different states and hundreds of health plans and delivery systems in efforts to effect change at any level. In regard to the core properties, there exist wide variability in leadership, culture clashes between cost-containment and quality-improvement mindsets as well as between professional groups, sporadic efforts to build effective health care teams, and a woefully underfunded information technology infrastructure. It remains to be seen whether the several national efforts to introduce a more standardized measurement and reporting system and greater governmental oversight for quality and outcomes of care will provide the necessary structure, incentives, and framework to leverage the numerous individual initiatives that are currently undertaken locally (Dick, Steen, and Detmer 1997). At the same time, considerable experimentation and innovation is occurring but the better practices are difficult to capture and spread even within the *same* organization, let alone across organizations (Gillies, Zuckerman, Burns, et al. 2001; Blumenthal and Kilo 1998; Shortell, Bennett, and Byck 1998).

A major issue for both countries is the extent to which its citizens will demand better quality of care over time in order to sustain the political currency that the quality agenda currently enjoys in each country. In the United States, a persuasive "business case" for quality on the part of purchasers has not yet been made. In the United Kingdom, there is not yet a broad-based citizen mandate.

Insurance Coverage and Purchasing Behavior

Insurance Coverage

The two systems differ, of course, in the extent to which their populations are covered by insurance. British citizens have universal coverage provided by the government. In the United States, approximately 85 percent of the population have some form of insurance coverage; this leaves approximately 43 million Americans without coverage, which figure has grown until recently since the ill-fated attempt by the Clinton administration to provide universal coverage. The percentage of uninsured is particularly high among the Hispanic and African American populations and workers associated with small business (Kaiser/Commonwealth 1997); Health Care Financing Administration 1998).

The relative lack of insurance coverage in the United States is a system-level characteristic harmful to providing quality of care. First, there is evidence that some segments of the uninsured delay in obtaining needed care, resulting in greater morbidity and severity of presenting illness when care is eventually sought (Ayanian, Weissman, Schneider, et al. 2000). Second, the uninsured generally have a more difficult time navigating through the health system, often entering through the hospital emergency room (Weissman and Epstein 1994). This creates problems in regard to coordination and continuity of care (Eisenberg and Power 2000). Third, many segments of the uninsured lack a family or social support system or community resources that can appropriately address the follow-up care needs for both acute and chronic illness episodes. This places greater demands on the health system to deal with such needs. Finally, there is some evidence suggesting that even when the uninsured do receive care, it is of lower quality than that received by the insured (Fiscella, Franks, Gold, et al. 2000). Further, providers are challenged to tailor treatment regimens to individuals who lack the financial resources and, in many cases, support systems to optimize the initial care they receive. Thus, U.S. efforts to change provider practice at any of the four levels of change and implement the core properties of quality-improvement strategies must deal with the complicating factor of the highly variable coverage status of patients—an issue that is moot in the United Kingdom.

Purchasing Behavior

The implications of purchasing behavior on quality of care in the United Kingdom and the United States are potentially different. It is possible that in the more centralized purchasing behavior observed in the United Kingdom, incentives for greater quality might be created on grounds of public protection, patient safety, and human well-being alone, without arguing that such efforts will necessarily save money. In the United States, on the other hand, purchasers and health plans must be convinced that it is also in their economic best interest to provide incentives for quality improvement. As a result, the change strategies are likely to involve a more complex set of considerations in the United States. However, efforts in both countries would benefit from better ability to adjust payments to providers to account for risks arising from differences in health status and illness severity, and from a standardized set of reliable and valid quality measures that can be trusted (Dudley, Miller, Korenbrot, et al. 1998).

Organization of the Medical Profession and the Emergence of Evidence-based Medicine

Organization of the Profession

The classic assessment of the U.K. and U.S. medical profession suggests that they were extremely successful at organizing professionally and represent an ideal case of "professional dominance" (Friedson 1970). The more dominant the medical groups, of course, the more they are able to enact their own definition of quality over alternative definitions that may arise from governmental forces or the lay public. As a result, quality was primarily defined at the individual physician level and the actions that physicians might take to influence the group, organization, and system levels.

In the United Kingdom, the traditional pattern has been one of an alliance between the state and the elite professions, with self-regulation granted in exchange for the promise of trustworthy behavior. Benign and self-regulating monopolies were accepted, in part, because of weaker antitrust sentiment in the United Kingdom than in the United States. This condition prevailed until the 1990s (Elston 1991), so the challenge to professional dominance came later in the United Kingdom than in the

United States. Clinicians in the United Kingdom began to lose control of the strategic level (Ferlie, Ashburner, Fitzgerald, et al. 1996), while retaining control at the operational clinical level (Ferlie, Fitzgerald, and Wood 2000).

The question is whether the historical alliance between the state and the medical profession is now breaking down. With a large majority, the government could impose legislative change and restructure traditional mechanisms of self-regulation and job contracts. The threat of radical legislation is also being used by medical "reformers" to change inherited institutions, such as the General Medical Council, from within.

The modernization plan balances carrots and sticks, as far as the medical profession is concerned. It pledges to improve working conditions for NHS staff and to invest more in personal development. It proposes a significant increase in medical staffing and higher pay levels for those doctors who devote themselves to NHS work. Against this, it also seeks to review the traditional contracts offered to the medical profession. It will introduce annual appraisal and job planning for consultants. It may abolish entirely the right to private practice for new consultants and, beyond that, it may make the right to private practice dependent on satisfactory appraisal. General practitioners have the option to move away from self-employed status to a salaried contract, where it is easier for the government to negotiate key targets. The traditional mechanisms of self-regulation will be diluted and an increased number of lay representatives will serve on these regulatory bodies. Clinicians are expected to practice within the confines of written protocols and frameworks. These measures potentially represent a serious erosion of the traditional autonomy of the medical profession and an increase in the powers of government. The present proposal to abolish the right to private practice, in particular, would be regarded as draconian in the American context. If the traditional alliance between the state and the medical profession is fundamentally renegotiated, it becomes more difficult to defend purely clinically defined models of quality, and alternative definitions may achieve greater influence. To the extent that this occurs, the core properties of leadership, culture, team development, and implementation of information technology would be transformed into a more collaborative undertaking of the profession with other groups, government, and the public at large.

In the United States, it can be argued that the medical profession began to lose some of its credibility with the public over its opposition

to the Medicare legislation in 1966 (Starr 1982). Since then, the profession has had difficulty dealing with multiple challenges, particularly the rising costs of care, the disrupting effects of new technologies, the rapid advances in the biomedical sciences, the oversupply of physicians in many specialties, and the wide variation in clinical treatment practices, quality, and outcomes of care. Due to the growing heterogeneity of the profession by specialty, it is difficult for its members to speak with a common voice. At the same time, other voices have risen—consumer groups, health plans, health care executives, and regulatory bodies—constituting countervailing powers and causing the profession to fundamentally reexamine its role (Light 1993; Shortell, Waters, Clarke, et al. 1998).

The most important implication of the above changes in both countries is that the commitment of the medical profession and of physicians to improve quality and outcomes of care will be driven increasingly by forces outside the profession, and will call for a more open, transparent, and mutually sharing relationship between the profession and the public. Greater attention must be paid to all four levels of change and the attendant core properties. This may be easier to accomplish in the United Kingdom than in the United States, given that the profession in the United States remains largely a "cottage industry" of approximately 700,000 physicians practicing largely in solo, partnership, or small group settings across 50 different states and widely different geographic markets. In brief, the organizational infrastructure—in terms of economies of scale and scope and the ability to spread learning—may be greater within U.K. practice organizations than in many of their U.S. counterparts.

Evidence-based Medicine

In both countries, the ability to effect changes in quality and outcomes of care will also be influenced by the interaction between the professional issues outlined above and the development of evidence-based medicine (EBM), defined as the application and standardization of patient treatment practices based on scientific research and consensus judgment.

In the United Kingdom, examples include the Cochrane Collaboration (named after the pioneering researcher Archie Cochrane) and the growing use of "evidence-based" protocols and guidelines. As noted earlier, the

National Institute of Clinical Excellence, was established in 2000 to synthesize evidence and recommend whether a new drug or treatment is clinically and economically effective. A large number of local EBM projects have now been launched (Evans and Haines 2000), although implementation has proved to be highly complex (Ferlie, Fitzgerald, and Wood 2000; Klein 2000).

Examples in the United States include patient outcome research teams (PORTs), the clinical guideline dissemination efforts and evidence-based practice centers of the Agency for Healthcare Research and Quality (AHRQ), and guidelines developed by specialty societies. These are efforts to make previously tacit clinical knowledge explicit, with the hope of reducing unwarranted variation in clinical practice. It is likely that investments in the implementation of evidence-based medicine and quality-improvement research will increase in both countries. However, the U.K. research agenda is more likely to be centrally controlled by the government due to the relative absence of private foundation funding, unlike the more diverse funding base of the United States, which boasts several large foundations interested in timely efforts.

Concluding Observation

The likely key to each country's success will lie in its ability to choose between very different trade-offs. The United Kingdom must balance its historical centralized approach to health care financing, delivery, and change initiatives with a more bottom-up approach to encourage innovation and acceptance at the local level. This may require developing a new relationship with the medical profession based on examining the evidence and sharing accountability. In the United States, in contrast, the trade-offs involve balancing the extensive decentralized pluralistic approaches to financing, delivery, and quality-improvement work with national standards, measures, and accountability. Each country can benefit from careful scrutiny of the other's efforts. For example, change efforts that take into account the multiple levels and core properties of quality-improvement initiatives could be compared, as could the impact of greater public release of information on providers and consumer response (Marshall, Shekelle, Leatherman, et al. 2000). A multilevel approach to change and the associated core properties can provide a framework for assessing progress on these and related issues over the next several years.

On the theoretical front, there is no indication that the interest in quality is a passing fad in either country. Thus, strict institutional explanations emphasizing mimetic behavior and the search for legitimacy may underestimate the long-term force of quality-improvement efforts. At the very least, they need to be complemented by strategic adaptation perspectives, such as that represented by the multilevel approach to change advanced in this paper.

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