Collaboration and the Quality of Health Care Delivery
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Introduction

It is generally recognized that health care delivery in advanced societies is under severe strain from multiple sources including accelerating and interrelated increases in technological sophistication, quantity and specialization of knowledge, patient awareness and assertiveness, cost pressures, and societal demands for accountability. Most proposals for reform concern one or another piece of this complex: technological fixes, improved protocols, efficiency increases, cost controls, patient information, pay for performance, and many more. But all these piecemeal reforms have run into major obstacles. Doctors have often been reluctant to adopt new procedures, especially when standardized; cost control has been portrayed as compromising the quality of care; conflicts have grown between insurance companies and care providers. The outcomes have generally been poor on both quality and cost measures, with a failure to master the complexity of the conflicting demands, and growing dissatisfaction among almost all actors. [cites incl Baerlocher, 2006; Weinstein & Wolfe, 2007; (Aiken, Clarke, and Sloane 2002; Flynn 2007) LF note

These problems are classic symptoms of a breakdown in system capacity, and thus must be understood not separately but in terms of basic organizational principles. If this is correct, we would expect that attempts to address any given area will normally be undermined by reactions in others and will lead to overall reductions in trust and cooperation. In health care, to take a single example, pressures to reduce costs may by disrupt traditional care patterns, resulting in poor coordination and communication and increased problems in “hand offs” of patients.

Our central hypothesis is that the increased complexity of health care delivery requires a difficult transformation of the system from one based on autonomous experts to one centered on collaborative relations. By “collaboration” we mean a system in which actors with diverse knowledge can be brought together flexibly as needed for effective problem-solving, across boundaries of function, occupation, and level. This is far more complex and difficult to organize than the traditional system, involving more interactions and balancing multiple values. [cites] Understanding its nature – how it works, what are the essential conditions for success, how transition can be managed – is a precondition for the success of more specific reforms.

This shift involves transformations not only of structures and incentives but also of values and mindsets with roots in centuries-old definitions of professional identities. It is therefore inevitably a slow and difficult process involving much resistance and misalignment as various actors redefine their relationships. Currently the major driver of this change comes from external administrative institutions, in particular insurance company regulations and an increasingly powerful layer of hospital administration, generally not medical professionals. We will argue, based on our results, that a more
effective change process is one led by physicians who embrace the values of collaborative systems.

We will examine the systemic nature of health care delivery through a lens which is limited, but which enables to see in considerable depth and detail. We focus on the delivery of care, excluding the policy arena which of course has an enormous impact. We conducted research on the treatment of congestive heart failure in four New Jersey hospitals, chosen to maximize variance on performance and wealth. We focused on congestive heart failure because it is a complex syndrome usually involving many providers and multiple hospital stays, and requiring complex judgments by care providers at many levels, from surgeons through general practitioners, pharmacists, nurses, respiratory therapists, and transport staff. It is also one of the major causes of mortality and one of the greatest costs in the US health system.¹

This set of cases enables us to see, in some very different settings, how the degree of collaboration affects the provision of care on multiple dimensions: quality, efficiency, patient satisfaction, and long-term impact. Such a study cannot fully test the complex hypothesis of system capacity, but it can verify whether these cases can be interpreted in a theoretically consistent framework, and it can explore the way in which collaboration and professional autonomy impact the provision of care in these settings (Miles and Huberman 1994; Yin 2003)

**Literature review**

The extant literature on the organization of health care systems, as opposed to technical interventions, is surprisingly limited. Martin-Rodriguez’ broad review concludes: “At this juncture the lack of investigation into the structural elements of organizations stand as an important hurdle, given the many re-organizations that have been carried out in attempts to replace traditional models of care with models based, fundamentally, on interprofessional collaboration. … The interactional determinants have received more attention than the organizational and systemic determinants, and the latter, in particular, have received very little attention.” (Martín-Rodríguez et al. 2005)

A number of studies do provide initial evidence that collaboration – especially interdisciplinary collaboration – contributes to multiple positive outcomes. Gittell (xxx) has found mechanisms of “relational coordination” such as boundary spanners, team meetings, and informal cooperation all have positive effects on patient satisfaction and length of stay. (Estabrooks et al. 2005) found that higher nurse-reported levels of good MD/RN collaboration was associated with lower rates of risk adjusted, 30-day patient mortality. Young et al (XXXX) found that perceived high level of coordination by feedback for surgical staff leads to better quality care. Edmondson (xxx) showed that boundary spanning and openness lead to better technology adoption in hospitals which presumably benefits patient care. Other studies have found that multidisciplinary treatments produce better outcomes on length of stay, readmission, and satisfaction (Ducharme xxx); mortality and hospitalization (McAlister xxx); efficiency and responsiveness in perinatal care (D’Amour et al 2004). [cite others?]
At the same time, the extant literature highlights the professional obstacles and resistances to interdisciplinary collaboration. (Ramanujam and Rousseau) see health care organizations as “the perfect storm of organizing difficulties… render[ing] leadership weak and vulnerable to demands of multiple professions seeking to assert control over their own professional practice” (p. 824). Sicotte, D’Amour, and Moreault (2002) show how intractable these problems can be: after 25 years of effort to develop an interdisciplinary culture in Quebec community health care centers, they found only modest changes in beliefs and values and continued tension with a “professional or disciplinary logic.” Makary (xxxx,yyyy) has found that doctors and nurses often view the need for and state of collaboration very differently, that status differentials persist, and that nurses are often reluctant to speak up. Others have documented lack of respect between professions (Nagourney, 2006), dominance of doctors (Gordon & Street), differing values, work styles, & personality traits among professions (Liedtka & Whitten, 1998) and the tendency of doctors and nurses to downplay the others’ significance in the process for patient care (Gibbon, xxxx).

At a more material level, a number of authors have noted that incentives are structured to increase tensions Wotton (xxxx) documents ongoing turf wars between functions for resources (Wotton, xxxx). Rodriguez (xxxx) and colleagues observed the negative effects of resource-driven rather than objective-driven funding. the problems caused by fee-for-service compensation of physicians.

Other factors found to hinder collaboration include leadership (Edmondson, 2003), technology (Edmondson et al., 2001), and lack of clear policies governing professional practice in physician and nurse associations or licensing bodies [cite others?].

Many writers have suggested mechanisms that may improve the odds for collective collaboration. A particularly important mechanism that is the formation of multi-professional teams (Gittell, xxxx; Hyrkas xxxx, Rodriguez, Spear). Such teams can be an effective mechanism to spur discussions, decision making and in general integrate knowledge across disciples (Grant, 1996). The Institute for Healthcare Improvement’s use of multidisciplinary “breakthrough team” interventions have been shown to improve process measures in congestive heart failure treatment (Asch et al. 2005). The Mayo Clinic has proved over many years that this is very effective for premium care, though it has not been able to scale it to larger organizations or more fluid mixes of specialties. (Maccoby and Heckscher 2007). Education and training is frequently emphasized (Spears, Meerabeau, D’Amour and Ivy, Arslanian-Engoren, 1995 [cited in Rodriguez p136], D’Amour [“Conceptual Basis”]), including inter-professional education to enhance cross-professional understandings (D’Amour & Ivy xxxx; Arslanian-Engoren, 1995), which would also raise awareness of other professionals' contribution (Baggs & Schmitt, 1997 and Sile’n-Lipponen et al., 2002). Other suggestions include stronger administrative support mechanisms (Rodriguez, Spear), and conflict resolution designed to fit the hospital setting (D’Amour, xxxx).

However, existing studies have not shown that collaborative relations can be reliably created and sustained. They are also uncertain about the form of collaboration that is most effective, and particularly inconsistent on the key point of relative value of formal versus informal mechanisms. Hoffer-Gittell (xxxx) has stressed the value of informal linkages, but she also finds quite to her surprise that formalized routines have a
positive effect on care outcomes; she also notes elsewhere that the formal role of hospitalist improves coordination. Some who have stressed the value of formal processes, including clinical pathways, include D’Amour (1999), who builds a structuration model of collaboration emphasizing delegation and formalization; [cites: Argotte, Sicotte, : Sicotte: Standardization à collaboration (Alt-White et al; D’Amour et all 1999; Sile’n-Lipponen et al., 2002; [all cited in Rodriguez p138]). On the other hand, Young et al., (1997) found that both formal and informal processes and procedures were important in surgical units, since patient care could not be fully standardized, and Argote [xxx] provided evidence that “non-programmed coordination” is more effective in uncertain conditions.

In sum, the extant healthcare literature indicates a complex mix of enabling mechanisms and barriers. On the one hand, boundary spanners, teamwork structures and formalization of informal practices seem to offer important channels for knowledge integration needed for collaboration. On the other hand, professional resistance, rooted in occupation traditions and social and perceptual difference forms a formidable barrier. There is little consensus on how to most effectively structure collaborative systems, and little evidence of sustained success.

The organization of the health care system: A theoretical interpretation

This research literature, with its focus close to particular change processes, may usefully be supplemented by a broader understanding of the development of organizations and the key options available. Sociological theory has identified three general types of productive organization. Until the late 19th century most economic activity was carried out by craft workers or professionals acting independently or leading small units with strong status hierarchies. The 20th century saw the growth of large bureaucracies, organized in formally-defined jobs and offices with rule-based hierarchies of command [cites: Weber, Chandler]. In the last 30 years a number of theorists have identified an emerging form which they have called by various names, including “network” and “collaborative,” which focuses more on the creation of interaction and dialogue among actors with differing capabilities. [cites: Powell, Heckscher]

We view each of these types as a system with a greater capability than the preceding one. Bureaucracies can organize activity on a larger scale than craft production, with far greater efficiency and more consistent quality, coordinating more people and a wider range of expertise. Collaborative systems, in turn, can reach beyond the boundaries of bureaucratic offices and organizations to more flexibly link actors with differing knowledge. They use routines when appropriate, but add the capacity to rapidly revise routines and to create new ones in rapidly-changing circumstances.

Much of the economy has progressed sequentially through these stages over the course of a century or more. A century ago craft organizations were put out of business in many key industries by bureaucracies, focused on process consistency and hierarchical accountability, which were able to achieve enormous improvements in cost, consistency, and scope. This transition was a very long one, stretching almost a century from early simple forms after the Civil War through the solidification of a system of
benefits and internal career ladders after World War II. It was also marked by severe and at times violent conflict as craft organizations and actors tried to defend their way of life against the new order.

Recently, the limitations of bureaucracy have come to the fore: in its single-minded emphasis on consistent rules and reproducible routines, bureaucracy tends to lose the ability to learn, adapt, and respond to diverse needs of its consumers. Many large companies are now struggling to move beyond the limits of bureaucracy and to develop collaborative capabilities. At companies like IBM or Shell or Toyota it is now quite common for task teams to be put together on the fly from various levels and parts of the organization, and even including outside vendors or customers, to solve emerging problems. This capability creates a significant advantage in flexibility and responsiveness over companies that have failed to make this shift.

Health care has followed a variant path. The most notable difference is that it has never reached a full bureaucratic stage: relations in health care are still most deeply organized around a form of traditional or craft community – one in which doctors act as autonomous professionals at the top of a status hierarchy, focused on patient care as the sole legitimate value. In hospital settings, doctors are defined as the medical experts, while nurses are focused heavily on “caring” [cite: Weinberg / Hoffer-Gittell] – an ancient division of labor found as far back as the pre-Christian era in India, and strongly institutionalized in medieval monasteries in the West [cites]. Doctors most often remain independent practitioners with “visiting rights” at hospitals rather than employees accountable to the organization.
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<th>Traditional craft / autonomous professional</th>
<th>Bureaucratic</th>
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<td><strong>Key characteristics</strong></td>
<td>Norm of individual autonomy for lead practitioner&lt;br&gt;Accountability to professional organization or guild&lt;br&gt;Formal organization small or absent&lt;br&gt;Strong status hierarchy (usually): Personal relation to clients</td>
<td>Strongly bounded organizations&lt;br&gt; Hierarchical accountability and deference&lt;br&gt; Jobs defined in relation to organization structure&lt;br&gt; Power based on position&lt;br&gt; Resources linked directly to accountability</td>
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<td><strong>Health care history</strong></td>
<td>Dominant model until recently, now under pressure from specialization and cost increases</td>
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<td><strong>General business history</strong></td>
<td>Dominant from medieval period through 19th century</td>
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Figure 1: three general models of organization

**Limitations of the traditional health care model**

The craft or autonomous-professional model, ancient as it is, has run aground on the interdependencies and complexities characteristic of modern medicine: the need for coordination of multiple physician specialists and a growing number of interdependent actors, from social workers to nutritionists to home care agencies. The lack of coordination among these providers has become a major cause of failure. The Agency for Healthcare Research and Quality (2001) concluded:

“Researchers now believe that most medical errors cannot be prevented by perfecting the technical work of individual doctors, nurses, or pharmacists. Improving patient safety often involves the coordinated efforts of multiple members of the health care team.”

In our area of study, congestive heart failure, a common example involves the pharmacy. Heart failure today typically draws in multiple specialist physicians to deal with the many aspects and comorbidities typical of this syndrome. These specialists may – and frequently do – order medications that duplicate or interact badly with those ordered by others. Pharmacists generally notice these problems, but in the traditional pattern of relationships they are not expected to challenge doctors’ prescriptions. Thus there is even at best a hesitancy that may interfere with the dialogue needed for correction of errors and learning. Thus the error rate in this area is high.
The traditional pattern is at its best when structured in stable personal relations: if doctors have worked with particular nurses for years, they are more likely to be open to discussion. But in an environment of increasingly fast-paced change, this limitation becomes more onerous. New skills and actors need to be introduced relatively frequently, and traditional community is poor at such responsiveness.

These strains are further increased by the recent fragmentation of the field into multiple specialties. Specialist physicians now have higher status and pay than general practitioners, but they lack the key legitimating quality of the old system: they do not see the patient as a whole individual. Specialists are highly trained experts in particular diseases, and thus are increasingly interdependent with other physicians as well as with nurses and administrators; they do not function as independent practitioners, and they are not “loved” by their patients in the same way.

A final major strain is that the traditional value pattern, as defined by Hippocrates more than a millennium ago, has no place for cost considerations: the sole orienting value is patient care, and cost is seen as a conflicting, lower, “mercantile” consideration that should not affect care decisions. The acceleration of innovation and cost of care, however, means that this one-dimensional view is no longer tenable. The very successes of medicine mean that multiple values have to be combined: that physicians and other practitioners need to be able to balance care with cost, and to integrate efficiency considerations into their decision-making.

**The bureaucratic alternative: promise and limitations**

A characteristic of the health care system that is different from most of the business world is that the effort to introduce consistent administrative rules and procedures is quite recent. It has been driven in the last two decades primarily by cost concerns, with insurance companies playing a lead role in imposing standardized protocols and external, non-professional accountability. The administrative layer in hospitals has been substantially strengthened; in most cases the CEOs are not medical professionals but have expertise in business and management.

The bureaucratic model, which underlies the administrative vision, promises significant improvements in scale, economy, efficiency, and consistency. In health care, this has generated an impetus to define standardized rules and procedures and to make doctors and other actors accountable for following them. Such reforms have been advocated for both cost and quality reasons. On the cost front, insurance companies have imposed strict rules for length of stay and permitted procedures for various syndromes. On the quality front, there is considerable recent evidence that large improvements are can be achieved by routinizing certain procedures that are traditionally done in an ad-hoc and personal manner by different practitioners– for instance, by using “checklists” (Gawande 2007; Spear 2005). In heart failure, it has been found that a significant impact can be achieved by consistently giving ACE inhibitors to patients on arrival at the hospital. This seems a simple matter, but it can be easily forgotten in the rush of activity as a patient is checked in, when every doctor has her own way of doing things. Thus simply clarifying and enforcing rules for this procedure can immediately improve the performance of a heart failure unit.
Such standardization and unified accountability is both effective and essential for the majority, even the large majority, of health care procedures. A number of physicians in our research independently estimated that over 90% of the decisions on a daily basis are quite routine and could be handled in a standardized manner.

But there are also major problems with the simple application of bureaucratic organization to health care. Bureaucracies have proved, over a century of practice, to be poor at achieving flexible coordination across boundaries of level and function; they work best when tasks can be clearly delimited and unpredictable interactions can be minimized. In a case like automobile production, consistency can be achieved through gradual system improvements managed through hierarchical communication. In health care, however, one cannot tolerate losing a few patients because of slow communication. The “non-routine” aspect of medicine may be relatively small on a percentage basis, but it is absolutely crucial to successful care. An excessive focus on the standardizable parts of health care, especially for a complex syndrome like heart failure, is likely to reduce performance in the key areas of judgment that require multiple specialties and sources of information.

Medicine also differs from automobile production in other ways. The complexity of knowledge is far higher, and judgment remains a crucial element at every level. We remain very far from knowing what routines would work best across important ranges of problems, and we are not even close to being able to create an “assembly line” with standardized jobs for the management of human health. Even more fundamentally, patients really want, and the effectiveness of medicine may largely depend on, personal relations with their physician – a sense that they are being treated individually and with care (Wensing et al. 2002). Bureaucratization necessarily reduces that aspect of relations.

Finally, a full shift to a bureaucratic system would involve a massive attack on the authority and status of physicians, and to a lesser extent of nurses. Like other craft practitioners, physicians have fiercely resisted bureaucratization, which would reduce their autonomy and status; and more than most, they have considerable resources of power and status.

In general, with only occasional exceptions, the health care system is currently marked by a deep split between the administrative view, embodying principles of bureaucracy, and the autonomous professional view which reflects the craft tradition. Administrators are seen as concerned about cost but not care, while doctors are the reverse; administrators seek to increase control over doctors, while the latter resist strongly; in most cases hospital CEOs are not medical professionals; and, as noted, before, doctors have largely maintained their independence from the administrative hierarchy. This gulf in perspective between the two groups was clearly visible in all of our research cases.

**Collaborative organization**

The core of collaborative organization is the capability for creating effective problem-solving dialogues and temporary teams that cross boundaries of level and specialty (Galbraith 1994; Heckscher 2007). Autonomous professionalism is poor at this because of its emphasis on status and control of knowledge; bureaucracy is poor at it because of its emphasis on strong division of labor, strict job definition, and vertical
control. In a truly collaborative system, unlike these two, a nurse or a pharmacist would be able to initiate an open dialogue with doctors about care issues to the extent that they have particular information or knowledge that contributes to the goals of the organization.

A collaborative system is grounded in the ability to do routine tasks with high reliability and efficiency, using clearly defined processes that can be reliably repeated with strong accountability, but it also adds the ability to function effectively when routines are not enough. For example, it is far better than the alternatives at dealing with errors. A good practitioner in a craft system will try to figure out the cause of an error and keep it from happening again, but will have few ways to get help from others or to spread his new knowledge. A bureaucracy will tend to ignore errors and cover them up (Spear 2005), or at best to create a rule to control behavior that might lead to a recurrence. A collaborative system, by contrast, makes errors public and renders it both legitimate and efficient to draw together those who can resolve the problem, and to build the lessons into new routines (Edmondson 2004). Similarly, collaborative systems improve responsiveness to the environment, because anyone who deals with patients or other stakeholders – not just the top of the hierarchy – has the ability to initiate learning and conversation.

Collaboration is a simple idea, but requires a very complex system which has been approached only in recent years by a few organizations such as IBM or Toyota (P. Adler, Goldoftas, and Levine 1997; Galbraith 2008). Even in the best cases there are still important unsolved problems and a great deal of ongoing learning and development. The medical system adds increased degrees of difficulty because it has never developed good mechanisms of organizational accountability and reliability.

The broad problem for the health care system might be framed in this way: Is it possible to pass from the traditional craft / professional system to a collaborative one without passing through an extended period of bureaucracy? A considerable amount of standardization and process consistency is absolutely essential for complex health management; historically, such standardization has been associated with bureaucratic control in contrast to professional autonomy. Effective collaboration combines standardization with the ability to adapt and customize when necessary, and to learn collectively from these experiences – a big leap from the traditional model.

There are few, if any, models of such a shift, and there are theoretical reasons for both doubt and hope. On the negative side, without a foundation of good bureaucracy – routinized procedures and the management systems that support them – there is a danger that attempts to create collaboration may produce loose and ad-hoc structures, with high cost and inconsistency. On the positive side, it is possible that the rich tradition of professional self-governance, which is in effect a weak and narrow form of collaboration, could be extended to support a more inclusive and organized system.

There are some good documented cases – of which the best examples are found in the Mayo Clinic system (Maccoby & Hecksher 2007) – in which physicians have led a movement towards the formation of interprofessional teams, with strong involvement of nurses as well as multiple medical specialists. These cases have demonstrated the considerable power of collaborative relations to improve problem-solving and patient
relations. But they have also had two important limitations: they are restricted in size, and they have not effectively incorporated the cost dimension. These are essentially “boutique” operations that are relatively expensive. There are not, to our knowledge, examples of a full-developed collaborative system which is both highly efficient and highly responsive, which integrates considerations of both cost and care.³

The research approach

Analytic method: Predicted configurations

We adopted a primarily qualitative research approach, which is well suited for exploring emergent concepts and to explaining why, how and when a complex phenomenon occurs. Our method, however, is neither inductive in the “grounded theory” tradition (Glaser & Straus, 1967), nor primarily descriptive in the anthropological tradition. Instead, we use an “ideal type” methodology to generate initial sets of propositions that are potentially falsifiable. These configurations in turn can be used to derive many particular propositions that are consistent with their basic patterns of meaning.

We start from the theoretical perspective on organization development sketched above, based on studies of many industries over a century of development. The simplest application of that framework would be to propose three health care patterns based on the abstract organizational models: craft / professional, bureaucratic, and collaborative. Unfortunately the divisions are not so neat because the current situation is transitional: the traditional organization is under pressure but the resolution is not yet clear. Though doctors and nurses still orient primarily to traditional craft values and relationships, they have accommodated piecemeal to the new pressures with jury-rigged mechanisms or marginal shifts in behavior. General practitioners have set up ad hoc systems of communication with the growing legion of specialists, though not optimally and consistently. Doctors usually remain independent from the hospitals in which they practice, but are increasingly controlled by insurance company protocols. Cost considerations have been introduced largely from outside the system, primarily by non-physicians located in administrative units or insurance companies.

Thus rather than an integrated and balanced set of values, we have a conflict between institutions representing differing values; and instead of pure types, we should expect multiple combinations of conflicting forces that have been worked out empirically, even though they may not be logically optimal.

1) A first likely configuration centers on the traditional craft model in tension with the emergent pressures for administrative control:

Predicted configuration 1: “Inwardly-focused” traditional professionalism characterized by:

* stable employment and relations
* strong status deference, with physicians at the top of the hierarchy
* independent physicians largely outside the chain of hospital accountability
* nurses focused primarily on affective “caring” under the medical direction of the doctors
Given the enormous pressure for cost control and the impact of insurance companies and other external stakeholders, a strongly traditional system would necessarily be defensive and resistant in tone, rejecting the widespread changes around it. Or lip service might be paid to accountability without real changes in orientation and behavior.

We would predict that such systems would deal poorly with the current environment of cost pressures, and to experience considerable conflict with bureaucratic forces such as insurance carriers (Weick and Sutcliffe 2003).

2) A second theoretically likely set of configurations centers on bureaucracy, in conflict with the traditional order. If the bureaucratic move were wholly successful, it would create a highly structured hierarchy of expertise, with clear “modules” or departments and defined handoffs between them. We are not aware of any such a pure bureaucratic model in health care, and we certainly did not see it in our cases. The greatest obstacle is the continued centrality of an autonomous professional ethic among doctors and nurses, which is opposed to the logic of bureaucratic rationalization.

Bureaucracy is therefore more likely to be part of a mixed picture. In a relatively successful form, we would expect to see a kind of détente between two orientations: considerable routinization and strong administrative control of certain basic procedures, but also a large area of continued physician autonomy, and mutual acceptance of the boundaries between the domains.

Predicted configuration 2: “Negotiated détente” between bureaucratic and professional orientations, characterized by:

- Effective standardized protocols for a relatively small number of widely-accepted procedures
- Relatively low interaction between administrators and medical staff; poor understanding of organization strategy and financial performance among latter
- Clear role separation, with the administrative staff “running interference” with the insurance companies and other external constituencies, freeing medical staff to focus primarily on patient care.
- Acceptance of cost and length-of-stay requirements by medical staff as a “necessary evil,” externally imposed, and effort to work within those constraints
- Relatively traditional relations within the medical community, including continued strong status hierarchy

We would predict the outcomes of such an approach to be mixed. To the extent that basic routines are handled more consistently and efficiently, care metrics might improve dramatically – there are many “low-hanging fruit” to be picked. To the extent that cost metrics are applied, even if grudgingly accepted, those metrics would also benefit. But neither dimension, cost or quality, would be able
to maximize its strengths, and ongoing learning would be limited by the tension between the orientations.

An alternative, less successful form would be expected where the traditional culture has been broken by force (restructurings, layoffs, the imposition of standard protocols backed powerful incentives), resulting in heightened conflict.

**Predicted configuration 3:** “Open conflict” between the administrative and medical orientations, characterized by:

- Failed or partially failed attempts to impose standardized accountability on professional staff.
- Strong resentment by medical staff of administrative interventions such as length-of-stay restrictions, and legitimation of attempts to manipulate or avoid those restrictions.
- Frustration by administration at medical staff’s resistance to change.
- A mix of cynical individualism, passive rule-obedience, or open hostility to administrators among medical staff, especially longer-term ones.

We would expect this configuration to have very poor results, since both the administrative and the traditional orientations would be weakened by the conflict.

3) The third theoretically anticipated configuration centers on the development of collaboration. Given the difficulties discussed above, we would again expect to see a limited or partial form, rather than a fully realized collaborative system. A typical early stage seen in many organizations is driven by a strong leader who nurtures collaborative values within her unit and fends off pressures from the rest of the organization [cites: Heckscher 2007, ch. 9; other]. In health care we would expect to see such an effort to draw on on professional traditions and values.

**Predicted configuration 4:** “limited collaboration,” characterized by:

- Effective multidisciplinary and multilevel problem-solving structures (such as interprofessional teams) that do not restrict communication on the basis of status.
- Shared norms of open dialogue which enable wide involvement and encourage error-detectioin and -correction.
- Restriction to relatively small units (single departments with clear leaders and strong personal networks).
- Sharp protective boundaries against pressures from both administrative and traditional values.
- Weak integration of cost values and other external accountability.

We would expect that such a system would be highly effective on care metrics within its scope but poor at cost control and at wider integration.

Each of these configurations involves complex sets of propositions, with too many degrees of freedom to be tested quantitatively. Our test is rather whether our cases are consistent with the ideal types and with all the propositions that are derived from them. An
important methodological point is that the theory, and the ideal types and predictions derived from it, are intended as statements of truth, not as statistical averages; thus any case that fails to fit on any dimension would constitute a falsification and would require revision of the theory.

These configurations are not the only ones consistent with the organizational theory proposed. Our research was open to finding other forms and trying to document their dynamics.

Data

Selection of Hospitals. Rather than a random sample, we chose hospitals based on criteria suitable for our focus on understanding collaborative dynamics. We initially collected data on all New Jersey hospitals on two selection criteria: performance and payer mix. We excluded those that had specialized transplant centers, after consulting a set of experts who judged that this would severely distort the results in those settings.

Performance was important as an outcome measure because we hypothesize that certain of our types would yield better performance than others. We also wanted to control for payer mix because we were concerned that the many unmeasurable differences between “poor” hospitals, whose patients have difficulty in paying and who are generally highly cost constrained, and “rich” ones with wealthier patients and higher budgets, might overwhelm the almost everything else – including the organizational factors we are studying.

First, we gathered in-hospital mortality data from the Centers for Medicare and Medicaid Services and adjusted it for risk using APR-DRG 3M software, Version 15. Second, we used measures of process consistency gathered by the State of New Jersey reflecting percentage of completion of four key processes in 2005. Of the 76 hospitals for which we obtained complete data on both dimensions, [12] hospitals scored high on both dimensions, and 8 scored in the bottom quarter on both. For payer mix we used data on the percentage of Medicare and self-pay patients, using the top and bottom 25% on this dimension for our pool.

We were able to gain access to one hospital for each cell in our desired matrix. Thus we had one hospital with wealthy patients and poor results, and one with the opposite – poor patients and good results – as well as two that followed the more expected pattern.

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<th>“rich” payer mix</th>
<th>“poor” payer mix</th>
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<tr>
<td>High performing</td>
<td>Hightown</td>
<td>United</td>
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<td>Low performing</td>
<td>Riverside</td>
<td>Lowell</td>
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Distribution of cases (pseudonyms are used throughout for the hospitals)

Data Collection. Data were collected over 12 months in 2006-2007, by a research team including two professors of organization theory, a nurse, a physician, and two advanced
doctrinal students trained in qualitative method techniques. We used the following research methods:

1) Semi-structured interviews: 20-25 people in each organization, chosen to select a cross-section of the functions that affect the care of heart failure patients – physicians, nurses, pharmacists, housekeeping, telemetrists, case managers, lab technicians, and others. Examples of questions included: “Tell me what it’s like to work/practice here; do people work together well here; how do things typically work when a problem develops – who gets involved, how do the communication and problem-solving work; tell me about how care is coordinated.” Each of the questions led to more specific questions to probe for further data.

2) Network surveys: We asked each interviewee to fill out a survey about the people with whom they interacted on the previous day and the nature and quality of those interactions. In some cases we got further network surveys from others in the unit. We collected 95 usable surveys which recorded assessments of about 3000 relationships.

3) Observations: In all cases we observed the flow of work in the main heart failure unit. In all but one we observed medical rounds (the fourth one did not hold predictable rounds). In one case we shadowed a doctor in the emergency room during an entire shift.

In two of the cases we also met with research teams in the hospitals, consisting of administrators and care professionals from various levels, at the start of the process.

Analysis of Data. We interviewed a total of 85 people across the four hospitals. the interviews in an iterative fashion following Miles and Huberman’s (1994) approach of open coding, axial coding and selective coding. This is a process by which the researchers gradually refine large number of codes in the more comprehensible groupings of categories that constitute themes. The final step, selective coding, involved integrating and refining categories into a theory (Straus & Corbin, 1998).

Validity and reliability issues. The burden for the case-based researchers is to avoid and provide evidence of not being engaged in “cherry picking”. That is, it may be easy and convenient to highlight data that supports the theory and predictions. Thus close attention to disconfirming data is critical. In order to strengthen the validity of our data and results, we used the constant comparison method (Trochim, 1989) where the working theory is rechecked against new evidence to detect potential disconfirming evidence.

To further improve construct validity and reliability we adopted a triangulation strategy (Mathison, 1988), relying on multiple informants for each event described, observations, and archival data, and network survey data. This paper draws primarily on the interview data rather than the network surveys – the latter will be the subject of a later publication. We did, however, check our claims for consistency with the network results where appropriate.
Findings

The four sites we studied fell rather clearly into three of the categories sketched in the theoretical section. The two hospitals that had been chosen for their poor performance on medical outcomes turned out to be ones with a sharp divide between administrative and caregiver cultures – caught between what we are calling the craft and bureaucratic orientations:

- One case, “Riverside,” was a fairly traditional system with long-term employment and relationships, unquestioned doctor dominance of the status hierarchy, and very little administrative standardization. The administration had for several years tried to introduce more consistency, standardization, and cost control, but they had adopted a gradual, “educational” strategy. The result was that there had been very little change in actual care delivery, and the traditional system remained largely intact.

- A second case, “Lowell,” exemplified open conflict between administrative leaders and medical practitioners. Here the administration had tried to push aggressively towards more standardization and cost control, but the effort had run aground on fierce resistance. Here was severe conflict with nurses over attempts to control their work pace and cut costs. Doctors had simply ignored attempts to standardize their procedures. The administrators voiced intense frustration.

The two hospitals that had been chosen for excellent medical outcomes – “Hightown” and “United” – both turned out to be pursuing deliberate collaborative efforts:

- They had developed mechanisms for discussion and learning among staff from different professions, units, and levels, and there was evidence that these mechanisms were working effectively for problem-solving.

- They were attempting, with partial though not total success, to build shared values and expectations of open dialogue, in contrast to the traditional pattern of status deference.

Both efforts were driven by strong physician leaders.

This alignment of performance and structure fit with our theoretical expectation: collaborative organization comes closer than the others to matching the level of complexity required by heart failure care. Through our interviews and surveys we were able to further strengthen this connection by showing that many of the reasons for the performance differences were closely related to these differences in the way the different systems functioned and their capacity to manage the interdependence of different providers.

Case 1 – Riverside The persistence of traditional relations

At “Riverside” the traditional medical community remained largely intact, with long-term and stable relationships, despite gentle efforts by administrators to introduce modern management techniques.
This was a medium-sized community hospital with a relatively high-end patient population (few self-pay or Medicaid,) and therefore not under severe pressure for change. Nevertheless, like all hospitals, it was experiencing continual pressures for improved efficiency and cost control. The administration had launched a number of recent initiatives around strategic focus and process management, including the hiring of case managers to manage length of stay, and had written a new “mission statement,” posted widely in the hospital, around the three foci of quality, cost containment, and access.

Riverside retained a strong traditional community. It was notable for the stability of its staff. Most physicians as well as nurses were based in the local community, and many of the staff at all levels had been to the same high school; some had known each other since childhood. These informal bonds facilitated relatively free communication on many topics. Nurses sometimes felt that they could raise questions with physicians whom they had known for a long time.

Thus the hospital presented an interesting paradox. The care providers – both physicians and nurses – were generally quite satisfied with the standard of care and with the working environment, but the objective measures of process and outcome were very poor. Our theoretical approach would predict this paradox on the basis that the traditional set of relations were too narrow and limiting to allow for flexible problem-solving and mobilization of knowledge.

We saw in the interviews that the informal sense of unity was indeed limited by strong professional boundaries. In the absence of long-stranding personal relations, physicians did not expect their medical orders to be questioned by the nurses, pharmacists, or other clinical staff. Similar professional defensiveness marked communication between nurses and different clinical staff including pharmacists, psychologists and rehabilitation. And even in the best circumstances there was considerable reluctance to violate the traditionally-defined status hierarchy.

We heard about, and were sometimes able to observe, examples of ways in which these limited relationships negatively impacted care. We heard several times that some doctors were failing to keep up to date and insisted on maintaining their personally preferred procedures against evidence of better ways to do things. We observed that physicians were very resistant to proper documentation or using the computer systems; they wanted to be able to enter information in their own particular ways and without pausing to make sure their writing was legible. This sometimes led to errors of interpretation by other providers. Nurses and doctors who had worked together for a long time had worked out some of these problems, though not all; but those who were newer or more peripheral were unable to communicate effectively.

“The people who have been here for a while, they pretty much know who to call and you don’t get so many breakdowns. We get much better communication. It’s mostly when new people come in that we have the breakdowns.”

There were stories which vividly illustrated the costs of these limits. For example, a phlebotomist – a relatively low-level medical specialist focused on drawing blood – told us of a recurring problem he faced. In certain patients for whom it was difficult to find a
good vein, a permanent arterial line was implanted; but the line might be hidden by a sheet or the patient’s position, and there was no information about it on the printout that was given to the phlebotomist. Thus he would sometimes find a very weak patient, unable to respond, and spend 20 to 25 minutes trying to find a clear vein, although an arterial line was available. The interviewer (slightly horrified) asked the phlebotomist at this point whether he had talked with physicians or administrators. His response: “I haven’t been in the right opportunity to raise that yet.”

Riverside’s administrators had tried a number of efforts to improve communication and cooperation, but with little success. Problem-solving committees, for example, were unpopular: the common refrain was that there was “too much paperwork” and “too many meetings.”

“[Problem solving] is done informally: the nurses and the pharmacists talk together and we try to see how we can improve it. But then we take it a committee, and then they’ll put their input into it and it’s on to an ad hoc committee, and then all of a sudden it gets lost. And then we’re told no, we don’t have the money for that right now, and you shouldn’t have asked me. And then you’re back to square one, trying to figure out another way to do it.

Interdisciplinary rounds had been instituted in an effort to improve coordination, but these were very ineffective. Information presented at the rounds was incomplete and out of date; nurses did not have accurate knowledge of the patients under discussion. Rather than serving as forums for interdisciplinary problem-solving, these rounds centered on case managers and consultants who sought to identify people who had exceeded their length of stay and should be discharged.

Case managers, who had been hired to try to coordinate care through a patient’s entire stay, were defensive and complained of being disliked by everyone; “The doctors,” said one, “feel we’re challenging their medical decision-making.”

Similarly, administrative attempts to introduce cost values into the mission statement were largely ineffectual. Most people said that they had read the mission but didn’t really think about it much. One nurse was more blunt: “My mission is caring for the patient, and get out of my way.”

In general, there was continued resistance to administrative reforms. Care providers complained that the administration was trying to impose alien standards and did not respect them. “We used to be a family,” said a nurse; “now we’re two families.”

We both heard about and directly observed regular subversion, through informal resistance, of external pressures for accountability. Doctors, for example, were able to avoid administering feedback forms to patients who they feared would not be positive, and physicians failed to comply with external audit recommendations for practice improvements.

There was little awareness of the financial situation, even among nurse managers. Nurses and clinical staff viewed patient care as primary and cost pressures as external imposition to be battled: one said, “I don’t know much about the finances, but I do know we have to fight tooth and nail for every cent.”
Analysis

This case represents an inwardly focused traditional craft model with good cohesion within units derived from long employment tenure but weak multidisciplinary communication and collaboration. Most of the employees felt there was a satisfying and effective sense of “family” solidarity and that people worked together well. Yet the results were clearly poor. The weaknesses of the craft model were evident:

- Limitations on open dialogue about problems: such discussions were limited to informal networks and blocked for new people or those, like the phlebotomist or case manager, who had not made their way into the family circle.
- Lack of ability to balance care with other priorities, especially cost. Everyone felt very focused on providing the best care, and felt good about this; they largely rejected competing concerns.
- Inconsistency of procedures and difficulty in introducing new approaches and techniques.
- Ineffectiveness of focused problem-solving processes, preference for informal and ad hoc communication.

Case 2 – Lowell: The failure of administrative reform

At “Lowell” a new administration, pursuing widely-recommended efforts at greater process standardization and accountability, aggressively confronted traditional medical communities, precipitating severe conflict that at times broke into open rebellion, with intense frustration on both sides.

This was a medium-sized (about 300 beds), short term community hospital with a good local reputation as a quality hospital, despite a low-income patient mix. By all accounts, until a few years before it had been very similar to Riverside: high stability, strong “family” unity, harmony based on acceptance of traditional status roles. However, in recent years, it had gone through several ownership changes and its performance had declined on a range of quality and efficiency measures. In the year before our research it fell into the lower quarter of results on both our mortality measure and the state-published process data. But there was little local competition, so there had not been a severe financial crisis and most staffers were not focused on the financial dimension.

The decline in quality had not yet produced a crisis. There was little local competition, and the hospital’s reputation had not yet been widely damaged, so immediate pressure was muted. But new administrators had felt as of two years before that there needed to be significant improvement to avoid a future crisis. Thus they had initiated a series of change efforts, including

- an attempt to standardize physician protocols on a few key practices with strong evidence of their effectiveness;
- hiring hospitalists – doctors employed by the hospital – to help maintain coordination and coverage when community doctors were not available; developing multidisciplinary rounds;
- creating a new role of patient advocate to focus on patient satisfaction;
• seeking to reduce length of stay by hiring active case management consultants;
• instituting a set of quality committees to review roots of problems and suggest solutions.

In addition, like all the other hospitals except United, they had developed a strategy statement and values emphasizing a balance of quality, cost, and access.

These are all reforms with strong support from research and the consultant literature, and the administrators talked about them with understanding, sophistication, and enthusiasm. Many of them are similar to what was being attempted at Lowell. The difference was that while at Lowell the administration was trying to go slowly and carefully – and not making much headway against resistance – the Riverside administration pushed harder, trying to overcome resistance with a combination of thorough education and stronger accountability and incentives.

Nevertheless, as the overall results indicated, they had clearly failed to improve the performance of the unit. The administrators themselves expressed intense frustration at their lack of success and attributed it primarily to resistance by physicians:

“Physicians are a major block for any change in this hospital. They don’t blame themselves for our bad reputation; they blame the nursing staff.”

“We wanted to put in changes in procedures from proven evidence-based medicine. For example, some of the physicians are still clamping chest tubes; that’s been out of date for ten years. But some of the physicians didn’t want to change. And for preop antibiotics, they insist on using a procedure that has not been used in a long time.”

Doctors were not, however, the only focus of difficulty: nurses, and their union, had engaged in open conflict with the administration around cost-cutting moves and reassignments. The administrators insisted that cost reduction was essential and that the nurses had refused to engage in discussion and negotiation around these issues. Following a work stoppage, many nurses had left and the hospital had taken to using large numbers of agency nurses, hired on a temporary basis. The constant change in agency staff, and tension with regular nurses, exacerbated problems of coordination. Regular nurses saw agency nurses as having poor work ethic, low motivation and lack of dedication to patients; agency nurses complained vociferously that the regular staff were unprofessional and sloppy in their procedures.

To reduce length of stay the administration had hired case managers whose entire focus was on this issue. These case managers led the interdisciplinary rounds and steered the discussion for each patient to the question of whether they met the criteria for insurance reimbursement and, if not, how to move them out. Despite this effort, length of stay had changed little in the previous year. Both nurses and doctors generally expressed hostility to the effort: “It’s not about helping people, it’s about making money!”

The administration had hoped to develop some control over physician procedures by hiring hospitalists – doctors employed directly by, and accountable to, the hospital. But nurses, as well as the hospitalists themselves, viewed the communication between doctors and hospitalists as ineffective, with the community doctors protecting their own
relation to patients, so that all that had been accomplished was the addition of an extra element that further confused efforts at coordination.

Patient advocates had run into similar obstacles: the head of this function felt cut out of decision-making and frustrated by a lack of respect. She had been unable to achieve the coordination she sought:

“Often times patient feel that there is a disconnect: consulting told them something, another doctor comes in and say you can leave today, but then the hospitalist comes in and says, ‘I don’t know, I’m waiting for a test’ – I think they get the impression that sometimes the right hand does not know what the left hand is doing.”

Though conflicts between administration and medical staff were predominant in our interviews, other conflicts were also prevalent. Some of the administration’s criticisms of doctors were echoed by nurses:

“A lot of the doctors are old school. They stick to status and think ‘I’m the doctor and you are the nurse.’ You can’t really discuss the patient.”

“Doctors only look at patients’ charts but do not look at the nurses’ documents.”

And a nutritionist added:

“Doctors do not want to go to computer entry for medical orders…this is a major disconnect here … which contributes to patients receiving wrong medication”.

Lack of coordination was a continuous theme:

“Every member of the team really should be at some part during the day coming together to discuss whatever the goals and the plan for the patient so you don’t miss anything. And I think that would definitely help the length of stay because everyone would know what’s going on. We have different parts of the team meeting at different times.”

“The hospitalist sees the patient in the emergency room, and it’s consult, consult, consult. Then the specialist comes in, sometimes reading those initial orders, sometimes not reading those initial orders, and everything gets changed.”

Analysis:

The strong intervention of the administration to try to get control of a highly unsatisfactory situation had undermined the web of traditional relationships between physicians and nurses, but without replacing it with either bureaucratic accountability or reliable mechanisms of collaboration. The physicians’ attitude of professional autonomy had remained intact, leading to open mutual hostility between the administration and the physicians. Nurses, caught in the middle, felt they had lost their traditional responsibility for patient care. All objective measures, internal and external, showed very poor results in congestive heart failure treatment.
Case 3 – Hightown: Limited collaboration in a wealthy hospital

At “Hightown” a strong physician leader succeeded in building a set of collaborative mechanisms that led to markedly improved quality of care.

This was a large community hospital with a relatively wealthy payer population and little cost pressure. One high-level administrator described them somewhat ruefully as a “Mercedes” operation. The health care outcomes were good: It was among the very best hospitals in the state on both mortality and process measures for heart failure.

Six years before it had imitated a major program for cardiac care, with some government support, bringing in a strong doctor to lead it and two Advanced Practice Nurses (APNs) to support him. Key elements in this initiative included:

- Frequent and highly organized interdisciplinary rounds, including the physician leader, the APNs, a social worker, physical therapist, and of the support staff.
- Formalized multidisciplinary problem-solving committees and processes, reviewing the quality of care and making suggestions for improvement and standardization. These were done within the framework of a “Strategic Mission” statement very similar to that at Riverside.
- The empowerment of nurses as key coordinators of care. They were able to access full information about the patients and were given support and training by the APNs so that they could have informed discussions with the community doctors: as one put it, “When you know what you're talking about, they do respond to that.”

We observed in detail ways in which these collaborative mechanisms improved the quality of care. The interdisciplinary rounds were particularly effective. Although these rounds were formally the same as those at Lowell and Riverside, their actual operation was entirely different. Nurses from the floor came to present their set of patients; an APN was sitting at a computer all the patient data in front of her; other specialists, including the cardiac doctor, sat around the room. Very frequently problems of coordination were uncovered and fixed, and in many cases efforts were made to diagnose the source of the problem and prevent a reoccurrence:

- A nurse said that her patient needed a change in medication; the physician said he had already done that; the nurse said No, it hasn’t changed. After some back-and-forth discussion and checking the records they found that the Emergency Room had failed to transmit the order. They immediately fixed the issue for that patient, they identified the ER physician responsible at that time, and they assigned someone to speak to him.

- A patient was receiving a wrong medication. After correcting the order, the physician said, “The nurses should have picked that up.” The Advanced Practice Nurses identified the nurse in charge of the patient, who turned out to be a new hire, and arranged to talk to her about this responsibility.

- A nurse suggested that a patient could be sent home with Visiting Nurses, although he was still prone to falling. The social worker intervened: That won’t
work, his family is in upstate New York, he needs more support. A decision was made to keep him longer despite the length-of-stay guidelines.

The collaborative efforts had been extended beyond the hospital setting. Outpatient care was tightly integrated with the hospital staff. The two APNs had also established ongoing relations to homecare providers and offered advice and support to home care nurses without any direct reimbursement. This clearly had a major impact. Home care, according to the nurses, was ordinarily very poorly coordinated: nurses had very little information on the treatment history, doctors came very infrequently, and nurses were not expected to initiate calls to the doctors except under very clear circumstances, and never to suggest changes in treatment. We heard about the development of new processes to improve the information sheets passed from the hospital to the home care providers. We also heard of interesting incidents of improved dialogue: a home care nurse recounted,

“There was a woman who was discharged not dried out as well as she could be. I thought, If she doesn’t start taking off the water she will end up back in the hospital. I told the primary physician; He said ‘Look, we've done all the diuretics we can on this person.’, And I looked at the chart and I said, 'Well, they didn't try Viroxillin.' ut then I said, Before I start suggesting things I don’t know enough about – she only has one kidney, I don't want to upset her kidney function – I should talk to the expert to get their opinion.”

This nurse spoke to one of the hospital APNs, who confirmed her view and encouraged her to go back to the doctor; the doctor agreed to try this avenue.

There were many formal problem-solving committees, and though there were some mixed reviews, there was far less of a negative feeling than at Riverside. They were able at times to go well beyond the kind of informal workarounds that were common at Riverside. One nurse described a committee to look at the handling of inventory:

“I emailed people; they joined the team because it was a very big problem, everybody had an issue with it and they wanted to come to the table because they had something to say. And once they got together, they heard the other people and they started seeing the bigger picture – it wasn't just one thing.”

Attention to costs again presented a somewhat mixed picture, but far less negative than in the previous cases. As noted above, the hospital was under less pressure than most; in the cardiac unit, some of those we spoke to were not very aware of the cost dimension of their work, and a few complained that recent increases in cost control pressures were compromising traditional care. But there were also instances of active efforts on the line to manage cost without affecting care – for instance, the enthusiasm about inventory control described above; or negotiating with providers to get refunds for unused stents. The unit had had considerable success in reducing length of stay, despite the absence of case managers focused on controlling this measure, and despite a number of instances we observed in which patients were kept past the guidelines because of legitimate needs. Several people attributed their ability to manage length of stay to their improved communication and process management, which meant there were far fewer delays while waiting for someone to follow up on a question or request.
Despite these successes, significant problems remained. It was clear that there were frequent difficulties in relating to the community doctors who had visiting rights at the hospital: several people spoke of these doctors’ defensiveness and unwillingness to participate in process improvements, and the lead cardiac physician spoke of the care he needed to exercise in dealing with them. Second, the nursing hierarchy was independent, and nurses in the unit expressed considerable frustration at the nursing administration’s insensitivity to their particular scheduling needs. Third, the incentive system often worked against the collaborative efforts: for example, time spent in linking to home care nurses was uncompensated, and decisions to keep people longer than the length-of-stay guidelines were penalized. Finally, the lead physician saw a major part of his role as “protecting” or “buffering” the unit against the rest of the hospital and the administration; there was certainly not the same relation of collaborative problem-solving beyond the unit that could be observed within it.

Analysis

This is a promising case of collaborative relations, bringing together differing specialties for effective patient-centered problem-solving. The medical outcomes, as we expect, are very positive, and our interviews uncovered considerable detail about the dynamics that lead to these positive results.

The pattern fits the ideal-type configuration of limited collaboration in most, though not all, respects. It was, as predicted, confined to a relatively small and confined unit with strong protective boundaries. The central driver was a physician, drawing on the credibility and norms of professional collegiality while “extending” these to specialties and professions that are not usually treated as part of the professional medical dialogue, such as nurses and social workers. This extension was made possible in large part because of a continued focus on patient care which is part of the traditional ethos of all these specialties.

The continued strength of traditional relations did impose limitations on the collaborative effort: in particular, the “craft” identity of community physicians often led them to resist open dialogue with nurses and team efforts at process improvement. The growing pressure of bureaucratic rules was generally kept at bay by the power of the lead physician and the relative economic health of the hospital. Nevertheless, in some areas, such as relations with the nursing hierarchy, there was fairly open hostility; in others, unit members manipulated or ignored the rules to achieve their priorities.

In one key respects, however, this case had perhaps gone beyond the model of “limited collaboration”: there was better integration of cost considerations into decision-making at all levels than we expected. Some nurses and other purely medical staff showed creativity and enthusiasm about finding cost improvements. It was a mixed picture: the more traditional view that cost pressures were an illegitimate intrusion on pure quality of care was expressed by some. But the leaders and some of the care staff took the view that they could both lower costs and length of stay and improve care quality. This was more than rhetorical: there were real initiatives focused on the former dimensions as well as the latter. Though we did not get useful cost measures over time, we did see evidence that length of stay had been substantially reduced during the previous few years.
Case 4 – United: Limited collaboration in a cost-constrained hospital

Background

“United” was a particularly interesting case because it had high quality outcomes, including significant improvement in recent years, despite a very low-income patient population and a constrained budget. It was pursuing a collaborative effort rather similar to that at Hightown, though at an earlier phase of development and with some modifications required by cost considerations.

This was a tertiary hospital that admitted “hard cases that smaller hospitals cannot handle” and that often were not covered by insurance, including a large number of charity cases. In the year before our study the hospital incurred major losses and subsequently began initiatives to cut costs and improve operational efficiency. It was the only hospital we visited that had a room opposite the front desk for financial advice for those having trouble paying their bills.

Despite the difficult patient mix, the 2007 report of the Joint Commission, an independent organization that certifies more than 15,000 health care programs, rated the hospital a “Plus” (above average) at the national and state level for its Congestive Heart Failure (CHF) treatment. The hospital also fell into the top 25% on our measure of adjusted in-hospital mortality and on the state’s assessment of process consistency for 2006 and 2007. According to internal measures process consistency had substantially improved over the prior several years.

Because it was a teaching hospital the organization, unlike the other cases in our study, rarely dealt with community (outside) physicians. Physicians were employees of the hospital and therefore more easily available when needed for consultation. In addition to the usual residents, the cardiology department’s medical staff included 2-3 “Fellows” – doctors undergoing specialized training in cardiology; the Fellows played a crucial role in coordination of care. As in most hospitals, the nursing hierarchy was separate from the physician organization. Though there were some typical complaints of disagreement and tension between the two over staffing and other procedures, on the whole the nursing leadership seen as cooperative. The nurse manager focused on continuing education and development of expertise. The nurses in cardiac care had excellent relationships with the Fellows.

Unlike Hightown, which had managed to consolidate most of the heart failure patients in one unit, United still had cardiac patients more widely scattered through the hospital. The leader at United had adopted a pragmatic approach of networking with other units to build their awareness of the heart failure initiatives and issues.

“If we had money it would be easy to construct a group that manages all of our heart failure patients, but you have to work within the structure that exists. And people know that – the residents know that, attendings know that, we scout out the patients in the other wards, and the clinics, we’re trying to recruit them back in there.”

Change initiatives

For three years before our research the hospital had undertaken a major initiative to improve cardiac care. Like Hightown, it hired a new cardiac physician leader and
obtained some outside funding to seed quality improvement, who integrated the Fellows into a strong and tight-knit leadership team. There had been an effort to consolidate cardiac patients in one unit, though this remained very much a work in progress and there were many exceptions.

The new head of the cardiology department had provided key leadership in building the research, patient care and doctor nurse relationships in the department.

“If there is any one [key to the quality of heart failure care] it is him being the true leader in building a team. He is the champion who holds people accountable, in a nice way. He has helped improve nurse-doctor relations. He brings professionals from different disciplines into it, too. We are doing well because of this level of teamwork.”

And the leader himself said:

“The bottom line you need a doctor who is going to take charge and be responsible for what’s going on. That’s where it’s got to start. And who dictates the standards that are going to exist and has his own standing in the field.”

This leader relied heavily on the support of two physician Fellows, who worked very closely with him. They played a role somewhat similar to the Advanced Practice Nurses at Hightown, helping to educate and spread the principles of the change effort consistently through the unit.

The effort focused at first on improving process measures based on National Quality Forum’s standards for treatment of heart attack and congestive heart failure. These scores had improved significantly over the previous two years. This focus on process measures, according to the head of cardiology, was a “springboard” for ensuring compliance to “core measures that need to be done. By including it in the core measures it gets done.” Documentation, which had been inconsistent, became far more standardized and the main procedures could be easily checked.

Despite the strong emphasis on the lead physician’s role, the effort operated on a philosophy of high involvement. A cross-disciplinary problem-solving committee – apparently the first of its kind, at least in this part of the hospital – initially studied current procedures, interviewed people, and recommended improvements. Nurses and other providers at all levels were strongly involved in the discussions, and nurses were empowered to carry out improvements with far less bureaucratic “checking” than usual. In our interviews at lower levels we found that many, though not all, of the care staff “bought in” to the effort, were aware of the main issues involved, and supported the leadership team.

To emphasize integrated care and coordination, two further multi-disciplinary committees had been established focused on cardiac services and performance improvement. These committees included cardiologists, nurses who ran cardiology care units, quality assurance and case management. They were generally seen as effective. A case manager, for example, told of a team she worked on that collected data on major reasons for delays in discharge, identifying the key holdups as transportation, tests, and lab reports. These findings were reported to the cardiology improvement team and
corrective action was taken. Another team identified a problem with requisitions that were not being done in time for patients being sent home; they worked out a procedure for identifying patients nearing their discharge date and moving them to the head of the requisition queue. Such seemingly simple changes are indicative of how difficult it is to coordinate the usual hospital procedures from different areas around the overall care process, and how effective even a simple cross-functional team can be.

There was a consistent effort to educate staff at all levels about medical issues. The head of cardiology said, “When you are talking about quality of care you are really talking about really training people how to treat heart failure” – and “an academic program does not necessarily mean you’re going to have expertise.” He emphasized an active clinical research program, drug and device trials in part because “it elevates the level of expertise of every person involved, including the nurse at bedside.”

Performance evaluations in this department were viewed as developmental and not retributive, unlike in the two lower-performing hospitals. Where there were performance gaps, training was provided. The nurse manager emphasized higher standards of care by encouraging professional development through specialized certification.

The effort had many of the same aspirations as the Hightown initiative but was three or four years behind chronologically. Multidisciplinary rounds had been instituted, but they remained rather ad hoc and inconsistent in membership. We were not able to observe rounds, but they clearly did not yet play the strong coordinating role that we saw in Hightown.

There were also several efforts in early phases to broaden the scope of collaboration. Plans were just beginning to improve connections and followup with patients outside the hospital in order to reduce readmission rates. The lead physician had made major efforts to coordinate with other parts of the hospital that also dealt with cardiac patients, though this had not yet led to formal committees or other structures.

**Attitudes**

The dynamics in the Cardiology Department were somewhat mixed. For the most part they were characterized by an cooperative relationship between the doctors and nurses, an emphasis on education and research in patient care and an active approach to problem solving and conflict resolution in which the union was often involved. Most were also highly enthusiastic about the lead doctor, seeing him as someone who both listened and enforced high standards.

There were, however, some who did not share the general positive view. A few nurses who had been there a long time complained about continuing tensions between nurses and other roles – pharmacists, administrators (“there are too many layers) – as well between older and younger nurses (“the younger generation are different, they don’t care as much about the patients”). They focused heavily on understaffing and failure to maintain a sufficient nurse-patient ratio: “Even if we have our contract and it is specific what the ratio is between nurse and patient, in certain situations it still won’t happen.” They preferred advancing complaints through their own nursing hierarchy and were rather dismissive of the new committees and processes.
We also found pockets that did not seem to have been affected by the changes. One of the labs, for instance, where we conducted several interviews and observed the floor, resembled the traditional relations at Lowell: people spoke of a “family” atmosphere and were generally satisfied with relations, but did not engage with the process committees; the unit was marked by internal inconsistency, failure to use advanced technology, and breakdowns in communication both inside and beyond the unit. The outpatient unit complained about red tape and a critical lack of continuity between the hospital and aftercare.

The majority, however, gave a very different impression – more than any of our other sites, it was like engaging two different worlds or mindsets. The majority of those we interviewed were enthusiastic about the new leadership, engaged in the changes, and hopeful about the future. They were generally critical of the “ingrown culture” and “convoluted work systems,” but noted that the changes brought by the new lead physician were recent, and progress was being made, albeit unevenly.

Most – nurses, doctors, and other specialists – emphasized the interdependence of roles: a case manager said:

“Every role is important. It adds and gives to quality patient care. They [professionals from different disciplines] make up the whole.”

And a nurse characterized the coalition of Nurses and Fellows as “the core coordinating unit” of the cardiology department. The four doctors we interviewed consistently expressed respect for the nurses’ skills. Nurses and other professionals involved in patient management generally felt that the doctors were “accessible and receptive.” Most nurses felt empowered to “grab a doctor on patient management issues”. Dieticians felt empowered to “clarify and modify doctor’s initial diet orders.” Nurses felt that the they would “readily communicate with the Fellow first in case of problems”.

Relations to other units were relatively good, in large part because of intensive networking efforts by the lead physician. Though there were some complaints about the nursing hierarchy, in general there was a smoother relationship here than at our other sites. The nurses’ union had also played a positive role in resolving problems around the implementation of new policies and administrating of existing policies. There were several examples of constructive problem-solving discussions between the union and administration.

Budget awareness remained relatively low. One of the Lab supervisors typified the lack of clarity about reimbursement norms for tests: “I think the insurance company pays for the tests. But we do not have anything to do with that at all. We do whatever tests are asked of us.” A nurse manager said, “We do not let costs effect us too much”; a nurse commented, “I have no idea about prices.”

There was a fairly widespread feeling that the administration was not providing enough financial support to the unit. Nurses felt that the administration decisions on staffing issues sometimes negatively impacted the quality of care.

Results

As mentioned before, the hospital was among the top performers on our quality measures statewide and had improved significantly over the previous few years. The
department had achieved reasonable cost control through focusing on criteria for admission, patient care while being admitted and final discharge of the patient. There was an attempt underway to focus on the admission and length of stay criteria prescribed by Medicare and Medicaid. To improve discharge planning, nurses were being empowered to coordinate the discharge process with the attending physician’s advice.

Research grants on pharmacological treatments were crucial to the unit’s financial viability; in itself, according to the lead physician, heart failure would be in the red. The hospital had also received limited grants for treating heart failure in minority patients and for dispensing medical advice by telephone – which in the past had been written off as a loss since it was not reimbursed by insurance companies.

The next major goal was to reduce number of patients readmitted within 30 days. To reduce the department’s dependence on grants there is talk at the senior management level of strategically drawing on “downstream revenue from diagnostics, other devices and other interventions”.

Analysis

This case fits the configuration of early-stage collaborative development in medical settings. The effort centered heavily on the strong leadership of a doctor who emphasized a strong focus on patient care, the primary professional value shared across a wide range of levels and functions. Like Hightown, this unit relied on a set of highly skilled practitioners working for the lead physician who helped spread and reinforce the message; unlike Hightown, these key agents in this case were Fellows (physicians in undergoing specialized training in cardiology) rather than Advanced Practice Nurses.4

The effort here was newer than at Hightown and had in some respects proceeded less far. While Hightown had moved substantially in maintaining continuity of care and information between outpatient and inpatient providers, this was still on the to-do list for United. The cardiac leader at United felt that this weakness was the major reason why the readmission rate had not yet improved despite significant gains in quality of inpatient care. Hightown had also achieved greater formalization and regularization of the multidisciplinary rounds, which requires considerable changes in habits and schedules; at United multidisciplinary rounds continued to be rather ad-hoc, happening on most days but not all and with a somewhat variable cast of characters. And engagement in cost-cutting initiatives seemed far less than at Hightown.

There were, however, two interesting and potentially fruitful aspects of the United effort that were not part of our preconceptions about the limited collaboration type. The first ran directly counter to our expectations: although the role of the lead physician was (as predicted) very strong, he did not play the role of guardian and protector against other parts of the hospital, as did his counterpart at Hightown. Rather than trying to seal off his unit as a special domain, he engaged in intensive networking with other areas and tried to draw them into his vision of cardiac care. This was a matter of necessity, not of choice: he would have preferred to get all the cardiac patients on one ward where he could control the care, but the resources were not available. Nevertheless, there was some evidence that by reaching out this unit was having good effects, creating less
tension with other parts of the hospital, such as nursing administration, than did the “hothouse” approach at Hightown.

Second, this initiative focused at the start on standardization of a very clear set of procedures, rather than on a broader vision of relations. The development of multidisciplinary teams, for instance, was second in priority behind the achievement of consistency in “8-scope” processes. At the same time the method was not one of “forcing” as at Riverside. The clear focus was driven by the doctor but not forced administratively: it was not a matter of standards set at the center and enforced through incentives, but rather of engaging a wide variety of actors at all levels in the pursuit of this objective. There were strong interdisciplinary elements, including two formal committees and, according to our interviews and network surveys, effective working relations among specialists. A considerable amount of the quality improvement consisted, according to the physicians and fellows, in picking the “low-hanging fruit” of poor processes characteristic of most traditional hospitals. The United leaders framed this as just the first step in a longer-term effort to build a patient-centered focus, and felt that the quality improvements so far were just the beginning of the possibilities.

In broad outlines this case represents a somewhat earlier version of the “limited collaboration” model seen at Hightown, with both its strengths (high quality of care, effective interdisciplinary problem-solving) and its weaknesses (tension with other parts of the hospital, reliance on the protection of a single leader, weak integration of cost values).

Survey data

In this paper we have not analyzed the detailed data from the network surveys, in which we asked people to list their contacts during the previous day and then asked a series of questions about the nature and quality of those contacts. We have used these data as a general check on our assessments of relationships in the text above, to be sure that our interview findings were generally consistent with this network data. It is also worth reporting briefly on the basic means across all the relationships in each hospital on some key items:

<table>
<thead>
<tr>
<th>Question</th>
<th>Hightown</th>
<th>United</th>
<th>Riverside</th>
<th>Lowell</th>
</tr>
</thead>
<tbody>
<tr>
<td>“How much did they respect your professional expertise?”</td>
<td>4.48</td>
<td>4.2</td>
<td>4.2</td>
<td>4.1</td>
</tr>
<tr>
<td>“When there was a problem, how well did they work with you to solve it?”</td>
<td>4.437</td>
<td>4.22</td>
<td>4.13</td>
<td>4.08</td>
</tr>
</tbody>
</table>

*Fisher’s F-value significance < .01*

These data support the patterns we have been describing (with the partial exception of the “tie” between United and Riverside on one item). Hightown, which had progressed farthest in developing collaborative systems, was highest by far in professional respect and shared problem-solving. United’s somewhat lower score is consistent with our finding of a divided populace, with some still holding a traditional
orientation and some engaged in the collaborative effort. Riverside, which had bad results, is next, not at the bottom: our analysis would suggest this is because despite some tension with administrative programs, many nurses and doctors remained satisfied with the traditional system. Lowell, where the traditional relations had broken down into open conflict, trails.

**Discussion: assessing the effectiveness of collaboration**

This study provides evidence that modern hospital care is best organized collaboratively rather than through either traditional professional institutions or administrative hierarchies. It also suggests a further important possibility that practicing physicians are more effective than administrators as leaders of the transformation process because their legitimacy as medical professionals enables them to build a bridge to more complex organization rather than arousing resistance and conflict.

The two highly successful hospitals turned out to be deliberately collaborative, reducing traditional status hierarchies and building structures and norms for continuous problem-solving among different occupations. The two unsuccessful hospitals, on the other hand, represented varying combinations of the traditional and administrative orientations, which remained in tension.

The traditional “craft” structure and values, by contrast, was most clearly seen at Riverside and was also still active though weakened at Lowell. This orientation, with strong norms of professional autonomy and deference to physicians, was clearly unable to master the complexity of interdependencies involved in the modern care of heart failure. There were many inconsistencies of process and miscommunications among caregivers that contributed heavily to the poor medical results. They also failed to integrate values of cost control and efficiency into their daily operation and to balance them with medical quality.

Efforts by administrators to solve these problems through bureaucratic consistency were ineffective in these cases. Where the administrative effort was relatively low-key, at Riverside, it simply failed to penetrate the traditional relations and was seen as a kind of unnecessary annoyance. At Lowell, where it was forced more aggressively, it had sparked hostility, disrupting the previous set of craft-like relations without building a more positive culture. This case had the worst performance on medical care and had not reduced length of stay.

This connection of collaboration with good medical results is consistent with organization theory which sees this as the form of organization most able to deal with complex interdependent processes. The simple correlation is not definitive – this connection might have occurred by chance with a probability of 1 in 6; but the detailed information from interviews and observation added understanding of dynamics that further strengthen the evidence for the effectiveness of collaborative systems. We observed or heard rich stories about how quality was compromised by inadequate interdisciplinary relations in the first two hospitals, including traditional relations which were satisfying to the providers but not sufficient for dealing with the complexity of the problem; and we observed or heard stories about how effective, organized collaborative systems, including formal teams and processes, avoided or caught the same kind of errors.
The sharpness of these differences results in part from the fact that we started with fairly extreme cases in terms of performance. It is likely that many of the “middling” hospitals might have worked out some mixture of the traditional and administrative orientations. In that middle zone we might find examples of “negotiated détente,” with administrators and care professionals working out pragmatic relations that address some issues of cost and consistency without too much disrupting the traditional professional culture. This was a configuration which we had suggested as likely but did not actually find among our cases, which were chosen to exclude this middle ground.

Though confounding variables could explain some of these differences we saw, none seems sufficient to undermine the evidence for the effectiveness of collaboration. One that could seem significant is the fact the United was a teaching hospital, and the physicians were therefore not independent of the hospital. While it seems likely that this integration is helpful, its significance as a major explanatory variable is weakened by at least three considerations. First, the cardiac unit had had poor results a few years before despite this structure and had improved them dramatically without changing it. Second, and conversely, Hightown was equally successful even though most of its physicians were independent of the hospital. Finally, our observations and interviews brought out many reasons for the high quality at United that did not have to do with its teaching structure, but were more centered on relations among different care occupations.

We were concerned at the start that the wealth of the patients and the hospital might be overwhelm all other factors. We were interested to find that we were not only able to identify cases in both unexpected directions – wealthy and unsuccessful, poor and successful – but that the two such cases we studied did not have fundamentally different dynamics from their counterparts. This suggests that while money is certainly important, the dynamics of organization can have powerful independent effects: you can do well even with resource constraints, and of course vice-versa.

The integration of cost / efficiency values with quality of care

We initially expected successful collaboration to be based on the shared value of patient care which unites all the health professions, and for the most part to reject efficiency or cost values. But this turned out to be at least partially wrong. In fact we saw this one-dimensional focus most clearly in the two unsuccessful hospitals. Many of the care staff, like the nurse at Riverside quoted above (“My mission is caring for the patient, and get out of my way!”), expressed moral objections to taking costs into consideration. The administrators at Riverside, meanwhile, dodged the issue by arguing that if they focused on quality it would automatically lead to a reduction in costs. This avoids dealing with the very real tensions that often crop up between the two values; and indeed we did not see much active awareness of or attention to cost reduction.

But in Hightown’s collaborative effort in particular there seemed to be substantial progress towards integrating the two priorities. Hightown cardiac practitioners sometimes resisted cost pressures which they saw as illegitimately compromising quality of care: for example, they spoke of “pushing back” against insurance regulations in certain cases where they believed patients should stay longer than the prescribed guidelines. But they also spoke of the other side of the equation, which we did not find elsewhere: they told other stories of active, committed efforts by teams of care providers to attack inefficiencies. This suggests that they were indeed operating in two
dimensions - seeking to balance the values of quality and efficiency, and to work through the contradictions in the workplace as they arose.

We did not get enough evidence on this issue to fully understand how this had happened and how extensive these attitudes really were. (The other collaborative effort, at United, had also succeeded in reducing costs, but our interviews turned up more mixed feelings, with some nurses following the traditional line that this is not something that caregivers should worry about.) This is something worth focusing on in future investigations, since the long-term success of the health system almost certainly depends on building this balancing of competing priorities into daily decision-making at all levels. We have not come across, in our research, convincing evidence of this integration in other settings, though it is unlikely that we stumbled across the only such case.

**The change process**

At the start we raised the question: Can health care jump directly from a model of autonomous professionalism to a one of collaboration without first developing bureaucratic capabilities? It has often been shown that bureaucracy, compared to craft structures, can achieve greater consistency and improved control of cost and quality; these are greatly needed today in health care as well.

In the business world, companies passed through a long and highly conflictual imposition of bureaucratic systems on the previous craft occupations, then stabilized that form for decades before the current widespread moves to collaborative teaming. Our two less successful cardiac units, Lowell and Riverside, echoed that history of conflict between the administrative and craft orientations. At Riverside professional autonomy had (so far) blocked efforts at needed standardization and control, while at Lowell there was open conflict.

But Hackensack and United provided some evidence for another route: they achieved many benefits of bureaucracy through collaborative means. These were the units that achieved the best results on process consistency and the greatest improvements in length of stay. Rather than imposing standards from the top, or even through representative committees, they managed to engage people at all levels. At Hightown, as discussed above, there was considerable unity around balancing care with efficiency. At United, there was a clear understanding among many we interviewed that the improvement of process consistency was important for quality care, and that they could contribute actively as professionals to that improvement. Again, it was tentative, incomplete, and not shared by all. We do not know how often we would find this combination if we extended our research, or whether there are more developed examples, but we are not aware of convincing published evidence of this “holy grail” of professionalism integrated with collective consistency.

There are analogies in other companies. Total Quality programs, for instance, sometimes work in this way (though they are more often imposed from above). Toyota has come to exemplify this kind of highly participatory focus on process consistency - what Adler and Borys (1996) have called an “enabling bureaucracy.” But these efforts have been built on an already-strong foundation of bureaucratic systems and values. When the Toyota approach is extended to hospitals, it tends to come into conflict with the mindset of professional autonomy (Gawande 2007).
The role of physicians as change agents

It seems significant that in both of the best cases the administrators played very much of a background role, and the chief cardiac physician took the active lead. This can be explained as an extension of the physicians’ traditional legitimacy in the medical status hierarchy, whereas administrators are a recent addition and have no clear role. But these particular physicians, rather than playing the traditional physician role, used their prestige to deliberately reconstruct relations.

They did not abdicate authority: both were very clear about the need for strong leadership. We quoted the United cardiac chief above on the importance of “a doctor who is going to take charge and be responsible for what's going on, and dictates the standards.” Others we interviewed agreed that one of the powerful elements in the change process at United was that this cardiac chief emphasized very high standards for everyone.

At the same time, however, both leaders unusually and deliberately encouraged nurses to be active in problem-solving. The Hightown leader symbolized this most clearly: his key liaisons in the change process were two Advanced Practice Nurses, who had somewhat more training than the floor nurses but were part of the nursing culture and status group. It was these APNs who were at the center of the interdisciplinary rounds, while the physician sat somewhat to the side – actively participating, but not the focus of attention. The APNs also offered advice to outpatient nurses and others who had contact with patients; they were able to integrate the lengthy course of heart failure treatment better than a physician could, and he recognized the value of this role.

Administrators, as noted before, were less visible. But their role were important: to start with, they hired the key physicians and they provided resources and space for them to operate. We did not focus on the administrative role in detail, but it is likely that there is much to be learned from cases like this about how administration can provide a framework for collaborative relations without creating the kind of conflict or rejection we saw at Riverside and Lowell.

Limitations and obstacles

Though the efforts at Hightown and United were largely successful and encouraging, they were very far from providing a complete model that could be transported to other locations. Just as the transition from craft organization to bureaucracy took many decades, the transition to full collaborative systems involves long-term problems that go well beyond the scope of what has been accomplished in these units. These cases represent indicators of potential, but it is important to emphasize also their limitations.

Some limitations were internal to the units. There was still some individual resistance, including nurses and sub-departments that did not “get it.” There was some continuing tendency to be suspicious of efforts at standardization and cost control. These attitudes were more visible at United, which had only engaged in the collaborative course for three years, than at Hightown, where many of the internal issues had been worked out after six years.
But the more important and intractable problems by far were at the boundaries. These were in a sense hothouse experiments that did not fit comfortably with many other aspects of their environments:

- At Hightown most physicians were not employed by the hospital: it was clear that many were not integrated with the collaborative approach and often resented recommendations from the interdisciplinary teams. The lead cardiac doctor kept himself in the background in part to minimize the resistance of his fellow doctors, and the discussions in the rounds often concerned how to “bring around” community doctors who were not supporting the effort.

- The nursing hierarchy in both units was seen as causing problems through staff allocations that did not take account of the collaborative teams and relations.

- At United there were some mentions of union rules that defined nursing roles and responsibilities narrowly and did not support their involvement in problem-solving.

- Though administrators were generally supportive, they applied considerable pressure at Hightown to limit unreimbursed activities even when they clearly contributed to quality and perhaps also to long-term cost control. One extended discussion was about two staff members dedicated to telephone followup with patients to make sure they were receiving proper after care. Members of the cardiac unit were convinced that this activity had contributed to the lowering of readmission rates, but administrators wanted to see hard data that this cost was being recovered.

- In general, insurance regulations were totally external and seen as operating according to a foreign logic. The case manager at United and the Advanced Practice Nurses at Hightown tried to play the role of protector and buffer against these demands.

Given all these obstacles, it is not surprising that the collaborative efforts required unusual leadership, which cannot be counted on for a large-scale change strategy.

Both of the collaborative physician leaders advocated a strategy of building a highly autonomous cardiac unit, shielded from the rest of the hospital, in order to develop a new culture and the highest skills. This is typical of early phases in organization change efforts, and it is known to create the danger that the innovation will become isolated and will eventually die of neglect even if it is successful on its own terms. In the hospital setting the strategy of autonomy creates other problems as well. The high incidence of co-morbidities – heart failure patients very often have other diseases as well – means that focusing on cardiac care may not maximize the effectiveness of total care. And this approach also increases costs because it reduces the ability to allocate beds flexibly – a constant source of tension with administrators.

It is worth noting therefore that at United, as noted above, the leader had been forced against his preference into a different strategy: he worked extremely hard at “networking” with other parts of the hospital who cared for cardiac patients, in order to create a uniform standard of care even in areas outside his direct domain. It is possible
that this “networking” model of change might avoid some of the dangers of the “consolidating” model.

A further element to be worked out is the role of administration. Organization theory would suggest that this needs to be a clear role in managing large-scale systems. We did not see a good solution in any of our cases. In the worst cases administrators were seen as interfering with traditional relations; in the best ones they operated more quietly and supportively in the background. But in no instance was there a positive and shared understanding of the ways in which professional and administrative roles could work together and how each of them contributed to the overall picture.

Beyond this, for the collaborative approach to become widespread through the health care system would require large-scale changes in attitudes that do not happen easily. It would need to overcome resistance not only from traditions of professional autonomy, but also from the growing administrative pressure for tighter controls.

**Conclusion: The long path forward**

This study offers qualified optimism about a change strategy of building collaboration through physician leadership, building a culture and mechanisms of shared problem-solving that cut across traditional status and organizational boundaries. This strategy, which we observed in two cases, was more promising than we expected in combining the values of quality care with improved cost and efficiency.

The strongest hypothesis we could make based on our results is that the very best cardiac units will necessarily operate according to collaborative principles. That was true in our small sample, and we could see in detail dynamics that enabled our two collaborative cases to deal exceptionally effectively with the complexity of heart failure. Nevertheless, it would of course take a great deal more research, including close study of possible exceptions, before this rule could be convincingly established.

Even if this strong claim is true, however, there are clearly many obstacles to generalizing it as a change strategy. Existing institutions – professional bodies and norms, other units of hospitals and the wider care system, and the insurance reimbursement system – create a large number of boundary problems that can easily lead to isolation and loss of momentum.

Thus this analysis does not suggest actions that can easily or rapidly improve health care delivery. If anything, it underlines the magnitude of the challenge and implies that it will involve a long change process. The evolution of collaborative systems in private sector businesses has been going on for 20 to 30 years and is far from complete: it involves extensive changes not only in systems, which can be modified relatively easily, but also in mindsets and relationships, which are far more difficult. Health care, as we can see from the stories above, involves at least as difficult a transformation in attitudes.
ENDNOTES

1 The American Heart Association reports that “coronary heart disease caused 451,326 deaths in 2004 and is the single leading cause of death in America today.” (http://www.americanheart.org/presenter.jhtml?identifier=4478, 4/2/08). In that year heart failure was a contributing factor in over 284,000 deaths; “the estimated direct and indirect cost of HF in the United States for 2008 is $34.8 billion.” (Rosamond et al. 2008)

2 For the purposes of this paper we are conflating the craft and professional types. They are similar on the essential organizational dimensions: the key unit is the independent holder of specialized knowledge; if others are involved, it is as strongly deferential subordinates with lower status (e.g., apprentices or helpers such as traditional nurses).

3 Another well-known and promising case is Intermountain Health Care, which is attempting to build more collaborative relations on a larger scale and with an emphasis on efficiency. Reports on its success are somewhat mixed, however [Maccoby and Heckscher 2007].

4 The network data confirm this central and highly positive role for the Fellows – they scored well above the mean on helpfulness in problem-solving, for example, Advanced Practice Nurses were also central but less so.

5 A number of studies in the 1980s, for example, found that up to ¾ of the quality circle efforts of the time, even when successful by every objective measure, failed to survive more than five years. [cites]
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