

A R T I C L E S

Why Does the Quality of Health Care Continue to Lag? Insights from Management Research

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Executive Overview

The United States health care system is plagued with quality problems. We draw on management research to explain why it has been so difficult to improve quality of care, despite a burgeoning body of scientific evidence on practices that result in better outcomes and the widespread adoption of quality-improving innovations based on those practices. Our analysis points to the prevalence of innovation implementation failure—organizational members' inconsistent or improper use of innovations—as a primary cause. In our review, we identify the organizational sources of this failure and offer six strategies for avoiding innovation implementation failure in health care.

Between the health care we have and the care we could have lies not just a gap, but a chasm.
—Institute of Medicine (2001)

For decades, the United States health care system has been grappling with a multitude of problems, including rising costs, uninsured patients, unequal access to care, staff shortages, productivity losses, fragmented structures that result in waste, increased demand for services without an increase in resources to provide them, inappropriate variations in care, consumer dissatisfaction, and a loss of value as expenditures outpace improvements in health outcomes (Paulus, Davis, & Steele, 2008). Among these problems poor quality of care is perhaps the most visible and troubling, resulting in nearly 100,000 preventable deaths each year (Institute of Medicine, 1999) and reduced quality of life for millions of Americans due

to non-fatal yet serious adverse events such as wrong-limb amputation, hospital-acquired infection, and medication errors (Institute of Medicine, 2006; Leape, 1997).

Since the epidemic of quality problems was “discovered” in 1999, health care organizations (HCOs; e.g., hospitals, primary care clinics, community health centers, outpatient centers, physician group practices, and nursing homes) have made concerted efforts to improve quality of care (Leape & Berwick, 2005; Wachter, 2004). Most notably, they have adopted a variety of innovations. An innovation is a practice, policy, or technology—for example, clinical procedure, staffing policy, or computer program—that is new to an organization, though it may be used by other organizations already (Rogers, 2003). Unfortunately, adoption of these innovations has not

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translated into marked improvements in quality of care. The annual National Healthcare Quality Report shows only a 1.5% annual increase in 15 quality measures since 2000 (Agency for Healthcare Research and Quality, 2007). The relative lack of progress in the health care industry contrasts sharply with progress in other industries, such as car manufacturing, that improve the quality of their services year after year (J. D. Power and Associates, 2007).

The improvement disparity between health care and other industries raises a question: Why does quality improvement in health care lag? One possibility is that the innovations HCOs have adopted are not effective. However, research suggests that this is not the case. Unlike in most other industries where innovations are initiated on an experimental basis, innovations in health care are subject to rigorous evidentiary standards—often in the form of randomized control trials—prior to their adoption. Over the last 50 years, federal agencies and others have spent more than \$250 billion verifying the effectiveness of innovations in health care (Lenfant, 2003). Therefore, a more likely explanation for the sluggish improvement in quality is that HCOs have not implemented innovations well (Bazzoli, Dynan, Burns, & Yap, 2004; Fleuren, Wiefferink, & Paulussen, 2004).

Implementation failure has become such a serious concern that the National Institutes of Health, a federal agency, now convenes an annual conference on the “science of dissemination and implementation” to facilitate knowledge-sharing around this issue. With a similar goal, *Implementation Science*, a journal devoted exclusively to the topic of innovation implementation in health care, was launched in 2006 (Eccles & Mittman, 2006). Across these venues and others, the central question remains: Why is innovation implementation failure so prevalent in HCOs, and what can HCOs do to avoid such failure? This paper draws on management research to answer that question.

We begin by defining innovation implementation failure, to clarify the issue at hand. We then draw on a variety of management research on topics such as risk aversion, organizational learning, organizational identification, leadership, and

incentives to illuminate why HCOs suffer from chronic innovation implementation failure. With the reasons illuminated, we turn to a discussion of how these obstacles can be overcome, presenting six strategies that management research suggests can help HCOs avoid innovation implementation failure. Our aim is to provide foundational insight on a phenomenon that has plagued the largest sector of the U.S. economy and affected millions of American lives.

What Is Innovation Implementation Failure?

To understand innovation implementation failure, it helps to understand the intended role of innovation implementation in organizational improvement efforts. Organizations use innovation implementation to bring about the skillful, consistent, and committed use of innovations that they have decided to adopt to improve their performance (Klein & Sorra, 1996; Nutt, 1986; Rogers, 2003). Toward these goals, organizations use policies and practices such as staff training, financial rewards, and leaders' communications (Klein & Sorra, 1996; Nutt, 1986). If the policies and practices do not improve use of the innovation, they are subject to change (Noble, 1999). So, for example, consider the implementation of an electronic patient admissions system in a hospital. Innovation implementation may include IT classes for users and communications from top-level executives. If staff then have difficulty using the system, hospital administrators may shift from IT classes to one-on-one tutorial sessions to facilitate skilled use of the system. Thus, although the terms often are used interchangeably, implementation is distinct from execution. Execution implies a static approach, i.e., there is one way to do something (Dooley, Subra, & Anderson, 2002; Noble, 1999). Implementation, on the other hand, allows for changes even in the innovation if necessary to obtain desired use of the innovation (Rogers, 2003).

When targeted organizational members use an innovation as frequently, consistently, and assiduously as needed to realize its intended benefits, the organization is said to have experienced *innovation implementation success*, or simply *implementation success*. In contrast, when targeted organi-

Table 1
Examples of Innovation Implementation Failures in Health Care

Innovation	Description of Innovation	Implementation Failure
Clinical practice guidelines	Systematically developed, evidence-based statements designed to assist with decision making for specific clinical situations; improves care by increasing the use of appropriate interventions in a timely manner	Only partial compliance with clinical guidelines for a range of clinical conditions (Cabana et al., 1999; McGlynn et al., 2003)
Electronic medical records	Computer system that replaces paper records and serves as a single repository of patient information; improves quality of care by facilitating coordination across health professionals and by reducing errors from missing information and illegible handwriting	Uneven adoption by physicians; lack of the implementation support needed to change workflow strategies and habits; lack of standardization (Middleton, Hammond, Brennan, & Cooper, 2005)
Computerized provider order entry systems	Handheld device that enables clinicians to electronically enter their prescriptions; can help overcome errors due to illegible handwriting and unintended interactions with other drugs a patient is taking	Physician resistance; piecemeal implementation approaches that leave prescription-related workflow processes unchanged (Doola & Bates, 2002)
Multidisciplinary patient rounds	Meetings at which professionals from multiple specialties come together to communicate, coordinate, make joint decisions, and set mutual goals for individual patients	Limited participation of lower status health professionals (e.g., nurses, therapists) (Corley, 1998)
Error reporting systems	Voluntary reporting of adverse events, errors, and near misses via formal systems such as computer programs and incident reports; allows organizations to learn from errors systematically	Underreporting of errors; reporting of some types of errors over others; incomplete reporting; general lack of use (Kaldjian et al., 2008)
Pay for performance	Provider compensation that is contingent on adopting specified structures, performing specified processes, or achieving designated outcomes	Gaming of programs by physicians; physician resistance (Rosenthal et al., 2005)

zational members “use the innovation less frequently, less consistently, or less assiduously than required for the potential benefits to be realized,” *innovation implementation failure*, or simply *implementation failure*, is said to have occurred (Klein & Sorra, 1996, p. 1055).

A classic example of implementation failure in health care is the suspended use of a multimillion-dollar computerized physician order entry (CPOE) system at Cedars-Sinai Medical Center, one of the nation’s most renowned medical institutions (Gater, 2005). CPOE is an innovation that replaces the notoriously error-prone system of handwritten prescriptions. Studies show it improves the quality of care delivered to patients by providing clinical decision support and reducing prescription errors (Leape & Berwick, 2005). Despite these merits, three months after CPOE was installed at Cedars-Sinai, staff launched an almost unanimous protest and refused to use it. Subsequently, the IT director concluded that the problem was not with CPOE but rather with how the

hospital implemented the system. It was introduced abruptly even though it required a dramatic change in the way care was organized at Cedars-Sinai. Moreover, the implementation processes excluded staff from the planning and did not foster staff commitment to CPOE use. Cedars-Sinai’s experience is representative not only of the experiences of other HCOs with CPOE, but also of experiences with implementation failure in general. Table 1 provides more examples.

Why Is Implementation Failure So Prevalent in HCOs?

Our examination of HCOs suggests that it is the distinctive, organizational features of HCOs that foster chronic innovation implementation failure. In particular, four features of HCOs appear to contribute to the prevalence of this phenomenon: (a) the nature of their work, (b) the characteristics of their workforce, (c) their leader-workforce relations, and (d) their performance

Table 2
HCO Features, Implications, and Principles for Implementation Effectiveness

Industry Feature	Contribution to Implementation Failure	Key Principle for Implementation Success	Sample of Relevant Management Research
Nature of work <ul style="list-style-type: none"> • High uncertainty • Risk of customer fatality • Clinician discretion important 	<ul style="list-style-type: none"> • Workforce aversion to the experimentation required for successful implementation 	<ul style="list-style-type: none"> • Create opportunities for nonthreatening workforce experimentation and adaptation of innovation 	<ul style="list-style-type: none"> • Cognitive psychology • Organizational learning • Diffusion of innovation • Best practice transfer
Workforce <ul style="list-style-type: none"> • Interprofessional interactions governed by an established hierarchy • Strong professional identification; weak organizational identification 	<ul style="list-style-type: none"> • Workforce aversion to the collaborative learning required for mastering increasingly interdisciplinary innovations • Little workforce interest in participating in organizational improvement efforts 	<ul style="list-style-type: none"> • Frame implementation as a learning challenge • Increase the attractiveness of the perceived organizational identity and construed external image to generate interest in organizational citizenship behavior 	<ul style="list-style-type: none"> • Organizational learning • Organizational culture • Power and authority • Organizational identification and citizenship behavior
Leader-workforce relations <ul style="list-style-type: none"> • Prevalence of transactional exchanges • Perceived conflict of goals between leaders and workforce 	<ul style="list-style-type: none"> • Leaders and workforce unable to place collective goal (innovation implementation) above self-interest 	<ul style="list-style-type: none"> • Incorporate transformational leadership processes for innovation implementation 	<ul style="list-style-type: none"> • Leadership • Leadership development programs • Goal conflict
Performance measurement and control systems <ul style="list-style-type: none"> • Underdeveloped • Performance/implementation not rewarded • Founded on calculus-based trust, not relational trust 	<ul style="list-style-type: none"> • Difficult to detect implementation problems, and thus make adjustments • Incentives do not favor implementation 	<ul style="list-style-type: none"> • Involve workforce in development of system • Measure and reward implementation efforts 	<ul style="list-style-type: none"> • Organizational justice • Trust and fairness • Goal setting • Incentives

control and measurement systems. In this section, we briefly review the distinctive features of HCOs in these four domains. We then use management research to explain how these features contribute to implementation failure in HCOs. Table 2 provides a summary.

The Nature of HCOs' Work

The primary work of HCOs is to deliver quality patient care, defined by the Institute of Medicine (IOM, 1999) as care that "increases the likelihood of desired health outcomes and is consistent with current professional knowledge" (p. 211). Notably, the professional knowledge base for health care is large and grows significantly each year. Some estimate that the number of published randomized control trials, the gold standard for evidence of clinical and organizational effectiveness in medicine, surpassed 1 million 10 years ago

(Sackett & Rosenberg, 1995), and continues to increase at a rate of 10,000 annually (IOM, 1999).

As large as the knowledge base is, a great deal of uncertainty remains in the work of HCOs and their professional staff (Bohmer, 2005). Medicine and health care delivery are not exact sciences. Human disease is inherently complex and may manifest itself differently across patients. Thus, there is often uncertainty in defining and diagnosing an individual's condition. Even when the diagnosis is apparent, the best course of treatment may not be. A variety of treatment options may exist, and the risks and benefits of each treatment for an individual patient are unknown. Ultimately, physician discretion combined with patient preference determines the care received. In the best-case scenario, care cures the patient. In the worst-case scenario, it causes the death of the patient. Thus, the work is risky, can harm the

consumer (the patient), and is solely at the discretion of an individual service provider (the physician). Each of these task attributes contributes to implementation failure.

The Contribution of Risk (Aversion)

The fact that human life is at risk understandably contributes to risk aversion for some health professionals, which in turn limits their willingness to participate in activities that increase the risk of failure (Pearson et al., 1995). Although many innovations in health care promise to reduce uncertainty and decrease failures in the long run, their implementation often increases the risk of failure in the short run while staff become familiar with their use. As one scholar of innovation implementation observed, "Implementations are big, risky projects" (McAfee, 2003, p. 83). Early implementation efforts often result in failures (Goodman, 2001), including damage to the innovation, damage to the organization, and harm to consumers (e.g., patients). Individuals typically do not seek out opportunities to fail. In fact, they avoid them. Thomke (1998) showed that individuals avoid even simple experiments in which failures will not harm customers, employees, or the organization. Holtgrave and colleagues (1991) further showed that risk-averse physicians take additional steps (e.g., order more diagnostic tests and referrals) to decrease the risk of bad outcomes. Their fear of failure limits their willingness to experience failure. Unfortunately, willingness to experience failure is critical to implementation success. Failures offer valuable insights on what does and does not work, providing critical insights into how to improve implementation and avoid implementation failure (Sitkin, 1992).

The Contribution of Work Norms: "First, Do No Harm"

The aversion to implementation that health professionals feel stems not only from the fear of failure in general, but also from the specific fear of causing harm to patients. One of the hallowed precepts all health professionals learn during their training is "first, do no harm." The Hippocratic Corpus further admonishes physicians to "make a habit of two things—to help, or at least to do no harm" (Hippocrates, 400 B.C.). Today, health

professionals equate that principle with the charge to deliver care that "increases the likelihood of desired health outcomes" (IOM, 1999, p. 211). This has become an occupational norm. Norms are the standards against which individuals judge the appropriateness of behavior (Birenbaum & Sagarin, 1976). When a behavior is consistent with existing norms, individuals deem it appropriate and are more likely to behave accordingly (O'Reilly & Caldwell, 1985). Conversely, when behavior seems inconsistent, individuals refrain from participating.

Unfortunately, to many health professionals, innovation implementation appears inconsistent with occupation norms because it can lead to patient harm. This potential violation is sufficient cause for many health professionals to resist innovation implementation. A review of 76 studies examining the reasons physicians chose not to implement evidence-based clinical guidelines—innovations that aim to improve quality of care by specifying in detail how to care for specific clinical conditions—identified concerns about harming patients as a primary reason for implementation avoidance (Cabana et al., 1999). Avoidance is a natural response when a behavior (e.g., innovation implementation) threatens deeply held norms (e.g., "do no harm") (Klein & Sorra, 1996). Behavioral studies show that avoidance allows individuals to preserve the fit between their values and their actions and minimize cognitive dissonance (i.e., the uncomfortable feeling that emerges when our actions conflict with our values) (Festinger, 1962).

The Contribution of Clinician Discretion

Outside of health care, workers do not have the same liberty to avoid innovation implementation. What gives health professionals this degree of discretion over innovation implementation is their discretion over clinical practice. By virtue of their exclusive control over medical knowledge, health professionals are given unparalleled authority over clinical practice. Health care managers' authority pales in comparison because, unlike in other industries, most health care managers do not have the professional credentials of their workers (e.g., M.D.), and because most workers

are not bound by employment contracts to abide by manager dictum (Garman, Leach, & Spector, 2006).

In other industries, managers' authority gives organizations an implementation advantage (Nutt, 1986). Once managers articulate innovation implementation as an organizational policy, workers are compelled to comply with implementation efforts. Health care managers do not have such compelling authority because innovation implementation often affects the clinical work of health professionals, who frequently decide against innovation implementation for reasons described above and below. Once professionals decide against an innovation, implementation failure almost inevitably occurs, as Cedars-Sinai's CPOE experience showed.

HCOs' Workforce Characteristics

Several workforce characteristics unique to the health industry have contributed to implementation failure.

The Contribution of Specialization

Driven in part by burgeoning medical knowledge and the complexity of health care delivery, the health care workforce has become extremely specialized, and the number of specialties continues to increase at a rate not found in other industries (Leape & Berwick, 2005). Today, physicians specialize in one of 120 disciplines, including internal medicine, cardiology, adult cardiothoracic anesthesiology, hand surgery, pediatric endocrinology, and abdominal radiology (Accreditation Council for Graduate Medical Education, 2007). Joining them in care delivery is a highly specialized set of professionals consisting of nurses, therapists, nutritionists, phlebotomists, pharmacists, and more. Many of these professionals specialize as well. Nurses, for example, may choose from more than 50 specialties (Nursing Degree Guide, 2007).

The high degree of specialization in health care means that each professional brings only a fraction of the knowledge needed to care for patients. By some estimates, the expertise of more than 20 health professionals must be integrated to provide care for a single patient in a hospital (Bohmer & Knopp, 2007). A rich literature shows that these professionals thus must collaborate to be effective

(IOM, 2004). Despite the imperative for collaboration, it is often missing from professional interactions. Its absence is a leading cause of quality problems even at the most elite hospitals (IOM, 2001, 2004). One tragic example of this happened in 2003, when a 5-year-old boy died from a seizure at Children's Hospital Boston because he received no treatment (Barnard, 2003). An investigation later revealed that his physicians had never communicated with each other about who was in charge of his care. Instead each assumed another had taken charge, and therefore removed himself from the boy's care. In another example of how poor collaboration results in poor care, a medical resident (a physician trainee) at a Midwestern hospital noticed a medication dosage that was wrong for her patient, but did not call the prescribing physician to verify the order because she remembered that the last time she had called her inquiry was resisted. She therefore gave the patient the medication, which caused the patient to suffer an adverse drug reaction (Blatt, Christianson, Sutcliffe, & Rosenthal, 2006). Both stories exemplify the problems that emerge when professionals do not collaborate.

The Contribution of the Professional Hierarchy

Health services research suggests that the collaboration problems in the health care workforce result largely from the hierarchical, individualistic culture of medicine (IOM, 2001, 2004), which is deeply rooted in the socialization process for health professionals (Leape & Berwick, 2005). Health professionals are socialized through their specialty training programs, which often span a period of 10 or more years—a period longer than is required in most service industries (Garman et al., 2006). During training, professionals learn not only how to treat patients, but also how to view themselves and how to interact with others inside and outside of their profession (Friedson, 1970; Hoff, Pohl, & Bartfield, 2004). Physicians, for example, learn to be independent, authoritarian, autonomous, competitive, conservative, reactive, quick, detached actors. They learn to treat others in their discipline with high regard. They learn to treat individuals in other professions in accordance with the established medical professional

hierarchy. In the hierarchy, specialists rank higher than primary care physicians, who rank higher than nurses, who rank higher than therapists, and so on (Friedson, 1970). The lower an individual's professional rank, the less consideration typically given to that individual in clinical decision making. Thus, all individuals are mindful of the hierarchy and feel a strong sense of professional identification—characteristics that affect not only quality of care, but also efforts to improve quality of care through innovation implementation.

Health care innovations increasingly require interdisciplinary teamwork; their implementation cannot succeed without professionals from multiple disciplines collaboratively learning to use them (Adler et al., 2003). Unfortunately, HCOs' hierarchical culture stifles organizational members' willingness to participate in the collaborative learning necessary for implementation success (Nembhard & Edmondson, 2006). Collaborative learning is the iterative process of individuals or groups of individuals working together to improve their actions by incorporating new knowledge and understanding. It involves jointly analyzing information, openly discussing concerns, sharing decision-making, and coordinating experimentation. In turn, individuals must be willing to challenge others' views, acknowledge their own errors, and openly discuss failed experiments. These behaviors are interpersonally risky because they create the possibility of appearing incompetent or belligerent and thereby potentially diminishing one's reputation among colleagues.

Research on organizational culture and learning shows that individuals take such risks only when they perceive a psychologically safe work climate (Davenport, De Long, & Beers, 1998). Unfortunately, the medical professional hierarchy has undermined the psychological safety of individuals whose professions fall lower in the hierarchy. Nurses frequently report that "it is difficult to speak up" and "nurse input is not well received" (Thomas, Sexton, & Helmreich, 2003). Moreover, they report negative consequences (e.g., punishment, rejection, and embarrassment) of voicing concerns and suggestions to higher status others, and of participating in failed experiments. Hence, they shy away from collaborative learning

situations such as innovation implementation (Nembhard & Edmondson, 2006).

Professionals at the higher end of hierarchies shy away as well. A study of employee involvement programs in eight manufacturing plants showed that those in higher status positions (supervisors) often resisted the implementation of these programs because they felt that these programs, which were premised on collaborative learning, undermined their control and authority (Klein, 1984). In some plants, this belief led supervisors to criticize the program, which then discouraged lower status staff from participating. In the end, the programs failed because neither high- or low-status staff would participate. The discomfort of doing so was too great.

The Contribution of Professional Identification

The workforce's focus on professions and the professional identification it has fostered have had the effect of limiting organizational identification, i.e., individuals' sense of oneness with the organization (Meyer & Allen, 1997). As one observer summarized, many HCOs are like "a foster parent who has adopted fully formed adults committed to different religions" (Ramanujam & Rousseau, 2006). There is no unity of purpose among them. This weak organizational identification negatively affects innovation implementation in two ways. First, it limits the organization's ability to motivate the collaboration needed for implementation success. Management research shows that collaboration among individuals who are otherwise pulled in different directions by professional allegiances is a function of group (e.g., organizational) identification (Van der Vegt & Bunderson, 2005). When this identification is weak, it is more difficult to motivate collaborative learning and successful innovation implementation, particularly in diverse workforces such as those in HCOs.

Second, weak organization identification is problematic for HCOs' innovation implementation because health professionals historically regard innovation implementation as an additional and distinct activity from their core task of patient care delivery (Batalden & Davidoff, 2007). When a workforce holds this view, the organization is dependent on its staff's positive, extra-role behav-

ior, also called organizational citizenship behavior, to accomplish the “additional task” (Dukerich, Golden, & Shortell, 2002). Research on organizational citizenship behavior shows that staff are more likely to engage in this behavior when they strongly identify with the organization. For example, Dukerich and colleagues (2002) found that physicians who strongly identified with a hospital participated more in the hospital’s committees. Similarly, Shortell and colleagues (2001) found that physicians were more likely to implement new clinical practices when physicians felt aligned with the HCO. These findings suggest that absent strong organizational identification, implementation failure is more likely, as we have seen in HCOs.

HCO Leader-Workforce Relations

In many respects, the role of HCO leaders resembles that of leaders in other industries. They are charged with financial analysis, operations management, human resource management, marketing, and process improvement. What distinguishes HCO leaders is the nature of their relationship with their workforce (Garman et al., 2006). As noted earlier, unlike leaders in other industries, many HCOs’ leaders are in the precarious position of having limited control over their workforce. Health professionals generally report to other professionals within their specialty. This near-exemption from HCO leaders’ control manifests in HCO leader-workforce relations.

Garman and colleagues (2006, p. 838) observed that ties between HCO leaders and health professionals “tend to be viewed more instrumentally . . . [as] political capital . . . [and] a means to [each’s] ends.” This orientation results in largely transactional (“this for that”) exchanges between HCO leaders and health professionals. Moreover, these exchanges often involve the formation of temporary alliances in which leaders position one segment of the workforce against another. For example, when the issue of shifting clinical practices from physicians to nurses arose, HCO leaders aligned with nurses against physicians, who were largely resistant. The alliance allowed leaders to win desired cost reductions by shifting practices to a cheaper labor source, and allowed nurses to win

the improved professional status that comes with new responsibilities. HCO leaders have aligned with physicians against nurses when the issue allowed them to leverage physicians’ interest in preserving their professional status. This transactional approach to interacting with the workforce is well documented, especially for HCO leaders who are lower in the organization (Gilmartin & D’Aunno, 2007).

Pulitzer Prize-winning scholar James Burns (1978, p. 20) observed that transactional exchanges do not “bind leader and follower together in a mutual and continuing pursuit of higher purpose” because they do not contain a relational component. As soon as the transaction is complete, the interaction ends, limiting the opportunity for each party to see the commonality in their overall aims. Instead, each sees his goals as separate. Moreover, in the case of HCO leaders and health professionals, past exchanges in which leaders stressed cost efficiencies while professionals emphasized patient care have fostered the perception that their goals are not only separate, but conflicting. The perceived disconnect has reinforced the notion that common ground is limited, and that leaders must therefore rely on transactions to achieve organizational goals.

The Contribution of Transactional Leadership

Unfortunately, a transactional leadership style is not well suited for situations where frequent innovation implementation is desired (IOM, 2004; Vera & Crossan, 2004). The constant negotiations with different factions of the workforce over each innovation is inefficient and difficult to sustain, and frequently results in contradictory organizational routines that undermine innovation effectiveness. Imagine a hospital leader who agrees to allow multiple versions of an electronic medical record (EMR) system to accommodate different clinical departments’ preferences. In exchange, she receives different accommodations from each department. This transactional approach allows both the leader and the departments to fulfill individual goals, but the overall goal of high-quality care remains underfulfilled because the hospital does not capitalize on EMRs’ ability to enable coordination across departments. Manage-

ment research suggests that motivating clinical departments to place their collective purpose of quality care above departmental or individual preferences requires a more relational approach to leadership and interaction (Vera & Crossan, 2004).

HCO Performance Measurement and Control Systems

Performance measurement and control systems collect data and reward specific behaviors and outcomes (Simons, 2000). Historically, performance measurement and control systems in health care have been underdeveloped (Leape & Berwick, 2005). Few HCOs collect data regarding their own processes and performance. A Blue Cross Blue Shield (2006) study showed that the most common quality data available to physicians comes from third-party payers, revealing a dependence on others for information about their own systems not typically seen in other service or manufacturing organizations. Even the data that is received or self-collected has tended to sit idle rather than be used to inform organizational behavior (Wachter, 2004).

The lack of well-developed performance measurement and control systems in health care reflects a number of factors. First, HCOs and their members have long believed that because they work hard to deliver patient care, they are delivering the best possible care (Wachter, 2004). As a result, any instances of poor performance are isolated and unavoidable. Thus, there is little need to invest in performance measurement and control systems. Second, by not investing in these systems, they have minimized their exposure to information that would challenge the belief that their effort was associated with the best quality care. As mentioned earlier, avoidance or use of "selective exposure" is a common strategy for minimizing cognitive dissonance (Festinger, 1962). Third, defining and developing valid measures of quality and performance in health care is inherently difficult because of the nature of the work. Much debate remains about what should be measured (structure, process, and/or outcomes) and what constitutes a valid measure (Rosenthal, Frank, Li, & Epstein, 2005). Fourth, because

HCOs and health professionals have been paid the same amount regardless of whether they provide high- or low-quality care, they have had little incentive to invest in such costly systems (Coye, 2001). Moreover, the malpractice system created a disincentive to invest in collecting any systematic data that could be used against the organization and its members in lawsuits (Mello, Studdert, & Brennan, 2003). If the HCO collected performance data, lawyers bringing malpractice suits against the HCO could subpoena the data as evidence to confirm their allegations. If no data is available, it is more difficult to prove that the HCO and its members are medically negligent.

Even when performance measurement and control systems have been adopted, their use has been undermined by organizational members' lack of trust in the organization and its systems. Trust is defined as the willingness to be vulnerable to another, and is greatest when each party feels the other cares about its interests, i.e., when there is relational trust (Rousseau, Sitkin, Burt, & Camerer, 1998). Relational trust develops through reciprocal interactions that allow each party a voice in the issues that affect them. Historically, health professionals have had limited voice in the development of performance measurement and control systems. As a result, there is weakened trust in HCOs and their systems (Schneider & Epstein, 1996). The trust has been eroded further by the nature of the systems that have emerged without their input (e.g., pay-for-performance with public reporting). These systems are largely founded on calculus-based trust, defined as trust that develops from the trustee (health professionals) performing some action (innovation implementation) that benefits primarily the trustor (HCO) (Rousseau et al., 1998). These systems often generate trust for the trustor, but skepticism and resentment for the trustee. Research confirms that health professionals typically view these systems negatively, believing that they do not accurately capture their efforts and that the data will be used against them (Schneider & Epstein, 1996).

The Contribution of Underdeveloped and Resented Systems

Both underdeveloped and resented performance measurement and control systems have negative

implications for implementation. Underdeveloped systems deprive HCOs of data critical for steering implementation efforts. Accurate, meaningful data allows organizations to see whether implementation is progressing as desired or a change in approach is needed (Simons, 2000). This ongoing data monitoring and modification is an essential part of successful implementation efforts because, as noted earlier, few innovations are embedded perfectly at first introduction (Goodman, 2001). Without data monitoring, organizations often realize implementation problems later than they would if they monitored performance. In other words, problems with an innovation are detected much later when there is ineffective or nonexistent data monitoring. Additionally, the absence of data means that HCOs have no basis for motivating and rewarding implementation efforts, an important function of data. Without evidence of opportunity for improvement or progress and rewards for implementation, the workforce has little incentive to dedicate itself to these efforts.

Similarly, when the workforce resents the performance measurement and control system, they have less interest in committing to implement the actions the system measures. Numerous studies on goal setting (see Locke & Latham, 2002, for a review of studies) have shown that to be effective, performance goals, and consequently the system in which they are embedded, must be accepted by those targeted. If goals are rejected, individuals will not strive to achieve them. Unfortunately, without their commitment and effort, implementation fails (Repenning, 2002).

Strategies for Implementation Success

Understanding what factors have contributed to implementation failure in HCOs is the foundation for developing counterstrategies directly aimed at mitigating the negative effects of these factors. In this section, we identify six such organizational strategies that management research has shown to be effective antidotes to the features that threaten innovation implementation in HCOs. Table 2 shows which factors each strategy primarily targets.

Create Opportunities for Staff Experimentation and Innovation Adaptation

Management research suggests that the reluctance HCOs' members may have to participate in innovation implementation may be effectively overcome by creating opportunities for them to experiment with innovations in nonthreatening ways (Klein, Conn, & Sorra, 2001; Tucker, Nembhard, & Edmondson, 2007). Nonthreatening opportunities—training, pilot projects, dry runs, etc.—create low-risk settings where failures have little or no consequence for patients. Moreover, they enable staff to gain familiarity with the innovation, experience its benefits, and develop user competence. As a result, staff in such settings are less likely to view the innovation as posing high risks, and thus are less likely to resist its implementation (Klein et al., 2001; Tucker et al., 2007).

When staff are not resistant, implementation success is more likely. Klein and colleagues (2001) showed that giving staff time to train with an innovation is a positive predictor of implementation success. Likewise, Tucker and colleagues (2007) found that hospital units that used activities such as dry runs (with a dummy serving as the patient in clinical procedures) and pilot projects to implement innovative practices experienced greater implementation success. Their interviews with staff in these units suggested that the use of these activities facilitated implementation success not only by reducing the risk-derived resistance so prevalent in HCOs, but also by fostering “attitudinal commitment”—commitment that generates staffs' active involvement in innovation implementation (Meyer & Allen, 1997).

When organizational members actively participate in implementation, they work diligently to adapt the innovation to their organization, which also facilitates implementation success (Repenning, 2002; Tucker et al., 2007). The value of this adaptation process can hardly be overestimated for HCOs, which vary widely in their patient population, facilities, resources, staff mix, and so on. These differences pose implementation challenges even for organizations that have sister organizations that have successfully implemented the in-

novation. This was made abundantly clear to Spear (2005) during his study of improvement practices at University of Pittsburgh Medical Center (UPMC). As Spear explained, "What happened after the UPMC South Side experiment was almost more interesting than the experiment itself. When OR support staffers at UPMC Shadyside learned of the improvement at South Side, they tried to apply the same tools and practices. But they soon discovered that the South Side solutions were inappropriate because of differences in the two organizations' work" (p. 89). Shadyside found that it had to tailor the solutions to fit its demographics even though it used the same processes used at South Side.

What happened at Shadyside is a common occurrence across industries. Organizations often experience what Szulanski (1996) termed "stickiness," i.e., difficulty importing an innovation from one context to their own. The ones that ultimately overcome stickiness do so by cautiously and gradually adapting the innovation to their own organizations (Szulanski & Jensen, 2006). They do what was done at the successful manufacturing companies and hospitals that were studied by Klein and colleagues (2001) and Tucker and colleagues (2007). They give targeted organizational members opportunities to practice with the innovation offline and to adapt the innovation and organization to one another.

Frame Innovation Implementation as a Learning Challenge

Management research suggests that if HCOs wish to counter the negative psychological and behavioral effects of the hierarchical culture of medicine on implementation, they must appropriately frame the innovation implementation challenge. Framing is the process of providing a lens through which to interpret a situation. Psychological research suggests that challenges can be framed in terms of performance or learning (Dweck & Leggett, 1988).

Individuals who adopt a performance frame view a new task as similar to current practice, while those who adopt a learning frame see the task as different and therefore an opportunity to explore new actions and relationships. Conse-

quently, the behavior that follows the adoption of each frame differs. Research has shown that teams whose leaders explicitly framed implementation as a learning rather than as a performance challenge were more likely to abandon existing interpersonal routines, including those premised on hierarchical interactions, and to adopt collaborative learning behaviors (Edmondson, 2003). Moreover, members of these teams (regardless of professional rank) felt psychologically safe and excited about offering their input.

Additionally, research has shown that individuals and teams that adopt a learning frame display less risk aversion, experiment more, persist longer with the task, learn more, and ultimately perform better than those who apply a performance frame (Dweck & Leggett, 1988; Edmondson, 2003). These observations suggest that HCOs should explicitly frame innovation implementation as a learning challenge. This frame effectively minimizes both the perceived interpersonal and task-based risk of implementation.

Promote Organizational Identification

While it may seem that professional identification precludes the strong organizational identification needed for successful innovation implementation in health care, this does not have to be the case. At the Mayo Clinic, the workforce has embraced both professional and organizational identities since the clinic's founding in the late 1800s. Many attribute this to its founders, who instilled a core value that has always resonated with the workforce: "The needs of the patient come first" (Vigiano, Pawlina, Lindor, Olsen, & Cortese, 2007).

However, legacy is not the only means to strong organizational identification. Management research has identified at least two strategies for fostering the organizational identification needed for implementation success in HCOs: (1) increase the attractiveness of the perceived organizational identity, and (2) increase the attractiveness of the construed external image, i.e., the image held by those outside of the organization (Dukerich et al., 2002). The former strategy builds on the finding that physicians feel stronger organizational identification when they perceive alignment between their goals and values and those of the organiza-

tion. The second strategy reflects the finding that physicians' feelings about organizations with which they are affiliated are influenced by how outsiders view those organizations. Thus, the challenge for HCOs is to find ways to highlight the similarities between their and their workforce's values. Also, they must showcase their positive attributes (e.g., pro bono work, awards, or new facilities) to enhance their external image, and their affiliates' perception of them in turn. In a study of more than 1,500 physicians, Dukerich and colleagues (2002) found that once physicians believed that outsiders viewed their organization positively (as focused on quality), they were more likely to find the organization attractive and commit to its innovation implementation efforts.

Applying these principles helped the Royal Devon and Exeter NHS Foundation Trust in England dramatically shift from weak to strong organizational identification (Bate, Mendel, & Robert, 2008). Until the late 1990s, identification with the Trust had been so weak that professionals refused to implement innovations the Trust desired. Moreover, the Trust had a negative reputation due to high turnover in management and the perception that some physicians were "difficult." The turning point came shortly after a devastating incident in which 82 patients were given incorrect diagnoses; 11 of them died. At that point, the CEO decided to make organizational identification a priority and began to take actions to build identification without tampering with professional identity. For example, she instituted meetings between the executive team and the clinical directors to discuss issues of mutual interest, used quarterly reviews to link individuals across the organization who were working on similar issues, invited the staff to develop their own improvement projects, stressed the importance of interprofessional dialogue, and used "the incident" as a story that exemplified the need to unify as an organization. The Trust now has a positive reputation for organizational identification and quality improvement.

Use Transformational Leadership Processes

Transformational leaders use processes that effectively shift the focus of organizational members

from their individual goals to collective goals such as innovation implementation. As Vera and Crossan (2004) summarized, by being intellectually stimulating, transformational leaders motivate the workforce to consider how individual goals overlap with collective goals. By being charismatic, they elicit positive feelings in organizational members, which leads members to commit to leaders' and organizational goals. By modeling collaborative behavior, they inspire organizational members to work as a collective. By being individually considerate, they ensure that individuals' developmental needs are fulfilled while working on organizational goals. Research shows that the workforce responds to this goodwill by working diligently toward an organization's goals, implementation included (Gilmartin & D'Aunno, 2007).

The workforce also responds to the support for implementation that transformational leaders provide to them (e.g., allocating needed resources, removing organizational barriers such as existing institutional policies, soliciting and addressing feedback, and championing the work of members) (Leonard-Barton & Deschamps, 1988). An extensive literature shows that this support greatly facilitates implementation success (Klein et al., 2001; Leonard-Barton & Deschamps, 1988). It legitimizes innovations, further motivating organizational members' commitment to implementation. Moreover, it cultivates a climate in which the workforce feels comfortable offering feedback to leaders about how to improve innovation implementation. Management research shows that this open dialogue between leaders and organizational members contributes to implementation success (Beer & Eisenstat, 2000). Lastly, leadership support helps maintain the momentum for change in the face of setbacks and performance declines, which are commonplace in implementation efforts.

Given the demonstrated effectiveness of transformational leaders to elicit targeted organizational members' commitment to organizational change goals, such as innovation implementation, HCOs are advised to use transformational leadership processes. The inclusion of this behavior does not necessitate the exclusion of transactional be-

haviors, such as forming temporary alliances in order to push innovations forward. A growing body of management research shows that the transactional and transformational leadership styles are complementary, coexist well, and are equally needed in organizations such as HCOs that must manage the dual challenges of innovation implementation and static execution (Goleman, Boyatzis, & McKee, 2001). This research also suggests that there are at least two strategies for increasing transformational leadership in HCOs. One strategy is to hire leaders who innately use transformational processes or who are equally high users of transformational and transactional processes. Children's Hospitals and Clinics in Minnesota took this approach in hiring Julie Morath, who during her interviews for the position of Chief Operating Officer explicitly talked about how she would create a culture of teamwork and safety at Children's (Edmondson, Roberto, & Tucker, 2005). In Morath's case, her reputation preceded her, and the change platform she presented in interviews reinforced her reputation as a transformational leader. When such indicators are not available, leadership style can be assessed pre-employment using questionnaires such as Bass and Avolio's (1990) Multifactor Leadership Questionnaire.

A second strategy is to train current leaders in the appropriate use of transformational leadership processes via leadership development programs. Admittedly, many have debated whether individuals can be trained to be effective leaders and whether leadership development programs truly improve the leadership capabilities of individuals (Burke & Day, 1986). Management research increasingly affirms the value of such training, especially for HCO leaders. Boyle and Kochinda (2004), for example, showed an improvement in leadership style and communication in physician leaders following their participation in a development training program. In a separate study, HCO leaders themselves reported that they gained immensely from their management training programs. The most valuable skills they acquired were "learning to be an effective leader" and how to "implement improvements" (Parekh & Singh, 2007). Given these findings, we advise HCOs to

train their leaders in transformational leadership and its uses.

Leaders at all levels within the HCO should learn to use transformational leadership processes adeptly. Use at the senior level is important because transformational behavior cascades down the organization (Gilmartin & D'Aunno, 2007). Staff tends to adopt the behavior and suggested behaviors of senior leaders with this style. Vera and Crossan (2004) surmised that when senior leaders with a transformational style commit to innovation implementation, organizational members commit to this collective purpose as well. However, to enlist organizational members' sustained commitment to implementation, the implementation message must also come from transformational leaders who are closer to them in the hierarchy (Beatty & Gordon, 1991). These leaders' actions are even more salient and motivating.

Involve the Workforce in Performance Measurement and Control System Development

Our review suggests that HCOs must overcome organizational members' distrust and resentment of performance measurement systems if they are to develop and sustain the systems they need for innovation implementation success. To overcome the distrust and resentment, management research recommends actions that increase the perceived fairness of these systems (Cropanzano, Bowen, & Gilliland, 2007), such as (a) allowing targeted organizational members an ongoing voice in system development, maintenance, and evaluation; (b) sharing decision-making authority over aspects of the system of particular concern to targeted organizational members (e.g., whether individual performance will be publicly reported); and (c) fostering regular communication and information dissemination between organizational leaders and staff. In a literature review of more than 180 studies (see Colquitt, Wesson, Porter, Conlon, & Ng, 2001), these three procedurally just actions were identified as the most powerful predictors of perceived fairness.

Perceived fairness facilitates innovation implementation in two ways. First, it enhances targeted organizational members' relational trust of and commitment to the organization and its systems.

In turn, members cooperate with implementation efforts (Tyler & Blader, 2000). Second, perceived fairness derived from involvement in the process causes targeted organizational members to feel personally responsible for implementation results (Van den Bos, Wilke, & Lind, 1998). This feeling makes them more willing partners in implementation efforts (Coff & Rousseau, 2000), more accepting of comparisons on designated measures, and more willing to be rewarded accordingly.

Measure and Reward Implementation Efforts

Management research on incentives suggests that HCOs miss an important avenue for promoting innovation implementation when they do not use performance measurement and control systems to appropriately reward implementation efforts (Simons, 2000). According to this research, these systems should provide rewards (financial and otherwise) that reflect the nature of the work required for the innovation to be effective (Wageman & Baker, 1997). Health care innovations increasingly amplify the task interdependence among health professionals (Adler et al., 2003). In such instances, group-level incentives work best. These incentives result in higher performance for interdependent tasks because they motivate peer monitoring and increased willingness to work together to optimally perform the task (Barker, 1993). The next best performance is obtained by providing individual incentives for independent components of the task. Hybrid incentive structures (e.g., group incentives for independent individuals and individual incentives for interdependent individuals) produce the worst performance because they motivate behavior that contradicts the nature of the task. Consider the sports teams recounted by Kerr (1995) in his seminal article "On the Folly of Rewarding A, While Hoping for B":

"In Sports . . . rewards are distributed according to individual performance. The college basketball player who passes the ball to teammates instead of shooting will not compile impressive scoring statistics and is less likely to be drafted by the pros. The ballplayer who hits to right field to advance the runners will win neither the batting nor home run titles, and will be offered smaller raises. It

therefore is rational for players to think of themselves first, and the team second" (p. 10).

When players think this way, they collaborate less with teammates, and team performance suffers. A similar effect was found for university faculty who were rewarded based on individual performance. Pfeffer and Langton (1993) showed that they collaborated less and their research productivity as a group declined.

These research findings suggest that the best action for HCOs striving to implement innovations that rely on teamwork is to use group-level incentives. Such incentives are largely a novelty in this sector. However, a few HCOs have experienced great success with this approach. For example, Geisinger Health System in Pennsylvania provided rewards at the group practice level to encourage staff to abide by the "patient-centered medical home," an innovation that aims to improve the quality of care by establishing care coordination processes among patients' care providers in its system of clinics and centers (Paulus et al., 2008). Geisinger also provided individual-level rewards. Utilizing this combination of best and second-best approaches at two pilot sites, it experienced a remarkable 20% decrease in its patients' hospital admissions in its first year of innovation use, suggesting improvements in its patients' care and health.

Bundling Strategies for Implementation Success

In the first part of the paper, we separately examined the core features of HCOs that appear to explain the prevalence of implementation failure in the health care industry. We also presented, as separate interventions, several organizational strategies that can help HCOs overcome the challenges presented by individual features. In reality, efforts to prevent implementation failure in HCOs must target not just one feature, but several (if not all) features using a combination of the strategies discussed.

Absent an integrated approach, the benefits of innovations are unlikely to be fully realized. Imagine a hospital where a unit leader frames the implementation of a new surgical procedure as a

learning challenge, but does not create nonthreatening opportunities for staff to learn the new procedure. In this situation, it is unlikely that the procedure will be successfully implemented because staff will tend to see the absence of learning opportunities as evidence that the organization is not serious about the learning challenge, providing little reason to commit to implementation. Alternatively, imagine that the hospital leader provides opportunities for staff to learn the new procedure, but frames implementation as a performance challenge. Here again, the procedure is unlikely to be implemented successfully. Research shows that staff members reject learning opportunities when they conflict with an overarching performance mandate (Lee, Edmondson, Thomke, & Worline, 2004). Thus, neither a learning frame nor learning opportunities are sufficient. They are most effective as part of a “bundle” of strategies targeting various organizational features (Wensing, Wollersheim, & Grol, 2006).

The contents of the ideal bundle for HCOs remain unknown, and likely depend on the organization and the innovation. However, research suggests that a bundle consisting of many of the strategies highlighted here would be a candidate. In an in-depth study of the implementation of an innovative cardiac surgery at 16 hospitals, the distinguishing factor between hospitals that successfully implemented the surgery and those that did not was the use of the strategies identified here (Edmondson, 2003). Successful implementers had teams led by surgeons who used transformational leadership processes, framed implementation as a learning challenge, and inspired organizational identification. Additionally, their teams conducted dry runs prior to their first case and collected and reviewed their performance data on an ongoing basis. In less successful hospitals, fewer of these strategies were used.

Conclusion

If the last 30 years are any indicator, innovations in health care will continue to develop at a rapid pace, and HCOs will continue to face the challenge of innovation implementation. In this paper, we showed that multiple features of HCOs—their task, workforce, leadership, and performance

control and measurement systems—predispose them to innovation implementation failure. Fortunately, predisposition is not the same as pretermination. Management research shows that each of the contributors to implementation failure we identified can be overcome through the targeted use of selected implementation strategies. We hope this insight provides encouragement to innovation implementers in HCOs. It suggests that their innovations can be successfully implemented if they assess which organizational features are likely to hinder implementation and counter them with evidence-based strategies.

While our analysis suggests that there are many insights to be gained by applying management research to innovation implementation in health care, we caution that existing management research does not provide all of the answers. Much remains to be learned about how to improve innovation implementation. For example, we do not know the relative importance and relationships among the factors identified here, and how that information should influence implementation strategy. Thus, scholars must continue to conduct implementation research. We hope this work inspires more research into implementation in HCOs. Historically, organizational scholars have largely neglected this service context, viewing HCOs as “too idiosyncratic” to allow the development or application of general organizational theory (Gilmartin & D’Aunno, 2007, p. 389). As we highlight here, HCOs do possess many distinctive features, but these features are not unique to them. What differentiates HCOs from other organizations is the combination, volume, and extremity of features they possess, which makes them more challenging service organizations than most, but representative of many (Gilmartin & D’Aunno, 2007; Ramanujam & Rousseau, 2006), and therefore a fruitful research setting.

The complexity of the setting may require that management researchers work closely with HCOs to identify the “implementation problem” and test potential theoretical explanations for the problem and its solution. In this way, researchers guard against the temptation to uncritically apply off-the-shelf solutions that have worked in other settings to HCOs. Indeed, the end result of such

engaged scholarship with HCOs may be an extension or refinement of existing theories of implementation, or greater specificity of the conditions for their application (Van de Ven, 2007). For the HCO, such an approach increases the probability that the research evidence generated would be directly relevant to addressing the problem at hand.

Even without additional research, our review shows that management scholars have great expertise to offer to practice and policy. We therefore encourage their collaboration with organizations, practitioners, and policy makers to improve the development and implementation of innovations in real time. Such collaboration is in keeping with the mission of the Academy of Management (AOM) "to more formally connect our research with the domains of public affairs and policy" (Smith, 2006, p. 3). Opportunities to make these connections are emerging, including for example, serving on the illustrious study panels of the Institute of Medicine (IOM). The IOM is a congressionally chartered national academy and the nation's premier adviser to the U.S. government on health affairs. (For an example of a recent AOM-IOM project, see the sidebar "Application: The AOM-IOM Knowledge-Sharing Project.") These opportunities demonstrate that there is a role for management scholars to help solve major problems in health care. After all, "the challenges are organizational, not just clinical" (Ramanujam & Rousseau, 2006).

Acknowledgments

This analysis was inspired by our participation in the Academy of Management (AOM) and Institute of Medicine (IOM) project "Applying Organizational Research and Theory to Institute of Medicine (IOM) Reports: A Review of Three IOM Reports." This project, described in the sidebar ("Application: The AOM-IOM Knowledge-Sharing Project"), began when the IOM asked the AOM to offer a management-based perspective on the IOM's recommendations for the health care system and on the implementation of its recommendations. During the course of this project, we had the pleasure of working with several AOM scholars and leaders: Jane Banaszak-Holl, Lawton Burns, Amy Edmondson, David Hoffman, Susan Jackson, Thomas W. Lee, Ken Smith, Nancy Urbanowicz, Robert Vandenberg, Douglas Wholey, and Gary Young. We thank each of them for sharing his or her perspective with us. We are also grateful

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Application: The AOM-IOM Knowledge-Sharing Project

The Project. In 2007, scholars affiliated with the Academy of Management (AOM) and the Institute of Medicine (IOM) came together for a knowledge-sharing project. The aim of the project was "to demonstrate how the application of management research might inform and expand the IOM's work, particularly with regards to the development of recommendations that may be successfully implemented" (Academy of Management Scholars, 2007). To that end, at the request of the IOM, AOM scholars reviewed three IOM reports in the Pathways to Quality Health Care series issued to the U.S. Department of Health and Human Services. These reports offered recommendations for improving the health care system using performance measurement, government assistance with quality improvement for HCOs, and pay-for-performance programs.

The reviews were conducted with both great interest and considerable uncertainty as neither AOM nor IOM had been involved in such a project before and neither knew what type or level of review would be most helpful to IOM. The scholars decided to assess four things: (a) how well the report captured the topic from a managerial perspective; (b) inconsistencies between the report and the management literature; (c) omissions of relevant managerial theory and knowledge; and (d) what the management literature might add to build on, supplement, or revise report recommendations or their implementation. The resulting assessments were presented in a written report and oral presentation to the IOM.

Outcomes of the Project. Based on our observations as AOM scholars in this project, it was rewarding for both groups. The IOM discovered a relatively untapped knowledge base that might facilitate its work. It has since begun to request from the AOM the nomination of management scholars to serve on its study panels. It is hoped that management scholars from various AOM divisions will accept the invitation to serve. Although our project was a retrospective analysis, atypical of IOM projects, we valued the opportunity to gain a better understanding of the implementation issues HCOs face and to contribute our perspective as management scholars to the important enterprise of improving the health care system. Scholars engaged in the IOM's efforts stand to gain the satisfaction of having their research and expertise integrated into practice in a sector that both needs and is appreciative of their perspectives.

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