Editorial

Refinement in Healthcare: Need for an Innovative Quality Management System

Kalra Jay*

Department of Pathology and Lab Medicine, University of Saskatchewan and Royal University Hospital, Saskatoon, Canada

***Corresponding author:** Kalra Jay, Department of Pathology and Lab Medicine, University of Saskatchewan and Royal University Hospital, Saskatoon, Canada. Tel: +13066552152; Email: jak316@mail.usask.ca

Abbreviations: CQI: Continuous Quality Improvement, IOM: Institute of Medicine, ISO: International Organization for Standardization, QI: Quality Improvement, Skas: Skaraborg Hospital Group, TQM: Total Quality Management

Introduction

Quality Improvement (QI) is a promising and necessary component of improving the quality of care in the healthcare sector. It represents a systematic approach of implementing and sustaining continuous improvement. QI includes the use of trained and experienced staff, efficient in planning and implementing these processes for creating a culture of continuous quality improvement [1,2]. The quality of care delivered by clinicians is recognized by the performance standards of the organization in which they work [1]. Although the standards of care delivery are dependent on the individual, in the current scenario, the ability of the organization to prevent medical and diagnostic errors, to coordinate care and provide seamless flow of information among practitioners and other caregivers, are considered critical elements in delivering quality care. Organizations around the world need to revamp their care delivery systems by measuring outcomes and finding improvement activities to meet the desired outcome in patient care [3].

Healthcare is a dynamic environment and is in a state of constant transformation. Therefore, it presents new risks all the time. In such a scenario, it is not feasible or sufficient to implement traditional QI tools like Continuous Quality Improvement (CQI) or Total Quality Management (TQM), which makes it important to identify and implement refined quality management systems [3,4]. In order for the healthcare system to operate at its fullest potential and to ensure quality care, there are six attributes that must be monitored. These are "safety, effectiveness, patient-centeredness, time, efficiency, and equitability" [5]. To address these attributes, the healthcare sector should look to industrial-grade measures and methods for improvement. However, the attainment of industrial-grade quality in healthcare is far from a reality, as they are far ahead in innovating and enhancing the quality of delivery as compared to healthcare [6]. The healthcare industry has been on the frontline of innovation by applying newer quality control techniques to generate high-quality services with a lower error rate. On the contrary, the healthcare sector has not invested sufficient effort in to implementing sophisticated quality control applications. Therefore, the healthcare sector has been unable to keep pace with industrial innovation in quality care due to the high volume and complexity of factors involved in the healthcare environment [7].

The major challenge in adopting QI techniques is in making QI an integral part of an institution's initiative to create a culture of patient safety. To improve quality standards, it is important to train individuals with experience and expertise. Consultants are very important in the initial stages of setting up a system. However, QI tools like "Six Sigma" and "Lean" face resistance from front-line staff who see these initiatives as a roadblock to their work. Managers are not very cooperative in releasing their staff to become trained and to participate actively in QI initiatives. Medical staff might have an ignorant attitude toward these initiatives by considering QI or Six Sigma as just another monthly human resources activity [8,9]. The complex nature of the profession and the variability in its processes make it challenging to implement traditional QI techniques. The dynamic nature of the healthcare environment makes it challenging to enforce step by step processes and protocols, with precisely defined steps and guidelines, which is an industry norm [9]. In order to develop a sustainable QI model, it is very important to train and nurture talent in-house [10]. The success of a project is dependent on two factors, well-trained staff and acceptance of the QI initiative by all the individuals who are directly or indirectly affected by it.

The best-tested method to improve quality issues in the healthcare domain would be the Six Sigma Model, a quality improvement tool trademarked by Motorola and perfected by industrial and manufacturing industries [6]. Six Sigma is a quality concept, however, according to Magnusson et al, it is a business concept [11]. Strategies, organizational structures, processes and methods are interrelated, and the effective utilization of this interrelationship makes the Six Sigma strategy effective. Six Sigma has gained significant interest in statistical and quality improvement analytics circles. The initiative also has caught the attention of leaders in business and financial sectors, as well as in the healthcare sector [3,9]. Identification of the customer's idea of quality is critical to the development of standards and processes that constantly and consistently deliver error-free, high-quality service. Six Sigma utilizes a project management approach for the implementation of projects, and the benefit of the customer is paramount to the success of the project.

The Six Sigma model uses defects per unit to measure quality. A system is performing at a world-class level when it is operating at the level of Six Sigma, which translates to 3.4 defects per million. Because of the sheer number of people using health care services, even a small percentage of error can result in negative health outcomes for many. Currently, the health care system is operating at only a three sigma level. Not only does the Six Sigma model help to reduce error, it also helps to reduce costs and improve efficiency, and results in better client-patient satisfaction. Six Sigma uses the DMAIC model, which stands for Define, Measure, Analyze, Improve and Control. Each word is a step in the process of implementing Six Sigma [10]. According to Scalise, the use of the Six Sigma Model in hospitals reduced emergency room wait times and decreased diagnostic lab delays, among other positive effects [6]. Some hospitals may be wary of implementing Six Sigma, as the cost of training is quite high but the downstream benefits and savings greatly outweigh any initial costs. Appropriate utilization of Six Sigma produces higher efficiency in operations and a better cost-benefit ratio [9].

In hopes of improving quality care in Sweden, the Six Sigma model was implemented in the Skaraborg Hospital Group (SKaS) that consists of four hospitals. The study was completed in a three-year period, between the years of 2006-2008. SkAS had participated in quality development in the past. One initiative involved the creation of a process education program that encouraged staff to report issues in daily operations during the two-day education program, which resulted in many new projects but did not address organizational change as a whole. Despite having other quality care initiatives in place, various projects lacked communication and therefore were unable to work together toward a long-term goal [2]. To address these issues, the senior management team and development director decided to introduce the Six Sigma model with the goal of decreasing error and improving patient health outcomes. A template with questions was created to identify areas that were of critical importance. The project managers were recruited internally, and physicians were recruited as participants in the project groups. Twenty-two projects were initiated and twenty were completed in the three-year time frame. The completed projects had a success rate of 75% and had an average net savings of US $55,300 [2]. Not only did the projects address issues within quality care, they also worked to save the SKaS hundreds of thousands of dollars, greatly outweighing any initial costs of implementation.

Other governments wishing to implement Six Sigma can draw conclusions from areas of success from the SKaS study as a model for how to implement successful projects. SKaS found that successful projects had several common factors, including "commitment from clinical management and steering committees, involving co-workers and physicians in the projects, use of the DMAIC roadmap, and continued communication of project progress" [2]. The successful projects in SKaS implemented with the help of Six Sigma show the importance of a team-based approach in addressing medical error and improving the quality of care. Before medical errors can be reduced, however, the healthcare system as a whole must undergo both structural and cultural change. Human error is an unavoidable risk in healthcare, although with a system overhaul and the introduction of the Six Sigma Model, medical error can be greatly reduced. The current culture of blame and hierarchical structure must be replaced by open and honest reporting systems and a collaborative care team approach. It is important to recognize the value of the expertise that all types of health care practitioners bring to the table. With these changes implemented at a federal level, hospitals will become safer environments not only for patients but for all healthcare practitioners [8,12].

The Six Sigma concept aims at an overall improvement in the quality of the process as a fundamental goal in healthcare services, thereby improving the performance of the process exponentially. The healthcare industry is still in the nascent stages of using sophisticated quality improvement tools. Therefore, personnel in the healthcare industry should seek guidance and training from top management consultants. Executing small-scale projects successfully will empower practitioners to implement these changes on a larger scale. The goals of Six Sigma are impressive and set demanding standards, which appear to be more compatible with patient safety. Quality improvement using Six Sigma initiatives as a business strategy will enable the healthcare industry to provide patients with the highest level of service and care.

Conflict of Interest

The author declares no conflict of interest exists.

References

1. Glasgow JM, Scott-Caziewell JR, Kaboli PJ (2010) Guiding inpatient quality improvement: a systematic review of Lean and Six Sigma. The Joint Commission Journal on Quality and Patient Safety 36: 533.

2. Lifvergren S, Gremyr I, Hellström A, Chakhunashvili A, Bergman B (2010) Lessons from Sweden's first large-scale implementation of Six Sigma in healthcare. Operations Management Research 3: 117-128.

3. Tilo P, Wolf R, Claudia C (2004) Integrating six sigmas with quality management systems. The TQM Magazine 16: 241-249.

4. Buck C (2001) editor Application of Six Sigma to reduce medical errors. Annual Quality Congress Proceedings-American Society for Quality Control; Asq: 1999.

5. Tolga Taner M, Sezen B, Antony J (2007) An overview of six sigma applications in healthcare industry. International Journal of health care quality assurance 20: 329-340.

6. Kalra J, Kopargaonkar A (2016) Quality improvement in clinical laboratories: A six sigma concept. Pathol Lab Med Open J1:11-20.

7. Kalra J (2004) Medical errors: overcoming the challenges. Clinical biochemistry. 37:1063-71.

8. Larson L (2000) Ending the culture of blame. A look at why medical errors happen--and what needs to change. Trustee: the journal for hospital governing boards. 53:6-10.

9. Loay S, Camille D (2003) Six Sigma in health care. Leadership in Health Services 16: 1-5.

10. Black K, Revere L (2006) Six Sigma arises from the ashes of TQM with a twist. International Journal of Health Care Quality Assurance19: 259-266.

11. Magnusson K, Kroslid D, Bergman B (2004) Six sigma umsetzen. Hanser, München/Wien.

12. Ramsey G (2005) Nurses, medical errors, and the culture of blame. Hastings Center Report. 35:20-1.