

Promoting quality: the health-care organization from a management perspective

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Abstract

Background. Although agreement about the need for quality improvement in health care is almost universal, the means of achieving effective improvement in overall care is not well understood. Avedis Donabedian developed the structure–process–outcome framework in which to think about quality-improvement efforts.

Issue. There is now a robust evidence-base in the quality-improvement literature on process and outcomes, but structure has received considerably less attention. The health-care field would benefit from expanding the current interpretation of structure to include broader perspectives on organizational attributes as primary determinants of process change and quality improvement.

Solutions. We highlight and discuss the following key elements of organizational attributes from a management perspective: (i) executive management, including senior leadership and board responsibilities (ii) culture, (iii) organizational design, (iv) incentive structures and (v) information management and technology. We discuss the relevant contributions from the business and medical literature for each element, and provide this framework as a roadmap for future research in an effort to develop the optimal definition of ‘structure’ for transforming quality-improvement initiatives.

Keywords: outcome and process assessment (health care), quality assurance (health care), quality indicators (health care)

Introduction

The Institute of Medicine has launched a concerted effort to improve quality of medical care, which they defined as ‘the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge’. However, recent studies have demonstrated widespread deficiencies in the quality of health care, and society is now challenged by the task of effectively implementing quality-improvement programs [1]. Although agreement about the need for quality improvement is almost universal, the means of achieving effective improvement in overall care is not well understood. To begin such a discussion, one must have an appropriate framework for undertaking this effort. Avedis Donabedian was a pioneer in the field of health-care quality, and he developed a basic framework in which to think about quality-improvement efforts. Donabedian defined the health-care triad of structure, process and outcome (Fig. 1) [2]. Although there is now a robust evidence-base in the quality-improvement literature on process and outcomes, structure has received considerably less attention [3].

Donabedian believed strongly in the importance of health-care structure, seeing it as a driving force for later care processes and ultimately for health outcomes. Donabedian’s commentary on structure focussed on physical structure, facilities and provider qualifications, and most modern accreditation and quality organizations, such as the Joint Commission on Accreditation of Health-care Organizations have historically viewed the structure largely from this ‘nuts and bolts’ perspective [4]. As the study of organizational characteristics and behavior has evolved, our understanding of organizational characteristics and management capabilities that drive quality improvement in health care remains underdeveloped. The field of organizational behavior, a multidisciplinary field including contributions from psychology, sociology and economics studying individual and group dynamics within an organization, has demonstrated that people (management and employees) and organizational arrangements are key determinants of job performance and quality [5].

Effective organizational capabilities, such as leadership, human capital, information management systems and group dynamics (such as culture and incentive systems), are essential structural elements of quality improvement in a

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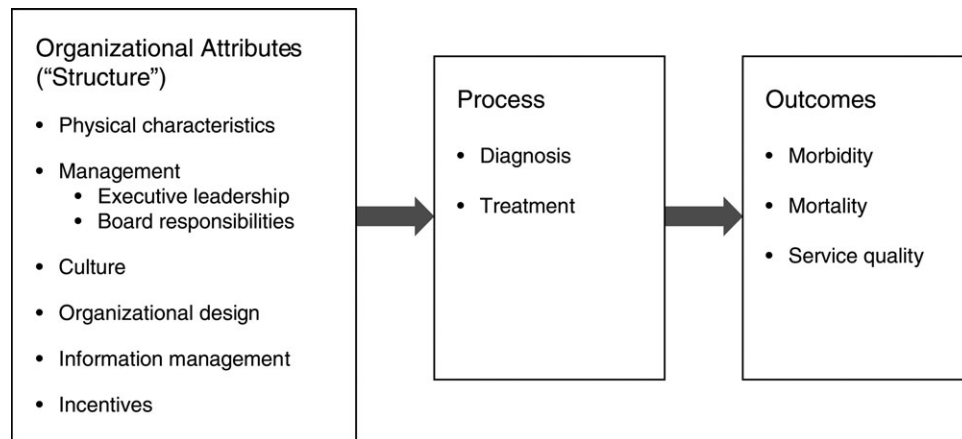


Figure 1 An updated framework for structure in quality improvement highlighting the importance of organizational attributes. An updated framework of structure in the hospital setting should incorporate the key managerial elements we have highlighted, which have evolved as crucial tools and management capabilities in successful businesses.

health-care organization and serve as the primary catalysts for process change. From a management perspective, these organizational attributes may provide a more operational definition of organizational structure than the elements of Donabedian's original classification. The health-care field would benefit from expanding its current interpretation of structure to include broader perspectives on organizational attributes as primary determinants of process change and quality improvement.

We highlight and discuss the following key elements of organizational attributes from a management perspective: (i) executive management, including senior leadership and board responsibilities, (ii) culture, (iii) organizational design, (iv) incentive structures and (v) information management and technology (Fig. 1). We discuss the relevant contributions from the business and medical literature for each element, and provide this framework as a roadmap for future research in an effort to develop the optimal definition of 'structure' for transforming quality-improvement initiatives.

Executive management

Senior leadership

Quality management has become a priority for senior executives and chief medical officers and a defining competency for successful organizations [6]. Senior executives sit at the top of a firm's organizational chart, and their leadership helps set the direction of the organization and guide quality-improvement efforts. These leaders produce ideas, convey new ideologies, and propagate them throughout their organization. Since the modern quality revolution began in the 1980s, quality pioneers have repeatedly emphasized the importance of leadership for achieving organizational advances in quality [7]. Organizational change is predicated on managerial leadership and support, and these elements are critical for successful implementation of quality improvement.

According to Juran, 'management commitment is pertinent to every successful quality revolution, no exceptions are known!'

Previous research from the organizational psychology literature has identified personality characteristics that help distinguish successful business leaders. These include personal motivation, intelligence, action-oriented judgment, skill in dealing with people and capacity to motivate others [5]. Successful leaders are able to harness these qualities to revitalize and transform their organizations. Transformational leaders are thought to achieve these goals by providing intellectual stimulation, individualized consideration and inspiration motivation to clearly communicate the importance of an organization's mission. Leadership is a complex process, and multiple theories have been developed to study the role and effectiveness of different forms of leadership under a variety of organizational models and constraints [7].

The link between leadership and quality has been studied in a number of business organizations implementing quality improvement, but existing studies in the management literature are largely qualitative and limited in nature. In one such study across multiple industries, Waldman *et al.* [8] found an inextricable link between leadership and commitment to quality-improvement processes. They found that top management's physical presence, visibility and concern for quality improvement were associated with transformational leadership and demonstrated that leadership directly impacts culture and the commitment of an organization to quality improvement.

The Baldrige National Quality Program designated leadership as a key driver in quality improvement when it established its criteria for the Baldrige Award in 1987. When the organization adopted its award criteria for health-care institutions in 1989, leadership remained at the top of its list. Although leadership seems like a logical choice to head the list, the medical literature is also limited in large studies demonstrating a connection between leadership and quality. Using survey data from 2193 community hospitals, Weiner

et al. [9] found that active involvement of senior administrative leadership, including hospital management and boards, as well as physician clinical leadership, promoted clinical involvement in quality improvement. Other studies have suggested that administrative support and physician leadership are important correlates of quality improvement for beta-blocker use in acute myocardial infarction [10]. However, despite the lack of empirical evidence linking executive leadership and quality, there are notable examples of the profound, positive impact that visionary hospital leaders can have on the quality of a health-care organization [11].

Board responsibilities

Momentum has built for several decades for hospital boards to be involved in and accountable for the quality of care delivered at their institutions [12]. In its 1999 report, *To Err is Human*, the Institute of Medicine described patient safety as a necessary organizational goal, stating that 'this process begins when boards of directors demonstrate their commitment to this objective by regular, close oversight of the safety of the institutions they shepherd.' Delivering high-quality care is becoming increasingly recognized as a corporate responsibility, and others have suggested that hospitals should be held negligent and subject to malpractice litigation for failing to deliver on this obligation [13]. However, numerous barriers, including lack of knowledge among trustees, poor communication between boards and physicians, fragmented information exchange, inadequate investment and disjointed committee structures, have made sustainable board efforts to improve quality difficult [14].

Corporate and hospital boards are largely responsible for overseeing an organization's financial budget and agenda. Quality-improvement programs can be costly, especially those that use technologically sophisticated information management tools. Several studies of US corporations provide some economic justification for quality-improvement efforts. For example, a study of 30 companies practicing total quality management showed that they had higher revenues and productivity than their peers [15], and studies of Malcolm Baldrige Award winners have shown better financial performance, as measured by common stock return and operational performance [16]. However, there is no evidence from the health sector that demonstrates a positive return on investment of capital for quality-improvement efforts. Misalignment of financial incentives has created a formidable barrier to the adoption of quality interventions, and many hospital boards remain skeptical of the potential for financial return from spending on quality improvement [14]. Modification of existing payment structures and policies may make a financial argument for quality improvement more palatable. Regardless, due to the burgeoning crisis of clinical quality, hospital boards must become accountable for quality at their institutions. They need to prioritize quality agendas and commit sufficient resources for the implementation of quality-improvement programs.

There are numerous examples of board commitment to quality in other business sectors. High-risk industries such as

aviation and energy have achieved impressive safety records, considering the risky nature of their businesses. The factors responsible for these achievements have started with board commitment to quality management systems [17]. Large multinational corporations such as Toyota and General Electric have engendered quality as a core corporate responsibility. Despite these successes, however, there is little empirical evidence in the business or medical literature that conclusively links board commitment to quality improvement.

Culture

Corporate culture is a relatively amorphous quality that exerts powerful influence over an entire organization. The culture of an organization should be a key consideration in a firm's overall strategy and in the design and implementation of quality-improvement initiatives. Corporate culture can be defined as 'the deeper level of basic values, assumptions and beliefs, that are shared by members of an organization' [18]. Culture has a powerful effect on an organization and is recognized by many as the 'glue' that holds an organization together and allows it to adapt to changing environments. In the management literature, culture has been shown to have a direct positive impact on quality, as well as operational and business performance [19]. Corporate culture has been shown to influence an employee's leadership style more than any other aspect of the employee's job, according to a recent analysis of several thousand executive assessments for more than 100 corporations [20]. Cultures of quality have been created at some of the largest business firms and have led to significant advances in quality management. Large multinational corporations such as Motorola and General Electric have successfully instituted quality cultures through the use of advanced industrial quality management programs, such as Six Sigma Quality [21].

Several researchers have studied the impact of organizational culture on quality in health-care settings [22], but there is little empirical evidence that conclusively links organizational culture and performance. There is a clear need to expand the evidence-base to determine which cultural factors facilitate quality performance. As leaders of health-care institutions think about the design and implementation of quality-improvement programs, it will be important for them to make accurate assessments of organizational culture both before and after implementation of these initiatives. An essential feature of organizational culture in health-care institutions will be one that creates accountability for quality improvement at all levels, from top-level management to individual caregivers. Another important element will be optimizing communication and social networking in an effort to break down hierarchies and divisions that limit information sharing. Clinical care is ultimately delivered to patients along relatively autonomous service lines (i.e. cardiology services, oncology services), and strategies need to be developed to achieve fit and synergy among these diverse groups.

Although strong empirical evidence linking culture and quality in health-care settings may be lacking, there are notable examples of high-performing health-care institutions that are rooted by a strong quality culture. For example, Baptist Health Care in Pensacola, Florida, has been nationally recognized for its excellence over the past decade. Baptist Hospital, a 2-year finalist for the Baldrige National Quality Award and tenth on Fortune's 100 Best Companies to Work For, now ranks in the top 1% nationally for both patient satisfaction and employee morale. This success was achieved primarily by developing an employee-driven organizational culture based on teamwork and open communication. The culture at Baptist is reinforced through multiple strategies, including employee-developed 'standards of performance.' Intermountain Health care, a large nonprofit health-care system in Salt Lake City, Utah, named the USA's top integrated health system for the fifth time in 2005 by 'Modern Healthcare', has been successful in building a culture of quality anchored by its excellent leadership, advanced information management and feedback, and commitment to patient safety.

Organizational design

Organizational design is a formal, guided process for integrating the people, information, and technology of an organization, and serves as a key structural element that allows corporations to maximize value by matching their corporate design to overall strategy [23]. From a strategy perspective, organizational design is an untapped variable that needs to be addressed in the context of organizational strategy and change. As attention to clinical quality becomes more of a priority, it will be essential for health-care institutions to evolve organizational and management structures that support the design and implementation of quality-improvement initiatives and create mechanisms for accountability for quality of care. Moreover, organizations in most industries are in constant evolution, so organizational design should be considered a variable and evolving tool for improving organizational performance.

As hospital-based care became the dominant system of health-care delivery in the 20th century, most hospitals adopted a functional model based on discipline-based specialization [24]. Each functional area (i.e. various clinical departments, nursing, laboratory services) has a manager that reports to higher management levels and eventually to the hospital's chief executive officer. Although this centralized design has allowed for efficiency based on scales of economy, it limits integration across functions and the ability to develop innovative, creative quality-improvement processes and solutions at the level of the service line. For example, most total quality management projects originate and are implemented at the level of hospital management teams through high-end administrative and support services. However, clinical care is administered at a service-line level

by clinicians and teams of complementary health-care professionals (i.e. nurses, therapists, pharmacists, etc). The conflict between central control and local autonomy and accountability is a key issue to resolve for most organizations.

The development of a less centralized, service-line orientation at hospitals should help support the development of total quality management processes at the clinical level. Organizational design by product and service line is becoming more common in health-care institutions and is likely to grow [25]. Innovative, high-quality health-care systems like Intermountain Health care have attempted to implement new quality efforts and allow more autonomy at the service line. However, because the current organizational structure is more functional in nature, management has experienced difficulty in crediting cost savings and improved quality to specific service lines [26]. Modification of current management systems from a centralized to more decentralized structure, in order to make service line units more accountable and autonomous for quality-improvement initiatives, may help optimize the results of future efforts.

Hospital systems in the USA have historically evolved such that physicians serve primarily as consultants and customers of the hospital and are paid on a fee-for-service basis, whereas hospital resources (such as beds, operating rooms, and technologies) are managed by administrators and shared by departments. A more recent trend has moved physicians into active roles as integral personnel within hospital management, but there has been little change in hospital structure to accommodate their evolving role in quality management. For example, total quality management projects have traditionally existed within hospital management administrative teams, while clinical care was a guarded realm of health-care professionals. Future changes in organizational structure that incorporate physicians into quality management roles at the service level, as well as direct reporting to the hospital chief executive officer, should help facilitate the involvement of clinicians in total quality management.

Successful businesses have developed organizational and management structures that engender corporate-level objectives while maximizing the ability of individual business units to address their local competitive environments [27]. For example, large corporations are successfully using corporate strategy maps and balanced scorecards so that employees both belong to individual business units and are in tune with corporate priorities. Individual unit managers make decisions that tie their activities to corporate values. This strategy has allowed the company to realign local management goals and decision making without having to endure the upheaval of major organizational restructuring. Additionally, large companies such as Johnson & Johnson and General Electric have successfully used a multidivisional organizational structure to maximize financial performance and quality oversight within local business units. Management and organizational structures in health-care organizations should be developed to allow each member of product and service lines to improve the quality of care they deliver to patients.

Incentive structures

In an effort to narrow the well-documented gaps between health-care guidelines and clinical practice, a variety of mechanisms have been developed to provide incentives to health-care institutions to improve their quality of care [28]. These efforts have been developed at multiple levels, including federal, commercial, and public watch efforts. Traditional quality-improvement methods have focussed on education, but large quality gaps persist. Public reporting of process measures and outcomes has gained momentum, but evidence regarding their effectiveness is mixed [29]. Likewise, the use of financial incentives to reward measured performance has gained recent enthusiastic support. The results of several recent studies examining the effectiveness of pay for performance in comparison to other quality-improvement activities (such as public reporting and quality-improvement registries) are also mixed, and further studies are needed to determine their role in quality-improvement initiatives [30, 31].

Although external quality-improvement efforts such as public reporting and pay for performance target hospital performance, it will be imperative to develop incentive structures within individual health-care institutions to influence organizational strategy and individual decision making. For example, in 2003 the US Centers for Medicare and Medicaid Services launched the Hospital Quality Incentive Demonstration (HQID), the largest pay-for-performance project to date in the USA. The HQID is a competitive bonus program in which reward is relative to performance measured on an ordinal basis across centers but does not provide direct incentives to individual clinicians or other service line personnel who operate at the point of patient care. In addition, the total bonus compensation from 2003 to 2004 for the 260 hospitals participating in the HQID totaled \$17.55 million, and many have questioned whether the bonus size is large enough to stimulate meaningful quality improvement. New incentive structures need to be developed at the hospital and physician levels to guide managerial and clinical quality efforts.

One of the tools most commonly used in businesses to align corporate structure and strategy is the 'balanced scorecard' [32]. The balanced scorecard is a performance measurement framework that articulates corporate-level strategy and goals across all elements of an organization and recognizes the creation of value beyond the capabilities of individual business units. It empowers managers to adopt behaviors and implement actions to meet corporate-level objectives while continuing to address the unit's local environment and strategy. The scorecard allows managers to manage their business units and create value from four important perspectives: financial, customer, process, and learning and growth. Balanced scorecards should be adapted to health-care institutions to engender a corporate commitment to quality and provide a framework so that service-level teams of health-care professionals can optimize quality of care. There have been notable successes in health care, such

as the use of the balanced scorecard method at Duke University Children's Hospital in Durham, North Carolina, which resulted in significant improvements in operating margin and quality of care [33]. This 'dual citizenship' approach, a term coined by Ingersoll-Rand chief executive Herb Henkel, would make health-care professionals not just members of clinical service lines, but members in corporate quality priorities. In accordance with this corporate-wide value proposition, it may be reasonable to introduce hospital bonus-based incentive systems that can be shared by all health-care staff when corporate quality goals are met. These monetary incentives could then be complemented by offerings to top management and clinical service line managers (i.e. department chairs) for meeting quality targets.

Information management and technology

Information management is critical to improving quality. One study reported that 85% of errors across all industries could be attributed to communication failures [34]. A second study, looking specifically at health-care delivery, reported that approximately one half of all serious medication errors resulted from insufficient information [35]. Better information is needed to manage work processes at the level of clinical care and to compile high-level reports that can be disseminated throughout institutions and across the health-care delivery system. One means of improving the availability of information at the point of care and across institutions is information technology (IT). Owing to its potential impact on quality, IT has garnered a great deal of attention and support. Although several institutions have demonstrated the efficacy of health-care IT in improving quality, there is considerable debate about the ability to implement widespread adoption of IT solutions in a cost-efficient manner [36]. However, given well-documented failures in information management in the clinical setting, it seems inevitable that widespread adoption of health-care IT will play a critical in addressing the quality agenda.

There are several important considerations in creating the appropriate structure for information management. Experts have advocated a national quality measurement and reporting system, and it will be essential to create standards for data collection and reporting if such a goal is to be realized [37]. At a hospital level, it will be important to reach consensus on the metrics to be processed. This will ensure accuracy, maximize efficiency, and minimize the cost burden across individual clinical service units. In firms, similar strategies have been shown maximize quality while controlling costs [38]. The adoption of health-care IT has been theorized by many to be very expensive, and it will be important to develop strategies to synergize and standardize quality-improvement efforts, thus spreading the fixed-cost burden across multiple clinical service units and institutions.

Information management systems have played an essential role in the implementation of total quality management in business. Empirical evidence exists for an association

between IT and quality management in both the manufacturing and public sectors [39]. In addition, there are countless anecdotal examples of large US corporations successfully employing advanced IT solutions in process control and improvement and customer service. For example, Federal Express has developed a sophisticated online computer system for parcel tracking. This has led to significant increases in customer satisfaction by providing real-time information, as well as an improved ability to monitor performance internally.

Future directions

The proposed framework examines key organizational attributes with regard to quality and provides an updated view of

Donabedian's conception of structure. New strategies can be developed to utilize this proposed framework to improve health-care quality from both management and research perspectives. From this discussion, there are clearly action items that can be implemented by hospital management today. These include an inventory of organizational attributes, assessment of hospital boards' understanding and investment in quality systems and personnel, creation of an organizational strategy and accountability for quality, and dissemination of quality objectives throughout the organization (Fig. 2).

Future health-care quality-improvement research would benefit from studying elements of the proposed framework and identifying how aspects of each of the organizational attributes we have highlighted (and their relationships with one another) are related to hospital performance and quality.

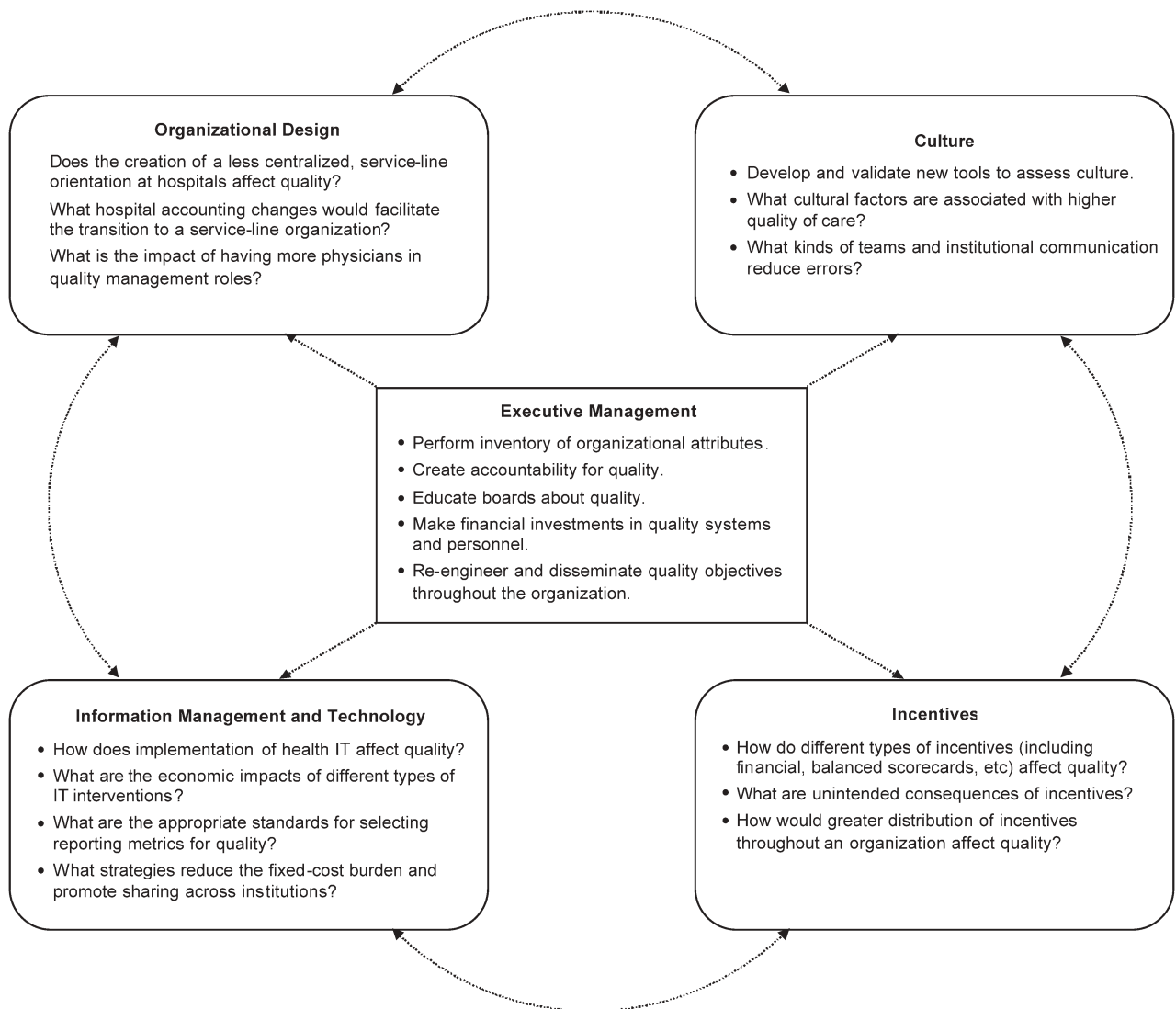


Figure 2 Future directions for improving quality: action items for management and areas for further research. There are action items that can be implemented by hospital management today to advance quality agendas. Suggested areas for further research include identification of how the organizational attributes that we have highlighted (and their relationships with one another) are related to hospital performance and quality.

Future research should characterize the different phases of organizational development for quality and help to determine the needs and capabilities of a health-care organization to achieve quality-improvement goals at any given point in time. This will help structure research hypotheses related to organizational characteristics for future research. As the research base on the relationship of key organizational attributes and quality expands, health-care accreditation organizations should consider the use of these key organizational elements in their accreditation processes.

Conclusion

In the wake of multiple studies documenting widespread deficiencies in care, health-care institutions are coming under increasing pressure to be accountable for the quality of clinical care they deliver. The evidence-base remains underdeveloped, and hospitals face significant challenges in implementing quality initiatives related to (i) identifying priorities, (ii) developing sustainable processes and (iii) identifying the appropriate framework for successful implementation of quality-improvement initiatives. Avedis Donabedian provided a solid foundation with his structure–process–outcomes framework in which to think about quality-improvement efforts, but his view of structure needs to be updated to account for current tools and management capabilities that drive quality improvement. We highlight five key elements of an organization that provide an operational definition of structure: executive management, culture, organizational design, incentive structures, and information exchange and technology. Given that quality will be the cornerstone metric of organizational performance in the coming years for all health-care organizations, we must begin to develop organizational structures that address this challenge from a management perspective.

Funding

Dr. Glickman's role in this work was made possible by a gift from the Douglas and Stefanie Kahn Charitable Gift Fund.

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Accepted for publication 17 August 2007