

Healthcare Quality and Hospital Financial Performance: A Multilevel Framework

Subhajit Chakraborty

Department of Management and Decision Sciences,
Coastal Carolina University, Conway, South Carolina 29528
Email: schakrabo@coastal.edu

ABSTRACT

Given the recent reports on much-needed healthcare quality improvement in the U.S. we suggest that it is now time to adopt a systemic perspective to measuring quality in U.S. healthcare and tracking it closely to hospital financial performance. Using Donabedian's (1966, 1968, 1988) Structure-Process-Outcome (SPO) classification we attempt to offer a multi-level conceptual framework tying in the antecedents to and outcomes of patient care quality that can be used by U.S. hospitals to improve the quality of care available to patients and ensure their own viability over the long run. We also address the measurement challenges for a future empirical measurement and conclude with implications for healthcare research and the medical practitioners and U.S. hospitals.

Keywords: *patient care quality, multi-level framework, hospital financial performance*

1. INTRODUCTION

According to a recent Commonwealth Fund report—Mirror, Mirror on the Wall: 2014 Update (Davis *et al.*, 2014), despite years of multi-disciplinary research on healthcare quality improvement, the United States ranked last overall among 11 industrialized countries on systemic measures of health quality, efficiency, access to care, equity, and healthy lives. The U.S. had the highest costs but lowest performance; on an average, the U.S. spent \$8,508 per person on health care in 2011, compared with \$3,406 in the United Kingdom, which ranked first overall. Many journal papers, newspaper articles, blogs and reports have been indicating that the U.S. needs to systematically improve its healthcare quality performance (Becker and Gamble, 2015; Boyer and Pronovost, 2010).

While a lot of detailed quality metrics based on the nature of the ailment (such as stroke, pneumonia, cardiac arrest), the number of days of hospitalization necessary for the treatment, hospital readmission rates and mortality rates have now become popular as standardized metrics to measure healthcare quality for public reporting (CMS, 2016), patient safety has emerged as the key aspect of healthcare quality (Kohn *et al.*, 1999; Pronovost *et al.*, 2006). This is evident in several studies across various fields such as nursing (Laschinger and Leiter, 2006; Rogers *et al.*, 2004), healthcare (Pronovost *et al.*, 2006; Singer *et al.*, 2007), operations management (OM) (Chandrasekaran *et al.*, 2012; McFadden *et al.*, 2009) and strategic management (Douglas and Ryman, 2003; Huckman and Zinner, 2008). Patient safety, however, is only a component of one of the

dimensions of patient care quality (PCQ) which has been labeled technical quality (Dagger *et al.*, 2007). Recent studies on quality of patient care imply that there are three more aspects of PCQ such as interpersonal, environmental and administrative quality (Chang *et al.*, 2009; Dagger *et al.*, 2007).

Aside from an extensive research on medicine and disease-specific cures, extant healthcare literature does not offer a comprehensive framework for measuring patient care quality in an integrated manner. The objective of this research is to offer an integrated conceptual framework that ties in all the antecedents to, and outcomes of PCQ which can be used by U.S. hospitals to achieve twin objectives: improve the quality of care available to their patients; and help hospitals sustain and thrive over the long run. We use Quality Management (QM) (Feigenbaum, 1961) as the underlying theory to justify the propositions and draw from Donabedian's (1966) Structure-Process-Outcome (SPO) classification to aid our framework. In so doing we attempt to address the question: what are the antecedents to, and outcomes of patient care quality in the U.S. hospital ecosystem?

Quality management (QM) is an integrative philosophy of management for continuously improving the quality of products and processes (Feigenbaum, 1961). The basic premise is that the quality of products/services and processes of their manufacture/generation is the responsibility of everyone who is involved with the creation or consumption of the products (Feigenbaum, 1961). QM highlights the involvement of management, workforce, suppliers, and even customers in order to meet or exceed customer expectations (Deming, 1986; Kaynak and Hartley, 2008). We draw from tenets of QM philosophy to justify our propositions.

According to the Donabedian's SPO model (1966, 1968, 1988) patient care quality information can be drawn from three categories: structure, process, and outcomes. Structure describes the context of care, i.e., includes hospital buildings, staff, financing, and equipment. Process denotes the transactions between patients and healthcare providers during the medical treatment and beyond. Outcomes refer to the effects of healthcare on the health status of patients and populations. The SPO model is being widely used in healthcare literature as a foundational classification to build other frameworks (Jolley *et al.*, 2017; Joyce *et al.*, 2015).

This paper is structured as follows. Following an extensive review of extant interdisciplinary literature, we first identify the determinants and outcomes of PCQ. Then, we highlight the variables at the individual patient level in a

U.S. hospital. Third, we discuss the healthcare team-level antecedents. Next, we explicate the hospital-level outcomes. Fifth, drawing from QM philosophy we suggest a conceptual overarching framework and use Donabedian's SPO guidelines (1966; 1968; 1988) to place our framework in perspective. We then offer propositions about expected relationships among the variables. Finally, we discuss the implications of our framework, note the limitations and conclude with future directions.

2. LITERATURE REVIEW

We conducted an extensive review of interdisciplinary literature comprising articles published in healthcare, human resources management, medicine, marketing, nursing, organizational behavior, operations management (OM), and strategic management areas; and several newspapers and magazines, online blogs and reports. From this review, we identified the quality-related variables that affect patients' medical treatment in a U.S. hospital on one hand, and hospital sustenance, on the other. Then, drawing from the tenets of QM philosophy (Feigenbaum, 1961) we first grouped the variables into three categories: individual patient-centric: PCQ, medical treatment expenses and patient satisfaction; healthcare team-related antecedents: healthcare team cohesion and healthcare team effectiveness; and hospital-level outcomes: hospital reputation and hospital financial performance.

2.1 Patient-Centric Care Quality and Satisfaction

We define Patient care quality (PCQ) as the excellence of the medical care received by admitted patients in hospitals (Chang *et al.*, 2009; Nelson and Niederberger, 1990). Based on a synthesis of the multi-dimensional nature of patient care quality discussed in extant literature (Dagger *et al.*, 2007; Gill and White, 2009) it is suggested that PCQ has the following four primary dimensions: interpersonal, technical, environmental and administrative quality. Interpersonal quality reflects the relationship developed and the dyadic interplay that occurs between the healthcare team and the patient (Dagger *et al.*, 2007; Gill and White, 2009). It takes into consideration issues such as whether healthcare teams consider their patients with respect, healthcare team members listen to what patients have to say, members give personalized attention to patients and whether team members are willing to answer questions that the patient or their kin may have. Technical quality reflects the expertise, professionalism, and competency of the healthcare team in delivering the cure (Dagger *et al.*, 2007; Sweeney *et al.*, 2015). It is concerned with whether patients are administered the correct medical care that is required to cure their ailment, tests (e.g., X-rays and lab tests) are ordered on patients only when required, healthcare team members are qualified, and whether they carry out their tasks competently (Dagger *et al.*, 2007). Environmental quality comprises elements of the hospital atmosphere such as cleanliness and order and tangibles like hospital bed and required equipment for patient health needs (Dagger *et al.*, 2007; McColl-Kennedy *et al.*, 2017). It takes into account whether the design of the hospital is patient friendly, the lighting at the hospital is appropriate, the temperature at the hospital is pleasant and whether the

furniture at the hospital is comfortable. Administrative quality facilitates the production of the core medical cure while adding value to the patient (Dagger *et al.*, 2007; Mosadeghrad, 2013). Considerations such as whether the internal hospital services (e.g., pathology) work well, waiting time at the hospital is minimum, the hospital provides patients with a range of patient support services and whether the hospital records and documentation (e.g., billing) are error free are in the domain of this dimension of quality.

Next, we discuss two other key patient-centric variables related to PCQ. We refer to the medical treatment expenses as the actual share of their medical treatment costs that a patient ends up paying after being advised by their health insurance. In U.S. healthcare, for most patients who have some form of health insurance coverage, their health insurance company acts as an intermediary between the patient and the hospital. Depending upon the network coverage of the hospital/physicians where the procedure was done, the patient ends up having to pay a higher or lower share of the total medical costs plus markup that the hospital bills the patient's insurance company. Healthcare, medicine and OM research have identified a few factors—both patient-related and hospital-related—that influence medical treatment costs, and thereby the actual expenses that a patient must bear. First, research has demonstrated that adherence to medication schedules, both by the patients (at their end) and doctors/nurses (when patients come back for check-up) determine the medical expenses, especially for patients suffering from chronic problems such as diabetes and hypertension (Sokol *et al.*, 2005), anxiety and depression (DiMatteo *et al.*, 2000) and asthma (Bender and Rand, 2004). Second, Kujala and Lillrank (2004) suggest that firms' acceptance of QM philosophy maybe influenced by their organizational culture and a continuous reduction in variation decreases the costs and increases customer acceptance. In other words, some hospitals maybe more focused than others on providing effective treatment at a lower cost. Finally, there is a tradeoff between the cost efficiency and the experiential quality of care (Venkataraman, 2015), i.e., the more the medical treatment expenses for the patient, the less is his/her experiential dimension of quality of care.

Patient satisfaction is a defined as the extent to which a patient is content with the healthcare they received from their provider. In evaluations of healthcare quality, patient satisfaction is a performance indicator often measured in a self-reported study. In marketing and healthcare literature, there are quite a few studies that have already considered patient satisfaction with a cure and patient safety and other related quality related issues from a patient's perspective (Dagger *et al.*, 2007; Nelson and Niederberger, 1990). Patient satisfaction has also been studied in OM literature (Queenan *et al.*, 2011), which investigated the extent to which computerized physician order entry helps improve patient satisfaction.

2.2 Healthcare Team-Level Antecedents

A team is defined as "a collection of individuals who are interdependent in their tasks, who share responsibility for outcomes, who see themselves and who are seen by others as an intact social entity embedded in one or more larger social

systems (for example, business unit or corporation), and who manage their relationships across organizational boundaries” (Cohen and Bailey, 1997). In this study, healthcare team refers to the doctors, nurses and supporting staff who work together as a group to care for admitted patients in most hospitals.

Team cohesion is defined as the tendency of a team to have complete unity of purpose while working towards a goal and to satisfy the emotional needs of its members (Carron and Brawley, 2000). It has three attributes—dynamic nature, instrumental basis, and an emotional dimension (Beal *et al.*, 2003; Lott and Lott, 1965). The dynamic nature refers to how the team gradually changes over time in its strength and form during the period from team formation to disbanding. The instrumental basis refers to how people cohere for a purpose, whether it is for a specific task or for social reasons. The emotional dimension refers to how cohesion is generally pleasing to its group members. In addition to task commitment and interpersonal attraction that members feel to the team (Lott and Lott, 1965), team members take pride in being a part of a cohesive team that performs well (Beal *et al.*, 2003).

In the hospital context, healthcare team cohesion is defined as the collective forces that influence each member of the small healthcare team to have complete unity of purpose and form an individual attraction to the team (Carron and Brawley, 2000; Price and Mueller, 1986). Tuckman (1965) suggested that individuals, during the third stage of group formation (or norming), come to know each other well and form a unity of purpose. Individuals with access to information, support, resources and opportunities to learn and grow in their team setting would be cohesive and are likely to put their best effort towards achieving the team goals.

In an organizational decision-making context, effectiveness of an action refers to whether the action taken is right or correct (Sundstrom *et al.*, 1990). Team effectiveness refers to how well the team is able to perform to survive, adapt, maintain itself and grow (Goodman, 1986). Team effectiveness literature (Katzenbach and Smith, 2013; McGregor, 1987) suggests that effective teams have a clear unity of purpose. Team members criticize each other frequently but collectively agree on group activity. A team’s performance on three important attributes determines the degree of its effectiveness. First, the ability of the team to exploit its environment to acquire scarce resources influences the team’s ability to deliver (Shipper and White, 1983). Second, effective teams have a high degree of internal team efficiency, team spirit, confidence, trust, communication and support (Sundstrom *et al.*, 1990). Third, effective teams are able to identify output goals and assess how well they can be attained (Hall, 1980). Environmental factors such as industry characteristics influence task design, which in turn, is related to internal and external group processes and group psychosocial traits such as the norms, all of which finally determine team effectiveness (Cohen and Bailey, 1997). Team cohesiveness, leadership and the team’s internal activities also influence team effectiveness in a work context (Goodman, 1986).

Healthcare team effectiveness research has elaborately discussed challenges that most healthcare teams face when they try to work effectively (Buljac-Samardzic *et al.*, 2010; Lemieux-Charles and McGuire, 2006). An empirical study

with data from chronic illness care centers established the importance of team effectiveness for quality of patient care (Shortell *et al.*, 2004). Using data from the academic departments of family medicine a qualitative study (Delva *et al.*, 2008) highlighted some of the challenges that teams face.

Although teamwork is one of the QM practices (Kaynak, 2003; Kaynak and Hartley, 2008), not all teams are known to be effective. Members of cohesive teams are known to get along with each other and work towards achieving the collective team goals (Yukelson *et al.*, 1984). Such effective teams are able to perform (Beal *et al.*, 2003; Mullen and Copper, 1994). Therefore, we included team cohesion and team effectiveness instead of teamwork in the framework.

2.3 Hospital-Level Outcomes

In healthcare literature, it has been argued that improving patient satisfaction can have a positive impact on a hospital's reputation and its financial performance (Hall, 2008). Research has indicated that reporting positive ratings to the public improves the collective hospital reputations (Hibbard *et al.*, 2005). Mira *et al.* (2014) demonstrated that the social reputation of hospitals and the perceptions of patients or relatives of patient safety were correlated. It is also known that the relative standings of the top 50 U.S. hospitals largely reflect the subjective reputations of those hospitals (Sehgal, 2010). Adverse outcome experience, a proxy for hospital reputation, may determine how patients choose their future hospital (de Mheen *et al.*, 2010).

Alexander and colleagues (2006) show that continuous quality improvement has a measurable impact on organizational performance. Hospitals that effectively implement quality improvement strategies can ultimately improve their financial performance. Goes and Zhan (1995) validated the hospital-physician financial integration efforts, and found that involvement of physicians in hospital governance improves its financial performance. Research has shown that there is a positive association between hospital strategic planning processes and financial performance (Kaissi and Begun, 2008). Further, hospitals with lower margins and higher costs are likely to implement strategies to integrate physicians and align physician and hospital interests (Mark *et al.*, 1998); therefore, individual physician reputations are more likely to impact hospital reputations. Nelson and colleagues' (1992) findings suggest that measurable improvements in patients' judgments of hospital quality could improve hospitals' financial performance. In sum, hospital reputation and financial performance are key outcomes related to patient satisfaction and PCQ.

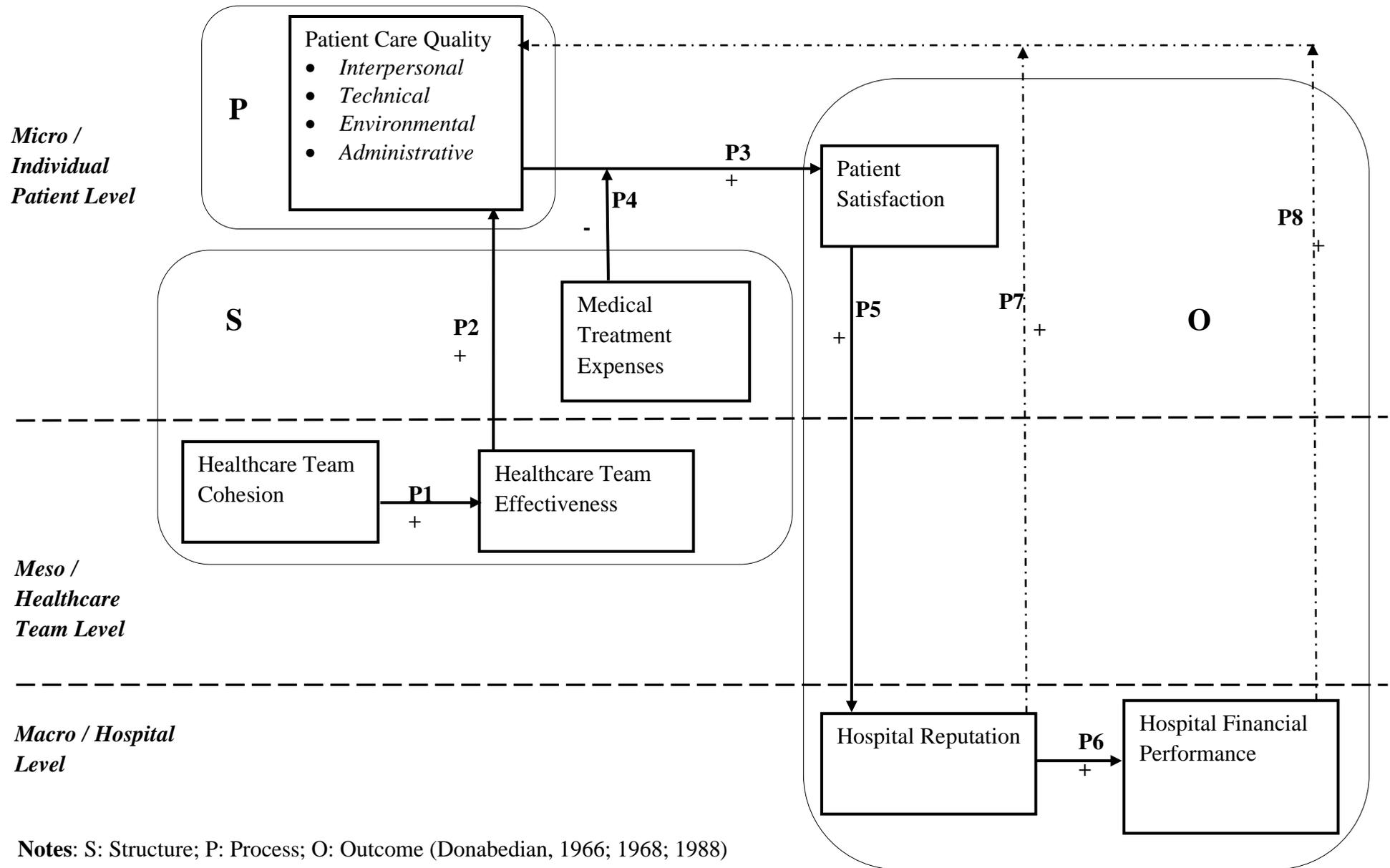


Figure 1 A multi-level healthcare quality framework

3. AN INTEGRATED MULTI-LEVEL HEALTHCARE QUALITY MEASUREMENT FRAMEWORK

Using the dominant paradigm from healthcare and marketing literature—Structure-Process-Outcomes (SPO) (Donabedian, 1966, 1968, 1988) we place our conceptual framework in perspective. In so doing we extend Donabedian's SPO paradigm to include different variables that spread across three levels of measurement (micro, meso and macro) and also include long-term cyclical effects. Per the SPO guidelines (Donabedian, 1988) the three variables—healthcare team cohesion, healthcare team effectiveness and medical treatment expenses would be considered as structure (because these variables are concerned with the context of care); PCQ as the process (because it denotes the transactions between patients and healthcare providers during the medical treatment and even beyond); and the three variables—patient satisfaction, hospital reputation, and hospital financial performance as the outcomes (because they refer to the effects of healthcare on the health status of patients and populations). Our conceptual framework is depicted in Figure 1. Next, we offer eight propositions that detail our expected relationships in the following sections.

3.1 Healthcare Team Cohesion, Team Effectiveness and Patient Care Quality

Lemieux-Charles and McGuire (2006) note that the type and diversity of clinical expertise involved in team decision making is related to improvements in patient care and organizational effectiveness. Collaboration, conflict resolution, participation and cohesion influence staff satisfaction and perceived team effectiveness. The context in which teams are embedded also needs to be considered. Firms need to have cohesive cross-functional teams in order to implement quality practices across the organization because cohesive groups have a high degree of group identity and commitment to the group's tasks (Govers, 2001; Wang *et al.*, 2006). This premise is based upon QM philosophy (Feigenbaum, 1961) which emphasizes team work as a required characteristic to achieve good employee relations, which in turn is required to implement quality practices. Effective healthcare teams perform their routine tasks little differently than other teams and learn quickly from each other. Small surgical team members are able to quickly learn from each other due to workload sharing and team helping, especially when the task complexity is very high (Vashdi *et al.*, 2013).

Extant healthcare literature highlights that in order to be effective teams use physician empathy (Kim *et al.*, 2004) and nurse emotional involvement (McQueen, 2000) to positively influence the interpersonal relationships that the healthcare teams are able to establish with their patients. Effective healthcare teams take an active interest in their patients' medical condition, empathize with their suffering (Roark and Sarah, 1989), communicate clearly to the patient and his/her kin about their medical condition and unanimously work toward their quicker cure, which would result in better interpersonal quality of patient care (Deeter-Schmelz and Kennedy, 2003).

Adequate and timely access to and use of up-to-date patient health information can enhance the technical quality

of patient care by providing physicians and nurses the correct up-to-date information on the patient's health (Chen *et al.*, 2009; Jha *et al.*, 2009). Effective healthcare teams can use electronic health records (EHR) and other hospital medical information systems to have all patient information readily available to the physicians for decision-making and nurses for support (Graetz *et al.*, 2014).

All physical elements of a patient's environment such as the hospital bed, clothes and equipment must be clean and disinfected (Aiken *et al.*, 2008). Hand hygiene prevents infection among patients and others (Pittet *et al.*, 2000). Effective healthcare teams meticulously follow all hospital procedures, take all necessary precautions related to hygiene, ensure that all physical elements of the hospital including the beds and other medical and surgical equipment are thoroughly cleaned and disinfected before use on any patient (Carling *et al.*, 2008). Further, effective healthcare teams interact with housekeeping to ensure that the hospital wards are organized, clean and aesthetically pleasing (Mathur, 2014). These steps would result in better environmental quality.

Hospital administration departments like billing and reception typically tend to work with a silo mentality in isolation (Bokar and Perry, 2007; Conway, 1997) oblivious to the fact that all departments need to support the healthcare teams in their effort to provide quality patient care. Effective healthcare teams can interact closely with the hospital's administrative units (White and Whitman, 2006) to ensure that information is provided timely to the patients or their next of kin. Because administrative quality is a key element of patient care (Grumbach and Bodenheimer, 2004), effective healthcare teams can frame a few preliminary procedures of their own to educate patients on simple administrative steps such as scheduling hospital visit appointments, providing food and dietary information related to the sickness to the patient or to their kin, explaining healthcare decision making processes to patients, and when required, interacting with the hospital's administrative departments on behalf of patients (Grumbach and Bodenheimer, 2004).

Based on the above discussions, we suggest that to become effective, members of a healthcare team need to work cohesively to avoid medical errors, check schedules and room/equipment availability in advance of patients' medical procedures, take steps to prevent infections in hospitals and keep the patients' care at the forefront of their decision making (Grumbach and Bodenheimer, 2004). All these activities would make patient care safer and more accurate, improving its overall quality. Therefore, drawing from tenets of QM philosophy we propose:

Proposition 1: *Healthcare team cohesion is positively associated with healthcare team effectiveness.*

Proposition 2: *Healthcare team effectiveness is positively associated with patient care quality.*

3.2 Patient Care Quality and Satisfaction

In healthcare, like in marketing of other services patient satisfaction is considered the defining core of all medical treatment philosophy that truly cares for the patient's medical treatment and thereby their cure from the ailment. Improved patient satisfaction is supposed to enhance the

patient experience and ultimately improve the treatment outcomes (Rickert, 2014). Jha and colleagues (2008) empirically demonstrate that the hospitals could simultaneously provide both high quality of care and a good patient experience by having high levels of nurse-staffing. They also found moderately high levels of satisfaction with care with a high degree of correlation among the measures of patients' experiences. A few articles have pointed out that quality of the medical treatment may not be directly related to patient satisfaction (Brookes and Fenton, 2014; Fenton *et al.*, 2012) and hospitals and physicians may try to satisfy the patient but they not really provide the accurate medical treatment necessary to cure the patient of his/her ailment (Robbins, 2015). Nevertheless, there is a body of empirical research evidence in healthcare and marketing literature demonstrating that patient care quality is positively associated with patient satisfaction (Chang *et al.*, 2009; Daggar *et al.*, 2007). We therefore posit:

Proposition 3: *Patient care quality is positively associated with patient satisfaction.*

3.3 Moderating Role of Medical Treatment Expenses

The business press keeps publishing rich stories depicting how medical treatment in the U.S. is becoming prohibitively expensive for the common man with many even speculating and offering suggestions on how to control the spiraling healthcare costs (Arora *et al.*, 2015; Robert Wood Johnson Foundation, 2016). In the U.S. healthcare system, there are many entities which affect the medical treatment costs and the patient's medical expenses. Apart from a hospital's supply chain partners who determine the cost of each item, the Group Purchasing Organizations (GPO) determines their group member hospital purchases and as a result, yields too much power over individual hospital costs of medical treatment (Handfield, 2010). Group Purchasing Organizations (GPO) such as Amerinet, Consorta, Novation, Premier and MedAssets were created to leverage the purchasing power of hospitals in obtaining discounts from vendors. A 2005 study for the Health Industry Group Purchasing Association (HIGPA) reported that 72–80% of every acute healthcare dollar is acquired through GPOs (Hu & Schwarz, 2011). As already noted, healthcare insurance companies act as the intermediary between the hospital and the patient and have the final say in determining the actual medical expenses that a patient has to ultimately pay.

Dranove and Stanley (1995) suggested that firms may reduce costs by eliminating redundancies and reducing their administrative costs such as those evident in integration of many hospitals into a hospital system, which also help individual hospitals share the best quality practices. Venkataraman (2015) empirically established most hospitals may need to trade-off between keeping costs low and providing high quality care to patients. It is known that if the costs associated with the medical treatment are astronomically high, patients may have a very hard time paying off these high medical expenses (Mangan, 2013) and are likely to be extremely dissatisfied, even though their ailment or sickness may have been cured. On the other hand, if the costs are manageable for the patient, the patient is more

than likely to be satisfied to some extent, even if the patient is not fully cured of his/her ailment/disease and may need to come back to the hospital. Therefore, we suggest a negative moderating role for treatment costs:

Proposition 4: *Medical treatment expenses negatively moderate the relationship between patient care quality and patient satisfaction such that higher medical treatment expenses decrease patient satisfaction, and vice versa.*

3.4 Patient Satisfaction and Hospital Reputation

Each individual physician's reputation adds to the hospital's reputation which is very important for the hospital's long-term sustenance (Angell, 1901). The professional culture of medicine poses unique challenges for building and sustaining a safety culture in a hospital because a strong emphasis on individual accountability for error often results in "blaming and shaming" individuals for the errors that have occurred under their supervision (Carroll and Quijada, 2004). Thus, many times doctors, nurses and hospital administrators may remain silent due to the fear of losing their individual and collective hospital reputations, even when they recognize unsafe conditions (Sutcliffe *et al.*, 2004). The quality of supplies delivered by the suppliers to a firm (Gunasekaran *et al.*, 2004; Larson, 1994) is also important for a long term relationship because poor quality products and services could lead to rework for the supplier and loss of reputation and image for the hospital. Inferior quality products used in healthcare may also cause patient harm.

Healthcare research has demonstrated that the social reputation of hospitals and the perceptions of patients/kin of patient are correlated (Mira *et al.*, 2014). Dissatisfied patients, like many other dissatisfied service customers, are known to spread bad word of mouth and vent their anger on social media like Yelp (Ranard *et al.*, 2016). Thus, in today's modern world if patients are not satisfied with any aspect of their medical treatment, they are likely to spread bad word of mouth and complain using one or more platforms like social media and/or Joint Commission or their state's quality improvement organizations (QIO) (Snyder and Anderson, 2005), which could harm the individual physician's reputation and in turn, negatively affect the hospital reputation. On the positive side, satisfied patients are likely to spread the good word about the physicians, the hospital and its facilities and the quality of care offered therein. Hence, we posit:

Proposition 5: *Patient satisfaction is positively associated hospital reputation.*

3.5 Hospital Reputation, Financial Performance, and Effects on Patient Care Quality

Social reputation of hospitals is known to be correlated with patient safety perceptions of patients/kin (Mira *et al.*, 2014). With preventable hospital errors now being a key focus area of healthcare reform, nurses have a very important contribution to ensure patient safety, quality of care, and the hospital's financial performance (Kohlbrener *et al.*, 2011). Improving patient satisfaction can have a direct impact on the hospital's reputation, and financial results (Hall, 2008). A

recent study from the Deloitte Center for Health Solutions—The Value of Patient Experience—reports that "improving the patient experience can help a hospital improve its financial performance by strengthening customer loyalty, building reputation and brand, and boosting utilization of hospital services through increased referrals to family and friends" (Betts, 2017). For several years now, the Centers for Medicare and Medicaid Services (CMS) has been using patient-reported experience scores, which affect a hospital's reputation, to reimburse and reward or penalize hospitals through Medicare's Value Based Purchasing program. Many hospitals have started using the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey scores to justify their greater investment in improving the patient experience during their hospital stay (Mehta, 2015). Therefore, based on the above discussions, we propose:

Proposition 6: *Hospital reputation is positively associated with hospital financial performance.*

For quality initiatives to be ingrained in the organization, teams need active support from their leaders. Research has demonstrated empirical support for the relationship between financial performance and quality of care (Bazzoli *et al.*, 2008) but was not as strong as suggested in previous research. QM philosophy (Feigenbaum, 1961) suggests that senior management needs to provide resources like funds and trained personnel to make the work environment conducive for teams to work. If hospitals do well financially, its leaders can not only better sell the ongoing quality story externally to all stakeholders, but also have a better chance of supporting the quality improvement efforts of all physicians, nurses and staff by improving resource allocations to the departments as necessary. Hospital facilities expansion, internal technology infrastructure upgrades, which can help in process improvements as well as increase in nurse and staff headcount and thereby more manageable work shifts become possible with more funds available to hospital leadership.

On a similar note, hospitals having a good reputation (e.g., those being featured in the America's Best Hospitals each year) are generally managed by reputed doctors (Stoller *et al.*, 2016) and are also able to draw other reputed/famous physicians (Rizo *et al.*, 2002). This in turn, helps improve the patient experience at the hospital (Pope, 2009) thereby bringing in a steady stream of patients as well. Hospitals of repute put significant collective effort and resources to maintaining high PCQ standards in order to maintain their high public rankings and good patient ratings (Luxford *et al.*, 2011). Therefore, based on the above long-term phenomena our final two propositions suggest:

Proposition 7: *Hospital reputation is positively associated with patient care quality.*

Proposition 8: *Hospital financial performance is positively associated with patient care quality.*

4. DISCUSSION AND CONCLUSION

In this paper, we proposed a conceptual framework for measuring PCQ, along with its antecedents and outcomes.

We adopted a multi-level approach to measuring PCQ and described the role of healthcare team-related antecedents—healthcare team cohesion and healthcare team effectiveness that affect individual patient-centric variables—PCQ, medical treatment expenses and patient satisfaction, which ultimately affect the hospital-level outcomes—hospital reputation and hospital financial performance. We also suggested a moderating effect of medical treatment expenses on the PCQ-patient satisfaction relationship and proposed a feedback loop of hospital reputation and hospital performance affecting PCQ, over time. Essentially, we traced the full quality flow chain in a typical U.S. hospital. The conceptual framework proposed here has useful implications for both research and medical practice at hospitals.

Our framework recognizes the important role of team-level antecedents affecting individual patient-centric variables, which finally affect the hospital-level outcomes. Essentially, it acknowledges the complexity of the U.S. healthcare system with so many entities and why/how so many changes being made are yet to lower the cost of medical treatments or improve PCQ, across the board. The research also suggests an important moderating role for medical treatment expenses that are skyrocketing every year on the PCQ-satisfaction relationship.

Our conceptual framework is only a first step and should spur multi-level empirical healthcare research on PCQ. A planned empirical measurement of the framework should reveal interesting insights. All variables could be measured using perceptual measures and supplemented with objective secondary data on medical treatment costs and hospital financial performance. An extensive online (Qualtrics) national survey campaign is planned that will randomly select both patients from U.S. hospitals, as well U.S. hospital administrators, including members of healthcare teams such as physicians, nurses and staff. Since this study is essentially longitudinal we propose two sets of measurements each six month apart targeting the same hospitals in both survey waves.

The model in its entirety, or a few specific relationships may be tested using available measures from literature and longitudinal data gathering. PCQ may be measured using modified scales from literature (Dagger *et al.*, 2007; Gill & White, 2009). Patient satisfaction may be measured using scales based on Ware and colleagues (1983). The patient's perceptions of the medical expenses can be obtained using scales adapted from Maratt *et al.* (2015) and hard secondary data available on average medical expenses for specific diseases, could be used to supplement the perceptual measures. Healthcare team cohesion can be measured using a modified version of the Team Development Measure (Stock *et al.*, 2013). Healthcare team effectiveness may be measured using scales adapted from Poulton & West (1993, 1999). Hospital reputation can be tapped using a scale adapted from Mira *et al.* (2014). Hospital financial performance can be measured using scale adapted from Cleverley and Rohleder (1985). Again, secondary data on hospital financial performance can be obtained from public databases such as the American Hospital Directory, Mergent Online and other strategic management databases to supplement the perceptual measures.

An empirical test of our conceptual framework will help clear the air on some of the controversial relationships

among variables such as the relationship between healthcare costs and PCQ or the relationship between PCQ and patient satisfaction that scholars have argued upon in the literature. The multilevel nature of the framework suggests that future empirical studies may need to use nested design, such as one involving dyads of patients and healthcare team from more than one U.S. hospital.

Our conceptual framework has several implications for medical practitioners and U.S. hospitals. First, the framework amply demonstrates that healthcare team cohesion and effectiveness are the most important antecedents to high quality of patient care and should either encourage or coax all medical practitioners including physicians, nurses and other hospital staff to work together, seamlessly for the delivering the highest PCQ. In this context, many hospitals may need to organize special focused trainings and live patient treatment sessions for its senior physicians and nurses, imploring them to work together and not treat patients' medical treatment as a turf fight.

Second, U.S. hospitals could provide high quality of admitted patient care if they give importance to all the variables and the interrelationships described in the research model which would reduce medical errors and help them operate at the highest level of efficiency (Byrnes, 2004; Shih *et al.*, 2009). Hospitals delivering high quality of admitted patient care is very crucial for all stakeholders because it could improve hospitals' financials, benefit all entities in the supply chain, and help the admitted patients directly through better and more responsive medical care that cures them of their ailments quicker and at lower cost (Lee *et al.*, 2011).

Third, hospital leaders need to refocus their energies on the efficient and effective use of technology throughout their hospital to share ideas and most importantly, ensure that their healthcare team members have the most accurate and up-to-date information on patients. Although many U.S. hospitals are already using patient information systems, it tends not to be uniform across all hospitals and departments (Schroeder, 2015). Even today, not all U.S. hospital systems interact with each other to communicate the most up-to-date information (Whitney, 2015).

4.1 Limitations and Future Directions

Because we focused on PCQ measurement in the U.S. hospital ecosystem, our conceptual framework is applicable for U.S. healthcare system and caution must be exercised before extending it to other countries. Although all the variables in the framework and their proposed associative relationships would still hold in most other countries, the role of government-provided insurance is very important in countries like the U.K., Canada and Australia and even in Mexico and India and insurance provision may affect some of the hypothesized relationships. Further, in empirical measurement, summated scores may need to be calculated to address the difference in levels issue among the different variables, thereby losing some of the richness of the individual patient level data. Nevertheless, we do not foresee any major issue in empirical measurement as previous studies have successfully addressed the different levels-issue.

In this paper, we used the prominent paradigm in healthcare literature—the SPO guidelines (Donabedian,

1966, 1968, 1988) to place our research in perspective with the extant marketing and healthcare literature. Aligning our framework with this paradigm helped us build a cyclical process model that investigates the causes and outcomes of PCQ in the U.S. healthcare system. In so doing, we could fully trace the quality chain in a typical U.S. hospital. We also extended the SPO paradigm by including variables spread across different levels of measurement and different periods of time to include cyclical effects. Future research could empirically test the conceptual framework offered herein.

Another avenue for future research is to investigate how team-level variables end up influencing the primary individual-level variable of interest, i.e., PCQ and finally how they influence the hospital-level outcomes. Future research could also focus on finding out the possible service failure points to make them fail-safe and map out complete service blueprints for each major disease/ailment at a typical U.S. hospital. Such empirically tested service blueprints could be used by hospital departments to improve the service delivery and efficiency.

To the best of our knowledge, the proposed conceptual framework is the first to link all antecedents to and outcomes of PCQ in the U.S. healthcare ecosystem. The empirical test of the longitudinal link between hospital financial performance and PCQ should help clear the ongoing debate on how PCQ actually helps hospitals achieve a sustainable competitive advantage, like in other service industries. After all, for people to receive the correct healthcare at the minimum cost, hospitals must be able to thrive.

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Dr. Subhajit Chakraborty is an Assistant Professor of Management and Decision Sciences in the E. Craig Wall Sr. College of Business Administration at Coastal Carolina University. He holds a Ph.D. in Business Administration from The University of Texas Rio Grande Valley. He has 11 years of practitioner experience in operations, supply chain and information technology domains with project management and expatriate experience and is a member of the American Society for Quality. His research interests include service quality along firms' supply chain, service design and lean healthcare operations. His research has been published in journals such as *Quality Management Journal* and *Health Marketing Quarterly*.