

## Quality Improvement Approaches and Models in Healthcare

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### Abstract

**Purpose:** The purpose of this study is to review the efforts made to improve quality of healthcare by assessing the existing healthcare quality improvement models and to approach alternative directions for future research in the area.

**Design/methodology/approach:** Service quality improvement approaches in healthcare and the existing models of quality improvement are reviewed from published research papers in different journals. Totally, 38 articles were reviewed and based on the relevance with the research topic, 15 articles were screened out for further examination and analysis of their contents. Lecturer

**Findings:** In the literature survey, different approaches of quality improvement in healthcare were reviewed. The focus of most of the approaches was on a holistic way of improvement. Accordingly, general improvement models were provided to enhance quality in healthcare. This is a good input for improvement. But an explicit focus on major activities in the sector such as; demand management in healthcare, supply chain management in healthcare, referral system management in healthcare and others need further study as they help in bringing better and focused quality improvement in the sector than following a general approach.

**Research limitations/implications:** Improving quality in healthcare is a determinant issue as there is a work of life perpetuation in the sector. This improvement should be considered in different directions regardless of following a general approach. Studies on explicit healthcare activities should be there to bring the required change in the sector.

**Originality/Value:** This study gives a new direction on the specific approach to improve quality in healthcare and show ways for better quality improvement.

**Keywords:** Service quality; Improvement; Healthcare

### Introduction

The concept of quality has been contemplated throughout history and continues to be a topic of intense interest today. Quality presently is addressed in numerous academic and trade publications, by the media, and in training seminars; it is perhaps the most frequently repeated word among managers and executives in contemporary organizations. In a recent survey, executives ranked the improvement of service and product quality as the most critical challenge facing businesses [1]. Quality has been described as "the single most important force leading to the economic growth of companies in international markets" [2]. Quality in healthcare is also a determinant issue as healthcare accomplishes a work of life perpetuation and quality in healthcare sector is getting thorough attention. So far, different approaches have been introduced to improve healthcare service quality. Therefore, this research aims at reviewing the methods and approaches with their improvement models used for service quality improvement in a healthcare and gives alternatives insights for further research in the area.

### The need for service quality improvement

Both public and private organizations exist to serve their customers. The service quality particularly in the public sector has become ever more important in improving customer satisfaction. Organizations, especially in the public sector agree that customer satisfaction is one of the most vital factors that contribute establishment of reputation and credibility among the public. The public complaint of long queues, poor service delivery and insufficient physical facilities affect the image and level of service quality in the public sector. Service quality that customers receive must be reliable, responsive and emphatic involving service product, service delivery and service environment. Service quality has been documented as one of the key driving forces for business sustainability and is crucial for firms' accomplishment. Hence, research on service quality has been carried out worldwide.

Earlier studies have focused on service quality construct by Parasuraman et al. [3-5]. The development of the original 22-item SERVQUAL instrument signifies one of the most extensively used operation of service quality. It has provided researchers with the possibility of measuring the performance-expectations gaps composed of five determinants namely, reliability, responsiveness, empathy, assurance and tangibility. Existing studies focus on measuring the service quality level by these five dimensions in a holistic manner

without considering the independent focus that should be given for each dimension through prioritization and their integrated impact to other improvement activities.

The apparent reluctance of service organizations to utilize quality improvement based strategies and practices are difficult to understand, especially in light of the increased significance of the service industries and the demand of customers. The trend signifying the increasing importance of the service sector is expected to strengthen in the foreseen future. This trend, coupled with an increasing emphasis on the customer-focus strategic orientation makes the reluctance of some service organizations to implement quality improvement initiatives difficult to fathom. Some attribute this apparent reluctance of service organizations to implement quality improvement initiatives to the difficulties associated with defining service quality. Despite apparent difficulty, some practical research has attempted to practically address issues related to service quality in different service operational settings such as rapid assessment methodology to improve service quality in healthcare operational setting by attempting to integrate service quality improvement initiatives into a form of a system-wide quality improvement philosophy.

Based on a stream of research comparing operational practices and related quality improvement initiatives in manufacturing and service organizations, the need for service organizations to benchmark their manufacturing counterparts was underscored and the studies concluded that despite the multi-faceted nature of service quality, the implementation of quality improvement initiatives in service operational settings is not only feasible, but rather it leads to effective operational and strategic gains. In recent years, some service organizations in different service industries, such as healthcare, insurance and tourism among others, have shown increasing interest in developing quality improvement initiatives. This interest may be attributed to the positive operational and strategic benefits of these initiatives.

In general, however, the effective implementation of quality improvement initiatives in service operational environments is still lagging behind compared with that of manufacturing. This may be attributed to the common misconception that quality improvement initiatives are, either inapplicable or at best, very difficult to implement in service operational settings. The research presented in this study analyzes and discusses on the existing moves concerned with quality improvement activities in healthcare operational environments and comes up with concluding remarks on what has been done till now, and indicates future direction for further study.

## Quality in Healthcare

Healthcare industry is an integral and inseparable part of every society and every country. It consists of organizations, people and actions whose primary intent is to promote, restore or maintain health. According to government industry classifications mostly based on the United Nations system (World Health Organization and United Nations Children's Fund, 1978) and the International Standard Industrial Classification (United Nations Statistic Division, 2001), health-care generally consists of hospital activities, medical and dental practice activities, and other human health activities. Those activities are conducted within the healthcare organizations which could be, depending on the type of services they deliver, facilities of primary, secondary or tertiary level of care they provide (WHO, 2007). Quality

in health is defined as doing the right thing, the first time, in the right way, and at the right time.

The Framework for Managing the Quality of Health Services in University of New South Wales (NSW) provides the structure for Area Health Services and clinicians to effectively govern the quality of care and to ensure that the clinical care and services provided are safe, effective, appropriate, consumer focused, accessible and efficient. The framework challenges healthcare organizations, clinicians and managers to undertake rigorous evaluation of processes and outcomes of services in a manner that is transparent and leads to sustained improvement.

Historically, quality departments have been important parts of hospitals since the 1950s, but only recently; quality management theory transformed the role of these departments, renewed their original quality mandate, and empowered them to logically restructure fundamental hospital processes to produce better quality. Hospitals have historically modeled quality according to systems paradigm, but only recently have been able to benefit from benchmarking important new management theory from other industries. As a result, the rate of adoption of quality management within healthcare has been almost uniform in different areas and even in the smallest hospitals. The process in healthcare mainly focuses on "identifying problem in customers" health and does a work to eliminate or treat it. During the last decade, the healthcare sector has changed rapidly due to increased competition and the growing influence of patient association and a necessity to deliver health services in a more efficient and effective way. Different quality improvement approaches have been studied. The approaches include quality improvement initiatives such as; total quality management (TQM), just in time (JIT), job reengineering (JR), process reengineering (PR), organizational restructuring (OR), benchmarking (BM) among others aiming at continuous improvement.

These approaches, with especial focus on the continuous quality improvement approach should be further studied to help in seeing the strengths and drawbacks of what is worked on and to identify a gap that gives a room as well as unique direction for further improvement.

## Methodology

To meet the aim of this study, literatures were surveyed from different well-known international journals. The detail content of the articles regarding the healthcare quality improvement approaches and the models used for the improvement were critically assessed, analyzed and summarized. Among various literature survey methods, content analysis is selected. Content analysis is a research method for systematic, qualitative and quantitative description of the manifest content of literature in an area. In this study, this method is used as it is found to be relevant to clearly understand the output of the improvement activities done up to now to improve quality in healthcare. The search includes two steps; definition of sources and procedures for the search of articles to be analyzed and definition of categories instrumental to the classification of the collected articles. Based on this approach, review of the content of the referred articles was assessed accordingly as discussed below.

## Definition of sources and selection of articles

The first step of the analysis consisted of searching for articles relevant to the purpose of the study and the search was limited to academic journals. The articles were gathered from well-known

websites such as; Emerald, Elsevier, Taylor and Francis and IEEE. Majority of the articles for this study were collected from Emerald. Key words “healthcare Quality” and “Quality Improvement Models” which are mostly related with quality improvement activities in healthcare were used to gather related articles. The reviewed articles are those published between 2004-2012.

Though there are high numbers of published articles in the international journals related to quality improvement in healthcare, the focus of this study is entirely on the models and approaches adopted in healthcare quality improvement process. As a result of the search, 38 related articles were found. By scanning further through reading the full text of the articles to eliminate those articles that are not strongly related to the study, 15 articles were found to be more relevant to the survey. The relevancy of the articles was checked by their purpose, by their findings and by their concluding remarks with provided models for quality improvement in healthcare. Thus, the most related titles and contents were chosen for further analysis.

The analysis includes an in depth exploration of the purpose, the findings and models developed for quality improvement in the sector.

### Definition of the content classification and models

As a major means of refining the articles, the overall content of the articles and the quality improvement models developed as a result of the articles are critically assessed. For further explanation, the method used for the study is critically studied and finally the result achieved by the study is analyzed. In the selection of relevant resources, the search was limited to academic journals. In the general review of articles, the overall content of the articles was revised to help in screening out the most relevant materials. In the classification by content, the overall content of the selected articles was assessed and categorized into four related areas. In the classification by improvement model developed, the reviewed articles were classified into seven core areas. Finally, a

concluding remark and a direction for further study is given based on the analysis from the above discussion which is represented in Figure 1 below. By this process, the following fifteen articles are found to be more related to the research topic raised in this study and the overall content is represented in Table 1.

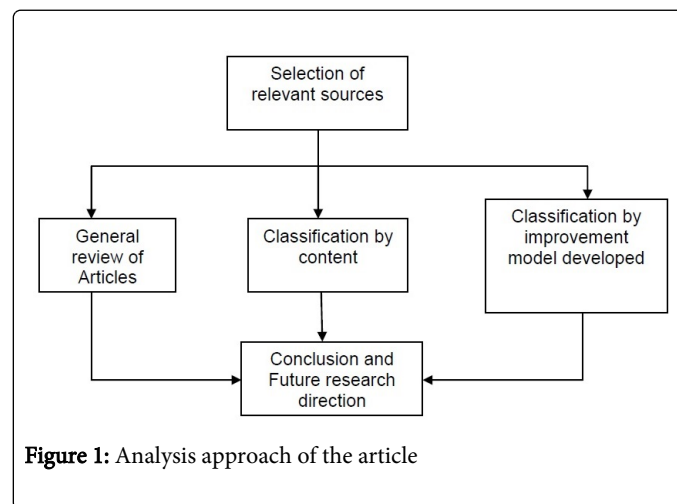


Figure 1: Analysis approach of the article

### Reviewed articles on quality improvement approaches in healthcare

Different quality improvement activities have been applied in healthcare sectors with a variety of approaches having the same focus area which is improving the service provision in the sector. Among the high number of the studies in this area, the most related studies with quality improvement and model development in healthcare sector are reviewed and shown in Table 1 below. The order of representation of the studies is in chronological order of the publication of the articles.

	Author	Publisher	Title	Purpose	Method	Result
1	Huseyin Arasli and Lillia Ahmadeva -2004 [6]	International Journal of Health Care Quality Assurance, Vol. 17 , No 3, pp. 135-145, Emerald Group Publishing Limited	No more tears! A local TQM formula for health promotion	To show the way that public and private hospitals function, and answer the question of how to increase total quality using public opinion in the healthcare industry in developing countries	Qualitative and quantitative data were collected through interview and questionnaires, ANOVA and SPSS were used for data analysis.	A new quality improvement model incorporating seven factors of patient satisfaction in new dimension was proposed to implement TQM with continuous preventive actions.
2	R.Nat Natarajan -2006	The TQM Magazine, Vol. 18 ,No. 6, pp. 572-582, Emerald Group Publishing Limited	Transferring best practices to healthcare: opportunities and challenges	To analyze the opportunities and challenges in the healthcare sector for learning and transferring from other sectors the concepts, best practices, and tools for improving quality, safety and productivity.	Assessment on 21healthcare sectors was taken on the various approaches of improvement in healthcare and application obstacles.	Among the various approaches of improving quality applied in industries and in healthcare, more attention should be given to avoid internal obstacles as the characteristics of healthcare can promote or hinder the implementation.
3	Prasanta Kumar Dey, Seetharaman Hariharan, St Augustine,	Managing Service Quality, Vol. 16, No. 2, pp. 203-222, Emerald Group Publishing Limited	Integrated approach to healthcare quality management	To develop an integrated quality management model, which identifies problems, suggests solutions, develops a	Uses Logical Framework Analysis (LFA), a matrix approach to project planning for managing quality by	The study came up with a conclusion of LFA is an effective method of quality management of hospital-based healthcare services

	Trinidad) -2006 [7]			framework for implementation and helps to evaluate performance of health care services dynamically.	developing integrated QI model.	
4	Charles R. Gowen III, Kathleen L. McFadden, Jenny M. Hoobler, William J. Tallond (2006)	Journal of Operations Management, Vol.24, pp 765-778, Elsevier	Exploring the efficacy of healthcare quality practices, employee commitment, and employee control	To examine healthcare quality program practices, employee commitment and control initiatives, and perceived results by surveying hospital's quality programs.	By surveying sample the hospital's quality programs	Quantitative and qualitative quality Programs results are highly related to employee commitment and control initiatives than they are related to quality practices.
5	Jafar Alavi, Mahmoud M. Yasin -2008	International Journal of Health Care Quality Assurance, Vol. 21 Iss. 2, pp.133 – 145, Emerald Group Publishing Limited	The role of quality improvement initiatives in healthcare operational environments	To shed some light on the utilization of quality improvement initiatives in healthcare operational environments.	A literature survey-based research methodology is utilized in this study	The studied organizations have achieved both operational and strategic benefits due to the effective implementation of quality improvement initiatives
6	Ann Scheck McAlearney -2008	Journal of Healthcare Management, Vol.53,iss.5, Center for Health Management Research, The American College of Healthcare Executives, and the Division of Health Services Management and Policy at The Ohio State University.	Using Leadership Development Programs to Improve Quality and Efficiency in Healthcare	To assess opportunities that might exist to use leadership Development programs to improve quality and efficiency	Uses data from three qualitative studies of leadership development in healthcare with Interviews from 200 individuals conducted between September 2003 and December 2007 with hospital and health system managers.	The analysis showed that Leadership development programs provide Important opportunities to improve quality and efficiency in healthcare.
7	Drew Helmer, Usha, Sambamoorthi, Yujing Shen, Ching-Lin Tseng Mangala Rajan, Anjali Tiwari, Miriam Maney, Leonard Pogach (2008)	Journal of Primary Care Diabetes Europe, Vol.2, Iss 2, pp 65-110, Elsevier Ltd.	Opting out of an integrated healthcare system: Dual-system use is associated with poorer glycemic control in veterans with diabetes	To test for an association between quality of care and patient choice to obtain care Outside an integrated healthcare delivery system.	Administrative data to define dual-system use (Veterans Health Administration (VHA) and Medicare) for VHA users with diabetes over 65 years old.	Dual-system use was associated with higher values, suggesting that veterans who chose to receive care outside the integrated VHA may have worse intermediate clinical outcomes than those who received care exclusively within the system.
8	Denis R. Towill -2009 [8]	Leadership in Health Services, Vol. 22, No. 2, pp. 176-188, Emerald Group Publishing Limited	Enabling effective change in healthcare delivery systems	To provide health leaders with a clear unambiguous description of a proven modus operandi for analysis, design, planning, implementation, and start-up of effective and efficient healthcare delivery systems.	A survey in different companies was taken to assess the existing quality improvement activities.	Taking a holistic approach of problem solving & use of PDCA for better healthcare delivery was recommended
9	Siti Norsazlina Haron, Md Yusof Hamid Anuar Talib -2010	Social and Behavioral Sciences, Vol. 42, pp 63-73, ASEAN Conference on Environment Behavior Studies, Elsevier Ltd.	Towards Healthcare Service Quality: An Understanding of the Usability Concept in Healthcare Design	To review the literature on "usability concept" in built environment and healthcare design, and suggest a possible conceptual framework in achieving quality service by focusing: efficiency,	19 previous studies were reviewed focusing on usability design and on user satisfaction in hospital service.	Focus on efficiency, effectiveness and user's satisfaction (usability) is useful in improving outpatient area service outcome, which is more valuable to the end users.

				effectiveness and user's satisfaction.		
10	Sameer Kumar, Neha S. Ghildayal, Ronak N. Shah(2011)	International Journal of Health Care Quality Assurance, Vol. 24, Iss. 5, pp.366– 388, Emerald Group Publishing Limited	Examining quality and efficiency of the US healthcare system	To offer insights on quality reformation efforts, contemporary healthcare policy and a forthcoming change in healthcare quality improvement.	Process maps, cause and effect diagrams and descriptive data statistics are used to understand the existing situation in the system.	Major drivers of the healthcare costs are identified and application of IT was recommended as a way of supporting the improvement efforts and minimizing costs.
11	Col Abhijit Chakravarty -2011	Medical Journal Armed Force India, Vol.67, No.3, pp 221-224, Elsevier Ltd.	Evaluation of service quality of hospital outpatient department services	To ascertain any service gap between consumer expectations and perceptions in respect of the hospital outpatient department (OPD) services.	A cross-sectional study was conducted using SERVQUAL as a survey instrument, the instrument being validated for use in the hospital environment. Consumer ratings across 22 items of the survey instrument were collected in paired expectation and perception scores and then service quality gaps were identified and statistically analyzed.	Service quality gaps were identified to exist across all the five dimensions of the survey instrument, with statistically significant gaps across the dimensions of 'tangibles' and 'responsiveness
12	S.Rakich, Jonathon -2012 [9]	Journal of Health and Social Policy, Vol.13, Iss 3, pp 41-58, PubMed.	Continuous quality Improvement in healthcare Modus Operandi	To provide appropriate improvement in healthcare from the two contemporary approaches(BPR or CQI)	Theoretical assessment of implementing BPR and CQI was done.	CQI is likely to remain the dominant approach to QI in healthcare service organizations
13	Eriksson H, Bergbrat M, Berrum L, Morock B(2012)	International Journal of Health Care Quality Assurance, Vol. 24, Iss.8, pp.592-600, Emerald Group Publishing Limited	Reducing queues: demand and capacity variations	To investigate how waiting lists or queues could be reduced without adding more resources; and to describe what factors sustain reduced waiting times.	Cases were selected according to successful and sustained queue reduction.	A guide line for each activities and continuous measure of the key factors was provided as a recommendation to reduce queue.
14	Andreea-Oana Iacobuta (2012)	Procedia-, Social and Behavioural Sciences, Vol.62, pp 896-900, Elsevier Ltd.	Patients' evaluation of access and quality of healthcare in EU countries.	Aims at providing an assessment of access and quality of healthcare in EU countries from a bottom up perspective.	Two indicators were used to analyze quality of healthcare system; the percent of positive evaluation for the overall quality of healthcare and health Consumer index were used.	The results show that citizens of developed countries have a positive opinion about quality of healthcare in their country while patients from developing countries evaluate it rather negatively.
15	Abdulaziz A. Saddique(2012)	Saudi Pharmaceutical Journal, Vol. 20, No.3, pp 273–277, Published online at US National Library of Medicine	Development of Clinical Pharmacy services at King Khalid University Hospital and its impact on the quality of healthcare provided	To evaluate the impact of clinical pharmacy programs on the patients' care as well as its perception by the Medical staff that came from different parts of the world.	Data were collected by involving Seven Clinical Pharmacists and two Clinical Pharmacy residents in the data collection for the study over a three month period and analyzed for therapeutic, financial and direct cost impact.	The study showed a positive impact on the patients' care as well as on the economy of the drugs prescribed. Meanwhile, the service was very much appreciated by the Medical staff as well as other healthcare providers.

Table 1: Selected articles for a detail content analysis

## Analysis and Discussion

The reviewed study types are case studies, literature reviews, viewpoints, concept papers and general reviews collected from different websites mentioned in the methodology. The analysis and discussion of the articles is carried out based on their context, the structures and methods used for the study, and outputs of quality improvements and models.

### Summary of the articles based on their context

Based on the overall context of the study, the reviewed articles can be categorized into four groups as represented in the Table 2 below.

Articles by Authors	Purpose of the articles
Huseyin et al. (2004), Dey et al. (2006)	To improve the internal system's quality in healthcare
Towill et al. [8], Chakravarty (2011), Rakich et al. [9], and Eriksson, et al. (2012)	Under the light of TQM,BPR and CQI to help in reducing waiting time
Natarajan (2006), Alavi et al. (2008)	To Analyze opportunities and challenges of healthcare
McAlearney (2008) and Oana (2012)	Quality improvement and to assess access and quality of healthcare in EU countries.
Gowen et al. (2006)	To Examine impact of quality in healthcare service
Helmer et al. (2008) Kumar et al. (2011)	and on other stakeholders to examine healthcare quality program practices and to test association between quality of care and patients' choice
Saddique (2012), Haron et al. (2010)	To Revise literatures on the efficiency of service and customer satisfaction in healthcare.

**Table 2:** Summary of articles based on their context

Thus, the contexts of the reviewed articles can be generalized into four categories as:

- Improving quality of healthcare in general

Result	Number of articles
Development of holistic continuous quality improvement model	4
Use of PDCA (Plan, Do, Check , Act)	1
Use of Process map	1
Identification of service gap	1
Application of IT(Information Technology)	1
Provision of a guideline for each activity	1
General conclusion about better improvement needs in the sector	6

**Table 4:** Results and models developed from the reviewed articles

Generally, the first four articles have come out with a quality improvement model which can be applied in a holistic manner. These models were inclusive type and do not clearly show which specific

- Analyzing opportunities and challenges of healthcare quality improvement
- Examining impact of quality in healthcare service and on other stakeholders
- Revising literatures on the efficiency of service and customer satisfaction in healthcare

### Summary of the articles based on the structure and method used for the study

In the reviewed articles, the common methods followed to gather and analyze data were questionnaire survey, theoretical assessments of basic quality improvement concepts, case study, use of SERVQUAL, survey of previous studies, use of process map, cause effect analysis and descriptive statistics in the proportion shown in Table 3. Similarly, it is clearly understood from the methods used for these studies that the methods guide to tracing the general condition in service delivery of the sector which can only come up with a general result. More or less, the internal structure of the reviewed areas was also deeply studied.

Method used	Number of articles
Literature survey	5
Case study	7
Process map	1
Logical framework analysis	1
Analysis of opportunities and challenges	1

**Table 3:** Summary of the methods used in the selected articles

### Summary of the articles based on outputs of quality improvement and models

From the selected 15 articles, different analysis and discussion points were raised regarding service quality improvement in healthcare starting from a general conclusion of better improvement needs to suggestion of specific improvement models as shown in Table 4 below.

activity should be modified in the whole chain of the service delivery in the hospital. Five articles come out with provision of a guideline for each activity, the need of application of IT, identification of service

gap, process map and use of PDCA. These five outcomes are similarly of a general type of IT implementation to the whole healthcare. It doesn't prioritize the area which benefits more from IT for a holistic service gap identification in the system and doesn't identify specific area for further study. The last six articles have come up with a conclusion for the need of better improvement in the sector which can be clearly understood from the context of the sector.

## Conclusion

From the above literature survey, it can be concluded that different studies were done to improve service quality in healthcare by considering that quality cannot be compromised especially in healthcare sector. And most of the studies focused on a general approach of improving service quality for better customer satisfaction. In addition, the reviewed studies focused more on minimizing the service provision time by following a holistic problem solving approach. Thus from the result of the analysis and discussion, it can be concluded that results in the previous studies have a holistic nature of improving the service quality in the sector. But, study on explicit healthcare quality issues such as; demand management in healthcare, supply chain management in healthcare, referral system management in healthcare and others, which are more influential in service quality

improvement of the sector, are not found in the reviewed literature. Hence further investigation is needed to improve quality in healthcare by focusing on the mentioned issues.

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