Quality of Patient Care in American Hospitals

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Submitted By:

Gregory B. Onorato

Submitted To:

Project Adviser: Joseph Zhu, WPI Professor

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ABSTRACT:

This project was conducted to study the various performance measures used to evaluate quality of care in United States hospitals. Different aspects of quality were studied, and statistical evidence was used to determine the level of quality in hospitals, as well as the best methods used to measure the level of quality.

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1 INTRODUCTION

1.1 What is Quality of Care?

For many years, the only way to judge the quality of a given hospital in the United States was by talking to patients who had been treated at that hospital. This system may or may not have been the best, but patients had no means to change the system, and moreover, people did not seem to have better solutions to quality of care. Many people chose which hospital they would visit based not on quality, but on which facility was closest to their home. In other cases, insurance companies would mandate that patients visit one and only one hospital, or only offer a small selection of hospitals they would "cover." In still more cases, doctors would recommend hospitals, and it seems fair to say that for a long time patients did not question what their doctors were telling them.[1] These factors appeared to contribute to the lack of a standard in judging the quality of hospital care.

What, specifically, is quality of care? According to the American Academy of Family Physicians, Quality of Care is defined in the following manner:

> Quality medical care may be defined as that care which may reasonably be expected to lead to an optimal outcome, and must include care which educates patients about their personal responsibility for their health, prevents illnesses when possible, and utilizes appropriate modalities to diagnose and treat disease. Quality medical care is dependent on the interaction between those who provide care and those who receive care.[2]

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[1] http://www.productslaw.com/medmal2.html

[2] http://www.aafp.org/x6909.xml

To summarize the definition in more comprehensible language, quality of care is simply the medical care a given patient should reasonably be able to expect to receive when visiting a medical institution. This includes having an outcome that is as good as the hospital could provide, educating patients to better their own health, preventing further illnesses, and having accurate and appropriate diagnosis and treatment. The goal is to have a medical system that strives for and ultimately achieves these goals.

1.2 Importance to Society

In 1999, a study was published by the W.K. Kellogg Foundation of Battle Creek, Michigan on the death rates of hospitals in the United States. This study claimed that between 44,000 and 98,000 patients in American hospitals die each year due to medical mistakes. According to the statistics, even the lower bound of this study of 44,000 deaths per year is more annual fatalities than caused by Breast Cancer, AIDS, or traffic accidents.[3] However, the study said that these mistakes were not necessarily due to incompetence, but could be something as simple as incoherent penmanship of doctors or difficulty of doctors maintaining a level of expertise with new technologies. Errors or problems appear to be built in to the medical system, and the researchers at the Kellogg Foundation agreed that although blame falls on individual doctors many times, it is the system that needs to be fixed, not the people in the system.[4]

Measuring the quality of hospitals is no easy task, however. Different hospitals will practice differently, and some organizations will be more proficient with certain

[3] http://www.productslaw.com/medmal2.html
[4] http://www.productslaw.com/medmal2.html.

procedures while others will excel in different areas. For many years, a system of measurement has been in place, but many people feel that this system is inaccurate. The US News and World Report is the group whose methods have been most accepted for the past decade. There are several problems with the methods of evaluation used, however. First, it is impossible to include every medical organization. Because of this only one hospital from any given area (such as a large city) would be included in the study. This could potentially give that area an unfair reputation, since only one hospital would virtually dictate the reputation of that area. Second and probably most important is that different evaluators do their evaluations differently. There has been no set of standards defined to measure quality of care until recently, so each research group has different ideas of what should be measured. For example, the US News studies primarily include only large medical universities, which exclude the majority of hospitals in the United States. Also, this specific study surveys a set number of medical professionals and asks them for their personal opinion on the quality of certain hospitals.[5] To accurately depict an organizations quality, facts should be placed well above opinions. It is evident that without a standard, fair system of evaluation, much of the debate over quality of hospitals will be nothing more than hearsay and biased opinion. Once a set of standard is in place, it not only will correctly inform the public about which institutions are respectable and which are not, but it will also encourage these very organizations to higher their standards of care to better accommodate the patients they treat.

A large issue that has become part of the quality debate is that of consumerism in hospitals. The consumerism is defined as "The movement seeking to protect and inform

[5] http://www.charlotte.com/mld/charlotte/business/columnists/mike_stobbe/5291324.htm.

consumers by requiring such practices as honest packaging and advertising, product guarantees, and improved safety standards."[6] The issue of quality of care inherently deals with the issue of consumerism, simply because the quality movement was designed to better protect the patient (consumer.) The main idea behind consumerism is to increase the knowledge that the consumers have. If the consumers, or in this case patients, have a greater knowledge of the workings of the hospitals, it will force the level of quality to be raised since informed consumers will not keep visiting hospitals with poor performance records. However, one of the main problems is that the cost of healthcare rises due to the increases knowledge given to the consumers.[7] In some cases, independent or fee-standing medical organizations can actually be cheaper than visiting a major hospital since the effects of consumerism actually raise the cost of healthcare. Hospital owned organizations tend to have higher maintenance costs than independent organizations, however, independent organizations do not necessarily follow the quality of care measures and therefore patients, although they may be paying less money for treatment, will also be less informed than if they went to a hospital owned organization.[8] The issue of consumerism is a complicated one, and only time will tell if it is more beneficial to hospital patients than harmful.

[6] http://dictionary.reference.com/search?q=consumerism
[7] http://www.priority-health.com/providers/newsletters/insights/current/03.htm
[8] http://www.mnplan.state.mn.us/issues/scan.htm?Id=3638

1.3 Purpose of this Paper

Currently, healthcare is approximately 16% of the Gross Domestic Product of the United States.[9] It is clear that healthcare is not only important, but also a necessity. Quality of care in hospitals is the determining factor in the treatment of patients, and measuring quality is the only way to ensure that Americans are receiving the best treatment possible. The goal of this paper is to examine both the measures that currently exist as well as those that are being put in place to evaluate the performance of hospitals. This will also depict the current state of many hospitals with regards to quality of care.

[9] http://www.knowledgeu.com/presentations/Commonwealth/sld065.htm

2 METHODS OF QUALITY OF CARE

2.1 Overview of Quality Measures

There are numerous organizations in the United States that are working to improve hospital care throughout the country. Many organizations have different ideas as to the most appropriate way to go about evaluating the quality of care in those hospitals. However, there are several main organizations in the United States who are the frontrunners in this field. These groups have led the way in developing core quality measure sets for medical organizations to follow in evaluating themselves. Some of these organizations are the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), the Centers for Medicare and Medicaid Services (CMS), and HealthScope. These organizations are three of the key players in the development of quality standards for Unites States hospitals. Each organization has a set of core measures that they promote, and JCAHO and CMS each have an accreditation program whereby hospitals can become quality certified by partaking in the organization's program. For an extensive list of core measures used by some of these organizations, please refer to Appendix B.

JCAHO is perhaps the largest organization in hospital quality. They have developed a specific set of measures which hospitals can use to become JCAHO certified. The categories of measures are Acute Myocardial Infarction (AMI or simply heart attacks), Heart Failure, Community Acquired Pneumonia (CAP), and Pregnancy and Related Conditions (PR). These four categories each have a group of measures. These measures are an evaluation of the performance of the hospital in each category. For example, when a patient is treated for a heart attack, there are nine items considered in

the rating of the hospital. Whether the patient was given aspirin at arrival and prescribed it at discharge are measured. Aspirin has been found to reduce the chances of having another heart attack when taken, which is the reason it has two core measures devoted to it. Other measures include the use of Beta Blockers by the hospital, as well as the inpatient mortality rate for heart attack victims. For Heart Failure patients, some of the core measures include patient discharge instructions, and counseling on smoking. It is believed that many instances of repeated heart failure are due to the patient's lack of compliance with the doctor's orders. JCAHO believes patients need to have their condition made perfectly clear to them, to increase the chance of making a full recovery. Smoking is also believed to be a factor in many conditions, and it is estimated that at least one third of HF patients who smoke begin smoking again within six months of their hospital visit. JCAHO believes that patients need to be properly educated and given advice counseling to prevent them from continuing to smoke after having heart conditions or problems. In fact, smoking advice and counseling is also one of the measures of the next category, Community Acquired Pneumonia. This category also includes measures such as vaccination of patients and timing of antibiotic use. The final JCAHO category concerns pregnancy. Measures such as the amount of woman who give vaginal birth after having cesarean sections and infant mortality rates are used.[10]

CMS also has a list of core measures that they use to certify hospitals. Many of their measures are the same as the ones used by JCAHO. CMS has ten measures over a series of three categories of quality: AMI (heart attack,) heart failure, and Pneumonia. The ten measures are as follows: for heart attack- aspirin prescribed at arrival, aspirin prescribed at discharge, beta-blocker prescribed at arrival, beta-blocker prescribed at

[10] http://www.jcaho.org/pms/core+measures/pr_overview.htm

discharge, and ACE Inhibitor prescribed for left ventricular systolic dysfunction. For heart failure: left ventricular function assessment performed, and ACE inhibitor prescribed for left ventricular systolic dysfunction. For Pneumonia: timing of initial antibiotic administration, administration of Pneumococcal vaccine, and oxygenation assessment. These measures evaluate the treatments applied to patients who visit a hospital for one of the three stated medical events.[11]

The last of the three mentioned organizations is Healthscope. Healthscope is a Californian organization who has worked closely with organizations such as Leapfrog (see page 12) in order to develop working standards for quality of care. They have a set of eight core measures that they feel should be used in evaluating hospital performance. These measures include mortality rates for Coronary Bypass Surgery patients, repair rates for abdominal aneurysms, surgery rates for esophageal cancer patients, and pediatric heart surgery. These measures are common yet critical procedures performed in many hospitals.[12]

The aforementioned measures are some of the primary measures used throughout the United States to evaluate hospital performance and measure quality of care. These measures can be applied in many different ways, such as creating what is known as a "balanced scorecard" or giving hospitals report cards based on their performance. The next several chapters will discuss the application of these quality measures, as well as expand on some of them in greater detail.

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[11] http://questions.cms.hhs.gov/

[12] http://www.healthscope.org/Interface/hospitals/what_quality_means.asp

2.2 The Balanced Scorecard

"To connect practices, outcomes, quality, value, and costs, healthcare organizations must start using a balanced scorecard."[13] Since the publication of the Kellogg Group's study, many theories and ideas have developed to try and measure hospital performance. One of the most common methods is named the Balanced Scorecard method. This is a method of evaluation by which a set of "financial and non-financial measures relating to critical success factors"[14] is used to rate hospitals. These factors are part of many of the daily operations of hospitals, and therefore encompass much of what hospitals do. The point of the scorecard is to determine the correlation between the hospital, the patients, and the employees. Then, a plan for improvement can be developed.[15]

Figure 2 on the next page shows a diagram for the implementation of a balanced scorecard. It describes what a scorecard should contain, as well as how it influences the process of hospital improvement.

[13] http://www.nahq.org/journal/ce/063/063.htm
[14] http://rhpi.org/BalancedScoreCard.pdf.
[15] http://www.nahq.org/journal/ce/063/063.htm

Figure 1. The Role of the Balanced Scorecard in an Action Plan

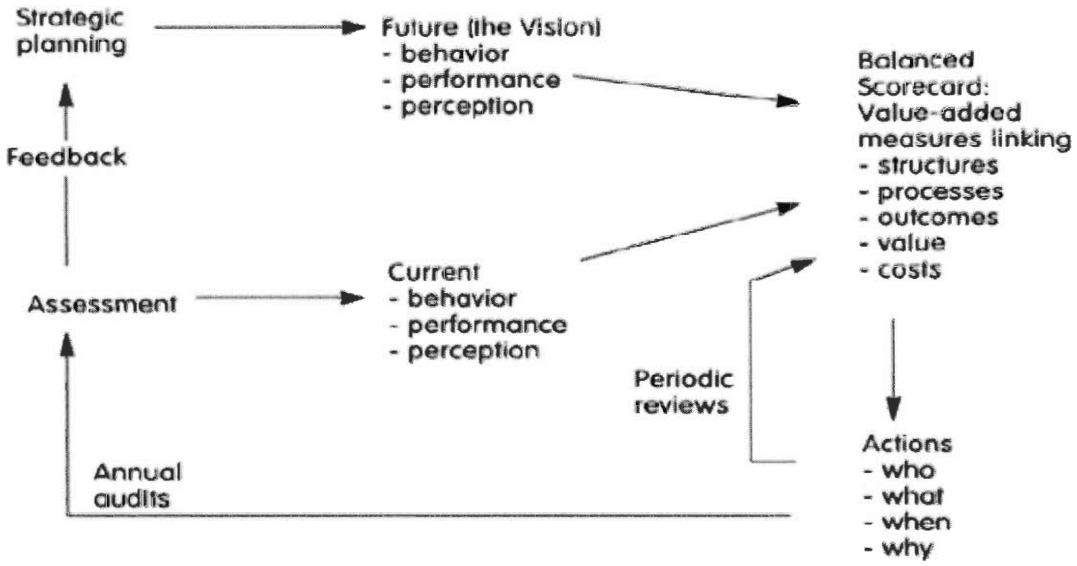

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Figure 1: See footnote for diagram reference[16]

The idea of a balanced scorecard is not new to hospitals. The term "balanced scorecard" was originally used circa 1992 by two Harvard Businessmen who were trying to develop a way to evaluate corporations.[17] Over time, their methods were applied in many different areas outside Corporate America (though some will relate hospitals to corporations.) The scorecard had been fairly successful in past applications, so it seemed logical to adapt the method to fit the evaluation of hospitals. However, as with almost anything, there are problems that should be noted.

The biggest problem with the balanced scorecard is that creating the set of performance measures can be extremely time consuming and tedious. Every aspect of an

[16] http://www.nahq.org/journal/ce/063/063-f02.htm
[17] http://www.computerworld.com/managementtopics/ebusiness/story/0,10801,40849,00.html

organization that needs to be evaluated needs to have its own set of measures. This can lead to hours and hours of work in just creating the guidelines, let alone actually performing the evaluation.

Another problem is that the balanced scorecard is still a very subjective process. Although there are organizations who are trying to create a standardized method of hospital evaluation, many places choose to use their own methods.[18] This means that different criteria could potentially be used from one state to the next, thereby lessening the overall importance of the method itself. Only within the last few years have companies really started to standardize this process. One of the major players in the push for quality of care is the Leapfrog Group. This group was introduced early in the year 2000, and is a coalition of many hundreds of organizations with the intent of developing a system to improve patient care.[19]

One major factor in the balanced scorecard approach is the willingness of the employees to participate in the process.[20] In order for any organization to make a change, the corporation of the organization as a whole is required. It can be difficult to get a very large group of people to partake in company-wide change.[21]

With any balanced scorecard, there are four major areas that need to be addressed. They are business value, employee value, patient value, and learning and growth measures.[22] Although there are many different styles of balanced scorecards, most address these four issues to some degree. The American Hospital Association has developed a list of guidelines that they believe should be followed when evaluating a

[18] http://isds.bus.lsu.edu/cvoc/learn/bpr/cprojects/spring1998/bsm/page4.html
[19] http://www.brtable.org/press.cfm/375
[20] http://www.nahq.org/journal/ce/063/063.htm
[21] Dennis 443
[22] http://www.nahq.org/journal/ce/063/063.htm

hospital. These guidelines follow closely with the four issues previously mentioned. To summarize the list, the AHA believes that is important for any set of quality measures to be valid, reliable, precise, meaningful, and concerned with the needs of the patient.[23] Although there are different scorecards of hospital evaluation in existence, most every one follows the basic guidelines aforementioned. These Balanced Scorecard measures will now be addressed and explained.

Duke University's medical campus has adopted a balanced scorecard approach to evaluate their performance. Their method will be outlined, as it is a very good representation of the balanced scorecard approach.

The scorecard is broken down into 4 major categories: Clinical Quality, Customer, Internal Growth and Learning, and Financial. Each of these categories has a given number of items in it. Then, a series of ratings and figures is recorded. First, the target for the current fiscal year for the item is listed. Next, there are two categories: current month, and year to date. Each of these categories has the following sub-items: Actual, Target, and Variance. Basically, the current value for each item is recorded, then the target value, and then the variance (which is the percent error of the calculation.) These values are given for the current month of evaluation, and for the fiscal-year-to-date. These numbers can then be compared to the Annual Target Value, which is the hospitals goal for each item for the current fiscal year.[24] An example of a Duke University Balanced Scorecard can be found in Appendix A.

The first category, which is clinical quality, has several items in it. Patient flow is measured, which is the rate of how long each patient stays in the hospital. Next, the rate

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[23] http://www.hospitalconnect.com/aha/key_issues/patient_safety/background/PrinciplesQualityMeasurement.html

[24] www.fuqua.duke.edu/programs/hsm/seminars/ jones_present_020503_bsc2.ppt

of MRSA (Methicillin Resistant *Staphylococcus aureus)* is measured. This is the medical name for a staph infection. Not only are these bacteria resistant to antibiotics[25], but staph infections are a fairly common occurrence in hospitals, so the occurrence of this ailment in patients is measured. Next, the occurrence of Nosocomial Pressure Ulcers is recorded. These ulcers are many times caused by skin deterioration, and have been found to be very common in medical centers.[26] The next three items all related to ADE's, or Adverse Drug Events. These are when patients have some sort of negative reaction to a type of drug.[27] The three drug categories are Heparin, Insulin, and Opiates. The ADE rates are recorded. The next recorded measure is the hospitals adherence to the standard drip concentration. This is how accurately the hospital mixes and dilutes drugs (i.e. if a patient called for twenty milliliters of a certain drug, how often was the incorrect dosage given to the patient.)[28] Duke also measures the occurrence of patients needed to revisit the operating room within two weeks of the initial surgery. Lastly in the category of Clinical Quality is plum pump revalidation. A "Plum Pump" is the device that controls the amount of liquid that flows through an intravenous.[29] This category ensures that pumps are in good working condition before reuse.

The next category on the scorecard is the customer. This category is basically a patient satisfaction survey that a number of patients are asked to fill out regarding their experience while at the hospital. The survey looks at items such as inpatient satisfaction,

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[25] http://www.cdc.gov/ncidod/hip/ARESIST/mrsafaq.htm
[26] http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12490754&dopt=Abstract
[27] http://www.ahcpr.gov/clinic/ptsafety/pdf/chap8.pdf
[28] http://eduserv.hscer.washington.edu/pharmacy/pharm309/calculations/lesson3.html
[29] http://www.phoenixchildrenshospital.com/illnesses/glossary.html

positive to negative comment ration, and patient's willingness to recommend the hospital.[30]

The third category on the scorecard concerns the employees of the hospital. The annual overall turnover rate and the annual nurse turnover rate are recorded. Employee satisfaction is also measured and recorded. The vacancy rate is a factor too- that is, the frequency of a position being unfilled due to the loss of an employee. The amount of time taken to hire employees, as well as the outcomes of the mandatory training required by Duke University is taken into account.[31]

The fourth and final category on the Duke University Scorecard regards the financial information of the institution. Items such as Percent Operating Margin, Operating Income, Average Length of Stay, and Salaries and Benefits as a percent of net revenue are measured.[32] These items give indications of where money is being used in the organization, as well as use of money compared to number of patients and amount of time patients spend in the hospital. These are all good indicators of the economics of the University.

The Balanced Scorecard approach takes into account many factors. The categories are Clinical Quality, Customer, Internal Growth and Learning, and Financial. These are in accordance with the suggested general guidelines given for hospital scorecards. The measures take a statistical look at the medical happenings in the hospital, as well as feedback from the patients and employees themselves. The finances of the hospital are also examined. The combination of these four measures creates a complete

[30] www.fuqua.duke.edu/programs/hsm/seminars/ jones_present_020503_bsc2.ppt
[31] www.fuqua.duke.edu/programs/hsm/seminars/ jones_present_020503_bsc2.ppt
[32] www.fuqua.duke.edu/programs/hsm/seminars/ jones_present_020503_bsc2.ppt

and accurate picture of the quality of care in hospitals such as Duke University's Medical Campus.

2.3 Non-scorecard Grading Method

"Hospital report cards that identify which hospitals have better- and worse-than-expected outcomes for particular medical conditions can help hospitals improve quality of care for these conditions."[33] Another method for evaluating the performance of hospitals is using a style similar to the balanced scorecard. This method involves rating hospitals in a series of categories; however it is far more subjective than the balanced scorecard. There are many different measures used, and different organizations will proceed in different manners. In fact, it is estimated that over one-hundred measures currently exist that various organizations will use to give hospitals "grades."[34] An example of a hospital report card can be found at the end of Appendix A.

One of the leaders in the field of developing quality measures is the Agency for Health Care Policy and Research (AHCPR.) This agency has done a lot of work in the field of quality of care. Their goal is to develop and test measures that will be ready for hospitals and organizations to use when they have completed their work. Their latest endeavor was to create "eight cooperative agreements to develop and test additional clinical performance measures for specific conditions, patient populations, and health care settings."[35] The eight measures will be briefly discussed.

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[33] http://www.ahcpr.gov/research/jun98/ra2.htm
[34] http://www.hospitalconnect.com/aha/advocacygrassroots/advocacy/testimony/2003/030603consumer.html
[35] http://www.ahcpr.gov/qual/qspanovr.htm#Developing%20and%20Testing

The first is Clinical Performance Measures for Dental Care Plans. This measure is beyond the scope of this paper. Another measure that is also not within the scope of this paper is the evaluation of quality outcomes for patient in nursing homes and in home-care programs. These measures will not be discussed.

The next measure is Asthma Quality Care Measures. The first element of this measure is to develop and apply a series of treatments for acute asthma patients. The next step is to examine administrative records that will evaluate the medical facility and the staff that treated the patient. The final step of the procedure is to have the patient fill out a series of short surveys about the quality of care and to do some final tests on the patients in regards to the outcome of the asthma. The results of these tests will be used to develop a set a standards for quality of care for acute asthma patients.

The next measure is to develop a global quality assessment tool for managed care. This means finding a method to evaluate quality of care in managed health care plans. There are a series of twenty-seven items, such as anxiety, colorectal cancer, prostate cancer and menopause. Data collection is done, and then from the analysis of the data the quality assessment tool is developed.

Another measure is for patients with cardiovascular (heart) disease. The goal is to expand the existing set of quality measures. Existing guidelines and clinical data will be evaluated by four groups of people: physicians, consumers, health-plan administrators, and purchasers. These people will be taken from a wide variety of organizations ranging from Medicare to state organizations. The four main considerations are congestive heart failure, acute myocardial infarction, and hypertension. Based on the results and the data of these tests, the current quality measures will be adapted and added to.

The next measure is evaluating the results of patients who have had a hip fracture. The study collects information on the patients, who need hip fracture treatment, and then monitors them throughout the course of their hospital recovery. The process of treatment is then evaluated to see how effective it was in relation to the observed outcome. The next phase is to develop a system to collect the outcomes of hip-fracture patients from many hospitals and see if the outcomes could have been improved.[36]

Benchmarking is another technique used to measure quality. Benchmarking involves finding the top performer in a group and then using the results to let others strive for. Many hospitals use something called ABC, or "achievable benchmarks of care." The measure tests the effectiveness of the use of ABC's, and see what the correlation is between benchmark results and improvement of processes and results in hospitals.

HEDIS is the Health Plan Employer Data and Information Set. This is a widely used standard in evaluating performance of health plans. Currently, this does not include many important features of healthcare, so the set will be expanded in order to better the measurements of quality. Many aspects will be included, such as screening for Chlamydia; continuity of treatment for depression; follow-up after abnormal mammogram or Pap smear; and appropriate medication for asthma.[37]

These eight measures of the AHCPR are designed to encompass as much of the quality of care issue as possible. One the measures have been fully tested and deemed ready for use, they will be released to quality of care agencies and hospitals where they will be put into use, in hopes of improving quality of care. However, these are not the only grading measures used.

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[36] http://www.ahcpr.gov/qual/qspanovr.htm#Development%20of%20a%20Global
[37] http://www.ahcpr.gov/qual/qspanovr.htm#Development%20of%20a%20Global

One organization in Texas, named the Texas Healthcare Information Council, has an extremely detailed but exclusively medical method for evaluating quality of care. There are three main categories of measurement: volume, mortality, and utilization. It is believed by some that doctors who perform more of one procedure will have better results with that procedure over time. The amount of times a procedure is performed per year in a hospital is recorded. This is the volume. These procedures range from Esophageal Resection to Coronary Artery Bypass Graft to Carotid Endarterectomy.

The next measurement is mortality rate. There are two subgroups of mortality measurement: procedures and conditions. That is, some patients come into a hospital in need of surgery; while others come in due to some ailment they have, but do not necessarily require surgery. The death rates of patients in both categories are recorded for a series of medical treatments and conditions, ranging from pediatric heart surgery to hip replacement to congestive heart failure to acute pneumonia.

The final method of evaluation is utilization. Utilization considered whether a given procedure is overused or underused. Some critics believe that on some occasions certain procedures are performed unnecessarily or sometimes not performed when the procedure was actually the correct choice. Examples of the measured procedures are Cesarean section delivery rate, incidental appendectomy in elderly people, and bilateral cardiac catheterization. Data is collected in these four categories, and from the numbers evaluation can be performed to yield insight into the quality of care in the selected hospitals.[38]

There are many different hospital grading systems that are different from the balanced scorecard approach. There is great subjectivity however, since different

[38] http://www.thcic.state.tx.us/IQIReport2001/IQIReport2001.htm

organizations will evaluate differently. However, it is clear that improving quality of care is an important issue to many hospitals, and methods such as these indicate positive change in the hospitals of America.

2.4 Patient Surveys

It has been mentioned previously that some institutions choose to give patients surveys to fill out. The results of these surveys are used to gain insight into the patient's experience at the hospital. Because this is still a common occurrence in hospitals, it will be discussed.

A good example of the patient survey is the PEP-C survey. This is the Patient's Evaluation of Performance in California. This survey measures the satisfaction of patients in California hospitals by having them fill out surveys. Seven categories are taken into account with the PEP-C: Respect for patient preferences, coordination of care, information and education, physical comfort, emotional support, involvement of family and friends, and transition to home. The hospitals score for each of these categories is the percent of patients who did not report any problems in that category. An overall score is also calculated across all the categories to rate each hospital as a whole. [39]

There are several factors that have been found to influence a patient's response to certain survey questions. Self-reported health status, gender, education, and age can all have an effect on the outcomes of patient surveys. To account for this, the scores are

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39 http://www.healthscope.org/Interface/hospitals/hospital_rating_methods.asp#Source_of_Quality_Measure

mathematically adjusted so that it is as if each hospital has an equal and average mix of patients.

The last step of the survey is to convert the scores into something easy for people to understand. A "star" system is used, whereby a hospital can receive a one, two, or three star rating. Three stars is above the average PEP-C score, two stars in average, and one star means a below average rating.

Patient surveys are a good way to get feedback from the patients as to their experiences in the hospital. However, voluntary surveys can in some instances be difficult to generate responses to. Another issue is the type of patients being surveyed. Some groups of people are excluded from surveys due to potential bias that could arise. For example, people with drug, alcohol, or psychological problems are not included in the survey, since people with these problems in many cases do not have accurate judgment skills. Also, patients who died or had babies die in the hospital did not have their responses counted either. [40]

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http://www.healthscope.org/Interface/hospitals/hospital_rating_methods.asp#Source_of_Quality_Measure

2.5 Computer Software

Another smaller aspect of quality of care is computer software. Some companies have developed programs and databases to help assist is measuring and improving quality. The McLean BASIS-32 Plus system is a set of certified quality measures combined with database software that can be used to evaluate different categories such as symptom/problem difficulty, quality of health services received, rates of hospital readmission, rates of medication errors, and patient/doctor interaction.[41]

CSS, or Clinical Classifications Software, is a utility that can classify clinical procedures into meaningful categories, which greatly simplifies statistical analysis of the data. The ARHQ Quality Indicators is s software package that assists organizations in discovering possible quality of care problems. This is an inexpensive package for companies who cannot afford to develop their own packages. HCUPNet is a package for doing statistical analysis and tracking of hospital care data.

Computers have an ever-increasing role in society, and hospitals are no different. Computer packages can assist organizations in analyzing data, detecting quality of care problems, and evaluate hospital performance.[42]

[41] http://www.basis-32.org/plus/index.html
[42] http://www.ahrq.gov/data/hcup/hcup-pkt.htm

2.6 Government Regulations

The United States Government has some basic regulations in place that encompass quality of care. The synopsis of those regulations is that certain aspects of each hospital must be evaluated, certain procedures must be documented, and that there must be an "effective, hospital-wide quality assurance program to evaluate the provision of patient care."[43] Basically, the regulations simply state that hospitals have to have some sort of quality control in place, but the nature of that control is up to each hospital. However, there has recently been a push to have the federal government become more involved in the regulation of quality of care. Some of the suggestions have been to make hospital performance and quality data more publicly available, and to financially reward doctors and organizations who perform well. It is also believed by some that the government should work with some existing quality organizations to develop a federal set and core quality measures for evaluating hospital performance.[44]

Despite the federal involvement in quality measurement, most of the decisions regarding quality have been left up to the state legislatures. Each state can make its own decisions regarding quality practices in hospitals. Some states have passed sets of laws referred to as "hospital report card acts." These acts make hospital staffing and patient outcome data more publicly available, and also mandate that certain data be turned over to the state's Department of Public Health, who will in turn reveal the data to the public.[45]

Quality of care is a fairly new initiative, and therefore has very few government regulations. Only recently have the state and federal governments started involving

[43] http://frwebgate.access.gpo.gov/cgi-bin/get-cfr.cgi?TITLE=42&PART=482&SECTION=21&TYPE=TEXT
[44] http://www.premierinc.com/frames/index.jsp?pagelocation=/all/advocacy/issues/107th/2002/patients-safety/iom-1002.htm
[45] http://www.ihatoday.org/public/patsafety/repcardact.htm

themselves in the performance and quality of hospitals. As time passes, it can be safely assumed that more laws, regulations, and measures will be developed to help better protect hospital patients.

3 CONCLUSION

Patient safety is one of the most fundamental aspects of medical care. People should be able to feel confident when they enter a medical facility in the United States, no matter what city it is in. Unfortunately, this simply is not the case in many instances. Studies have shown that disorganization and incompetence has lead to medical mistakes being made, and lives being unnecessarily lost. The quality initiative was started to hold hospitals accountable for their actions and to inform the public about hospital performance so that they could make informed decisions about where to go for medical care.

It is clear that work needs to be done to improve quality in hospitals, because some of the statistics show high mortality rates and high failure rates for given procedures. Organizations such as JCAHO, CMS, and Leapfrog have gone to great lengths to develop sets of core measures that can be used to evaluate hospital performance. Using these measures, hospitals can become accredited with the organizations, thereby increasing their legitimacy in the public eye as a medical facility. These measures can be applied in many ways such as balanced scorecards, report cards, and patient surveys. These measures are a good start, but the real problem is not what exactly is wrong in hospitals, but why it is wrong. With so many doctors working upwards of thirty hours without rest, and many nurses grossly underpaid, it is evident that

measuring performance is only as good as the state that the workers are in. Hopefully, the quality initiative will give some insight into the root of the problems.

The government has started to create laws based on some of these quality initiatives to help protect people, but as of yet laws are not very detailed or widespread. The federal and state legislatures will continue to be involved in the quality initiative to help to increase patient safety. The government can play a distinct role in forcing hospitals to abide by certain quality measures. However, the government should listen to the organizations who have dedicated many years to researching the issue of quality when trying to make laws in this area. The issue of quality of care in hospitals is a large one, and organizations will continue to improve upon the work that has already been done to ensure safety and quality in hospitals throughout the Unites States of America.

APPENDICES

4.1 Appendix A

FY03 Duke University Hospital Balanced Scorecard

	Indicators	FY03 Annual Target	Current Month			FY 2003 - Year to Date			Source
			Actual	Budget/ Target	Variance	Actual	Budget/ Target	Variance	
Clinical Quality / Internal Business									
1	Patient Flow (Discharge by 11 a.m.)	>25%							Perf. Serv.
2	MRSA Rate (per 1000 inpatient days)	<.60							Inf Ctrl
3	Nosocomial Pressure Ulcer Rate	<6.5%							Pt Safety
4	ADE Rate S.I. > 2 - Heparin	< 16.8%							Pharmacy
5	ADE Rate S.I. > 2 - Insulin	<24.5%							Pharmacy
6	ADE Rate S.I. > 2 - Opiates	<14.9%							Pharmacy
7	Adherence to Std Drip Concentration	99%							Pharmacy
8	Unplanned return to OR < 14 days	Removed							OR
9	Effectiveness of RCA recommendations - Plum pump revalidation	100%							Pt Safety
Customer									
	Patient Satisfaction (Score / Percentile)								
10	- Inpatient	>82.5/60							Perf. Serv.
11	- ED	>75.2/24							Perf. Serv.
12	- Likelihood of recommending - Inpatient	>89.6/84							Perf. Serv.
13	Inpatient Positive/Negative Comment Ratio	>1.50							Perf. Serv.
Internal Growth & Learning									
14	Overall Turnover Rate (annualized)	<14%							Perf. Serv.
15	Nurse Turnover Rate (annualized)	<14%							Perf. Serv.
16	Employee Satisfaction	27-Aug							HR
17	Vacancy Rate	<5%							HR
18	Days to Hire	<90							HR
19	Mandatory Training - HEICS	100%							Admin
20	Mandatory Training - HIPAA	100%							Admin
Financial									
21	% Operating Margin	>5.05							Finance
22	Operating Income	>$43,385,000							Finance
23	ALOS	<6.1							Finance
24	FTE/Adjusted Occupied Bed	<5..32							Finance
25	FTE/Adjusted Occupied Bed (excluding lab)	Removed							Finance
26	Supply $ / Adjusted Discharge	<$2,433							Finance
27	Cost/Adjusted Discharge	<$14,234							Finance
28	Salaries & Benefits as a % of Net Rev	<39.4%							Finance

**Scorecard taken from www.fuqua.duke.edu/programs/hsm/seminars/ jones_present_020503_bsc2.ppt.

JCAHO Approved Quality Report Card

-taken from moutainstarhealth.com[46]

- **Acute Myocardial Infarction - Heart Attack:**

  Mortality Rate
  MountainStar Healthcare Hospitals 7.6%
  Non-MountainStar Healthcare Hospitals 9.7%
  National 11.0%

  Complication Rate
  MountainStar Healthcare Hospitals 4.3%
  Non-MountainStar Healthcare Hospitals 3.0%
  National 2.2%

- **CABG - Open Heart Surgery:**

  Mortality Rate
  MountainStar Healthcare Hospitals 2.1%
  Non-MountainStar Healthcare Hospitals 3.0%
  National 2.3%

  Complication Rate
  MountainStar Healthcare Hospitals 14.1%
  Non-MountainStar Healthcare Hospitals 41.6%
  National 31.0%

- **Heart Valve Replacement:**

  Mortality Rate
  MountainStar Healthcare Hospitals 1.9%
  Non-MountainStar Healthcare Hospitals 5.9%
  National 5.6%

  Complication Rate
  MountainStar Healthcare Hospitals 13.0%
  Non-MountainStar Healthcare Hospitals 45.1%
  National 38.8%

- **CVA - Stroke:**

  Mortality Rate
  MountainStar Healthcare Hospitals 10.3%
  Non-MountainStar Healthcare Hospitals 11.1%
  National 10.9%

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[46] http://www.mountainstarhealth.com/CustomPage.asp?PageName=Quality%20Report%20Card

Complication Rate
MountainStar Healthcare Hospitals 0.8%
Non-MountainStar Healthcare Hospitals 1.8%
National 1.8%

- **Total Joint Replacement - Hip and Knee:**
  Mortality Rate
  MountainStar Healthcare Hospitals 0.0%
  Non-MountainStar Healthcare Hospitals 0.2%
  National 0.2%

  Complication Rate
  MountainStar Healthcare Hospitals 6.2%
  Non-MountainStar Healthcare Hospitals 12.0%
  National 12.0%

- **Total C-Section Rate:**
  MountainStar Healthcare Hospitals 16.9%
  Non-MountainStar Healthcare Hospitals 15.8%
  National 20.9%

4.2 Appendix B

Quality Measures	Organization
Missouri Hospital Association: JCAHO-Accepted Benchmark Project Indicators	
	MHA:JCAHO
JCAHO ID #5017 - Ruptured appendices	MHA:JCAHO
JCAHO ID #5023 - C-section deliveries	MHA:JCAHO
JCAHO ID #5040 - Primary cesarean section deliveries	MHA:JCAHO
JCAHO ID #5041 - Low birth weight infants	MHA:JCAHO
JCAHO ID #5015 - Hysterectomies on women less than 35 years of age	MHA:JCAHO
JCAHO ID #5051 - Inpatient deaths with pneumonia diagnosis	MHA:JCAHO
JCAHO ID #5054 - Inpatient deaths following surgery	MHA:JCAHO
JCAHO ID #9144 - Acute myocardial infarction (AMI) mortality	MHA:JCAHO
JCAHO ID #9156 - Short term complications of diabetes	MHA:JCAHO
JCAHO ID #9160 - Major hip procedure surgical site infections	MHA:JCAHO
JCAHO ID #9164 - Readmission for major affective disorder	MHA:JCAHO
JCAHO ID #9168 - Coronary artery bypass graft (CABG) site infections	MHA:JCAHO
JCAHO ID #9173 - Vaginal birth after cesarean section	MHA:JCAHO
JCAHO ID #9178 - CHF mortality	MHA:JCAHO
JCAHO ID #9181 - Colon procedures complicated by surgical site infection	MHA:JCAHO
JCAHO ID #9185 - Admission with perforation or hemorrhage following outpatient colonoscopy, bronchoscopy or lap chole	MHA:JCAHO
JCAHO ID #9200 - Readmission for congestive heart failure	MHA:JCAHO
JCAHO ID #9211 - Coronary artery bypass graft (CABG) mortality	MHA:JCAHO
JCAHO ID #9215 - Readmission for asthma	MHA:JCAHO
JCAHO ID #9220 - Returns to emergency department with asthma, ages 0-17	MHA:JCAHO
JCAHO ID #9244 - Cerebrovascular disease mortality	MHA:JCAHO
JCAHO	
Acute Myocardial Infarction (AMI) Core Measure Set	JCAHO
AMI-1 Aspirin at arrival	JCAHO
AMI-2 Aspirin prescribed at discharge	JCAHO
AMI-3 ACEI for LVSD	JCAHO
AMI-4 Adult smoking cessation advice/counseling	JCAHO
AMI-5 Beta blocker prescribed at discharge	JCAHO
AMI-6 Beta blocker at arrival	JCAHO
AMI-7 Time to thrombolysis	JCAHO

AMI-8 Time to PTCA	JCAHO
AMI-9 Inpatient mortality	JCAHO
Overview of the Heart Failure (HF) Core Measure Set	JCAHO
HF-1 Discharge instructions	JCAHO
HF-2 LVF assessment	JCAHO
HF-3 ACEI for LVSD	JCAHO
HF-4 Adult smoking cessation advice/counseling	JCAHO
Overview of the Community Acquired Pneumonia (CAP) Core Measure Set	JCAHO
CAP-1 Oxygenation assessment	JCAHO
CAP-2 Pneumococcal screening and/or vaccination	JCAHO
CAP-3 Blood cultures	JCAHO
CAP-4a Adult smoking cessation advice/counseling	JCAHO
CAP-4b Pediatric smoking cessation advice/counseling	JCAHO
CAP-5 Antibiotic timing	JCAHO
CAP-6 Initial antibiotic selection consistent with current recommendation – Intensive Care Unit (ICU) patients	JCAHO
CAP-7 Initial antibiotic selection consistent with current recommendations – non-Intensive Care Unit (ICU) patients	JCAHO
Overview of the Pregnancy and Related Conditions (PR) Core Measure Set	JCAHO
PR-1 VBAC	JCAHO
PR-2 Inpatient neonatal mortality	JCAHO
PR-3 Third or fourth degree laceration	JCAHO
Future Measures:	JCAHO
Presence of prenatal record at time of admission	JCAHO
Episiotomy rate	JCAHO
Indications and/or rate of elective labor induction	JCAHO
Primary cesarean section rate	JCAHO
Attempted (unsuccessful) vaginal birth after cesarean section	JCAHO
Neonatal transfer to perinatal center	JCAHO
Maternal transfer to perinatal center	JCAHO

Standard Measures: HealthGrades, Inc.

	HealthGrades, Inc.
Coronary Bypass Surgery	HealthGrades, Inc.
Valve Replacement Surgery	HealthGrades, Inc.
Interventional Cardiology Procedures	HealthGrades, Inc.
Acute Myocardial Infarction	HealthGrades, Inc.

Heart Failure	HealthGrades, Inc.
Total Hip Replacement- Primary	HealthGrades, Inc.
Total Knee Replacement- Primary	HealthGrades, Inc.
Back and Neck Surgery (except Spinal Fusion)	HealthGrades, Inc.
Back and Neck Surgery (Spinal Fusion)	HealthGrades, Inc.
Hip Fracture Repair (Open Reduction Internal Fixation)	HealthGrades, Inc.
Partial Hip Replacement	HealthGrades, Inc.
Stroke	HealthGrades, Inc.
Aspiration Pneumonia	HealthGrades, Inc.
Respiratory Infection except Aspiration Pneumonia and Tuberculosis	HealthGrades, Inc.
Chronic Obstructive Pulmonary Disease	HealthGrades, Inc.
Community Acquired Pneumonia	HealthGrades, Inc.
Resection and Replacement of Abdominal Aorta	HealthGrades, Inc.
Carotid Endarterectomy	HealthGrades, Inc.
Peripheral Vascular Bypass	HealthGrades, Inc.
Peripheral Vascular Interventional Procedures (Angioplasty and/or Stent)	HealthGrades, Inc.
Obstetric Services	HealthGrades, Inc.
Cesarean Section with Single Birth	HealthGrades, Inc.
Vaginal Delivery with Single Birth	HealthGrades, Inc.
Preplanned First Time Cesarean Section	HealthGrades, Inc.
Newborn Mortality	HealthGrades, Inc.
150 to 499 grams	HealthGrades, Inc.
500 to 999 grams	HealthGrades, Inc.
1000 to 1499 grams	HealthGrades, Inc.
1500 to 1999 grams	HealthGrades, Inc.
2000 to 2499 grams	HealthGrades, Inc.
2500 plus grams	HealthGrades, Inc.
Women's Cardiac and Stroke Mortality	HealthGrades, Inc.
Coronary Bypass Surgery	HealthGrades, Inc.
Valve Replacement Surgery	HealthGrades, Inc.
Interventional Cardiology Procedures	HealthGrades, Inc.
Acute Myocardial Infarction	HealthGrades, Inc.
Heart Failure	HealthGrades, Inc.
Stroke	HealthGrades, Inc.

CMS Measures	
Acute Myocardial Infarction (heart attack)	CMS
Aspirin prescribed at arrival	CMS
Aspirin prescribed at discharge	CMS
Beta-blocker prescribed at arrival	CMS
Beta-blocker prescribed at discharge	CMS
ACE Inhibitor prescribed for left ventricular systolic dysfunction	CMS
Heart Failure:	CMS
Left ventricular function assessment performed	CMS
ACE inhibitor prescribed for left ventricular systolic dysfunction	CMS
Pneumonia:	CMS
Timing of initial antibiotic administration	CMS
Administration of Pneumococcal vaccine	CMS
Oxygenation assessment	CMS
The Leapfrog Group	
Coronary artery bypass graft: Volume greater than or equal to 450/year	Leapfrog
Percutaneous coronary intervention: Volume greater than or equal to 400/year	Leapfrog
Abdominal aortic aneurysm repair: Volume greater than or equal to 400/year	Leapfrog
Pancreatic resection: Volume greater than or equal to 400/year	Leapfrog
Esophagectomy: Volume greater than or equal to 400/year	Leapfrog
High-risk delivery:	Leapfrog
Expected birth weight < 1500 grams,	Leapfrog
Gestational age < 32 weeks, or	Leapfrog
Pre-natal diagnosis of major congenital anomaly	Leapfrog
HealthScope.org	
Coronary Artery Bypass Graft (CABG) Surgery Death Rates	Healthscope
Abdominal Aortic Aneurysm Repair	Healthscope
High Risk Babies	Healthscope
Carotid Endartectomy	Healthscope
Coronary Angioplasty	Healthscope
Coronary Artery Bypass Graft (CABG) Surgery	Healthscope

Esophageal Cancer Surgery	Healthscope
Pediatric Cardiac Surgery	Healthscope

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