Thinh H Tran, MD

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Currently, Dr Tran is the Corporate Vice President and Chief Quality and Patient Safety Officer at Baptist Health South Florida, Coral Gables, Florida and responsible for clinical quality improvement, patient safety, accreditation, clinical research and grants.

Dr Tran received his BS degree in genetics and cell biology and his MD degree at the University of Minnesota. He completed his post-graduate training in Internal Medicine at the University of Minnesota School of Medicine. He has previously held the position of medical director for the Aetna, Inc. southwest region and served as Associate Medical Director for McGregor Medical Association in Houston overseeing its quality and performance improvement and case management programme. Dr Tran is also a member of the American College of Physician Executives.

Professor Per-Gunnar Svensson, PhD, was appointed Director General of the International Hospital Federation (IHF) in 1998. Between 1989 and 1998 he was Director of the Centre for Public Health Research, at the University of Karlstad in Sweden, during which time he also founded and acted as Editor-in-Chief of the publication entitled European Journal of Public Health. For a period of six years, 1983-1989, he was a Health Research Scientist at the Regional Office for Europe (Copenhagen, Denmark) of the World Health Organization. His initial position from 1969 to 1983 was that of Senior Lecturer in Social Sciences at the University of Linköping (Sweden), where in 1984 he was also appointed Professor of Health Services Research. He also since 1996 to date holds the post of Professor of Public Health at the Nordic School of Public Health in Göteborg (Sweden). He was awarded his PhD in 1974 at the Karolinska Institute in Stockholm (Sweden).

He is the author of more than 200 publications, articles and reports in the areas of inequality and health services. He is a member of RSM, external examiner for MA in hospital management at Nuffield Institute, Leeds and a fellow at LSE, London.
It is with great satisfaction that we are now launching the first issue of *Building Quality in Health Care*. This new journal will be published bi-annually and its mission is to identify and disseminate practical knowledge regarding sustainable applications that are improving health care quality and safety.

The publication is intended to fill a knowledge gap in the publishing market looking at quality and health service organizations. It will bring together scientific evidence and actual practice in health care. This will be accomplished through editing style, referencing, and the provision of cases/narratives, etc.

It will also play a critical role in the establishment of global benchmarks and the shared purpose in organizations whose patient care is the primary focus.

We hope it will also inspire clinical leaders who with responsibility for service, quality and safety, aim to build a culture of excellence.

This very first issue of *Building Quality in Health Care* focus on the definition of quality in health care services. As health-care providers, we are privileged to have the opportunity to serve and make significant differences to the lives of our patients, families and communities. In return, our constituents expect the highest standards of quality care delivered at the most affordable cost.

A precise definition of quality remains nebulous. Each participant in the health-care system, be it provider or consumer, views quality from their own perspective. In order to achieve these standards demanded of us, a framework of quality must be defined. In this first issue of *Building Quality Health Care*, the authors define various dimensions of quality. Concepts such as the safety and efficacy of medical therapies, availability of medical care and treatments, and utilization of current scientific evidence to facilitate decision-making will all be explored. As health-care providers continue to make strides and advances towards management and therapies of disease and illness, one must not overlook the effects placed upon the patient. Treatment modalities based on the patient’s aspirations, beliefs, and values should remain at the forefront. The old adage of “the doctor knows best” is not necessarily the path that the patient wants or chooses to follow.

Utilizing these frameworks for quality, we can purposely create environments in which quality can be measured and improved, and where health-care professionals achieve self-actualization through job satisfaction. Together, we can determine quality and provide value for our patients and communities.

The next issue of the Journal will discuss patient satisfaction and its measurement as well as benchmarking across hospitals regions and nations.

As this Journal is a truly international and intraprofessional project, we would like to receive your thoughts on the possible improvement of this journal, as well as contributions to it. We, the two co-editors-in-chief and our respective organizations will do our utmost to fulfill the mission outlined above, but hope that reader will be active in participating in this attempt to help build more quality into health care.
Methodist International
Methodist International is a subsidiary of The Methodist Hospital System located in Houston, Texas. The Methodist Hospital is a private, non-profit academic medical centre founded in 1919. The hospital is a founding member of Texas Medical Center, the world’s largest medical campus consisting of 46 of institutions dedicated to the highest standards of patient care, research, and education.

The Methodist Hospital is renowned for clinical and operational excellence and is consistently recognized among the best hospitals by US News & World Report. It is also awarded Magnet status for exceptional nursing and is featured by Fortune as one of the best 100 companies to work for in 2007.

Methodist International’s mission is to build health-care capacity around the world through the transfer of knowledge and best practices. Building upon a legacy of international patient care, research and education, Methodist dedicates this journal to the goal of improving the quality of care around the world by sharing knowledge and experience.

System Facts:
The Methodist Hospital System
Four hospitals
One research institute
1,354 operating beds
11,707 employees
66,605 inpatients in 2006
461,385 outpatients in 2006

The International Hospital Federation
The International Hospital Federation (IHF), founded in 1947, is an international Non-Governmental Organisation, supported by members from over 100 countries. As the worldwide body for hospitals and healthcare organisations it develops and maintains a spirit of cooperation and communication among them, with the primary goal of improving patient safety and of promoting health in underserved communities.

The IHF vision is to become a world leader in facilitating the exchange of knowledge and experience in health sector management. Through the dissemination of evidence-based information, IHF will help improve patient care quality around the globe.

IHF collects, collates, publishes and facilitates the exchange of information and ideas on best practice in hospital and healthcare management. It assists in the creation of environments that support organisations in the promotion and delivery of healthcare. It fosters international partnerships that promote interaction among public and private hospitals and healthcare organisations, the community and commercial entities.

The IHF vision will be promoted through events, publications, networking and projects in line with the mission and values of the IHF. These activities will prioritize information on the leadership and management of hospitals and health services. The focus will be on both developed and developing nations and the learning that can be achieved through dialogue between countries, organizations and individuals.

The IHF is driven by its founding ethos that it is the right of every human being irrespective of geographical, economic, ethnic or social condition to enjoy the best standard in quantity and quality of health and access to hospital and health care services. By promoting this value, IHF is supporting the improvement of the health of society.

The IHF strives to promote and protect the dignity, safety and welfare of patients.

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Definitions of quality in health services

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Abstract
The complexity of modern medicine and health systems make it difficult to define the concept of quality in a health-care context. To understand quality it is necessary to look at the “dimensions of quality” and how it is measured. The author outlines the three different levels within health systems that can be measured and how they are related. The article also considers patient safety, the concepts of appreciative quality and perceptive quality.

Research has brought about increasing scientific knowledge in medical care and technology with the potential to effect ongoing changes in the multidisciplinary care process. Patients who would probably have died a few decades ago can now have their lives prolonged because of advances and many conditions that were previously difficult, if not impossible to manage, can now be successfully treated.

The sophistication of modern medical care sometimes requires that patients be exposed to potentially harmful procedures, medicines and radiation that, if not administered correctly, can result in injury, disability or death. There is thus an increasing reliance on medical staff to perform as best they can, with as few mistakes as possible and meet strict guidelines and protocols. These protocols, in turn, require that the multidisciplinary team is co-ordinated and effective and that technology functions without fault. This, again, relies on structural integrity and amenities that meet stringent criteria.

The escalating cost of health care brings in another dimension that can have a direct impact on the operation of health services. The national budgets of countries and the resources of private companies that provide health services can influence the provision and structure of health services. The composition of health services may thus be determined by political and managerial imperatives that make it difficult for health services to provide safe, quality care that meet the needs of patients.

The expectations and demands of patients may also influence what is provided by health services. All these factors make the definition of quality in health care at worst, difficult and, at best, ephemeral. Donabedian explained the difficulty of defining quality in health care when he wrote that the definition of quality in health care depends on:

- whether only practitioner assessments or patient and health system contributions are include as well;
- how broadly “health” and responsibility for health are defined;
- whether maximally effective or optimal care is sought;
- whether the optimum is defined according to individual or social preferences.

The Agency for Healthcare Policy and Research coined a useful definition that outlines key aspects of quality in health care as “Accessible, effective, safe, accountable and fair…”

This means that:

- Providers deliver the right care to the right patient at the right time in the right way.
- Patients can access timely care, have accurate and understandable information about risks and benefits, are protected from unsafe health-care services and products and have reliable and understandable information on the care they receive.
- Both patients and clinicians have their rights respected.

The Institute of Medicine’s definition of quality of care from 1990 has stood the test of time and adds clarity to this difficult concept:

“Quality of care is the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge”.

Dimensions of quality
Fundamental to an understanding of quality in health care and its implementation is the concept of “dimensions of quality”. These form the framework for quality management activities in all health-care settings. The quality dimensions used by different organizations vary slightly but are all similar to those listed on the Joint Commission.
Commission on Accreditation of Healthcare Organisations website. These are appropriateness, availability, competency, continuity, effectiveness, efficacy, efficiency, prevention/early detection, respect and caring, safety and timeliness.

**Measurable quality**

Measurable quality is an important aspect of quality that forms the basis for the evaluation of the quality of health services and which is the basis for granting health-care organizations accreditation and/or certification awards, which -- in some cases -- is required for reimbursement. Measurable quality can be defined objectively as compliance or adherence to standards.

In recent years there has been a shift in emphasis from a focus on the actual care provider and his or her competence to the patient care processes reliant on multidisciplinary systems, policies and procedures, regulatory requirements, interdependency relationships and communications, clinical care pathways, practice guidelines and protocols and the outcomes of care. Hence health-care facilities standards can be defined as:

“Statements that set out the key functions, activities, processes and structures required by the facility’s departments and services to be in a position to provide quality services”.

Health-care facility standards operate at three levels:

1. The processes and outcomes of clinical care.
2. The organization of clinical care service provision.
3. The management and support functions required to provide clinical services effectively and safely.

Figure 1 illustrates the range of services and the coordination of activities required to cater for the specific needs of each patient.

**Level 1: The processes and outcomes of clinical care**

The responsibility for determining the quality and outcomes of clinical care rests with clinicians themselves. Standards for clinical care should be set using evidence-based medicine to develop clinical guidelines and pathways to guide the care process.

However, to provide standards that can be applied across different health-care facilities in different situations is a most difficult process because of:

- The variability of patients and the epidemiological differences between individual patients and patient populations.
- Constantly changing technology and research.
- The differences in practitioner training and experience.
- The interdisciplinary nature of the care process.

Although it is difficult to set clinical standards that cover each and every situation in all health-care facilities, standards can be set to ensure that clinical care adheres to quality principles by requiring clinicians to:

- use clinical guidelines to ensure that the care provided meets evidence-based standards in their particular circumstances;
- carry out clinical audits to measure the outcomes of care that they provide;
- monitor their performance over time and where problems have been identified, use quality improvement methods to improve the situation.

**Level 2: The organization of clinical care service provision**

This approach requires that patient-care departments and services form an integrated system, rather than work as independent units. In other words, the activities of departments/services should be around the flow of patient care with the patient as the central focus. It is also essential, particularly in developing countries where departmental and service resources and organization is often poor, that the standards should focus on the specific requirements and activities of departments and services to ensure that the required systems, structures and processes are in place to support clinicians in their work.

**Level 3: The management and support functions required to provide clinical services effectively, efficiently and safely**

The focus of standards at this level includes the full series of interrelated governance, managerial, support and clinical support processes affecting patient outcomes. To achieve this, not only must the care process be multidisciplinary and well co-coordinated, but a range of supporting managerial, administrative, technological, and hotel services must also be in place to support the unique clinical process required for each patient’s care.

The intricacies of modern health services require that in-depth monitoring of performance is carried out at all levels. In the past, this has been an extremely cumbersome and difficult process. Fortunately there have been substantial improvements in computerization and information management. This has made it possible for detailed monitoring of various indicators of performance to take place, thus allowing epidemiological and statistical
analysis to occur from which pattern and trend data can be obtained. The data produced, allows objective decision-making to occur.

The advances in information management have also assisted with the process of measuring and analysing facility-wide multidisciplinary standards, thus overcoming the difficulty in reporting on the duplicated and large numbers of standards required for objective and meaningful measurement. An interesting recent development in Southern Africa being used and tested in a number of countries is a web-based information system used in the compilation and analysis of standard compliance data collected routinely by facility staff themselves. This programme:

- provides easy, user-friendly, continuous access to current hospital criteria and standard compliance data;
- allows facilities to input their own data and monitor their own facility performance;
- supports ongoing quality improvement programmes in all services and departments;
- enables management at all levels to make informed decisions in the process of responding to deficiencies;
- assists facilities to reach and maintain accreditation standards and prepare for accreditation surveys;
- is a tool for the ongoing monitoring of performance indicators.

Safety

In the light of the reported large numbers of adverse events in developed and developing countries, patient safety, an essential component of quality, has become an international imperative and has been recognized as a serious global public health issue. Estimates show that in developed countries as many as one in ten patients is harmed while receiving hospital care. The harm is being caused by a range of errors or adverse events. In developing countries, the probability of patients being harmed in hospitals is much higher than in industrialized nations. The risk of health-care-associated infection in some developing countries is as much as 20 times higher than in developed countries. The World Health Organization (WHO) reports that in developing countries at least 50% of medical equipment is unusable or only partly usable. Often, the equipment is not used due to a lack of skills or commodities. As a result, diagnostic procedures or treatments cannot be performed. This leads to sub-standard or hazardous diagnosis or treatment that can pose a threat to the safety of patients and may result in serious injury or death. For example, in some countries, the proportion of injections given with syringes and needles reused without sterilization is as high as 70% and each year unsafe injections cause 1.3 million deaths, primarily due to transmission of blood-borne pathogens such as hepatitis B virus, hepatitis C and HIV.

The economic benefits of improving patient safety are compelling. Studies show that additional hospitalization, litigation costs, infections acquired in hospitals, lost income, disability and medical expenses have cost some countries between US$6 billion and US$29 billion a year.

In recent years, countries have increasingly recognized the importance of improving patient safety. In 2002, WHO Member States agreed on a World Health Assembly resolution on patient safety. In October 2004, the WHO launched the World Alliance for Patient Safety in response to the 2002 World Health Assembly Resolution urging WHO and Member States to pay the closest possible attention to the problem of patient safety. The Alliance raises awareness and political commitment to improve the safety of care and facilitates the development of patient safety policy and practices in all WHO Member States. Each year, the Alliance delivers a number of programmes covering systemic and technical aspects to improve patient safety around the world.

Many of the procedures carried out in health facilities require major surgery and medical interventions involving life-sustaining organs in the neurological, cardiac, respiratory and other systems. This is why the lives of patients depend on the ongoing accuracy and skills of clinicians and the technical and life-support systems provided and maintained by the hospital and support staff. During the treatment processes, patients are exposed to dangerous radiations and other high-risk conditions that require meticulous administration. Non-adherence to the stringent requirements is responsible for frequent near-miss incidents and adverse events that occur in health-care facilities because people are human and make mistakes. The challenge is thus to make health care as safe as possible by building on a platform of safe systems and thus minimizing risk.

A pilot project has been launched in Southern Africa using intervention and control groups of hospitals to assist in determining the associative factors related to multidisciplinary quality standard compliance rates and incident rates (including adverse events and near misses) and the development of strategies to reduce their incidence and impact.

This project aims to integrate the quality standard and continuous quality improvement approaches with a patient safety monitoring and improvement approach that includes incident monitoring and medical records reviews of adverse events to determine the incident rates at specified times during the project. The aim is to determine the relationship between multidisciplinary quality standard compliance rates and near miss and adverse event rates. Figure 2 summarizes how the various approaches to quality improvement will be integrated.

Other aspects of quality

In addition to Measurable Quality there are two other aspects of quality that are difficult to quantify but which are integral to understanding and assessing quality.

Appreciative quality

This aspect concerns the comprehension and appraisal of excellence beyond minimal standards and criteria. It requires the judgement of skilled, experienced practitioners and sensitive, caring persons. Peer review bodies rely on the judgement of like professionals in determining the quality or non-quality of a specific patient-practitioner interaction.
Appreciative quality emphasizes the qualitative aspect of implementing the standards and implementing the guidelines and protocols and takes into consideration the judgement of skilled persons and experts who know the risk of practice and who contribute to the advancement of the profession.

Perceptive quality
This is the degree of excellence, which is perceived by the recipient or the observer of care rather than by the provider of care. This aspect looks at it from the consumer of health-care services, not the provider of health care. It concerns the degree of caring expressed by physicians, nurses and other staff rather than on the physical environment and technical competence. When patients come to hospitals they expect to receive the latest technology, best medical knowledge, and the best techniques. They do not expect the wrong method or the wrong medication – this is out of question for them. They will judge quality by how they are treated, how they participate in decision-making, how doctors explain procedures and make them part of the treatment plan and this affects the perception of the patients of the care. Treating patients with respect and care and patient education – all those factors contribute to a great extent on how patients perceive quality care.

All three aspects of quality need to be taken into account in order to have the full range of assessment of quality of care. The challenge of the future will be to develop tools and methods to integrate these three aspects of quality to enable all those concerned with quality in health services to drive towards ever increasing excellence.

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The importance of being... quality

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Abstract

The significance of the concept, culture and expression reflected in the word “quality", is examined from diverse
perspectives. Quality involves different meanings for patients, clinicians/health-care professionals and managers/decision-
makers. The main aims for improvement are reviewed. Everybody should be concerned about health-care quality problems
as should those involved in their solution. We conclude that it may be necessary to redesign our care processes to provide
health care that is always safe and of high quality.

Quality is a concept, a culture and a term. As in the
famous comedy The Importance of Being Earnest, written by Oscar Wilde, we could also
scrutinize the significance of the concept, the culture and
the expression reflected in the word “quality", which leads
the title of this new journal.

When we speak about “quality", just as when we refer
to the notion of beauty or kindness, we are using a
“primitive concept": Such category of concepts defines a
simple phenomenal and/or perceptual expression that
cannot be defined in terms of other more basic concepts.
Moreover, quality is a polysemic or polysemous term,
meaning that it has many potential connotations which
imply some relativity when using the expression. It is
common to state that “Quality, like beauty, is in the eye of
the beholder". The word is ubiquitous in health care, but
what does it mean to health plan leaders, providers,
patients, and payers? Is quality a process, a tactic, or just
an aspiration?

In one way or another, quality is consistently considered
a key strategic element for the transformation and
improvement of modern health systems.1 The study of
quality in health care can be faced from diverse
perspectives since it traditionally involves different
meanings for patients, clinicians/health-care professionals
and managers/decision-makers. Quality of health services
will be the result of health-care policies, of doing the
appropriate things in the appropriate way, of the image of
the organization perceived by the users/patients and the
providers, and of the definition of the service by taking
into account the internal and external client and of the
appropriate interaction between both of them.

Patients usually offer an individual perspective of the
quality concept, including the logical hope of being treated
by reliable and technically competent clinicians (they must
have justified confidence in the health-care providers’
experience and training). Most patients would probably
define quality as receiving the best care possible for one’s
illness or condition. It would certainly include the
avoidance of errors or mistakes. In addition, patients
usually have the aspiration of having access to and good
communication with the physician.

Patients should feel at ease asking questions, voicing
opinions and being participants (at whatever level is
appropriate for them) in all health-care decisions, and
know that providers listen to them and advocate on their
behalf. The vulnerability of patients and their need for
care force them to trust physicians. If this trust is to
increase, it must be an interactive process, one which
requires care, concern, and compassion from the
physician. Moreover, all patients should have access to
coordinated care that is user-friendly, culturally respectful,
timely, and integrated both among and within provider
offices and systems.

Medical doctors (and health-care professionals in
general) also tend to offer a distinct perspective of the
quality concept to their clinical practice. Their legitimate
goal is to technically do the right things right.
Furthermore, they want to build a relationship of trust
with patients (and also with managers). This is not only
important to minimize complaints and to reduce the risk
of litigation, but is a part of the healing process. But trust
is difficult to come by, and it is fragile. Trust that has been
built over the years can be dashed with one had
experience.1 On the other hand, most clinical and ethical
decisions in medicine are based on the following basic
considerations: medical indications, patient preferences,
quality of life considerations, and external factors.4 And
these “external factors" also need to be properly
understood through the contextual analysis to ensure a
fruitful interaction among physicians, patients, health-care
decision-makers and organizations.

In the meantime, decision-makers and managers of
healthcare institutions are more inclined to focus their

DEFINING QUALITY
DEFINING QUALITY

Safe: avoiding injuries to patients from the care that is intended to help them.

Effective: providing services based on scientific knowledge.

Patient-centred: providing care that is responsive to individual patient preferences, needs and values and ensuring that patient values guide all clinical decisions.

Timely: reducing waits and sometimes harmful delays for both those who receive care and those who give care.

Efficient: avoiding waste, including waste of equipment, supplies, ideas and energy.

Equitable: providing care that does not vary in quality because of personal characteristics such as gender, ethnicity, geographic location or socio-economic status.


Table 1: Aims for health-care quality improvement

- to ensure the existence of standards of quality care that are continually updated, every aspect of care must meet these standards at all sites of care. Services provided should be “needed and effective” as determined by a decision-making body that includes consumers; the end result should be based on democratically developed unambiguous criteria.

- We return to the fundamentals of health-care quality, the classical IOM’s definition of quality has been widely accepted and is still a point of reference today: “Quality of care is the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge.” And it always has technical, relational, organizational and environmental dimensions which can be properly defined, identified and assessed. It is essential to map the processes and establish proper indicators and standards.

- The IOM Committee has identified six Aims for Improvement, six dimensions of quality where, we believe, today’s health system functions at far lower levels than it should. These aims are presented in Table 1. The authors from the IOM laid out an action plan for the redesign of health care including:
  - to be committed to a shared vision of the six Aims for Improvement;
  - to adopt ten rules to guide the redesign of health care;
  - to identify and focus redesign efforts on a limited number of “priority conditions”;
  - to create an environment that fosters improvement in quality.

- And we may wonder… who should be concerned about health-care quality problems and who should be involved in their solution? The answer is everyone. Leadership in quality improvement is a joint responsibility of all who serve in health-care organizations including physicians and nurses, directors and managers (whether they serve in health-care plans, hospitals, medical groups, nursing homes or other facilities), data and information specialists, laboratory technicians, nurses, housekeeping staff and dietary personnel.

- Individual patients (including self-help groups) and their families, must have the opportunity and the information they need to participate in their own care and to take the responsibility, where necessary and appropriate, for their own health.

- Consumer advocates and purchasers can press to keep quality of care at the top of the agenda as an issue of concern throughout the health system and to seek effective ways for health-care professionals, administrators, and others to be accountable to patients and society for the quality of care.

- Policy-makers at all levels of government (at local, regional, national or even international levels) can foster opportunities to communicate the best practices and other innovations, to increase research on quality measurement and improvement, to facilitate organizational change, and to assist the development of more effective information and delivery systems.

- We should all strive for such fundamental improvement so that health-care becomes not only technologically dazzling but also compassionate, reliable, appropriate to a patient’s needs and safe.

- It should be pointed out that in medicine, basic economic laws must be observed and that practices must be run on a sound financial basis to survive. Nevertheless, changes that improve patient care should be adopted in the future despite increased costs, simply because they are what people want and will demand.

- Medical care is more than a business, and politicians and managers must accept it as such. Although some limitations on free choice are essential to control costs, these limitations must be secondary to improvements in quality.

- Most of our countries and health organizations must address their evolving health-care needs in the context of their aging and growing population, new and costly technology and drugs, a shortage of health care professionals such as doctors and nurses, limited resources and an increasingly educated population that continues to have higher expectations. While there is no consensus on how or even what needs to be precisely done in order to cure the system’s ills, there is virtually unanimous agreement that we should redesign our care processes to provide a health-care environment that is...
always safe and of high quality. Together we can make it happen. And this journal will certainly help in this noble endeavour.*

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Profile
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Professor Martin-Moreno was trained as a physician in Granada and Madrid, and then he obtained a Doctor of Public Health degree at Harvard. Former Director-General of Public Health (and Chief Medical Officer) of Spain and Past-President of the European Association of Schools of Public Health (ASPHPER), he is a Professor of Preventive Medicine and Public Health at the University of Valencia and the Quality Improvement Coordinator at the University Clinical Hospital. Additionally, he also holds current positions as Academic Director of the Minister of Public Health and Health Services Administration Programme at the Valencia School of Health Studies (IVIES), Member of the European Advisory Committee on Health Research of the World Health Organizations – Regional Office for Europe, Chair of the Cancer Prevention Group within the European Project (led by the International Agency for Research on Cancer), Member of the Honorary Committee of ASPHER and Senior Associate at the Johns Hopkins University School of Public Health.

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Quality of care: definitions and implications for hospitals in the 21st century

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Abstract
The recent focus in the United States on improving hospital quality has released new ideas into health-care thinking. This article explains some of them in the context of defining quality itself, developing a conceptual framework for quality, how quality can be measured, reporting the quality of care and how pay-for-performance will drive up quality initiatives.

Although initiatives to improve the quality of hospital care have gained significant momentum in recent years, there have been many striking advances in hospital quality improvement. Simmelweis noted the increased mortality in physicians’ obstetrical outcomes compared to midwives’ outcomes and provided a basis for interventions to reduce obstetrical mortality. Florence Nightingale developed sanitary interventions to improve the quality of hospitals during the Crimean War. Nightingale made extensive use of hospital mortality data and reported that deaths due to typhus, typhoid, cholera and dysentery were ten times more frequent that deaths due to battle wounds. Furthermore, much of modern-day performance improvement techniques are based upon the end-result system developed by Ernest Codman. In the early twentieth century, at the Massachusetts General Hospital, Ernest Codman introduced the end results system to systematically evaluate patient outcomes after hospital admission.

The recent focus on hospital quality improvement in the United States was driven by a series of reports from the Harvard Medical Malpractice Study. In 1991, the New England Journal of Medicine paper from the Harvard Medical Malpractice Study reported that there were more than 98,000 adverse events or injuries resulting from medical mismanagement or medical error in New York State, resulting in 13,451 deaths. This study was cited by the US Institute of Medicine (IOM) report, To Err is Human. In Crossing the Quality Chasm and subsequent studies, the IOM’s Committee on Quality of Health Care in America made specific recommendations not only for hospitals but for the health-care system to improve quality of care.

The United Kingdom, New Zealand, Australia, Canada, and Denmark have all initiated studies similar to the Harvard Medical Malpractice Study and provide evidence that adverse events occur too frequently in the modern hospital setting and are not solely a feature of specific countries’ organization and financing of hospital care. New Zealand reported the largest number of adverse events (12.9%), United Kingdom (10.8%), Australia (10.6%), Denmark (9%), Canada (7.5%) and the United States reported the least number (3.7%). Given the distribution of adverse events among the various countries, it is apparent the issue of quality in health care is not limited to the United States, but is a global problem as well.

Defining quality
A clear and logical definition of quality is essential to delivering sound health care. A natural approach to defining quality is based on low measures of adverse events such as hospital deaths, operative deaths, deaths during delivery, surgical complications and similar events for which there was near agreement that this represents poor quality of care. High quality hospital care, however, is not simply the absence of errors, injuries, complications, and deaths. Avedis Donabedian’s career has been devoted to defining and measuring the quality of care, and his work has served as a foundation for current approaches to measuring the quality of care.“” Donabedian defined high quality health care as “that kind of care which is expected to maximize an inclusive measure of patient welfare, after one has taken into account the balance of expected gains and losses that attend the process of care in all parts.” Donabedian’s path breaking work on defining quality has clarified approaches to measuring quality by classifying...
Four types of need for health care through their health-care components of quality of the delivery system. Patients’ conceptual framework for the United States health-care is the first step in process improvement. The IOM’s definition of quality in terms of “likelihood” recognizes that high quality processes of care do not always result in positive outcomes.  

Conceptual framework for quality

In order for meaningful change to occur, a sound and consistent conceptual framework needs to be developed as the first step in process improvement. The IOM’s conceptual framework for the United States health-care system is based upon both patient needs for care and the components of quality of the delivery system. Patients’ four types of need for health care through their health-care lifecycle can be classified as staying healthy, treating acute illness, managing chronic disease, and end of life care. The six components of quality of health care are safety, timeliness, effectiveness, efficiency, equity, and patient-centredness. These two dimensions can be represented as matrix (Figure 1). Measures of quality must be selected that are appropriate for the context of the patient’s need for health-care services and the component of quality to be measured. For example, measuring the nosocomial infection rate of a hospital would be placed in the safety-getting better cell. Essentially, each quality measure is placed in a specific context as to how it affects each individual patient as well as demonstrates the implications it has on health-care quality. Furthermore, the matrix is also helpful in defining measures by placing each measure in meaningful categories that demonstrate utility as well as specific application within the health-care setting.  

Measuring quality

In order to effectively assess the quality of hospital care a well-defined set of measures need to be developed. Multiple measures of quality of care have been developed. Medical errors, readmission, death, and nosocomial infection rates are some of the early measures chosen as indicators for quality of hospital care. Low quality inpatient care has proven to increase the risk for future hospitalization in patients with heart failure, diabetes, and obstructive lung disease. Hospital readmissions, however, are generally not a good measure of quality of care. Since there is no indicator that is applicable to all settings, factors such as sample size, setting, and the specific use of the measure need be taken into account in selecting measures of quality of hospital care. Type of hospital, nurse staffing patterns, and the presence of advanced technological equipment all influence quality of care. In the United States, the National Quality Forum has taken the lead in developing measures of quality.  

Reporting quality of care

Reporting of quality is an integral part of improving the health-care delivery system. The National Committee for Quality Assurance, Health Plan Employer Data and Information Set (HEDIS) and the Agency for Healthcare Research and Quality both periodically report information regarding health care performance in the United States. Werner and colleagues suggest that the public reporting of
DEFINING QUALITY

References

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The mission statement is clear: Joint Commission International (JCI) exists to “continuously improve the safety and quality of care provided to the public through the provision of health-care accreditation and related services that support performance improvement in health-care organizations.” All of JCI’s activities focus on that mission, including its role – along with its United States-based parent, The Joint Commission – in establishing the Joint Commission International Center for Patient Safety, part of the World Health Organization’s World Alliance for Patient Safety.

“Safety” is a straightforward enough term to define. In the recently published third edition of our JCI hospital standards, we characterize safety as “the degree to which the organization’s buildings, grounds, and equipment do not pose a hazard or risk to patients, staff, or visitors.” (“Safety” is not the same as “security” to JCI; the latter is defined as “protection from loss, destruction, tampering, or unauthorized access or use.”) “Quality,” however, is a far more elusive concept. “Quality of care” is, by JCI’s definition, the following:

- “The degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge. Dimensions of performance include the following: patient perspective issues; safety of the care environment; and accessibility, appropriateness, continuity, effectiveness, efficacy, efficiency and timeliness of care.”

In short, for JCI, quality and safety are not merely associated; the two concepts are inexorably linked.

JCI’s mission for quality improvement and patient safety

JCI promotes quality and safety in health care through its accreditation programmes – which have now accredited more than 130 organizations – and through its provision of education, publications, and technical assistance. The JCI accreditation framework describes a comprehensive approach to quality improvement and patient safety. This approach includes:

- leading and planning the quality improvement and patient safety programme;
- designing new clinical and managerial processes well;
- monitoring how well processes work through indicator data collection;
- analyzing the data; and
- implementing and sustaining changes that result in improvement.

Both quality improvement and patient safety programmes:

- are leadership driven;
- seek to change the culture of an organization;
- proactively identify and reduce risk and variation;
- use data to focus on priority issues; and
- seek to demonstrate sustainable improvements.

Accreditation

JCI launched its international accreditation programme in 1999 in response to a growing global demand for valid external evaluation of health-care quality by an independent third party. JCI standards – now published for hospitals as well as organizations providing services in ambulatory care, care continuum, clinical laboratories, disease- and condition-specific care, and medical transport – are based on international state-of-the-art consensus standards and set uniform, achievable expectations for structures, processes and outcomes for health-care organizations. The standards were developed by an international expert panel and tested in the five major regions of the world. JCI accreditation is a voluntary process in which objective assessment of the health-care organization is made to determine if it meets a set of standards requirements designed to improve quality of care and enhance patient safety. Our standards are written to account for countries’ and regions’ specific legal, cultural, and operational needs.
religious, and cultural factors, making them applicable across borders and language. We consider our standards to be optimal, achievable criteria for organizations dedicated to improving the quality of patient care, ensuring a safe environment, and continually working to reduce risks to patients and staff. The standards address the full spectrum of clinical and managerial activities of a health-care organization, including the framework for improving those activities and reducing the risks associated with variation in processes.

Central to our concept of quality patient care is our resolution that quality is not fixed or stagnant. Our accredited organizations don’t pass a 3- to 5-day examination that frees them to resume “business as usual” (read: less- than-high-quality care) the moment the JCI survey team leaves their facility. Quality requires constant change, adaptation and improvement, which is why JCI uses phrases such as “the accreditation journey,” “continuous compliance,” and “culture of quality and safety” to describe its modus operandi. Simply stated, JCI–accredited organizations play a special role in creating a culture within their organizations that focuses on quality and safety.

Moreover, leaders of JCI accredited organizations play a special role in creating a culture within their organizations that focus on quality and safety. JCI’s hospital standards development process today consists of three distinct phases:

- **Identification:** The need for new or revised standards are identified, based on scientific literature, evidence-based best practices, and feedback from JCI’s Regional Advisory Councils, surveyors, accredited organizations, staff, experts and others.

- **Drafting and internal reviewing:** Standards, following initial development by staff, are reviewed by JCI’s Standards Subcommittee, whose international membership recommends changes in preparation for field evaluation.

- **Field evaluation and approval:** Standards are evaluated via an Internet-based field review and otherwise by stakeholders. Based on feedback, the standards are revised and considered again by the Standards Subcommittee. Once approved by the Standards Subcommittee, the standards are re-reviewed by the JCI Accreditation Committee and approved by the JCI Board of Commissioners.

JCI just published its third edition of the new hospital accreditation standards, published 2 July 2007 and effective 1 January 2008. These standards represent JCI’s ongoing efforts to raise the expectations of quality and safety expectations for participating organizations. Among the enhancements to the standards are the following:

- **All standards are new core standards.** In these revised standards, all standards are considered equal in importance and weight toward achieving accreditation. Previous standards were identified as “core” (essential to accreditation) and “non-core” (strongly recommended but not essential).

- **The increased role of leadership and oversight.** Increasing weight has been given to the role of leadership as overseers of all areas of a hospital’s performance on quality and safety.

- **Stronger requirements in many areas.** Credentialing and privileging standards for health-care professionals and a new requirement for a root cause analysis after sentinel events are among the enhancements.

- **International patient safety goals.** Six new patient-centric goals are now evaluated as part of the JCI on-site survey:

  - **Goal 1:** Identify patients correctly.
  - **Goal 2:** Improve effective communication.
  - **Goal 3:** Improve the safety of high-alert medications.
  - **Goal 4:** Ensure correct-site, correct-patient, correct-procedure surgery.
  - **Goal 5:** Reduce the risk of health-care–associated infections.
  - **Goal 6:** Reduce the risk of patient harm resulting from falls.

- **New and significantly updated chapters.** “Anesthesia and surgical care,” “Medication management and use,” “Care of patients,” and “Management of communication and information” are new chapters. Additionally, the JCI survey process has been modified to include the following:

  - **Patient focused tracer methodology.** The tracer methodology is the foundation of the JCI on-site survey. The tracer methodology incorporates the use of information provided in the accreditation survey application to follow the experience of care for a number of patients through the organization’s entire health-care process. Tracers also allow the surveyor(s) to identify performance issues in one or more steps of the patient-care process, or in the interfaces between processes.

- **Survey team composition.** All JCI survey teams are comprised of the following health care experts:

  - a physician;
  - a nurse;
  - an administrator.

  When necessary, as dictated by an organization’s size and/or complexity, more of each category of expert may be added to the survey team.

**Other Quality and Safety Initiatives**

JCI’s non-accreditation initiatives are also centered on quality and safety. What follows is a partial list of current programmes.

**WHO collaborating centre for patient safety.** Since its launch in August 2005, the World Health Organization (WHO) Collaborating Centre for Patient Safety has been building an international network to identify, evaluate, adapt, and disseminate patient safety solutions worldwide. A WHO collaborating centre is “a national institution designated by the Director-General of the WHO to form part of an international collaborative network carrying out activities in support of WHO’s mandate for international health work and its programme priorities.” This specific Collaborating Centre, a cooperative endeavor of JCI and The Joint Commission, is operationalized by the Joint...
Joint Commission International Center for Patient Safety (see below) through the establishment of a collaborative network of leaders in developing, transitional, and developed countries, who are helping to identify healthcare safety needs and match these with known best practices and solutions. Specific projects of the Collaborating Centre include the following:

**Patient Safety Solutions.** Announced in May 2007, the basic purpose of the Patient Safety Solutions is to guide the redesign of care processes to prevent inevitable human errors from actually reaching patients. The solutions are any system design or intervention that has demonstrated the ability to prevent or mitigate patient harm stemming from health-care processes. Solutions disseminated by the Collaborating Centre are evidence-based, presented in a standard format, and will be updated at regular intervals. The inaugural Patient Safety Solutions released in May 2007 addresses the following issues:

- look-alike, sound-alike medication names;
- correct patient identification;
- hand-over communications;
- correct procedure at the correct body site;
- control of concentrated electrolyte solutions;
- medication accuracy;
- catheter and tubing misconnections;
- needle reuse and injection device safety;
- hand hygiene.

Additional solutions are currently being developed for release in 2008.

**“High 5s.”** Drawn from a broader set of patient safety solutions, the overall goal of the initiative is to achieve significant, sustained, and measurable reduction or elimination of five highly prevalent patient safety problems in selected hospitals in each country over a five-year period (hence “High 5s”) through the sharing of knowledge and experience in implementing innovative standardized operating protocols within a learning community. The High 5s build on the partnership established by the Commonwealth Fund with Australia, Canada, New Zealand, the United Kingdom, and the United States, and the more recent expansion of this international programme to include Germany and the Netherlands. These solutions are the following:

- prevention of patient care hand-over errors;
- prevention of wrong-site, wrong-patient, wrong-procedure surgical errors;
- prevention of continuity of medication errors;
- prevention of high concentration drug errors;
- promotion of effective hand hygiene practices.

**Joint Commission International Center for Patient Safety.** In March 2005, The Joint Commission and JCR announced the establishment of the Joint Commission International Center for Patient Safety, a virtual organization which leverages the expertise, resources, and knowledge of the Joint Commission and JCR toward its mission of continuously improving patient safety in all health-care settings. The Centre does the following:

- Collaborates with other leading patient safety organizations around the globe to achieve its goals, including the identification, development and sharing of patient safety solutions.
- Serves as a credible source of valid and meaningful information and education about patient safety.
- Engages patients, families, practitioners, and providers in improving patient safety.
- Advocates for public policy that promotes patient safety.
- Conducts research related to patient safety.

The Center’s Web site (http://www.jcipatientsafety.org) features a variety of quality and safety links and resources, including the following:

- Patient Safety Practices (PSP) – nearly 1,800 links to patient safety publications and Web sites with tips, tools, and resources for addressing patient safety and quality issues.
- Patient Safety Goals – both the National and International Patient Safety Goals are listed, with links to articles and other publications offering compliance tips and related research.
- Complimentary Patient Safety Resources – abstracts of current literature on patient safety, a sample outline for a patient safety plan, and selected bibliography of medical error disclosure.
- Web Site Links for Health Care Professionals, Providers, Patients, and Families – a directory of online quality and safety resources.
- Sentinel Event Alerts – a Joint Commission publication identifying specific sentinel events, describing their common underlying causes, and suggesting preventive steps for the future.

**Voluntary indicator reporting.** Twenty-two accredited hospitals currently report data on two quality indicators – heart failure and aortic myocardial infarction – to JCI on a voluntary basis. Participating organizations help populate a database on organizational performance on these two indicators and receive reports indicating their organization’s performance in comparison with other reporting institutions.

**Conclusion**

To Joint Commission International, providing quality health care is not an option; it is an imperative that knows no geographical and fiscal borders. Quality requires commitment to establishing an organizational culture that dictates the following: Anything less than the highest standard of health care and patient safety is unacceptable.
JCI is leading health care improvement worldwide through its work with The Joint Commission as a World Health Organization Collaborating Center for Patient Safety Solutions, development of international standards for quality and safety, development of international patient safety goals, and by offering domestic and international consulting, international accreditation, education, publications, Continuous Survey Readiness, and e-Learning.

Ms. Timmons has served as chair of the World Health Organization’s HIV Quality of Care Working Group on HIV/AIDS and was appointed to serve on the Scientific Council of ANAES, the French National Agency for Accreditation and Evaluation in Health. She is also past chair of ISQua’s Agenda for Leadership in Programmes for Healthcare Accreditation (ALPHA) Council. The ALPHA Council was the first worldwide body to bring together national and other major health care accreditation organizations to develop a global approach to aligning health care standards and accreditation processes. In addition to her international involvement, Ms. Timmons is a former member of the National Advisory Board for the Neag School of Education at the University of Connecticut, in Storrs, Connecticut, United States and she served on the Parents’ Board of Directors for DePauw University in Greencastle, Indiana.

Ms. Timmons earned a master of management degree from the JL Kellogg Graduate School of Management at Northwestern University, Evanston, Ill., and a Master of Arts degree from Fairfield University, Connecticut. She obtained a Bachelor of Science degree from the University of Connecticut.

References
Institutionalization of quality assurance: an essential target

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Abstract

Movements towards assuring health-care quality have gained momentum over the last 20 years. This was boosted by the increased awareness of customer rights as well as documented low levels of quality care. Such movements aimed to integrate quality culture within the daily activity of every staff. However, such integration requires proper planning that takes into consideration the different stages passed through, the features of each stage and the factors that may affect the speed towards such aim.

Health-care organizations, particularly in developed countries, moved towards various certification and accreditation systems such as the European Foundation for Quality Management (EFQM), Joint Commission International Accreditation Standards for Hospitals (JCIASH), and the International Standards Organisation norms (ISO). These systems take into account the same entities of health care quality management, such as human and material resources (resources); processes (activities); clients (patients); products (affects); management; leadership; measurement; analysis; and ongoing improvement. Furthermore, these systems emphasize a structured approach to measure the level of development of quality management systems that ultimately would help institutions to assess the indicators that link the entities together as shown in Figure 1. The ultimate aim of moving towards these systems is to establish a quality management system within the organization that integrates quality assurance activities into the daily activity of every staff member, which is known as institutionalization. However, it is known that the transformation of organizations to quality assurance and improvement takes time. This is explained by the fact that such transformation requires, in addition to the technical approach of tools and methods, a change in the attitudes of staff and the culture within the organization.

Institutionalization

Institutionalization is defined as the process through which an organization establishes and maintains quality assurance activities as an integral and sustainable part of the health-care system of the organization, woven into the fabric of daily activities and routine. It is considered as progress through a series of phases, from an initial state of pre-awareness of quality assurance to an end state of maturity of quality assurance function and structure. This enables staff know what needs to happen to provide quality care, to have the skills to make it happen and to make it happen over time within the resources available. Although institutionalization is a continuum, it can be subdivided into four distinct phases that help to map out the processes organizations are likely to experience. A closer look at these phases would help in drawing a clear roadmap for institutionalization. These phases include the following (Figure 2):

a. Pre-awareness phase
This phase is not considered as one of the institutionalization phases. It reflects the organization’s state before it begins to implement any formalized or deliberate quality assurance efforts. In this state isolated efforts to improve quality occur commonly, as it is not possible to have an organization where no one has made any attempt to improve the quality of care. It is characterized by activities that are sporadic, individual, and informal, rather than part of a deliberate, formal quality assurance programme.

b. Awareness phase
This phase is the first step on the road towards institutionalization in which decision-makers become conscious of the need to systematically address improvements in quality care. The motivators for this awareness have personal experience of quality problems, isolated success, and complaints or pressure from communities or clients. The aims for building quality awareness are to increase exposure to perceived needs for better quality of care and to extend familiarity with quality assurance approaches. The strategies that could be
DEFINING QUALITY

employed include:
- Using comparative data to demonstrate the need for
  improvement such as health status indicators of the
  population served by the organization.
- Examining and discussing critical incidents such as an
  avoidable death.
- Assessing the level of quality to demonstrate the current
  state of care provided by the organization.

At the end of this phase the organization will have the
sufficient momentum to move on to the next phase.
Indications for such readiness includes the deliberate
decision by the organization to explore the use of quality
assurance as a means to improve quality of care.

c. Experiential phase
This phase is characterized by the organization
undertaking specific quality assurance activities and trying
out various approaches to learn from the experience,
while it develops evidence that quality assurance does
make a difference and leads to a improvement in the
quality of care.

During this phase several strategies can be used that
include:
- Implementing small-scale quality assurance activities or
  experiments to demonstrate results and learn by doing.
- Developing or strengthening mechanisms for the diffu-
sion and exchange of quality assurance experiences and
knowledge.

This phase often overlaps with the awareness phase in
some organizations as they may occur concurrently in
different parts or levels of the organization. The combined
results of these two phases leads the organization to
decide and embark into the next phase. Indication of the
readiness to move on to the next phase comes from
increased leadership support and a formal decision to
develop an organizational strategy for quality assurance.
This means that the organization has enough knowledge
and experience with quality assurance to be convinced of
its benefits and is committed to extending it in the
organization.

d. Expansions phase
As the name implies the most obvious characteristics of
this phase is the expanding implementation of quality
assurance activities. It is not simply a scaling-up of
activities or a straight-forward replication of positive
results across the organization rather than the strategic
expansion of implementation based on knowledge and
experiences gained in previous phases. Expansion can
be geographic (covering wider area), scope (engaging in
more types of quality assurance activities) or in coverage
(covering a wider range of facility types or
departments). Two key indicators of organizational
readiness to move into consolidation phase include
existence of demonstrated improvement in the quality of
care as a result of the quality assurance strategy and a
consensus among decision-makers and stakeholders that
quality assurance merits continuation and further
consolidation.

e. Consolidation phase
During this phase the organization is simultaneously
strengthening and anchoring existing quality assurance
activities and programmes into routine operations, while
making its quality assurance efforts more comprehensive
by addressing lagging or missing activities.

f. Maturity phase
Maturity is not a phase, but rather a state where quality
assurance is formally, philosophically
integrated into the structure
and functions of the organization
or health system.
addition, each of the essential elements of institutionalization has also reached a state of maturity, ensuring that the organization can sustain the quality of health care provided. The road towards institutionalization is not an easy task. It takes a lot of staff efforts and time to reinforce a culture of quality at all levels of the organization. In addition, it requires the removal of barriers that block or delay the progress towards institutionalization. These have been grouped by some researchers into three main categories of essential elements as shown in Table 1. These contribute to an organization’s ability to institutionalize quality assurance. However, the degree of development of each element will vary and each will go through the same series of transitional phases as institutionalization itself. They can be represented as a series of overlapping concentric circles (Figure 3). As shown in this figure, at the centre is the quality of health care, which is the desired outcome of quality assurance system. Surrounding this centre is the triangle of core quality assurance activities. The impact of these activities is dependent on the above mentioned elements. Therefore, developing a culture of quality in any organization requires initiating or strengthening each of these essential elements. However, each of the above mentioned categories is not important by itself, but it is the combination of elements that facilitates and ensures the institutionalization of quality assurance. If we link these elements with the various certification and accreditation systems it is obvious that each system incorporates them within its various concepts. For example, ISO stresses, during the awareness phase, the importance of communication and information sharing, resources provision, and core values such as teamwork. It is worth mentioning that institutionalization is not a linear process of going from point A to point B, but a fluid process where the essential elements of quality assurance may or may not mature sequentially. In addition, there is not one path that exists for all organizations to follow, but the framework of eight elements and the process phases of institutionalization outlined above presents the needed aspects and roadmap for creating a programme of quality assurance that is sustained to improve quality of health care.

Conclusion
The purpose of quality assurance efforts in any organization is to integrate quality into the structure and function of the hospital, which ultimately is expected to improve and sustain the quality of health care. However, this requires commitment from all staff, particularly at the grass-root level staff, and explores all factors that might affect the hospital’s progress towards institutionalization of quality such as hospital policies, leadership and resources available. In addition, it requires the elimination of all barriers that prevent staff from being motivated towards implementing quality of care in their organization such as disincentives that demotivate staff.

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References
Quality metrics: “what should we be paying attention to?”

ELIOT J LAZAR AND BRIAN K REGAN

Abstract

Avedis Donabedian developed the idea that quality could be measured in terms of metrics such as volume, structure, outcome and process. The author looks at each of these metrics in turn and considers their advantages and disadvantages as a way of assessing quality and points to the limitations and data definitions that need to be taken into account by those using them.

In 1966, Avedis Donabedian laid the foundation for the current understanding of quality metrics with his groundbreaking article “Evaluating the quality of medical care” published in the Milbank Memorial Fund Quarterly. His concept that quality indicators could be categorized into structure, process and outcome measures has become the best known classification scheme in health services research.

Of note, in this same 1966 issue of Milbank Memorial Fund Quarterly, Odin Anderson complained that all of the health-care research until that time had negligible influence on public policy, and that decisions about public health were not supported by scientific evidence.

During the four decades since publication of the Donabedian framework there have been an avalanche of indicators, and despite concerns about the validity of these indicators, it is apparent that they are increasingly used to guide public policy as well as to fuel hospital report-cards, physician profiles, medical staff credentialing algorithms, consumer-directed marketing, pay-for-performance initiatives, tiered pricing of health-care insurance products, and a host of other applications.

Perhaps it is time for all stakeholders to consider which indicators are appropriate for these various needs.

Defining the Metrics

Quality metrics may be considered as measures of volume, structure, outcome or process (VSOP), with each approach offering advantages and disadvantages.

Volume

In addition to Donabedian’s original classification, volume has become an important indicator of health-care quality. The basic premise, which on the surface may seem intuitive, is that the higher the volume the better the quality. However, this simplistic view may significantly underestimate the complexity of the issues.
or absence of intensive care units, CT scanners, or computerized practitioner order entry systems. Structural metrics may also apply to programmes or certification/ accreditation, such as a cardiac centre offering open heart surgery or designation as a Stroke centre”. Structural metrics may also describe individual clinicians, such as board certified or “licensed” or “registered”. Data on structural metrics are generally easy to collect by simple survey or inventory, without need of clinically trained abstractors.

**Outcomes**

Although “outcomes” measures seem to be the most important and straightforward, since patients and clinicians alike want to know which facility or practitioner has the best outcomes, data of this type is often difficult both to obtain and to interpret.

The most significant problem is the oft heard comment that populations of patients are disparate and thus cannot be compared. Various approaches have been employed to address this issue, focusing on some type of risk or severity adjustment in order to “normalize” the populations. Unfortunately there is no gold standard and many of the methodologies are proprietary and thus difficult to analyze and compare even for health-care statisticians.

A second issue is that of ensuring that clear “data definitions” exist. Our institution employs a data dictionary in which, for every metric, inclusions, exclusions, sources of compliance, time periods and sampling methodologies are enumerated. Statistical testing is also specified as well.

Finally outcomes data are often harvested from administrative data sets, which are used for billing and regulatory submissions. While inexpensive and large in number, they are clinically barren often depending on coders to abstract clinical information. In many instances physician notes are the only permissible source, thereby excluding the notations of other clinicians such as nurses and therapists. Moreover, in order to assure compliance with payment policies, coders will only abstract specific terminology. (For example, in current coding practice in the United States, lab values alone are insufficient for coding purposes. A specific notation of a clinical issue by a physician is required. Furthermore, even if the physician were to note elevated potassium “with an up arrow and a K+”; hyperkalemia cannot be coded unless “hyperkalemia is concretely specified”). While this may not alter the process of risk adjustment, thus skewing the results significantly.

Recently attention has been given to the distinction of whether a comorbid condition was truly present on admission vs. occurring on the hospital. Lack of attention to the notation of “present on admission” codes would have a similar effect on risk/severity adjustment. Definitions may also affect the apparent outcomes particularly when benchmarking across widely disparate geographic regions. By way of example, when examining in-hospital mortality, regions of the United States where post acute facilities are scarce will have an apparently higher mortality than regions in which these facilities are plentiful. The Center for Medicare and Medicaid Services (CMS) has recently adopted a 30 day mortality definition which should moderate this regional variability.

**Process measures**

In contrast to outcomes measures, process measures evaluate elements of care provided. Did the patient with acute myocardial infarction receive aspirin or a beta blocker? Did the patient with pneumonia receive antibiotics in a timely manner? Process measures require the same attention to definitions as outcomes measures. However, process measures must be abstracted from the clinical record as the desired information is not present in coding data. Heretofore, data of this type required manual abstraction, but with increasing deployment of electronic medical records much of this data is available electronically. It is critically important to underscore the importance of involving quality and patient safety leaders in the design and implementation of these systems, as the focus is generally on input of data, and preservation of the record rather than harvesting of specific metrics.

**More may not be better**

The current proliferation of quality indicators and report cards may have untoward effects. First, organizations, as well as individuals have a finite capability for collecting and processing information. Moreover, the institutional attention span may also be compromised as the “flavour of the month” initiative competes for attention with ongoing organizational imperatives. Clearly, the institutional attention span is a scarce resource and must be conserved in order to fulfill the goals of improved quality and patient safety. In this way, the quality infrastructure must protect the organization by serving a filtering function that analyzes the cost and benefit of each competing initiative along with the organizational resources (staff time, data cost, processing) before presenting it for consideration by the governance and management structure of the institution: “What should we be paying attention to?”

All too often we find situations in which the same metrics are collected month after month, sometimes for years with little variation in the results and no attempt at intervention. We advocate the concept of an “Intervention Quotient” which reflects the number of interventions/number of metrics collected. It is imperative for health-care organizations to periodically inventory the metrics being collected and critically appraise the value of them. While it is important to follow some indicators even if no intervention is ever contemplated, there may be some of little significance which can be discontinued. At the very least the sampling intervals and size may be adjusted in order to conserve resources.

From the perspective of information technology, Davenport and Beck describe a three-dimensional space for measuring the value of information, with ratings along the continua of averse-attractive, captive-voluntary and foreground-background value. Such tools are needed to respond to the “explosion” of information and the
DEFINING QUALITY

Table 1: Potential evaluation criteria, measuring along a continuum

<table>
<thead>
<tr>
<th>Category</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Best Practice</td>
<td>Literature support as “best practice” which will promote quality and patient safety</td>
</tr>
<tr>
<td>Legal/regulatory importance</td>
<td>Indicator can impact legal/regulatory standards</td>
</tr>
<tr>
<td>Financial importance</td>
<td>Indicator can impact P4P and/or reimbursement</td>
</tr>
<tr>
<td>Consistent with internal</td>
<td>Indicator is aligned with system and/or institutional priorities</td>
</tr>
<tr>
<td>organizational priorities</td>
<td></td>
</tr>
<tr>
<td>Performance relative to benchmark</td>
<td>Opportunities to improve or maintain current compliance when compared to identified benchmarks</td>
</tr>
<tr>
<td>Reputational Effect</td>
<td>Indicator can either increase risk or enhance reputation and clinical standing in quality area.</td>
</tr>
<tr>
<td>Available Resources</td>
<td>Available resources reflect current structure to support measure</td>
</tr>
<tr>
<td>Value Added to patients</td>
<td>Improvement in patient satisfaction and perception of care</td>
</tr>
<tr>
<td>ROI</td>
<td>Indicator is measuring best practice in that clinical area and will improve patient outcomes by reducing LOS, mortality and readmission or decreasing hospital costs over time</td>
</tr>
<tr>
<td>Overlap</td>
<td>Indicator is monitored and measured by multiple organizations</td>
</tr>
</tbody>
</table>

Table 1: Potential evaluation criteria, measuring along a continuum

The number of quality and patient safety metrics employed in healthcare today has skyrocketed. The acronym VSOP provides a classification framework modeled after the seminal work of Donabedian, and facilitates the consideration of the advantages and disadvantages of each data type. These metrics have significant limitations and must be carefully delineated. Attention to data definitions, as well as the importance of a solid evidence base prior to dissemination, is critical to enhancing the value and utility of these indicators. Nonetheless, healthcare organizations can suffer from indicator overload, and care must be taken to evaluate the utility of these indicators being measured.

De Lazar completed residency in Internal Medicine at the Bronx Municipal Hospital Center/Albert Einstein College of Medicine, followed by a one-year appointment as Chief Medical Resident. He then entered fellowship training in Cardiology at the Mount Sinai Medical Center in New York in July of 1985, which concluded June 1987. His initial appointment post training was as the Associate Director of Medicine and Co-Director of the Intensive Care Unit at the Hospital of the Albert Einstein College of Medicine. He served on a number of hospital and departmental committees as outlined on his Curriculum Vitae. In 1991, he was appointed a part-time Consultant to the Commissioner at the Food and Drug Administration, serving in a consultative role on policy matters pertaining to continuing medical education and adverse drug event reporting. He continued in this capacity through 1993, and received the Commissioner’s Special Citation for his work.

In 1993, he was appointed Chairman of the Department of Medicine and Program Director, Internal Medicine Residency Program at the Brooklyn Hospital Center. A significant focus of his quality improvement activities included drug utilization and he chaired the Pharmacology and Therapeutics committee.

In 2000, he joined the New York Presbyterian Healthcare System as Vice President, Medical Affairs. In 2004 he was appointed Chief Medical Officer of the Healthcare System, and in 2007 was appointed Chief Quality Officer of the New York Presbyterian Hospital and Healthcare System.

De Lazar’s research interests have included clinical trials in hypertension and coronary disease, and he has authored or co-authored numerous papers, particularly in the areas of cardiovascular pharmacology and emergency preparedness. More recently he has focused his scholarly activities on quality issues and health services research. He has served as co-principal investigator of numerous grant-funded studies. He is Board certified in Internal Medicine, Cardiology and Critical Care, and Geriatrics.

References