

## EVOLVING CONCEPTS OF QUALITY : THE NEED FOR A CONTEXTUAL APPROACH TO DEFINING QUALITY

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### ABSTRACT

Quality assurance is a simple idea but capturing quality in health care can be difficult. The reason is that we have to take into account the multi-dimensional nature of quality and multiply that by the multi-dimensional nature of health care itself. Adopting a contextual approach to quality is necessary. Quality improvement activities should be defined means to defined ends. The approaches and dimensions of quality have to be defined within the context of time, space and activity. Quality must be defined in the context of the objective of a planned activity with consideration given to the resources available. A six dimensional framework had been proposed and these are: Accessibility, Appropriateness, Acceptability, Effectiveness, Equity, Efficiency. This framework is useful in studying of health care systems and incorporates social and political considerations in health care delivery. Correlates of quality are also affected by many factors beyond quality. It is difficult to be certain whether improvements and deteriorations are due to planned activities to improve quality of care or are they unrelated changes due to external circumstances unrelated to such activities. The needs and wants of an individual patient is unique and standard treatment is often not possible. Defining what is acceptable and unacceptable variations of care add to the difficulty.

### INTRODUCTION

We have an intuitive understanding of the meaning of quality. Yet when we set out to study and apply concepts of quality, it becomes very elusive. One of the reasons for this difficulty is that quality is multifaceted. Like a diamond, it sparkles differently when the lighting changes. Quality, like beauty, is very much in the eye of the beholder. It is important to understand the concepts of quality before attempting to implement quality initiatives in our daily work. Many such efforts fail, or degenerate into a mindless tango with red-tape because of a failure to understand the multi-dimensional nature of quality. It is important to accept that quality is best defined and applied in the context of a specific time, space and activity.

### THE BASIC MODELS OF QUALITY IMPROVEMENT

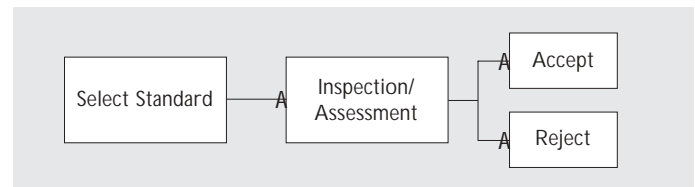


Figure 1. The basic linear model of quality improvement

Figure 1 illustrates the most basic concept of quality improvement. A standard is set and checks are then made to see if the products meet the requirements. This would then result in acceptance or rejection. For example, a medical school would set standards for qualification to become a doctor. The examinations inspect the end product of medical school training, measuring students at the end of the training process against the standards. Those that pass are accepted. Those that fail are rejected.

However rejection is wasteful because the raw materials of the rejected goods can be used again. Minor repairs and modification may make a rejected product meet the standards. This is obvious if we revisit the medical school example. Likewise in the process of quality improvements, it may be discovered or decided that the standards are inappropriate and need to be changed.

Unlike goods, bad services once rendered to a customer cannot be withdrawn. The objective is to remedy the bad outcome and to improve the next service encounter. These concepts are incorporated and results in a cycle, which is developed eventually into the audit cycle that we are familiar with.

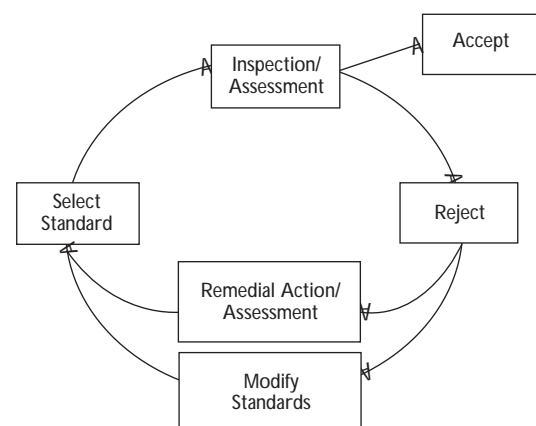


Figure 2. The basic cyclical model of quality improvement

Beyond these basic concepts of making things better, quality becomes a much more complicated undertaking.

## DEFINITION OF QUALITY, CLINICAL QUALITY AND QUALITY ASSURANCE

In the common usage of the word, quality means “an essential distinguishing attribute of someone or something” or “a degree or grade of excellence or worth”<sup>1</sup>. In the attempt to capture quality and apply it into productive effort, this definition is not adequate. The definition of quality takes on a new meaning, depending on the approach taken to attain quality. Five main approaches have been proposed<sup>2</sup>. They are transcendent, product-based, user-based, manufacturing-based and value-based.

### Transcendent

This philosophical approach defines quality as something absolute and universal. Quality is perceived as something experiential that cannot be resolved into measurable dimensions. It is an enchanting approach that is probably closest to the truth. Unfortunately this definition is probably the least practical.

### Product based

Almost diametrically opposite to the transcendental approach, the product based approach is only concerned about the most tangible aspects of quality. Quality is seen as being only what is measurable in a product. Differences in quality are represented by differences in ingredients, components and attributes. Qualitative differences can be translated into quantitative differences in specific aspects of a product. This approach is very attractive as it appears to be objective and precise. There are severe limitations to this approach as it does not take into consideration less tangible aspects of quality such as cultural preferences, aesthetics and individual taste. Furthermore quality is sometimes achieved by being different instead of having more or less of a particular attribute.

### User based

This customer centered approach defines quality from the individual user's perspective. High quality means greatest satisfaction of the needs and wants of the user. This approach is appealing to service providers and advocates of quality management. The International Organization for Standardization's ISO 9000 states “the standardized definition of quality refers to all those features of a product (or service) which are required by the customer”<sup>3</sup>. Limitations include situations where wants and needs may be divergent. An extreme example is an alcoholic who wants alcohol but needs detoxification. The purchaser and user may also have dissimilar needs and thus have conflicting definitions of quality. For this approach to quality to be measurable, the individual preferences must be aggregated into a useful parameter. Something of high quality therefore becomes that which best meets the needs of most of the users, most of the time. The limitation of measuring quality by consensus is obvious when individuals with their unique needs and wants encounter products and services that are created for the greater good of the majority. Furthermore what is popular may not always be the best.

### Manufacturing based

This approach sees quality from the perspective of the supplier or service provider. Designs or specifications that are assumed to represent high quality are laid down. Conformance means quality and deviation means reduction in quality. This approach is attractive to policy makers, engineers and designers as it simplifies matters into specifications and control of deviation. The limitation of this approach is that the environment, customers and users become peripheral. It is an inward looking approach that often results in products and services that are perfect from the provider's point of view but rejected by the market and the customer as irrelevant or of low utility.

### Value based

Central to this approach is the concept of “value for money”. Quality is defined in terms of conformance to costs and prices. With the rise of consumerism and the ease of obtaining information, price comparison is a major factor to be considered when comparing quality of products and services. Cost conscious third party payers and purchasers of health care services are naturally the most avid proponents of this approach to quality. Affordability becomes an important determinant of quality. Something of quality, as defined by the other approaches, such as product features and engineering reliability becomes irrelevant as long as it is seen as unaffordable. The limitation of this approach is that affordability is by itself a relative concept. How much benefit, long term or short term, is worth a particular cost can be very difficult to determine.

### Context Based: The sixth approach to quality?

In summary, there are many approaches to defining quality. These different approaches may be contradictory in their final assessment quality. Their validity depends on the approach that is most appropriate for a particular situation or activity. Therefore, we may need a sixth approach to defining quality and that is the contextual approach. Quality must be defined in the context of the objective of a planned activity with consideration given to the resources available. Each of the earlier five approaches given could be used to create a composite definition that is contextually appropriate.

### Clinical Quality

Adding to the confusion, each discipline further defines quality in the context of their respective fields. For example, software engineers may define software quality as the degree which software meets specified requirements or customer/user needs or expectations<sup>4</sup>. In healthcare, we define quality on our own terms as “clinical quality”.

The Institute of Medicine has defined *quality* as “the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge”<sup>5</sup>.

### Quality Assurance

Quality assurance implies that one party is convincing another party that certain standards that are indicative of quality will be

met and maintained<sup>6</sup>. It also carries the meaning of all the steps and activities that are carried out to convince and achieve the desired outcome. The desired outcome of the process is essentially customer confidence.

## DIMENSIONS OF QUALITY

From the point of view of management, quality can be resolved into dimensions that fit into a framework for analysis<sup>2</sup>. There are eight such dimensions.

### Performance

This refers to the operating characteristics of the product.

### Features

Secondary characteristics that supplement a product's core functions.

### Reliability

Reliability reflects the probability of a malfunction or failure.

### Conformance

Conformance relates to the degree by which a product or service meet pre-established standards.

### Durability

Durability is a measure of product life.

### Serviceability

Serviceability means corrective action that can be taken in the event of breakdown.

### Aesthetics

Subjective dimension that is a combination of ideal points of a product's attributes that best matches the preferences of a specific consumer.

### Perceived quality

The subjective dimension of quality that is inferred through branding and reputation. This is an important dimension in situations where consumers do not possess sufficient information about a product or service.

At face value, the framework as defined by these eight dimensions may appear to relate more to non health care products and services. However, the quality of health care services can be resolved into these dimensions for analysis. (Table 1)

**Table 1. Quality of Health Care Services**

Dimension	Attribute of health care service
Performance	Range of services provided.
Features	Comfort of the environment. Courtesy of staff.
Reliability	Risk of adverse outcome.
Conformance	Matching expectations of patients or professionally determined standards of care.
Durability	Survival rate after interventional procedure.
Serviceability	Accountability in the event of adverse outcomes. Continuity of care.
Aesthetics	Acceptability of the services and facilities provided.
Perceived quality	Confidence of patients based on third party recommendations and validation by trusted organizations.

## STRUCTURE, PROCESS, OUTCOME

A more widely accepted dimensional framework for studying health care services was proposed by Donabedian. Quality is resolved into the categorical dimensions of structure, process and outcome<sup>7</sup>. It must be remembered that it is more a dimensional framework than an approach to quality.

### Structure

This is commonly taken to mean the physical structures, materials and resources that are involved in health care provision. The more comprehensive and correct meaning refers to the features and structure of organizations that affect the quality of health care. The intended meaning of "structure" is system design and system performance<sup>8</sup>.

### Process

This refers to the actual delivery of care from the point a person enters the health care system to the point where he or she is restored to health or is beyond further treatment. These include reception, diagnosis, investigations and treatment. Administrative, logistic and technical support that are involved in the care process are included. Likewise home care, health promotion, community support and health education are also included. Process therefore encompasses the totality of patient care activities.

### Outcome

Outcome is self explanatory and means the end result of the care process. Outcome can be studied and defined in many different ways. They include mortality, morbidity, health status changes, improvement in function, patient comfort, life expectancy and quality of life.

## DIMENSIONS TO MEASURE QUALITY IN HEALTH CARE

The structure, process and outcome model is useful as a framework to study health care quality. A dimensional framework that enables measurement of quality criteria would be more helpful especially when comparison of systems is intended<sup>9</sup>. Unlike many products and services, health care has intrinsic moral and ethical dimensions which are essential considerations in any measurement of its quality.

A six dimensional framework had been proposed. These are accessibility, appropriateness, acceptability, effectiveness, equity and efficiency. These six attributes are best defined by the answer they seek with regard to the state of quality of a health care system.

### Accessibility

How easily can the user receive health care services?

### Appropriateness

How relevant are the services provided to the needs of the user?

### Acceptability

How much does the services meet the expectations of the user?

### Effectiveness

How much positive impact does the services have on the patient's health status?

### Equity

How fair is the system in distributing health care resources to the community that it serves?

### Efficiency

How cost effective is the health care system?

This six dimensional framework to assess health care systems was further consolidated into seven defining attributes that had been called Donabedian's seven pillars of quality<sup>10</sup>. These are:

**Efficacy:** the ability of care, at its best, to improve health

**Effectiveness:** the degree to which attainable health improvements are realized

**Efficiency:** the ability to obtain the greatest health improvement at the lowest cost

**Optimality:** the most advantageous balancing of costs and benefits

**Acceptability:** conformity to patient preferences regarding accessibility, the patient-practitioner relation, the amenities, the effects of care, and the cost of care

**Legitimacy:** conformity to social preferences concerning all of the above

**Equity:** fairness in the distribution of care and its effects on health.

These frameworks are more useful in studying of health care systems because they incorporate social and political considerations in health care systems.

## CORRELATES OF QUALITY

The reason why business owners and leaders of organizations pursue quality is because of the assumption that the implementation of quality initiatives into productive effort brings tangible benefits. Such benefits are correlates of quality that are important at the organizational level. They are namely price, cost, market share, productivity and profitability.

It is understandable that the desired outcome is for quality initiatives to increase the selling price, decrease cost, increase market share, increase productivity and increase profitability. As much as the understanding of quality is intuitive, the benefits of incorporating quality into productive effort is well accepted. Unfortunately studies that demonstrate such correlations are few and often inconclusive<sup>2</sup>. Part of the reason may be the elusive nature of quality and the adoption of contextually inappropriate definition of quality. Many quality initiatives may be poorly planned and executed resulting in little change in the desired correlates.

Finally, correlates of quality are affected by many factors beyond quality. For example, health care subsidy can cause price distortion that breaks the normal relationship between

price and quality. Market share may be achieved by other means besides improvements in quality. Generally such situations will hinder quality and lead to deterioration of the standards of goods and services in the long term.

## BARRIERS OF QUALITY IMPLEMENTATION IN HEALTH CARE

The advent of commercialization, consumerism, patient empowerment and increased expectations of accountability had all come together to give impetus to implement quality initiatives to health care in a structured and measurable manner. In addition to the problems posed by the difficulty of defining quality and the multi-dimensional nature of quality, which make quality assurance a generally challenging undertaking, there are specific characteristics of health care services that add to this difficulty.

Health care, especially in family medicine, is a multi-dimensional service which results in biopsychosocial outcomes. Changes in biological status due to technical interventions can be measured and it is not surprising that such parameters are better studied and analyzed. However, less tangible changes, such as those that occur with emotions, knowledge, attitude and perception are embedded in the doctor-patient interaction. It is difficult to reduce them into components for measurement and analysis.

Confounding factors in the physical environment and social milieu affects all aspects of health care and its resultant quality. It is difficult to be certain whether improvements and deteriorations are due to planned activities to improve quality of care or are they unrelated changes due to external circumstances unrelated to such activities.

Carrying out appraisal of health care systems is also difficult. One has to identify areas within the components of structure, process and outcome that would be discerning attributes that indicate quality. Within such an identified attribute, choosing what information to collect will affect the conclusion. For example if we wish to study the outcome of a specific medical intervention, collecting information on mortality or quality of life may give rise to different conclusions.

Health care is also a very complex activity. It encompasses a wide array of services and intervention that range from the simple advice to the very complex and technical procedures. Setting criteria and standards for so many activities is a daunting undertaking. Furthermore, it is very difficult to agree upon what constitute appropriate standards. Variation of care is common and not necessary bad. The needs and wants of an individual patient is unique and standard treatment is often not possible. Defining what is acceptable and unacceptable variations of care add to the difficulty.

## CONCLUSION

Quality assurance is a simple idea. Capturing quality in health care is difficult. We have to take into account the multi-dimensional nature of quality and multiply that by the multi-

dimensional nature of health care itself. Adopting a contextual approach to quality is necessary. Quality improvement activities should be defined means to defined ends. The approaches and dimensions of quality have to be defined within the context of time, space and activity.

#### REFERENCES

1. <http://www.wordreference.com/definition/quality>
2. Garvin DA. Managing Quality. The Free Press 1988.
3. [http://www.iso.org/iso/en/iso9000-14000/understand/basics/general/basics\\_4.html](http://www.iso.org/iso/en/iso9000-14000/understand/basics/general/basics_4.html)
4. Galin D. Software Quality Assurance. Addison Wesley 2004.
5. Institute of Medicine. Crossing the Quality Chasm: A New Health System for the 21st Century. The National Academies Press 2001.
6. Ellis R, Whittington D. Quality Assurance in Health Care: A Handbook. Edward Arnold 1993.
7. Donabedian A. Commentary on some studies on the quality of care. Health Care Financing Review 1987. Supplement. 75-76.
8. Mullan F. Interview: A Founder of Quality Assessment Encounters a Troubled System. Health Affairs 2001 January-February; 137-141.
9. Maxwell RJ. Quality Assessment in Health. Br Med J (Clin Res Ed). 1984 May 12;288(6428):1470-2.
10. Donabedian A. The seven pillars of quality. Arch Pathol Lab Med. 1990 Nov;114(11):1115-8.

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#### LEARNING POINTS

- o Quality assurance is a simple idea but capturing quality in health care can be difficult.
  - o We have to take into account the multi-dimensional nature of quality and multiply that by the multi-dimensional nature of health care itself.
  - o A six dimensional framework had been proposed and these are: Accessibility, Appropriateness (Relevance), Acceptability, Effectiveness, Equity, Efficiency.
  - o This framework is useful in studying of health care systems and incorporates social and political considerations in health care delivery.
  - o Correlates of quality are also affected by many factors beyond quality.
  - o Quality must be defined in the context of the objective of a planned activity with consideration given to the resources available.
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