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Information technology and voluntary quality disclosure by hospitals

Corey Angst [a,*], Ritu Agarwal [b], Guodong (Gordon) Gao [b], Jiban Khuntia [b], Jeffrey S. McCullough [c]

[a] Mendoza College of Business, University of Notre Dame, Notre Dame, IN 46556, USA
[b] Center for Health Information and Decision Systems, Robert H. Smith School of Business, Van Munching Hall, University of Maryland, College Park, MD 20742, USA
[c] Health Policy and Management, University of Minnesota, Minneapolis, MN 55455, USA

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ABSTRACT

Information asymmetry between consumers and health care providers is a well-known phenomenon in health care systems. Disclosure of health care quality information is one important mechanism through which hospitals can signal performance to potential patients and competitors, yet little is known about the organizational factors that contribute to voluntary disclosure. In this study we develop an empirical model to investigate the factors associated with choosing to participate in a voluntary quality disclosure initiative, specifically isolating the importance of information technology (IT) in facilitating disclosure. We extend the scope of prior work on the quality disclosure choice by augmenting it with an important decision variable: the operational costs of collecting and reporting quality data. We suggest that IT can facilitate disclosure by reducing these costs, thereby extending the literature on the value of IT. Empirical findings using data from a major voluntary quality disclosure program in California hospitals support our assertion related to the role of IT. Our results further highlight other hospital characteristics contributing to disclosure. We discuss implications of these findings for research and practice.

1. Introduction

Information asymmetries between health care consumers and health care providers such as physicians and hospitals are a widely observed and well-documented phenomenon. For more than two decades, policy makers and advocates have issued calls for hospitals to be more transparent about the quality of care delivered to patients [16,23,43], under the assumption that by reporting quality, hospitals would be more motivated to seek quality improvements. Yet, even the federal government's mandated HospitalCompare program launched under the aegis of the Centers for Medicare and Medicaid Services (CMS) has been criticized for the limited information it reports and the fact that the data often do not reach end users [26,80]. In response to these criticisms, in recent years there has been a sharp increase in coalitions being formed in a number of states for creating voluntary hospital reporting systems that capture richer and more accessible information that can be easily utilized by patients. These programs include *Quality Insights* of Pennsylvania, *West Virginia Medical Institute*, *Quality Insights* of Delaware, and *California Hospital Assessment and Reporting Taskforce (CHART)*, among others.

While voluntary disclosure programs doubtless offer the capability of providing timely and relevant information with broader reach to patients, researchers have found that the willingness to disclose quality information varies considerably among hospitals [62,74]. As noted in related work [57], if hospitals that refuse to report quality provide inferior care, then any reporting system that uses data from only *better* performing hospitals would be artificially inflating average quality assessments. This has sparked a spirited debate on whether there should be mandatory or voluntary quality disclosure from hospitals and other healthcare providers [25,57]. However, despite the significant interest in greater transparency with respect to quality of care, little is known about the nature of the hospitals that voluntarily participate in quality disclosure programs, or the characteristics of hospitals that decide not to report. In particular, there is limited understanding of the role of information technology (IT) in facilitating the decision to disclose. IT can potentially make two important contributions to disclosure: first, IT has been implicated in diminishing information asymmetry [72] and second, to the extent that IT enables efficient capture and processing of quality data, it can be instrumental in reducing the costs of disclosure [39].

In this paper we examine the volitional quality disclosure decision of hospitals. Specifically, we investigate the characteristics of hospitals that choose to participate in voluntary performance reporting. The setting for our study is CHART, California's voluntary public disclosure initiative. CHART policy is set by a board of consumers, employers, health plans, and providers. Because there are no obvious coercive pressures for hospitals to participate[1] — such as those present in other major quality initiatives like CMS and the Joint Commission on Accreditation

* Corresponding author. Tel.: +1 574 631 4772; fax: +1 574 631 5255.
E-mail address: cangst@nd.edu (C. Angst).

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[1] Although there was no specific mandate to report, we note that the initiative was launched in part as a response to the payers' intention to profile all California hospitals with administrative data alone. CHART supports the reporting of administrative and clinical quality data.

of Healthcare Organizations (JCAHO) in which hospitals have strong economic pressure and/or accreditation objectives — this initiative provides a suitable context for examining hospitals' voluntary disclosure decision and the factors that affect it.

This paper makes important contributions to the literature on quality disclosure. Previous studies, predominantly in the economics literature and to a limited extent in healthcare, have primarily focused on the benefits of disclosure. In contrast, our study expands the scope to the cost side factor by examining how hospitals' financial constraints influence disclosure decisions. We identify the pivotal role of IT in quality disclosure decisions, which has the potential to facilitate the data gathering and reporting process. In the remainder of the paper we introduce background material and summarize related literature, constituting Section 2. We describe the data set in Section 3, and report the results of our empirical analysis in Section 4. We conclude the paper in Section 5, discussing limitations of our study, conclusions, and recommendations for future research.

2. Background

2.1. Quality disclosure in healthcare

Consumers have traditionally relied on the recommendations of physicians, friends, and family when choosing healthcare providers [8,28,67]. Given the highly consequential nature of healthcare delivery services and increasing public attention being focused on patient safety issues, not surprisingly, consumers have recently exhibited an interest in systematic quality information and quality disclosure as a key component of consumer directed healthcare [35,71,77]. Although IT has provided platforms such as the Internet through which quality information can be disseminated, the measurement and disclosure of hospital quality has long been a challenge for health care providers. The difficulty faced by hospitals is attributable to two primary causes: first, from the perspective of capturing and reporting the information; and second, the delivery of easily interpretable data to consumers [26,35,80]. The availability of this quality information has the potential to influence consumers when choosing healthcare providers, but the system is flawed from the perspective that consumers may, in effect, undervalue provider quality when faced with imperfect quality information. Thus, imperfect information may result in providers under-investing in quality improvement programs. Health care providers were among the first to recognize this problem and as a result, they formed JCAHO in 1951[2] as a way to standardize and improve the quality of hospital care. The demand for quality information did not end with JCAHO or other federally mandated programs but instead is being addressed by a wide range of initiatives [13]. HospitalCompare is the most notable hospital quality disclosure program. Formed by CMS, HospitalCompare includes strong pay-for-reporting incentives and therefore has near-universal participation.

Prior studies that have explored the impact of quality reporting initiatives, have provided evidence that public reporting of quality helps hospitals improve their services [29,55] and that patients desire information about error disclosure [30] even though they face barriers to finding or interpreting the information [26,35,80]. More troubling is the suggestion that mandatory quality disclosure may discourage reporting quality incidents [82] or cause providers to avoid high-risk patients [21]. Indeed, the limitations of existing mandatory reporting systems and the CMS program have led to the subsequent formation of coalitions in a number of states for creating voluntary hospital reporting systems. These voluntary disclosure programs are intended to provide more relevant quality information, and facilitate access and interpretation by healthcare consumers. However, significant challenges exist. As noted earlier, the willingness to disclose quality information exhibits considerable variation [62,74]. Recent research suggests that providers may be reluctant or simply unable to opt-in to these programs for various reasons including prohibition by state law, fear of data misinterpretation, and legal implications. Incomplete and/or biased (i.e., only relatively high quality hospitals participate) reporting could potentially limit the usefulness of these systems and undermine efforts to achieve transparency [31]. Up to now, however, we have limited understanding of the factors that affect participation decisions in voluntary quality disclosure programs.

2.2. Factors that influence quality disclosure

Even though we have limited understanding of the drivers of quality disclosure, extant literature provides one useful insight: the simple act of opting in or out of a quality reporting program provides important information in and of itself. Indeed, signaling theory [79] suggests that hospitals that opt-in to a voluntary quality disclosure program are conveying to other stakeholders that they are willing to reveal key information about their performance on metrics that are important to consumers. Studies on accreditations such as ISO 9000 have provided evidence of a signaling mechanism [15,81]. However, only a few studies have focused on the disclosure of *quality* information [46,48].

More nuanced studies of financial disclosure have revealed contingencies about disclosure [7], some of which are functions of competitive moves called informed actions and reactions, and others that are related to the information itself. For example, Skinner [76] notes that 'good news' disclosures about financial performance are typically accompanied by quantitative estimates of performance while 'bad news' disclosures are qualitative with only indirect reference to numbers. Other studies have observed that the size of the firm relative to its competitors is related to disclosure [9,12], that greater disclosure is associated with a reduction in stock price mis-valuation [38,76], and that public versus private disclosures have differential market responses [42].

The preponderance of evidence from financial disclosure suggests that better performing firms will disclose more readily than will poorer performing firms [38,40,51]. Because voluntary quality disclosure has received far less attention than financial disclosure, we begin by verifying that hospitals follow a similar disclosure pattern except that hospitals disclose quality information rather than the financial data disclosed by other corporate entities. Since quality is a key indicator of performance in hospitals and often a more important strategic focus than financial metrics (such as those examined in financial disclosure), we expect that better quality increases the likelihood of disclosure [33,73].

Besides quality, a second important factor that influences disclosure is competition [46]. In the particular case of healthcare, most services cannot be rendered remotely or virtually, so a consumer must physically travel to the hospital to receive care. Thus, people are likely to utilize some sort of decision calculus to weigh the advantage of localized service relative to the potential for improved quality received from a more distal location. In more rural regions where competition is low, consumers' decision criteria are less a function of quality as they are a function of convenience, since there are few to no alternatives. However, in highly populous urban regions, where consumers have access to more alternatives and can exercise options, competition appears to play an important role in strategic positioning for hospitals.

What is the nature of the effects of competition on hospitals' decisions? D'Aveni [17] suggests that building a sustainable competitive advantage in hypercompetitive markets simply results in a misappropriation of resources, yet notes that unlike perfect competition (i.e. no firms wins), temporary advantages can materialize from dynamic repositioning. In price-quality competition, a firm seeks to offer the best 'value' to a consumer. In traditional markets, some firms choose

[2] The organization was originally named the Joint Commission on Accreditation of Hospital Organizations until 1987.