The role of quality management

Introduction

Due to nowadays, people are more concerned on their quality of life more than the past therefore healthcare centre is one option that satisfies their needed. Unfortunately, there were some medical errors had occurred in healthcare service which it was harmful human's welfares. As a result, that situation reduced trustworthiness of healthcare's image and it also effect on the financial crisis of the healthcare organizations.

Consequently, due to massive disadvantages impact which healthcare had confronted with such as discredit images, gained few profit, and etc. Therefore top managers or directors of healthcare centre are turned to consider and study so hard on how to improve their " quality and service" within healthcare to maintain loyalty customers and to gain more profit outcomes.

The managements have to understand the definition of " quality" with in healthcare. Then try to understand how it is changed over time and taking out the learning by mistake from the past to be benchmark for improving their processes.

Then define problems and key barriers by using the effective tools such as Six-sigma, TQM, Lean, and etc. in order to sort out problems.

The quality of healthcare

This part provided three perspectives of Healthcare;

First of all, it focused on " The quality in healthcare" which is an important measurement that consumers consider on these criteria when they would

like to be cure. Secondly, the evolution of quality in healthcare, it provided history from the past up until now which it allows us to learn from mistake, and to know how quality in healthcare had been improved in recently. Lastly, the problems in healthcares which had been occur nowadays.

The Definition of the quality of healthcare

There are different definitions of the quality of healthcare. According to Buttell, et al., (2008), the most durable and widely cite definition of healthcare quality is formulated by the Institute of Medicine in 1990. It is defined as the degree to which health services for individuals and populations increase the likelihood of desired health outcome and are consistent with current professional knowledge (IOM, 1999).

Blumenthal (1996), experts have struggled for generally applicable definition of the quality of healthcare for decades. In addition, in healthcare, quality can be defined differently for different purpose and different perspectives. McGlynn (1997) and Schulte (2009) argue that healthcare industry includes different players; commonly, different players define the quality of health care differently. These players refer to patients, service providers and other parties which are involved in healthcare systems. According to Amster, et al., (2006), there are four main perspectives on the quality of healthcare: the patient perceives perspective, the healthcare professional perspective, healthcare plans and organisations perspective and the purchaser perspective (Blumenthal, 1996). For instance, regarding Amster, et al., (2006), the quality from patient perceive defines as: kind of care which is expected to maximize an inclusive measure of patient welfare, after one has taken account of expected gains and losses that attend the process of care.

However, Campbell, et al. (2000) defines it as " whether individuals can access the health structures and processes of care which they need and whether the care received effective". This definition focuses on the access and effectiveness of healthcare.

In addition, many scholars recognize that different perspectives and definition of the quality of healthcare lead to the different approaches of quality measurement. Consequently, it is important to define the quality and specify the perspective, so that the approaches of measurement are appreciated. (Amster, et al., 2006)

Evolution of quality in healthcare

Komashie, et al., (2007) noted that in 19 centuries, the motivation for systematic quality evaluation in healthcare was started by the professional nature in the UK. In 1908, result from the survey shown that people became focus on the professional certification and legislations in healthcare sector (Bull, 1922). Later, Nursing and Hospitals standardization were applied in measure healthcare services by Dr Codman proposed in 1914 (Sale, 2000). Due to the development of industrial and technological, people have realized the quality of healthcare and it was arisen into high awareness level in 20 centuries; the demands for quality care become higher level than before. It required specific method or tools to improve healthcare quality (Ferlie & Shortell, 2001). Tighter standards and closely control of government as well as implementing of industrial techniques were used to improve healthcare quality with different objectives may look at the concept of quality differently.

Despite of various quality management were discussed, by 1980s as a managerial innovation TQM (Total quality management) was as a new management philosophy in healthcare industry in the USA (Asubonteng et al. 1996). After 20 years, some researchers have emphasized using industrial techniques in healthcare such as Statistical Process Control (SRC) because they thought the quality of healthcare could be treated as a process (Mohammed, 2004; Yeung et al, 2004). As a matter of fact, Johnstone et al. (2003) stated based on the industrial quality philosophies like six sigma which could be used as a tool in " quality control" to reduce the variability, thus improve the quality in TQM.

Problem within healthcare

The first problem healthcare industry has to consider how to assess the quality management. The management of quality in healthcare does not only focuses on longer term strategic leadership but also need daily operational management. As William (2009) has concluded from their research that: there are eight factors have significant effect on quality management, and divided into two groups. In the strategic factors include the role of management leadership, the role of physician, customer focus and training resources investment; in another group are operational factors such as: the role of quality department, the quality data/reporting, process management (training) and employee relations.

Secondly, according to Jackson (2001) recognized that many quality management in healthcare industry initiatives failed because lack of knowledge, skills and expertise, especially the relationship between managers or leaders. He also claimed that based on enough trainings clearly

good communications should be timely, accurate, consistent and appropriate. In addition to quality of healthcare management, there are some main problems: over-expenditure; inadequate medical services (medical errors); the cost of expansion. For instance, the healthcare organizations in the USA was challenged in 1999 , there was a report of the Institute of Medicine of USA indicated that more than 44, 000 people were died because medical errors every year; much more than population of people who was died from vehicle accident (43, 458), breast cancer (42, 297) or AIDS (16, 516) (Ruiz, U. and Simon, J. 2004).

Last but not least, Lee (2006) found that customer satisfaction take the main impact of healthcare competitive. From his research the results pointed even customers still prefer to go the hospital which they were satisfied. As a result, healthcare organizations have to consider on consumer aspects to improve levels of patient satisfaction which is very critical to a healthcare organization's long-term success. Healthcare providers must focus on quality improvement strategies. That is, healthcare professionals must demonstrate attributes consistent with organizational culture. There are six attributes for quality healthcare system that use to approach consumer's expectation as follows: Safe, Effective, Patient-centred, Timely, Efficient and Equitable (Mehmet, et al., 2007).

In summary, due to the quality of healthcare and problems are dynamic changed following globalizations. Therefore the organization should be continuing update information then prepare the effective tools to deal with problems.

Theoretical of quality tools and technique application within Healthcare

Recently, healthcare business is growing up rapidly but its quality and services are not good enough. Engaging in quality signifies that the organization is concerned about the value it brings to its patients, its providers, its employees, and its stakeholders Over the years, healthcare companies have adopted and implemented various quality methodologies and philosophies with some companies even developing their own quality-based initiatives which aimed to sort out the problems.

At this time, Six-Sigma, Lean, and TQM are the popular tools which used to develop the healthcare management to reach the superior quality and services. This part will discuss on details how those tools worked out and how its useful within healthcare organizations.

Six Sigma

Six Sigma is one of the most powerful performance improvement methodologies that are changing the face of modern healthcare delivery today. It is an optimisation tool that is embraced by many organisations and industries involved in manufacturing and services as a cost-effective way to improve quality and productivity. Six Sigma has been around for almost twenty years and has grown exponentially in healthcare industry during the past five years mainly in the US.

There are various definitions of Six Sigma, for example;

Paul (1999) suggested:

Six Sigma is a comprehensive, statistics-based methodology that aims to achieve nothing less than perfection in every single company process and product.

Goh (2002) described:

Six Sigma as an information-driven methodology for reducing waste, increasing customer satisfaction, and improving processes, with a focus on financially measurable results.

For instance, concluded that the six-sigma goal is to reduce both variance and control processes in order to assure compliance with the critical specifications. Moreover the statistical focus of various six sigma definitions reflects its basic philosophy which it can be shared beneficially by everyone, including customers, shareholders, employees, and suppliers.

Six Sigma offers a framework that unites basic quality tools with high-level management support (Catherwood, 2002; Henderson and Evans, 2000; Hahn et al., 1999). It consists of a five-step improvement cycle with the aim to continuously reduce defects dealing with an existing process in which reaching a defined level of performance will result in the benefits expected, which called DMAIC (see appendix, figure 1): Define problems, Measure the current performance against requirements to refine problems/goals, Analyse by developing hypotheses for the best practices, Improve by implementing new processes to design creative solutions to fix and prevent problems, Control the performance of the process by institutionalising improvements and putting a mechanism for ongoing monitoring in place (Park and Antony, 2008).

Total Quality Management (TQM)

TQM is an umbrella term for company-wide quality improvement efforts which became a successful quality movement in the US during the 1980s (Deming E. W., 1986). It was providing a foundation upon which virtually all healthcare quality movements of patient care outcomes, processes, and services.

TQM's philosophies were built around the view that businesses are composed of processes that start with customer needs and end with highly satisfied customers (The W. Edwards Deming Institute, 2004). In healthcare there are a multitude of customers including patients, providers, and payers.

Due to TQM was typically implemented in many healthcare organizations and provided excellent quality tools for organization to improve quality, however it didn't have quantifiable benefits and along with not seeing measurable return that could be tied to the bottom-line. Therefore the board of directors and/or top management often did not view TQM as a strategic tool latterly (Evans and Lindsay, 2005).

Benedetto (2003) agrees with those authors and suggests further that TQM did not work well for processes that required major changes such like healthcare. Because in healthcare, the complicated and interdisciplinary approach of providing patient care often requires numerous changes across multiple departments before improvement in patient outcomes or satisfaction are attained as well as the complex nature of third-party billing account receivable contributes to the slow achievement of financial quality improvement gains. As a result, the name TQM became associated with

quality tools rather than as a continuous quality improvement strategy with substantiated results.

Currently, the term TQM is not used much anymore but the principles are still alive in many organizations with underlie the Six Sigma philosophy (Evans and Lindsay, 2005).

Lean

Today lean production is a well-established management concept in many manufacturing organisations. There are several success stories of the strategic changes achieved through lean initiatives in both the private and the public sector with effects (see, e. g. McPherson and Mitchell, 2005; Swank, 2003; Womack and Jones, 1996, 2003; Motwani, 2003; Zayko and Broughman, 1997). Similarity, nowadays lean strategic became one effective tool to deliver higher healthcare quality at lower costs.

Lean is defined by Womack and Jones (1994) as the systematic removal of waste by all members of the organization from all areas of the values stream. It is often referred to as a cost-reduction mechanism (Achanga, 2006; Bicheno, 2004).

Last but not least, Phillips (2000) stated that lean manufacturing is aimed at the elimination of waste in every area of production including customer relations, product design, supplier networks, and factory management. The seven typical examples of waste are: overproduction, waiting, transportation, inappropriate processing, excess inventory, unnecessary motion, and defects (Endsley et al., 2006; Bhasin and Burcher, 2006).

Lean's framework consists of five basic steps (Nave, 2002; Snee, 2004; Womack, 2006):

- Define the customer value.

- Management of the value stream.

- Developing a flow production.

- Using " pull" technique which it includes Just-In-Time (JIT) process.

- Continuously pursue perfection of the process.

Lean strives to make organizations more competitive in the market by increasing efficiency, decreasing costs incurred due to elimination of non value-adding (VA) steps and inefficiencies in the processes (Motwani, 2003) as well as reducing cycle times (Sohal and Egglestone, 1994) – and increasing profit for the organization (Claycomb et al., 1999). An organization can achieve these results while not sacrificing effectiveness (Monden, 1981) if it produces exactly what is needed in the right amount when it is needed (Kannan and Tan, 2005; Monden, 1981).

Sample applications of six sigma methodology in healthcare industry
Case : Decreasing waiting time before surgery
(Mehmet, et al., 2007)
According to improve levels of patient satisfaction is very critical to a healthcare organization's long-term success. Therefore, healthcare providers must focus on quality improvement strategies. That is, healthcare professionals must demonstrate attributes consistent with organizational culture. Six attributes for a quality healthcare system are identified as follows: Safe, Effective, Patient-centred, Timely, Efficient and Equitable.

Due to this case, patients often register their dissatisfaction while they wait for surgery. Therefore the hospital has to sort this problem to maintain loyalty customers. From hospital's viewpoint, this resulted in wasted resources, increased costs, and additional risk to the patient. As for the patients, they complain that their time has been wasted, and added that there has been great inconvenience to the family. Moreover, the protracted anticipation of surgery has been distressing.

A Quality Improvement Team was formed. To identify possible nodes in the process where significant delay might have been incurred, the team developed a flowchart of the process by which patients were admitted to the hospital and then proceed to surgery (figure 2). Following this, the team developed a fishbone diagram (figure 3) to speculate on how and why time might be lost at these points during the process. Data are collected by modifying the medical record to show delays in surgery and the reasons for the delay as noted by the attending personnel. Substantial delay has been found to be due to the laboratory tests to be reported and for the ECG (Electrocardiogram) unit to become available.

In summary, Six-sigma, Lean, and TQM are technique tools that using in healthcare organizations in recently. They are effective way to eliminate problems, to reduce costs, and the most importantly, to lead the superior healthcare's quality and services. Due to " one tools is not fit all", in each tool has a difference strategy to approach the problems. Hence, it will be useful, if the healthcare organizations pick up the right tools to fit with the right crisis.

Barriers and Challenges in implementing quality manangement

The implementation of continuous improvement strategies is not widespread as shown in figure 1 (Brown and Eatock, 2008). The absence of appropriate leadership, lack of time and commitment for teamwork, unavilable and unreliable of data(Nakhai & Neves, 2009), an absence of mechanisms to communicate for new approaches and lack of experimentation, as well as are common barriers to the implementing OM programs in the UK health care services (Vassalou, 2001).

Lack of Leaders

There are different subcultures within the UK HC (Meyerson & Martin, 1987). Doctors, nurses and residents have developed their own sets of personal goals, beliefs, mental models and behaviors. Therefore, lack of leaders who direct and inspire staff to share learning would lead to unsuccessful organizational learning (Huq, 1996; Vassalou, 2001).

Lack of time and commitment for teamwork

Lack of time and personnel, unclear accountabilities in case of error and lack of commitment would lead to impede staff from taking risks for improving processes and services as well as from picturing themselves as part of system (Vassalou, 2001). For example, TQM is not a quick fix, and its take long time after adoption to see the benefits therefore commitment of resources to a long-term process is especially challenging. Because it is difficult to garner employee commitment to an organization's TQM plan when it is downsizing at the same time (Huq, 1996).

Unavilable and unreliable of data

In terms of Six Sigma, although there will be lots of data available in the health care sector, most of the time these data are not readily available for its analysis (Taner, et al., 2007). This is because it is harder to measure due to various things that happen when customers and service providers interact, the difficulties that arise from the various sub-processes as well as the data are not as reliable since the data are collected through more direct (" face to face") means (Nakhai & Neves, 2009).

Poor of training

Some technique requires specific knowledge to analyse data and financial resource such as Six Sigma Belt System training (Taner, et al., 2007) therefore if employees do not have knowledge or familiar with OM program, it will difficult to interpret data and they will not aware of its important.

Lack of Experimentation

Experimentation and use of new operational systems and mechanisms are restricted by UK government guidelines. UK organizations are more closely controlled for the level of provision of their services.

Part of the challenge is how to appropriately apply the techniques that have proved successful at the left end of the spectrum to a healthcare system at the other end. A key problem will be resistance to change (Komashie & Mousavi, 2007). Although most of the quality researchers have focused on the importance of management involvement that an effective quality management programme must start from the top, this does not always mean that it reaches to the ground level where it matters most.

Critical success factors in implementing quality manangement

There are several factors which are affacting the success of implementing QM programs: clear performance metrics, top-down management involvement, customer focus, education and training, teamwork and co-operation, cultural change, and attaching the success to financial benefits. Organisation should focus on these factor when implementing OM programs.

Clear performance metrics

This is an important factor from a service point of view. Oftentimes the difficulty is with identifying what to measure (Sehwall and DeYong, 2003). Before starting any QM programs initiative it is better to have a clear idea and agreement on the performance metrics to be used.

Top-down management involvement

Organisation should focus on " top-down" rather than initiated by a particular department or from the ground (Goh, 2002). Top management involvement helps to influence and restructure business organizations and the cultural change in attitudes of individual employees toward quality in a short implementation period (Henderson and Evans, 2000).

Customer focus

Customer focus is one of the major requirements in applying six sigma. According to Antony, et al., (2007), the research shows the most important CSFs in implementing Six sigma programs in service organisations were customer focus and project management skills as shown in table 1. They concluded that because monitor service processes are different, the metric tools are also different. Therefore, service organizations must acquire a

different skill or training to address the aforementioned issues in a service-based business culture.

Education and training

Education and training help people understand the fundamentals, tools, and techniques of quality management. Training is part of the communication process to make sure that manager and employees apply and implement the techniques effectively (Kwak and Anbari, 2006).

Teamwork and co-operation

Teamwork and co-operation along with the transfer of knowledge are central characteristics of the learning organization. To create a learning community, service organisations need to be surrounded by shared leadership, clarity and support for the mission and an experimenting culture (Vassalou, L., 2001).

Cultural change

Applying lean thinking and TQM emphasis on cultural change. Six sigma is considered a breakthrough management strategy and it involves the adjustment of a firm's values and culture. People facing cultural change and challenges due to the implementation of quality manangement tools that need to understand this requirement. Also needed are a clear communication plan and channels to motivate individuals to overcome resistance and to educate senior managers, employees, and customers on the benefits of implementing QM programs (Kwak & Anbari, 2006).

Attaching the success to financial benefits

Financial benefits as a measure of achievement makes it easily understandable for employees and help them to relate to QM project outcome (Goh, 2002).

In my opinion, leadership is the most critical success factor when apply continuous improvement in the health care services because applying lean thinking, TQM and Sig Sixma emphasis on cultural change. Organisation can reduce resistance to changes by applying appropriate leadership because leaders can encourage an experimenting culture, transfer knowledge, and empower employees which lead to be a good teamwork or co-operation and successful implement continuous improvement in health care services.

Benefits from the implementation of quality management

While TQM created " constancy of purpose" and promoted " improving constantly and forever" the product or service, Six Sigma establishes deliverable quality improvement in a specific time frame (Simmons, 2002). On the other hand, lean thinking promoted maximise productivity (Brown & Eatock, 2008).

Six Sigma

Six Sigma tool is used to identify root cause variation that creates all errors or poor outcomes. In healthcare, Six Sigma tool is used to analyze problems and thereby improve the patient care process or outcome (Black & Revere, 2006). Implementing Six Sigma tools enables hospital operations to increase their hospital's profitability in the long run because the development of a mistake-free which reduces costs in the long-term (Buck and Charles, 1998).

According to Antony, et al., (2007), implementing Six Sigma can bring

benefits by

- reduced number of non-value added steps in critical business
  processes (reduce process cycle time) through systematic elimination,
  leading to faster delivery of service;
- improved consistency level of service which lead to reduce cost of poor
  quality, reduce customer complaints, improve customer satisfaction
  and increased market share, etc.;
- improved cross-functional teamwork throughout the entire
  organisation transformation of the organisational culture from fire-
  fighting mode to fire-prevention mode and increased awareness of
  various problem solving tools and techniques

According to IOM, (2006) as cited in Kumar & Steinebach (2008), the average

medication error cost today is $8, 750. If we apply Six Sigma then hospital

staff could prevent 6, 216 medical errors per million opportunities thereby

saving $54. 39 million.

TQM

According to Asubonteng P., et al., (1996), implementing TQM in health care

can improve a process, outcome, or service so that the consumer (patient,

provider, and payer) would perceive it as having quality thereby resulting in

loyal customers and increased market share as well as acheive zero defects

which lead to reduce costs of non-compliance with standards (Black &

Revere, 2006).

Lean

Lean requires a disciplined attitude to seek out and eliminate all waste in every area of a process including customer relations, supplier networks and organization management. The ultimate goal of lean manufacturing is to produce quality outcomes by instilling the discipline to reduce cost, to generate capital, to make the money, to bring in more customers, and to remain competitive in a growing global market.

Regardning research by Souza (2009), researcher is classifying lean healthcare into four categories:

- manufacturing-like, lean help to improve the physical flow of materials within a hospital (or healthcare organisation) such as pharmacy, radiology, pathology and laundry;
- patient flow, there are several benefits from applying lean thinking such as cost reduction, length of stay (LOS) or waiting list reductions, improving quality of care and patient safety;
- managerial and support services are mainly with the improveing flow of information within the organisation such as finance, medical secretaries, IT and all other managerial departments and divisions.
- organisation, however, to be successful of applying lean thinking, it need cultural change and should focus on the strategic level rather than the operational one (Brown & Eatock, 2008).

In HC, there are several tools to improve quality. For example, Six Sigma is used to identify root cause variation that creates all errors or poor whilst implementing TQM to improve a process, outcome, or service which lead to reduce costs of non-compliance with standards. On the other hand, Lean is

used to seek out and eliminate all waste in every area of a process. there are several benefits which result from improve quality by using QM programs.

Framework for successful implement of quality management in Health Care
Developing and implementing such as approach in health care institutions and systems require fundamental changes in the organisation's culture, structure and working methods (Huq, 1996). This report will provide 5 steps guideline to be a successful implement of quality management in HC based on Vassalou, L. (2001) and Brown & Eatock (2008). These 5 steps cannot contribute to organizational learning without the two supporting foundations: organizational design with supporting the upward and downward circulation of information as well as employee skills and competencies

Step 1: Mission and Vission
Differences between these continuous improvement strategies can be viewed in terms of where they fit on planes described between focus on culture or process and productivity or quality as shown in Figure 4 . According to Brown & Eatock (2008), any organisation should decide strategies first. To be successful, it must be actively improving both quality and productivity, and include all relative elements. Strategy with a cultural focus will require a more empowering form of leadership and ability and willingness to distribute knowledge whilst strategy that has a process focus will generally be easier with a more directive form of leadership (Brown & Eatock, 2008). The strategies outlined report benefits to both quality and productivity, see Table 2.

Step 2: Leadership

The commitment of management is vital to the success of all continuous improvement strategies (Henderson and Evans, 2000; Klefsjo et al., 2001). Changes implemented within one area of the hospital can potentially influence in other areas as it is rare for a patient pathway to take place only within one department (de Brujin, 2002; Iles and Sutherland, 2001). When resistances to change are happening, organisation should use paradiagram to analyse the behaviour of people doing things in a particular way (Lodge & Bamford, 2007) as shown in figure 5 (case study on changes in NHS) and apply appropriate leadership style to empowers employees and encourages an experimenting culture.

Step 3: transfer of knowledge

Skill and knowledge is needed to successful implement in OM programs such as Six Sigma. Therefore, everyone should get the same messages even if employees on the ground floor.

Step 4: teamwork and co-operation

The diversity of team members' knowledge and backgrounds stimulates dialogue, brainstorming and team problem solving (Garvin, 1993). " Everyone in a learning organization is aware of and enthusiastically accepts the responsibility to be a learner, as well as to encourage and support the learning of others" (Marquardt, 1996).

Step 5: an experimenting culture

This is an important part to create new knowledge and insights. This requires open- mindedness and dialogue, which help employees discover their hidden assumptions or mental models (Kim, 1993).

In summary, when organisations implements continuous improvement, they should choose mission and vision first by looking at strategies. Changes implemented within one area of the hospital can potentially