

QUALITY MEASURES IN DENTISTRY- A NARRATIVE REVIEW

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ABSTRACT

In the global scenario, the rise in population has simultaneously augmented the need for health care services. Measurement is a robust foundation of evaluation to improve the quality of health care services. The main motive of a good measure are to enhance research, accountability, and care quality. The classic evaluation model given by Donabedian describes the quality assurance under three ideas: structure, process, and outcome. Cost is one facet of a dental care program's quality that is directly tied to its capacity to meet its objectives. For dental care, the quality assessment metrics can also be assessed by evaluation of restorations and patient satisfaction questionnaires. Dental Healthcare Service Providers must commence quality systems to implement ongoing improvements in order to be competitive with the rest of the world. Finally, the fundamental obligation is to ensure that public should get benefits as much as possible from the quality measurements.

KEYWORDS: evaluation, quality assurance, quality control, cost analysis, health care.

INTRODUCTION

In the global scenario, the rise in population has simultaneously augmented the need for health care services. There are a lot of queries raised based on the quality of health care services delivered in developed and developing countries. So, its necessary to solve the concern by evaluation studies. Evaluation of any health care services (for eg: oral health programs) is performed with the intention to rule out whether the objectives and goal are met. Besides, it also helps in assessing the cost, effectiveness of the services, recognizing the loopholes and ultimately implicating the modifications.^[1] This narrative review provides a quick explanation of the various quality measures and evaluation procedures used in dentistry.

DEFINITION

Evaluation

Evaluation measures the degree to which objectives and targets are fulfilled and the quality of the results obtained. It measures productivity of available resources in achieving clearly defined objectives. It measures how much output or cost effectiveness is achieved. It makes possible the reallocation of priorities and of resources on the basis of changing health -WHO 1967.^[2]

TYPES OF EVALUATION

Formative evaluation

It describes about a program's internal assessment. This is typically done to support the early stages of a program's development. For eg: Assessment of ongoing programs/ health care service being delivered at a hospital. If any errors detected in the continuing services, formative evaluation will be made to make immediate changes at that particular time, without holding out for the program's conclusion.

Summative evaluation

Once a program is concluded, its value or quality is assessed by summative evaluation. It tries to find out whether goal of the program is met. This helps the decision makers to make a wise decision on continuation or discontinuation of the future programs.^[2]

QUALITY MEASUREMENT IN DENTISTRY

Measurement is a robust foundation of evaluation to improve the quality of health care services.

a. Contributors in the ground of dental quality measures

- According to the data from the *Institute of Medicine*, paucity of quality measurements is impeding oral health and rising oral health inequalities.
- *Children's Oral Health Initiative Value-Based Payment* was started by the Centers for Medicare and Medicaid Services in 2017. They choose few state's Medicaid program and assessed the value-based payment approaches of the oral health care services.
- A dental quality improvement program is launched by *United Health care* in New Jersey.
- *Delta Dental of Arkansas* pays dentists based on certain quality measures who provide evidence based preventive oral health care.
- Over a period of time, *National Network of Oral Health Access* is using quality measurement programs and has developed quality dashboards.
- *Delta Dental of Massachusetts* has developed "Prevention Report for At-Risk Children" report cards to assist dentists in tracking children at higher risk for caries.
- A leadership role is taken up by the American Dental Association to develop quality measures. It has launched Dental Quality Alliance (DQA) in 2008 for the same purpose.

b. Qualities of an excellent measure

- **Validity and reliability:** The quality measure should be scientifically acceptable. The measuring tools' validity and reliability ought to be satisfactory.

- **Importance:** Priority should be given to those quality measures that addresses the problem with high risk or those diseases which affects the majority of people.
- **Relevance:** The quality measure needs to be improved so that the people who utilize the data from the measurement process can understand the measure's findings and rule out whether it is relevant and useful.
- **Feasible:** The measure must be easy to apply, allow for the collection of data, and the needed data must be easily accessible and retrievable without undue difficulty.

c. Improvement using quality measures

The main motive of a good measure are to enhance research, accountability, and care quality. All the data gathered via the measurement tools must be converted to information and knowledge. Later, it can be used for making intellectual choices for further improvement.

Model for improvement: It is a model created for quality improvement by the Institute for Healthcare Improvement (IHI) in 1996. The model uses a process called *Plan Do Study Act* to evaluate the effect of quality measures.

Steps followed in Model for improvement

- **Team formation:** To create, carry out, and oversee an efficient improvement strategy, a team of individuals with complementary areas of expertise should be assembled.
- **Target the aim:** To improve the quality, specific aim has to be set.
- **Choosing measures:** Selecting measures that allow for the tracking of development over time in order to determine whether the intended improvement has taken place. Using a balanced set of measures is advised by the IHI.
- **Choosing changes:** Following the establishment of a clear, quantifiable, and time-bound goal, the main forces behind change are chosen. Subsequent drivers are then chosen; they are the more practical and lower level elements required to affect the primary driver.
- **Testing variations:** It is possible to determine whether a change results in an improvement by testing variations. Plan-Do-Study-Act cycle involves preparing, attempting, evaluating, and acting upon the lessons learned in order to test a change.
- **Applying changes:** As a long-term modification to the work process, implementation entails either scaling up or integrating the change throughout the entire organization.
- **Dispersion of changes:** Spreading is an effective implementation process from a trial unit or trial population to other rations of the company or other organizations. It is the process of replicating the changes.^[3]

DENTAL QUALITY ASSESSMENT

For dental care, the following quality assessment metrics are commonly used

a. Evaluation of restorations

Patient's always look upon the quality of the restorations. Despite the fact that dentists place a high value on technical proficiency of the restorations, aside from aesthetic considerations, measures for this kind of proficiency will provide a little information about outcomes of consequence to the patients. One of such measures is the 'Criteria for the clinical evaluation of dental restorative materials' developed by Cvar and Ryge in 1971. This is utilized by United States Public Health Service and termed as 'Ryge' or 'USPHS' criteria. Later, a modification of 'USPHS' criteria was developed, titled

'Standards of quality of dental care' utilized by the California Dental Association. These two criteria's was developed as an ordinal scale which evaluates the color, anatomic form and marginal features of the restoration.^[4]

b. Patient satisfaction

The traditional method of assessing patient satisfaction is to use a questionnaire. The United States National Health Insurance Study data was utilized to develop the dental satisfaction questionnaire (DSQ). The study involved participants who signed up for an insurance plan that covered all dental services except orthodontics. DSQ is a 19-item questionnaire that determines patient's dental satisfaction in access, availability/convenience, cost, pain, quality and continuity.^[5]

c. Service use

The statistics on service usage is determined by allotting codes for the treatment, which in turn is used as a caliber to measure quality in different methods. In addition, evaluation on type of dental treatment provides an overall vision of the style of the practice. If certain procedures define a condition, then following certain evidence-based clinical recommendations can be used to assess adherence to those criteria. For instance, if it is assumed that a patient's receipt of an intracoronal restoration indicates an increased risk of developing caries lesions, the percentage of patients who also recurrently receive a fluoride application can be used to assess compliance with the American Dental Association's (ADA) evidence-based clinical recommendations regarding fluoride use for patients at risk.^[4]

QUALITY ASSURANCE

It is the assessment or measurement of the quality of care and the implementation of any necessary changes to either maintain or improve the quality of care rendered. The classic evaluation model given by Donabedian describes the quality assurance under three ideas: structure, process, and outcome. This model is based on the notion that a desirable outcome is more probable if the structural provisions meet satisfactory standards like classy treatment amenities, right and appropriately skilled team etc.

Examples of Donabedian model in dental practice

Structure	Process	Outcome
Facilities like settings, physical structures	Management	Satisfaction of the patients
Dental equipment's	Completeness of records	Improvement in oral health status
Personnel's like licensure, certification	Appropriate diagnosis	Completeness of dental procedure
Administration	Appropriate treatment plan	Evaluation of periodic recalls

Special importance for quality assurance

The following five factors have all been linked to the Unites States for the emphasis on quality assurance initiatives:

- Towards the end of the 1980s, nevertheless, about 50% of Americans were making dental care pre payments. This swift shift prompted third parties to move in the dental care delivery system. They received a sufficient amount interest from the summative cost of the insurance plans. Sideways, the quality of care was also improved.
- Due to the rise in numbers of health care delivery systems in private and government sectors, cost of the health service was overtaking the inflation of the country. Therefore, it was obvious that less and less money would be available for other intended goals if health care expenditures were not brought into line when the total cost rises.

- After the initiation of Medicare and Medicaid in 1965, the Government focused on advanced health care expenses. As a result supplies related to quality assurance have been executed on hospital-based care.
- Consumers as a group have become more interested in issues pertaining to a wide range of dental services and products.
- Linked to the rise in consumerism, people are now significantly more prone to turn to the legal system for remedy from perceived deficiencies in the care they receive.^[6]

QUALITY CONTROL

It is the supervision and control of all operations involved in a process, usually involving sampling and inspection, in order to detect and correct systematic or excessively random variations in quality.

Government supports on quality control

A well-developed quality control system is in New York. Another one which is functioning successfully is the US Indian Health Service. These organizations operate on national and regional basis. Here for the evaluation of dental care, the procedure done on patients is divided into observed and backward items. The observed list includes examination and basic treatments. The backward list includes the quality of restoration, completeness of treatment and records. National Center for Health Statistics of the Department of Health and Human Services in Rockville, Maryland and Centre of Disease Control in Atlanta, Georgia are the National Government Agencies which thrive on the evaluation of quality care.^[7]

COST ANALYSIS

Cost is one facet of a dental care program's quality that is directly tied to its capacity to meet its objectives. The program's expected benefits and costs can be compared. We refer to this as cost-benefit analysis. Costs for two or more methods of accomplishing a particular goal can also be compared. This is an analysis of cost-effectiveness. Risk benefit analysis is the procedure used when there is a change in proportionate risk in an area where money numbers are particularly useless. Lastly, in actuality, one might compare a program's financial cost against its potential revenue. This is known as revenue cost analysis, and it is frequently required in the dental industry because patients are frequently expected to pay for their programs outright.^[8]

INDIAN SCENARIO

a. Clinical Establishment Act Standards for Dental Centre

The Central Government passed the Clinical Establishment Act, 2010 to regulate and register all clinical establishments in the nation and to set minimum criteria for the services and facilities they must offer. This law applies to all forms of clinical facilities, including solo practitioner clinics, in both the public and private domains and to all recognized medical systems.

b. National Accreditation Board for Hospitals

The Quality Council of India's National Accreditation Board for Hospitals & Healthcare Providers (NABH) was established to create and manage an accreditation for healthcare institutions. Continuous quality improvement is one of the standards set by NABH for dental healthcare providers. It involves gathering pre-defined data on structures, processes, and outcomes, particularly in high-risk areas. The data is then reviewed, and appropriate steps are made for additional improvements.

c. National assessment and accreditation council (NAAC)

As a quality maintenance strategy, NAAC suggests that all certified institutions set up an Internal Quality Assurance Cell (IQAC). The mission of the Internal Quality Assurance Cell (IQAC) is to institutionalize and internalize all quality-enhancing and sustaining efforts undertaken with both internal and external support in order to advance the culture of quality as the top priority of higher education institutions.^[7]

d. National Accreditation Board for Testing and Calibration Laboratories (NABL)

One of the boards that makes up the Quality Council of India (QCI) is NABL. According to the Societies Registration Act of 1860, QCI is a registered society. It was founded to offer the government, industry associations, and the industry at large a scheme of Conformity Assessment Body accreditation that entails the technical competence of testing to be assessed by a third party, including calibration and medical laboratories, companies that provide proficiency testing and manufacturers of reference materials.^[9]

RECOMMENDATIONS

Few recommendations for achieving quality management include

- In a quality-focused dental healthcare service provider, the patient's comfort, convenience, and above all effective two-way communication would come first.
- It is necessary to exhibit, notice, instruct, teach, learn, and evaluate leadership qualities. To advance the work culture at dental healthcare service provider, a sense of oneness must be ingrained.
- As a continuation of the aforementioned, it is necessary to identify, develop, and enhance the processes and sub processes of the practice of treating the patient completely.
- A system is made up of interconnected processes. The Dental Healthcare Service Providers will function as a cohesive team once all the other previously mentioned concepts are fully implemented. In the current work environment, this will result in enhanced readiness for handling emergencies and embracing novel clinical difficulties.
- Analytical thinking combined with careful observation will produce early clinical judgments that will support healthy living.
- Dental Healthcare Service Providers must implement quality systems to implement ongoing improvements in order to be competitive with the rest of the world.^[10,11]

CONCLUSION

The fundamental obligation is to ensure that public should get benefits as much as possible from the quality measurements.^[12] The national priority to consciously seek value from healthcare has resulted from steadily rising expenditures and uneven quality of medical care. Dentistry must measure what works and what doesn't in order to make the necessary adjustments to enhance health outcomes and ensure that we are offering the best possible patient-centered dental treatment. It is especially crucial that dentists comprehend the common values, objectives, and possible advantages of the various quality systems and instruments, as well as the related challenges of putting models into practice in the dental field.^[13]

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