Heterogeneous Quality Information in Healthcare Marketplace: A Stakeholder Perspective

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1. INTRODUCTION

Contemporary healthcare systems are utilizing new information technology to digitize and share previously paper-based information among the legitimate, but distributed participants in the healthcare marketplace. A critical stumbling block the participants face in this effort is the questionable quality of the information. Demands for quality information in the healthcare arena are dramatically increasing, as information is being used as a basis for evidence-based medical care. Quality information is also critical for management decision-making, benefit design, and more importantly, for providing decision choices for healthcare consumers: patients. Although everyone agrees on the critical needs for quality information, there is a lack of agreement on what constitutes quality information for healthcare systems.

In this research, we use the classical stakeholder perspective (Freeman and Reed, 1983; Butterfield, 2004) and information quality research (Lee, Pipino, Funk, and Wang, 2006) to examine what constitutes quality information amongst directly participating stakeholders in the healthcare marketplace. We argue that the role a stakeholder plays in the healthcare marketplace affects the nature of quality information each provides and uses, thus shaping the principles that dictate each stakeholder's view of quality information. Our findings, based on participatory observation and the analysis of research publications, provide a basis for a shared understanding of quality information in the healthcare market place.

2.BACKGROUND

The healthcare industry is at a crossroads. With healthcare costs continuing a trend of annual double-digit increases, employers are in the unenviable position of either absorbing these costs, passing them on to their employees, or dropping insurance all together. As a result, consumers are responsible for more of their overall healthcare costs, and are challenging the healthcare system to become more consumer-driven. A virtual healthcare marketplace is developing in which consumers "shop" for their

healthcare. As with any marketplace, the consumers are becoming cost-conscious and therefore demand transparency of cost and ==quality information== throughout the healthcare system. In this marketplace, four major groups: consumers (patients), physicians, government, healthcare plans, and employers- form the key stakeholders who play a critical role in shaping what constitutes ==quality information==.

Issues and factors associated with technology acceptance, diffusion, and training, such as effective use of new systems by doctors and nurses, have been studied thoroughly (Raitoharju and Laine, 2006; Menon, Lee and Eldenburg, 2006; Cloutier, Godin, Gagne, and Reiharz, 2005; Bashshur, Reardon, and Shannon, 2001; Aas, 2001; Hu, Liu, and Tam, 1999; Jayasuriya, 1998); the information shared, the contents of the systems, has not been studied adequately.

Guided by the stakeholder perspective (Freeman and Reed, 1983; Butterfield, 2004) and research on information quality (Lee, 2004; Strong, Lee and Wang, 1997; Wang, Lee, Pipino, and Strong, 1998), this research asks the following question: what constitutes ==quality information== by multiple stakeholders in the healthcare marketplace? This work further examines principles held by each stakeholder, which serve as the basis for different views on ==quality information==.

This article contributes to the research in the healthcare arena for both research and practice. For research, the study will expand and deepen the research in healthcare systems by including the analysis on information that healthcare systems design and use. For practice, the research helps to design and use healthcare information considering all stakeholders' perspectives for effective evidence-based practice of healthcare. Furthermore, the findings of this study will elevate the discussion on establishing measurements and a common definition of ==quality information== for healthcare practice based on the goal of sharing useful and useable information.

3.QUALITY INFORMTION IN THE HEALTHCARE MARKET

Many recognize the importance of quality information through a crisis. For example, a CEO of a hospital received a letter with a fine for poor-quality information submitted to the state government (Davidson, Lee, and Wang, 2004). An insurance provider paid mistaken claims due to its information quality problems, which resulted from its mis-aligned business and information processes (Katz-Hass and Lee, 2005). A hospital could not make a critical business decision on medical project initiatives due to inconsistent information (Lee and Pipino, 2004). Physicians resisted using the information from the hospital's data warehouse, due to the inconsistent and not-believable service records shown on the report (Lee and Pipino, 2004). Worse yet, ad hoc reports on the news media evidenced disasters from mistaken surgeries based on poor-quality information.

A crisis, errors, mishaps, financial loss, and an inability to make decisions are often the results of many cumulated and interdependent factors. A key common factor involved, however, is poor-quality information. Inconsistent data fed from different sources are aggregated to produce a report. Financial and medical information is often aggregated to support decision-making in medical care, medical service project prioritization, and physician compensation. Data collectors, those database professional who store and maintain the data, and data consumers who use this data and further produce data for various medical and business purposes are all involved in designing, collecting, storing, maintaining, distributing, analyzing, and utilizing the same data. Therefore, various aspects of information quality have different impacts along the long value chain of the information.

So, what is "quality" information as it pertains to healthcare? Among the various dimensions of information quality (Wang and Strong, 1996) -- free of error, timeliness, consistency, conciseness, privacy, accessibility, believability, reputation, ease of use, flexibility, security, value added, objectivity, amount of information -- what the healthcare market is currently grappling with is accessibility of

information. For example, consumers want to know which physicians and hospitals are the "best". The trouble is, who defines what is the best? Currently, the healthcare industry does not have a unified answer to this question. For example, ask a physician "Who would you go to if you needed heart surgery?" The physicians would tell you they would ask their friends and colleagues to find out who the best heart surgeon is. Health plan providers would resort to statistical information that has measures of evidence of a good practice. Regardless of the fact that one answer may be better than others for a particular purpose, shouldn't this information be available to consumers, the patients? Until recently, this information has been place in a virtual "black box", not available nor accessible to consumers. Magazines such as "US News and World Reports" and "Boston Magazine" publish annual lists of the "best doctors", but critics will tell you that those lists are based on reputation and not actual evidential data, and often the doctors and surgeons on the lists are affiliated with the most well known and largest teaching institutions instead of based on well-articulated objectives and measured outcomes.

The common definition of quality care needs to be acceptable to all stakeholders and it needs to be practical enough in order to be useable and useful. Currently, there is a race to define healthcare quality and to provide the information. The quality information and the packaging of this information will be a key differentiator in the coming months and years, particularly for health plan providers.

The pivotal event for quality information in the healthcare arena goes back to 1999. In 1999, the Institute of Medicine (IOM) reported that as many as 98,000 people die annually as a result of medical errors and they called for a national effort to make healthcare safe The IOM's report, *To Err is Human: Building a Safer Health System* (Kohn et. al., 1999), galvanized a dramatically expanded level of conversation and concern about patient injuries in healthcare, both in the United States and abroad (Leape and Berwick, 2005). The vision required by the IOM charged the Agency for Healthcare

Research and Quality to bring together all stakeholders, including payers, to agree on a set of explicit goals for patient safety to be reached by 2010.

Evidence-based medicine is dependent on the collection, design, and use of <mark>quality information</mark> that is collectively agreed upon by key stakeholders. Emphasis is on the dissemination and accessibility of information so that the evidence can represent and reach clinical practice and thus service to patients. Evidence-based medicine is also based on guidelines of how care should be delivered. The evidence is represented in information that reinforces healthcare guidelines and informs the healthcare practice and services delivered.

4 STAKEHOLDERS IN THE HEALTHCARE MARKETPLACE

The key stakeholders who are critical for defining quality healthcare information are: physicians and care providers, such as: hospitals, health plans, employers, consumers, and the government. Now we turn to identifying each stakeholder and its underlying principles.

Physicians

Principles held by physicians:
- Physicians know what is best for their patients
- Health plans should be hassle free
- Financial compensation should be fair
- Physicians should be involved in defining <mark>quality information</mark>
- Evaluative information should be based on physician group level, instead of at the individual physician level

In general, physicians are concerned about how information is collected and used, and by whom, since the disseminated information can have an impact on their own reputation and future service and work. It is critical that information is consistent with what they perceive as good quality. <mark>Quality information</mark> for physicians, therefore, means that the use of collected information is well understood and known to the physicians in advance and the information is collected from reputable sources.

A recent analysis on medical practice (Wennburg, 2006) identified that there is widespread variation in the ways that physicians practice which results in widespread variation in both outcomes and cost. Rochester Independent Physician Association (IPA), an organization of 3,000 clinicians, including 900 primary care physicians has developed a set of measures that they use to compare specialists within each specialty. The purpose is both to develop best practices that all of the specialists should follow, by learning from top performers and to work with the bottom outliers. We show the example of their measures, used for quality improvement purposes, below:

Underused Measures – these are measures that the test or procedure is not being performed as often as it should be.

- Diabetes Testing: did the physician perform glucose and cholesterol testing on diabetic patients
- Colon Cancer and Breast Cancer Screenings: did the physician order or perform the appropriate cancer screening procedure based on the patient's age and gender

Misuse Measures – these are measures where inappropriate care is given

- Antibiotics for viral infections

Overuse measures – unnecessary care
- Antibiotics for sinusitis

The Rochester IPA systematically tries to identify overuse and misuse by reviewing treatments for conditions and analyzing local and regional variation by specialty. For example, the IPA found that carpal tunnel syndrome was treated by some physicians as an inpatient procedure and other physicians as an outpatient procedure. The outcomes were the same but it cost a lot more to have an inpatient procedure, so the IPA decided that it should be treated as an outpatient procedure moving forward.

Evidence-based medicine is dependent on the use of randomized controlled trials and systematic review based on the collected information. Its emphasis is the dissemination of information, so that the evidence can influence clinical practice.

Evidence-based medicine is also based on guidelines of how healthcare should be delivered. The evidence is represented in information that reinforces healthcare guidelines and informs the healthcare practice delivered. For example, Bruce Bagley, MD Medical Director for Quality Improvement at the American Academy of Family Physicians, states that physicians must move from pedigree to performance and that medical board certification is necessary but is not sufficient criteria (August 2006, World Congress Conference). However, there is widespread recognition that although leading physicians and academics embrace the notion that quality metrics are important to improving quality care, the physicians in the trenches have not all come to the same conclusion.

B. Dale Magee, President Elect of the Massachusetts Medical Society, urges the development of a national measurement set so that physicians are not measured according to different sets of measures that each health plan develops (2006, World Congress Conference). In the interim, he recommends measurement information at the physician group level instead of individual physician level so that the data is statistically more accurate. A concern is that health plans sharing this information with members will result in patients deciding who good doctors are based on aggregated and averaged information, despite the fact that the patient is seen by an individual doctor.

Health Plans

Healthcare plan providers want to achieve effective and profitable management of healthcare with minimum cost. Healthcare premiums continue to increase in double digits, which employers and employees cannot continue to absorb. In response to this difficulty, health plans are trying to develop alternative models. For example, some plans are focusing on paying for quality care that in the long run will keep costs down. The healthcare plan therefore needs to determine what quality care is. The Institute of Medicine Report (Kohn, et. al.,1999) offers a working definition: "Quality care refers to the

care that is based on evidence-based guidelines and seeks to address overuse, misuse and underuse of services".

Health plans have designed incentive-mechanisms for improving the quality of care by physicians. The most common mechanisms are pay- for-performance programs, product design, and public reporting. Health plans have been experimenting with different ways to impact provider reimbursement in ways to promote quality care. The most common method is through the "pay-for-performance" program, which resembles a bonus system. If providers score well on quality metrics specified by the health plan, then they are eligible for an annual bonus, that may equate to 2%-15% of a providers overall reimbursement. These pay-for- performance plans apply mostly to primary care physicians and hospitals and in some cases, specialty care physicians.

Due to escalating healthcare costs, employers are looking for ways to pass on more of the cost to their employees. This has resulted in the term "consumer directed health plans". Now burdened with increasing financial responsibility, employees (the direct consumers of health care) are more involved in their health care decisions. Consequently, the consumers need more information and health plans need to provide this information to consumers, including who the highest quality physicians are and what the costs variance is across different physicians and hospitals.

Beginning in 2004, many of the larger health plans including United, Aetna, Cigna and some of the Blues began to release performance information about physician groups and hospitals to their consumers. For example, these national plans worked with vendors, which include Subimo and HealthShare Technologies (part of WebMD), to allow their members access to the software products that let consumers identify where they live and compare how hospitals stacked up on certain common procedures so that consumers could compare rates for mortality, complications, average length of stay, and in some cases one to three dollar signs to indicate how costly the hospital is.

Principles held by Health Plans are:

- Reduce costs
- Improve quality
- Get and retain profitable membership
- Keep healthcare providers satisfied enough that they remain in the Plan's network

5 QUALITY INFORMATION AS DEFINED BY HEALTH PLANS

Information on Efficiency

Efficiency can be measured as a per member per month cost, based on care a physician or hospital provides, or by bundled costs of treatment categories. High cost radiology and lab costs are also measured and closely monitored. Many plans work with a company called Symmetry to measure efficiency of providers through Episode Treatment Groups (ETGs) or aspects of a condition. As consumers share more of the financial burden, we may see a rise in their wanting to know who the most efficient providers are and a movement to those physicians. However, there is still a questionable perception that highest cost providers may be the best cost providers: if you pay more you get more.

Information on Process

Most physician measures are process measures that are examples of medical underuse. Most plans utilize the national measurement set defined by the National Committee for Quality Assurance (NCQA). Examples of primary care physician measures that health plans use as part of physician reimbursement and reporting include: cholesterol monitoring for patients with cardiovascular conditions, depression screening, cervical cancer, breast cancer and colon cancer screenings. There are also measures that reward providers for increased use of generic prescriptions as opposed to brand pharmaceuticals that are more expensive.

Quality Outcomes Measures

Ideally, health plans would want to measure, report, and pay based on quality outcomes alone: Which physician improved his/hers patients' health? However, there is no consensus as to how one would measure this practice. Each provider can claim his or her patients are sicker and therefore cannot

be compared to results with the rest of the population. Instead, the focus measures for physicians are the process, efficiency and technology measure. On the hospital side, there are some outcome measures that most health plans use to measure and reimburse hospitals based on their performance. The Agency for Healthcare Research & Quality (AHRQ) has a prominent role in establishing hospital measures that are based on administrative claims data that hospitals submit to the states they operate in. AHRQ measures include rates of hospital acquired pneumonia and obstetrical trauma during child delivery.

Technology adoption

Health plans logically recognize that the use of technology such as electronic prescription, computer physician order entry, and electronic medical records should lead to safer care, better outcomes and less medical errors. For this reason, health plans often offer bonus payments for technology adoption and will help to supplement payment for that technology based on the assumption that it will lower costs and improve quality outcomes.

Consumers

Principles held by consumers include:
- Stay healthy
- Affordable healthcare
- No hassles from insurer
- Choose doctors based on recommendations of family/friends
- Having trustworthy physicians
- Free from medical errors

Quality Information as Defined by consumers

Consumers are increasingly using the Internet to look up symptoms, conditions, and treatment options and often print this information and will use it as a basis for discussion with their physicians. They should also have information on how to compare and choose a physician or surgeon. They should be able to choose which physician is best for them based on quality outcomes. Consumers tend to care about the following criterion:

- Information on access to care: How close is the physician, hospital to where they live and how long they have to wait for an appointment

- Information on patient experience: How satisfied are past patients, and therefore what is the level of their satisfaction with this physician or hospital?

- Information on the value: This is especially important for members who have to pay a significant portion of their care out of pocket. They need to decide if it is worth going to a particular physician and getting a particular treatment.

- Information on similar experiences: Patients want to know how the provider treated patients similar to them, in terms of conditions and health status. Consumers also believe indicators of quality include the physicians training, age, gender and nationality. As mentioned above, there is very limited publicly available data on physicians but more on the hospitals.

- Information on lawsuits: Patients want to know if a physician has any past or current malpractice suits.

EMPLOYERS

Principles held by Employers

- Control costs
- Keep employees healthy and working (reduce absenteeism)
- Understand the medical needs by employees

Quality Information Defined by Employers

Large employers especially want to be able to track (within privacy restrictions) the conditions and diseases most prevalent amongst their workforce and devise how they should best be treated to keep these employees healthy and working, while keeping costs under control. Employers want to track absenteeism related to medical care to keep their employees as productive as possible.

In 1998, more than 170 large employers, such as GE and Ford began to come together on the issue of hospital-patient safety. Members of a coalition of employers, named, Leapfrog Group agreed to influence hospitals to institute programs and on health plans to reward providers that meet patient safety standards. To further its mission, Leapfrog has developed an incentive program which it licenses to health plans to kick off their pay-for-performance programs. On the physician side, Bridges to Excellence, a coalition of employers, payers and providers, license their physician incentive quality

program to health plans such as United, Cigna and Carefirst. Leapfrog and Bridges to Excellence have strong support in the employer community.

Government

Principles held by Government:

- Control health care costs and spending
- Support electronic medical records
- Improve quality
- Pay for better quality (new)

Quality information as defined by government

- Health outcomes – this includes volume of procedures, mortality, complications, satisfaction
- Technology adoption as it is assumed to lead to safer and more efficient care
- Cost efficiency

In 2004, the Center for Medicare Services (CMS) launched a voluntary reporting program for hospitals with a starter set of ten quality measures related to three medical conditions (heart attack, heart failure and pneumonia). The list of measures has since increased to 34 and includes measures for bypass surgery and hip and knee replacement. The program is still voluntary, but hospitals that do not report take a .4% reduction in CMS reimbursement. CMS is conducting a pilot financial bonus program, which rewards the top 20% of participating pilot hospitals with a 1% to 2% bonus. Premier is one of the pilot sites and reports 10% improved patient care since beginning the program.

Some states have begun to require mandatory reporting to consumers on physicians and hospitals. Minnesota has passed a law requiring that physicians and hospitals are not reimbursed for "never events", which are egregious medical errors, like wrong side surgery or surgery on the wrong patient for the wrong reason. For now, each state is defining these "never events" and policies vary across states and payers.

6. **Future Trends**

The healthcare marketplace is moving fast towards digitizing information. Software vendors provide enterprise versions of databases that can be used by physicians and nurses that are linked to patients' records.   Claims data is also moving towards including more comprehensive clinical information and being accessible in a timely manner. Currently there is up to a 1-2 year lag in the payment after the actual performance period occurrence. As more physicians and hospital implement electronic medical records, there needs to be open discussion as to what data needs to be captured and what security interface mechanisms should be established, so that relevant quality outcomes can be shared across the healthcare system without jeopardizing patient privacy and confidentiality. Electronic records improve the information collection time and information accessibility from its reusability. However, we also need to understand that poor quality information can spread even faster with the electronic records.

Currently, numerous systems are being developed and deployed. Many systems are not well integrated to share data. Particularly, integrating financial data and medical data is an issue to resolve. Increasingly the issues of privacy and confidentiality hav become an important aspect of quality information that critically deserves a resolution.

7 CONCLUSION

Improving information quality is an idea-in-good-currency in the healthcare marketplace. Many hospitals and health plan providers are engaged in ways to provide quality information. The demand for quality information from the consumers pushed the hospitals and health plan providers to spend more resources in restructuring their internal information quality managers and analysts to address the issue in a continuous and integrated way.

Quality of information in the healthcare marketplace is considered to be a critical determinant of the quality of medical service delivered. With the emphasis on evidence-based medicine, information is

the asset for various analyses geared at finding out efficient and effective ways of using resources for quality care. With elevated discussion on <mark>quality information</mark>, the different concerns by patients, employers, physicians and hospitals, and health plan providers will have a better chance to be addressed. It is time to act on establishing information quality strategy (Lee et al, 2006) to provide quality healthcare information.

Terms

Quality information: Information that is fit for use by information consumers.

Quality care: the care that is based on evidence-based guidelines and seeks to address overuse, misuse and underuse of services (Kohn et al., 1999).

8 REFERENCES

Aas, I. (2001) A Qualitative Study of the Organizational Consequences of Telemedicine, *Journal of Telemedicine and Telecare*, Vol. 7, No.1, pp.18-26.

Bashshur, R., Reardon, T., and Shannon, G. (2001) Telemedicine: a New Healthcare Delivery System, *Annual Review of Public Health*, Vol. 21, No. 1, pp. 613-637.

Berwick D. (1995) *Quality Management in Health Care*, 195; 4(1), 27-55.

Butterfield, K., (2004) An Inductive Model of Collaboration From the Stakeholder's Perspective, Business & Society, 42:2, 162-195.

Davidson, B., Lee, Y., and Wang, R. (2004) Developing Data Production Map: Meeting Patient Discharge Submission Requirement, *International Journal of Healthcare Technology and Management*, Vol.6, No.2, pp. 87-103.

Freeman, R. and Reed, D. (1983) Stockholders and Stakeholders: A New Perspective on Corporate Governance, *California Management Review*, Spring, 25, 3, 88-106.

Hu, P. Chau, P., Liu, O., Tam, K. (1999) Examining the Technology Acceptance Model Using Physician Acceptance of Telemedicine Technology, *Journal of Management Information Systems*, vol. 16, No. 2, pp. 91-112.

Gagnon, M., Lamothe, L., Fortin, J., Cloutier, A., Godin, g., Gagne, C. and Reinharz, D. (2005) Telehealth Adoption in Hospitals: an Organizational Perspective, *Journal of Health Organization and Management*, Vol. 19, No. 1, pp. 32-56.

http://www.herts.ac.uk/lis/subjects/health/ebm.thm (Visited on January 10, 2006).

Jayasuriya, R. (1998) Determinants of Microcomputer Technology Use: Implications for Education and Training of Health Staff, *International Journal of Medical Informatics*, Vol 50, pp. 187-194.

Katz-Haas and Lee, Y. (2005) Understanding Interdependencies between Information and Organizational Processes, *Advances in Management Information Systems*, Vol.1, pp. 167-180.

Kohn, K., Corrigan, J. and Donaldson, M. (1999) *To Err is Human: Building a Safer Health System*. National Academy Press, Washington, D.C.

Kohn,L., Corrigan, J., and Donaldson, M. (1999) The Institute of Medicine Report Committee on Quality of Health Care in America, Institute of Medicine.

Landro, L. (2004) Booster Shot: To Get Doctors to Do Better, Health Plans Try Cash Bonuses – "Pay for Performance" Rewards Preventative, Follw-Up Care; Physicians Resist checkup – 'No One Cook Book Solution'. *The Wall Street Journal*, September 17.

Lee, Y., Pipino, L., Funk, J., and Wang, R. (2006) *Journey to Data Quality*, MIT Press, Cambridge, MA.

Lee, Y. (2004) Crafting Rules: Context-Reflective Data Quality Problem Solving, *Journal of Management Information Systems*, Winter, vol.20, No.3, pp. 93-119.

Lee, Y. and Pipino, L. (2004) Unpublished Internal Interview Write-up.

Leatherman, S. and Berwick,D. (2003) *Health Affairs*, 03-2003

Lowenstein, R. (2005) The Quality Cure? *The New York Times*, March 13.

Leape L.and Berwick,D.(2005) Five Years after To Err is Human, *JAMA*, May 18, V293 No 19

Med-Vantage, Inc., (2005) Provider-Pay-for-Performance Incentive Programs, First Quarter.

Menon, M., Lee, B., and Eldenburg, L. (2000) Productivity of Information Systems in the Healthcare Industry, *Information Systems Research*, Vol 11, No. 1, pp. 83-92.

Powell, J. (2005) Hospital View: Time to Scrub, *Boston Herald*, December 23, 27.

Raitoharju, R., and Laine, M., (2006) Exploring the Differences in Information Technology Acceptance between Healthcare Professionals, *Proceeding of the Americas Conference on Information Systems* (AMCIS), Acapulco, Mexico, August 4-6.

Rosenthal, M. (2004) Paying for Quality: Provider Incentives for Quality Improvement. *Health Affairs*, March /April, Vol. 23 No. 2, 212-232.

Skidmore, S. (2005) A growing practice-Programs that compensate doctors based on performance are becoming more common, *Signon*, www.SignOnSandiego.com (Visited on December 20, 2005).

Strong, D., Lee, Y., Wang, R. (1997) Data Quality in Context, *Communications of the ACM*, May, Vol.40, No.5, pp. 103-110.

Traynor, K. (2005) Study Finds Modest Benefit in Pay for Performance, *American Society of Health-System Pharmacists*. http://www.ashp.org/news/ShowArticle.cfm (Visited on December 15, 2005).

Wang, R., Lee, Y., Pipino, L., and Strong, D. (1998) Manage Your Information as a Product, *Sloan Management Review*, Vol.39, No.4, pp.95-105.

Wang, R. and Strong. D. (1996) Beyond Accuracy: What Data Quality Means to Data Consumers, *Journal of Management Information Systems*, Spring 1996, Vol. 12, No 4, pp.5-33.

Wennberg, J. (2006) The Care of Patients with Severe Chronic Illness: An Online Report on the Medicare Program, *Dartmouth Atlas Project Report*, May 16.