



Implementing quality initiatives in healthcare organizations: drivers and challenges

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Abstract

Purpose – Various quality initiatives seem to have successful implementation in some healthcare organizations yet fail in others. This paper sets out to study the literature trying to understand drivers and challenges facing quality initiatives implementation in healthcare organizations then compare findings from literature with those of a structured questionnaire answered by 60 representatives from 18 hospitals. Finally it proposes a framework that mitigates challenges and utilizes drivers to ensure best implementation results.

Design/methodology/approach – Literature regarding implementing various quality initiatives in the healthcare sector was reviewed. Representatives from several healthcare organizations were surveyed. Results from both approaches are compared to highlight the key challenges and drivers facing implementers.

Findings – This research reveals that internal factors related to leadership and employees greatly affect quality initiative success or failure. Design and relevance play a major role in successful implementation.

Practical implications – This research offers healthcare professionals greater success when implementing certain quality initiatives by taking success/failure factors into consideration. A general framework for successful implementation in the healthcare sector is provided.

Originality/value – This article uncovers reasons behind success or failure in a comprehensive and practical way. It also explores how most popular quality initiatives are applied in hospitals.

Keywords Quality, Accreditation, Six Sigma, Healthcare, Lean, EFQM

Paper type Research paper

Introduction

Healthcare managers are feeling the competitive pressure to deliver high quality healthcare services at low cost. Healthcare professionals are focusing on learning new ways to provide services at lower costs and higher performance levels. In theory, all quality initiatives (QIs) work well, since they are structured to resolve problems, maximise efficiency and minimise poor performance; e.g. Six Sigma is a powerful systematic approach; its Define, Measure, Analyse, Improve and Control improves performance and minimises operational costs in various industries (Heuvel *et al.*, 2005; Mehmet *et al.*, 2007; Chakrabarty and Tan, 2007). In many organisations, however, staff struggle with QI implementation (Shortell *et al.*, 1995; Ovretveit, 2000; Nembhard, 2012). Greene *et al.* (2008) declared that most healthcare providers benefit financially from using QIs. Huerta *et al.* (2008), reviewing 27 articles, revealed a direct relationship between hospital quality and performance. In contrast, many authors reveal several issues when applying QIs in healthcare organisations. Some are actually doubtful that



QIs can work at all; after studying four healthcare organisations and consulting 52 teams, Nembhard (2012) concluded that QIs in healthcare organisations do not always improve healthcare performance but it is the teams working in those organisations that hold the keys to effective performance. Similar findings were reported by Ovretveit (2000) and Shortell *et al.* (1995). The key questions answered in this research, therefore, are:

- (1) Why do QIs only seem to work for some?
- (2) What are the key challenges hindering successful implementation?
- (3) What are the key drivers helping successful implementation?
- (4) How can staff in organizations enhance the chances of successful implementation?

Methodology

This work has a dual approach: a literature review on how QIs are used in hospitals and analyses drivers and challenges facing their implementation; based on the literature, design a questionnaire to be answered by 60 representatives working in 18 hospitals. After comparing both approaches, a framework is designed to reveal a new implementation method with high chances of success.

Literature review

The review focused on all articles and case studies covering healthcare QI implementation. The search only considered the literature held in English language databases after 1990 covering implementation success and failure. Alexander *et al.* (2007) studied how various quality methods are applied and concluded, regardless of methods, success is related to internal factors. Leggat *et al.* (2010) declared that prior to QI implementation; managers should focus on enhancing employee skills; especially nurses. Castle and Lin (2010) showed how adopting a quality policy is important and that poor quality leads to the deterioration of many organisational aspects. To test QI quality and performance, Grohl (2001) studied several initiatives claimed to provide solutions to patient care problems: evidence-based medicine (EBM); total quality management; self-assessment; and accreditation. Grohl's article summarised the debate about achieving such initiatives and declared that none is superior, but combining these methods might better serve the healthcare industry.

Total quality management

Total quality management (TQM) is a quality philosophy that evolved over decades. Many see TQM as a powerful tool to create a quality culture since it focuses on leadership, communications, training and continuous improvements. Literature is rich with articles investigating TQM implementation in healthcare. Sommer and Merritt (1994) showed that over 70 per cent of staff in one organisation they surveyed use TQM and concluded that implementation improves all healthcare operations. Sahney and Warden (1991) revealed a direct relationship between TQM and health service productivity. Yasin and Alavi (1999) showed that systematically implementing TQM as an organisational-wide philosophy pays financially. Motwani *et al.* (1996) and Yasin *et al.* (1998) declared many challenges facing TQM adoption including: healthcare professionals' mind-sets; perceptions about physicians as leaders; poorly educated

medical staff; physicians treated as customers not as employees; strategy does not include quality deployment and does not include physicians' efforts; high turnover among senior managers; and strong resistance to quality changes. An important issue in their opinion is misunderstanding TQM. More recently, Carman *et al.* (2010) showed that successful TQM implementation depends directly on internal factors like culture, physician participation, implementation depth and method.

Excellence models

Excellence models and performance excellence awards initially started with the Deming Prize in 1950 in Japan, followed by the Malcolm Baldrige National Quality Award (MBQNA) and the European Foundation for Quality Management (EFQM) for excellence in the 1980 s. Nowadays, performance excellence awards, based on MBQNA or EFQM, are available in many countries. The Malcolm Baldrige model has seven categories: leadership; strategic planning customer and market focus; measurement analysis; and knowledge management; workforce focus process management; and business results, while EFQM has nine: five enablers (leadership, policy and strategy, people, partnership and resources and process); and four results (customer results, people results, society results and key performance results). The European model has three pillars: eight fundamental excellence; nine excellence criteria and a measurement tool called RADAR, which is a continuous learning and improvement tool (Moeller and Sonntag, 2001) with four elements: results; approach; deployment; assessment and review. Most European hospital professionals use excellence models as a continuous improvement tool (Goldstein and Schweikhart, 2002; Arcelay *et al.*, 1999; Naylor, 1999). In India, many hospital staff use excellence models including EFQM, MBNQA and Kanji Business Excellence Model (Raja *et al.*, 2007). In Spain, Jackson and Bircher (2002) revealed how EFQM helped create a continuous improvement culture that benefits patients, staff and other stakeholders. Implementing EFQM in healthcare organisations induced noticeable quality improvements; however, it is a general model and does not cover all healthcare areas (Gómez *et al.*, 2011; Moeller, 2001).

Accreditation

Accreditation is an external quality review; its principal components are: it is based on written and published standards; reviews are conducted by professional peers; and it is administered by an independent body, aiming to encourage organisational development on the business plan's credibility, which must be tested through surveys. While national accreditation bodies are available in many countries, Joint Commission International (JCI) is among the oldest and most prestigious accreditation bodies with history going back to 1910 (Roberts *et al.*, 1987). The JCI program is considered to be a comprehensive healthcare quality management framework, which expands quality leadership beyond that set by the International Standards Organisation (ISO) (Donahue and Vanostenberg, 2000). Accreditation has an advantage over excellence models since it focuses on specific needs; however excellence models are better at enhancing quality culture and continuous improvement.

Evidence-based medicine

Evidence based medicine (EBM) integrates individual clinical expertise with the best available clinical evidence from systematic research (Straus *et al.*, 2011; Timmermans

and Mauck, 2005). Evidence may come from various sources including: research; experiment, reviews, medical authorities, etc. Although EBM is considered the golden standard for clinical practices, it has limitations:

- No systematic approach; different people may apply it differently.
- It relies on research that may be applied differently to different races (Rogers, 2004).
- Treatment effectiveness reported from clinical studies may be higher than that achieved in routine clinical practices owing to closer patient monitoring during trials that lead to higher compliance rates.
- Published studies may not represent all research completed on a topic (published and unpublished) or may be unreliable owing to conflicts of interest (Friedman and Richter, 2004).

Lean management

Coming from manufacturing, Lean seems to have successful applications in healthcare. It thrives on analysing and standardising processes, eliminating waste and creating value. It helps hospital teams in all operational aspects to improve service, reduce cost, minimise errors and improve profitability (Graban, 2012). Weinger *et al.* (2003) revealed Lean's successful utilisation in operating rooms. Dickson *et al.* (2009) showed how Lean management improves the value of care delivered to patients in many hospitals, yet such improvements may not be obtained in all healthcare organisations and is unique to people, process and place. Holden (2011) summarised 18 articles describing Lean implementation in US, Australian and Canadian emergency departments and found that performance improved, but no clear improvement in patient care quality or safety. The article revealed many questions about Lean's effects on patient health and employees. Eitel *et al.* (2010) reported similar doubts.

Six Sigma

Six Sigma is a structured method used to resolve system problems and improve performance. It was initially used in the manufacturing sector in the late 1980s, but slowly found its way into various service sectors. Brady and Allen (2006) showed that most Six Sigma applications are in the manufacturing sector; over 70 per cent of published articles highlight industrial applications, while less than 10 per cent describe healthcare applications. A similar review was done by Chakrabarty and Tan (2007). Overall, literature on this topic shows that Six Sigma is finding beneficial application in service industries. These benefits, however, have obstacles including:

- Difficulty quantifying and gathering data from service processes.
- None repeatable processes.
- Data collection in manufacturing is often routine and automated. Not so in services.

Bahensky *et al.* (2005) showed how Kaizen and Lean and Six Sigma in an Iowan hospital increased revenue by approximately \$750,000 per year. Similar findings are reported by Heuvel *et al.* (2005) where the team applied Six Sigma in 44 hospitals with 22 projects completed successfully, resulting in €1.2 million savings annually. A comprehensive review of Six Sigma applications in healthcare was performed by

Mehmet *et al.* (2007) who showed that most healthcare quality professionals only use simple Six Sigma tools, yet, the application is successful; fewer redundancies, less waste and rework, less scheduling issues, better working conditions for healthcare personnel and cost savings. The authors, however, detailed conditions that make the Six Sigma unsuccessful: financial resources; poor leadership; training; project selection and internal resistance.

Other QIs

Many authors suggested merging approaches to benefit from their strengths and overcome their weaknesses. Minkman *et al.* (2007) and Nabitz and Klazinga (1999) suggested integrating: MBQNA, EFQM and Chronic Care models. Shaw (2000) described a project that used external peer review technique ExPeRT, which integrates accreditation, ISO and EFQM. Groene *et al.* (2008) highlighted a model called Performance Assessment Tool for Quality Improvement in Hospitals (PATH), which is based on six dimensions: clinical effectiveness; efficiency; staff orientation; responsive governance; safety; and patient centredness and 18 performance indicators. It was piloted between February 2004 and August 2005. The article revealed challenges hindering successful implementation like institutional culture, getting timely feedback and having enough resources for project management and data collection. It also showed how leadership and staff involvement is vital for PATH initiative success.

Quality initiatives questionnaire

The literature reveals different success levels experienced within organisations when implementing QIs owing to various factors, so a structured questionnaire, answered by 60 representatives working in 18 hospitals, was used to highlight QI drivers and challenges. The questionnaire included 13 items and was answered by nurses, administrators, physicians and managers.

Questionnaire development and validation

The questionnaire was developed and validated to ensure real and applicable results. Validation methods included: content validity – summarising the literature's main points and interviews with respondents ensured that questions are representative; internal validity ensured that responses were not tainted by outside effects. Representatives (with senior managers' help) were selected in each healthcare organisation. Representatives were involved in the organisation's quality and performance improvement. Internal validity was ensured also by the interview process; each answer was discussed with the representative to ensure that he/she understood the question and the researcher understood the answer; external validity was done by carefully selecting 18 hospitals; state owned, private, in a major city or rural areas to ensure that questionnaire results represent other healthcare organisations and not unique to the ones surveyed; and validity also was ensured by interviewing managers in the best and worst hospitals. Of the selected managers 90 per cent agreed with the questionnaire results.

Analysis and results

Table I summarises the responses. Answers for the first question show a high agreement that QIs can make a difference. Answers to the second, third and fourth

Question	Answer	Answer of the majority	p-value
1 Do you think that staff your organization can perform better by following a quality initiative?	Yes 44, No 16	Yes	0.00
2 Do you believe your organization will benefit financially from adopting a quality initiative?	Yes 35, No 11, Not sure 14	0.00	
3 If the answer to the previous question is yes then are the benefits obtained, short or long term?	Short 8, Long 22, Not sure 5	Long term	0.00
4 Do you believe the benefits outweigh the costs spent to successfully implement quality initiatives?	Yes 31, No 4	Yes	0.00
5 Do you believe quality initiatives differ? In other words do you believe that using certain initiatives will benefit your organization more than others?	Yes 42, No 9, Not sure 9	Yes	0.00
6 What are the best initiatives to use in healthcare organizations: TQM, Excellence Models, Accreditation, Evidence Based Medicine, Lean, Six Sigma, or any other approach?	Answers vary	None is the best	–
7 Do you have a good understanding of all initiatives listed above?	Yes 6, No 54	No	0.00
8 Do you think physicians and other healthcare professionals are suited to handle quality initiative or should healthcare organizations hire quality experts?	There is an unanimous agreement that well trained healthcare professionals are better at handling quality than external quality expert	Trained healthcare professional	0.00
9 In your mind, who from the following is best suited to lead a quality initiative in your organization: a physician, a nurse, a laboratory technician, or a quality expert?	Trained physicians 7; Trained nurses 35; other healthcare professionals 10; Quality experts 8	Trained nurses	0.00

(continued)

Table I.
Questionnaire responses

Table I.

	Question	Answer	Answer of the majority	p-value
10	In your mind, who from the following is most likely to be an obstacle for implementation: a physician, a nurse, a laboratory technician, hospital management, or any other (please list)?	Physician 33; Manager 14; Not sure 13	Physician	0.00
11	From your experience, grade from 1 to 10 the following items on their importance the way they guarantee successful implementation:	Average	sd	
	a. Leadership buy-in	8.3	1.5	0.00
	b. Leadership involvement and continuous push for quality	9	1	0.00
	c. Including quality aspects in the organization strategy	5.8	3	0.00
	d. Employees understanding the quality initiative	7.1	2.3	0.00
	e. In-depth training for the implementation team	9.5	0.6	0.00
	f. Educating physicians on the new initiative	7.1	4.1	0.00
	g. Involving physicians in the implementation	6.6	2.4	0.00
	h. Empowering the implementation team	7.3	2.2	0.00
	i. Physician and other employee resistant	7.9	1.5	0.00
	j. Implementation – throughout the organization or just few departments	8.3	0.8	0.00
	k. Using quality consultants	6.2	2.3	0.00
	l. Getting certification	4.5	1.5	0.00
	m. Maintaining certification	3.1	4.3	0.00
12	In your case, what was a success factor or factors, if any?	Answers vary	–	–
13	In your case, what was an obstacle or obstacles, if any?	Physicians 12, remaining answers vary	Physicians	0.09

questions show a good agreement on how beneficial these initiatives can be. Answers to the next three questions reveal an important finding; physicians, nurses and other medical staff are not typically educated in QIs (except accreditation), but when trained, they can benefit healthcare better than an external quality expert. Answers to questions eight, nine and ten reveal that nurses are considered an important quality asset, while physicians and managers may have different outlook. Further discussions with healthcare representatives revealed that for physicians, quality is all about providing precise medical care in a short time, while the remaining services are provided by nurses and other staff, which includes physicians in the process and more important to QI implementation. Answers to question 11 reveal similar findings to those highlighted in the literature: internal factors, including leadership commitment and involvement, employee training, implementation depth, educating physicians on the initiative, resistance and implementation team empowerment are highly important to successful implementation. Other important factors include physicians' involvement in the implementation and employing quality assurance consultants. Finally, factors considered unimportant to successful implementation are related to certification, accreditation and including quality in the organisation strategy. To compare the literature with questionnaire results (see Table I), hypothesis were used to test each question. For example, the first question asks "Do you think staff in your organisation can perform better by following a quality initiative?", the literature review shows that healthcare representatives believe QIs can improve performance within the organisation. Consequently, the null hypothesis was that majority of health care professionals in Jordan agree with the literature findings. The majority is calculated as any population proportion (pp) greater than or equal to 50 per cent of the population. To perform the hypothesis test we used a sample of 60 health care representatives who were surveyed. The two hypotheses for each question in the table are:

$$H0. \quad pp \geq 0.5.$$

$$H1. \quad pp < 0.5.$$

One sample Z test was used to explore whether we accept or reject the null hypothesis regarding pp. For example, the proportion answering yes for the first question was 44/60 or 0.73. The null hypothesis was accepted with high confidence. Tests were performed on all questions except 6 and 12. The last two columns in Table I show the expected answer for each question based on hypothesis testing for that question. For the first question, the last two columns reveal most healthcare professionals believe their organisation can benefit from applying QI. This result was confirmed with a zero p -value, which indicates strong confidence in the finding.

Throughout the interviews, responses varied among groups; and looking at the results closely, physicians had a different QI implementation view, so this group was studied independently (see Table II).

Tables I and II show clear differences; most physicians believe less in QIs. Half felt that a trained physician is just as good in implementation as a trained nurse. The main implementation obstacle is management, not physicians (see Table I). While answers to question 11 reveal a general lack of faith in quality, strategy and implementation methods, they reveal more faith in accreditation and certification. The standard deviations in Table II are higher than those in Table I for most questions. Furthermore, when removing physicians' answers, the standard deviations narrow.

Table II.
Questionnaire responses
– physicians

Question	Answer	Answer of the majority	p-value
1 Do you think that staff your organization can perform better by following a quality initiative?	Yes 6; No 5	No	0.00
2 Do you believe your organization will benefit financially from adopting a quality initiative?	Yes 4; No 7	No	0.00
3 If you answered yes to Q2 then are the benefits obtained, short or long term?	Short 2; Long 2	–	–
4 Do you believe the benefits outweigh the costs spent to successfully implement quality initiatives?	Yes 3; No 8	No	0.00
5 Do you believe quality initiatives differ? In other words do you believe that using certain initiatives will benefit your organization more than others?	Yes 4; No 7	No	0.00
6 What are the best initiatives to use in healthcare organizations: TQM, Excellence Models, Accreditation, Evidence Based Medicine, Lean, Six Sigma, or any other approach?	Most could not distinguish these models or have not heard of them	None is the best	–
7 Do you have a good understanding of all initiatives listed above?	Yes 0; No 11	No	0.00
8 Do you think physicians and other healthcare professionals are suited to handle quality initiative or should healthcare organizations hire quality experts?	There is almost an unanimous agreement that well trained healthcare professionals are better at handling quality than an external quality expert	Trained healthcare prof.	0.00
9 In your mind, who from the following is best suited to lead a quality initiative in your organization: a physician, a nurse, a laboratory technician, or a quality expert?	Trained physicians 5; trained nurses 5; other professionals 1	–	–

(continued)

Question	Answer	Answer of the majority	p-value
10 In your mind, who from the following is most likely to be an obstacle for implementation: a physician, a nurse, a laboratory technician, hospital management, or any other (please list)?	A physician 3; management 6	Management	0.08
11 From your experience, grade from 1 to 10 the following items on their importance the way they guarantee successful implementation:	Average	SD	
a. Leadership buy-in	7.8	2.3	0.00
b. Leadership involvement and continuous push for quality	9.5	0.3	0.00
c. Including quality aspects in the organization strategy	4.7	3.9	0.00
d. Employees understanding the quality initiative	3.2	2.9	0.00
e. In-depth training for the implementation team	8.8	0.9	0.00
f. Educating physicians on the new initiative	2.3	1.1	0.00
g. Involving physicians in the implementation	3.7	2.2	0.00
h. Empowering the implementation team	8.5	1	0.00
i. Physician and other employee resistant	2.5	0.5	0.00
j. Implementation – throughout the organization or just few departments	7.8	1.7	0.00
k. Using quality consultants	4.3	1.1	0.00
l. Getting certification	6.5	3	0.00
m. Maintaining certification	7.1	2.4	0.00
12 In your case, what was a success factor or factors, if any?	Mainly upper management involvement and following best practices	–	–
13 In your case, what was an obstacle or obstacles, if any?	Mainly upper management	Management	0.08

Table II.

Discussion

The literature demonstrates many implementation success and failures with varying reasons. Key factors affecting results include internal factors like employee morale and empowerment, management support and involvement, and training the implementation team (Alexander *et al.*, 2007). Other factors are related to the QI: difficulty (Chakrabarty and Tan, 2007); its general nature and that most initiatives are not designed originally for healthcare, rather for the manufacturing sector (Gómez *et al.*, 2011). Physicians are considered key contributors to successful implementation (Carman *et al.*, 2010), but they are not typical employees. Although they are key assets to any healthcare organisation and they may not be inclined to believe in QIs. Since physicians have more power in healthcare organisations than other employees then managers have to promote QIs among physicians. Nurses and other staff seem to answer similarly, while physicians have different quality-views, which confirm the literature (Yasin *et al.*, 1998). Furthermore, the physician standard deviations reveal more scatter than seen in other groups. This may indicate disagreement, but it may be caused by the small physician sample ($n = 11$). Questionnaire results mostly agree with the literature, but also show that physicians can become an asset to any QI once they are well informed and trained. Since questionnaire analysis revealed that physicians think about quality differently, managers should spend more effort training physicians on QIs and when possible get them involved in the implementation process. Analysis showed nurses are an asset in healthcare organisation. Consequently, hospital quality professionals should focus on this group and use nurses more (Leggat *et al.*, 2010). This study reveals how managers and physicians are seen by others as possible obstacles. This is an important point for service owners and leaders. The most important thing to draw from questionnaire results is that all challenges can be mitigated or eliminated and healthcare professionals can successfully implement QIs as in manufacturing facilities. The proposed framework in this research is a step in that direction. Table III summarises the drivers and challenges to implementing QIs in healthcare organisations according to the questionnaire results.

Table III.
Drivers and challenges
facing quality initiative
implementation

No. Implementation drivers		No. Implementation challenges	
1	Leadership buy-in	11	Slow and systematic implementation method
2	Leadership involvement and continuous support	12	Not educating managers about the initiative
3	Choosing the proper quality initiative	13	Not educating physicians about the initiative
4	Training staff, especially nurses, on implementation	14	Resistance to new initiatives
5	Employees general understanding of the quality initiative	15	Low employee-morale
6	Educating physicians on the new initiatives	16	Healthcare professionals' mind-set
7	Empowering the implementation team	17	The perception of physicians as leaders
8	Depth of implementation	18	Poor quality education for medical staff
9	Team work abilities	19	Not understanding the new initiative
10	Quality and learning culture	20	New initiative's complexity

Proposed framework

Results reveal how some challenges and drivers control the QI fate in hospitals. Based on Table III, a framework was created to guarantee implementation success. Figure 1 shows a practical implementation framework:

- *Step 1: Choose the initiative that suits your organization (Drivers 4 and 5, Challenges 14 and 20).* Managers should select the most suitable initiative. Experts may be consulted on the matter. A success story by a competitor may also provide insights.

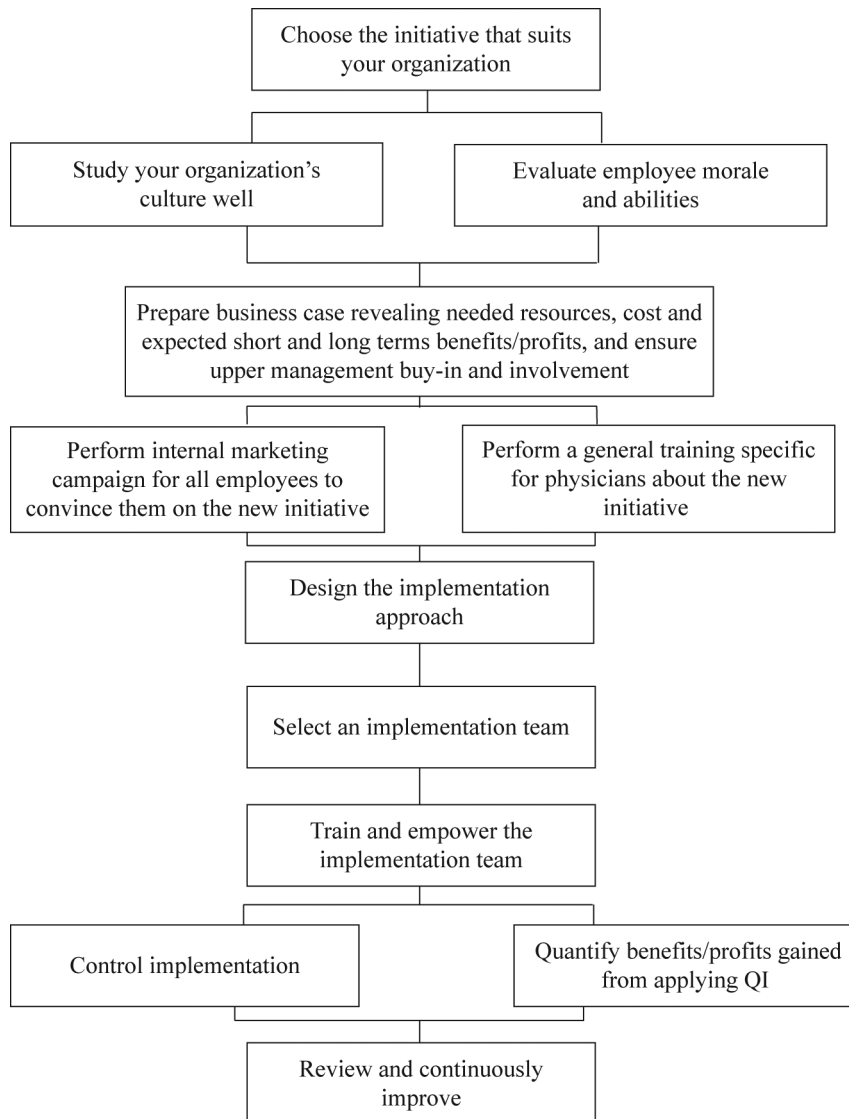


Figure 1.
Proposed implementation
framework

- *Step 2a: Study your organization's culture (Drivers 2, 3, 9 and 10, Challenges 14, 15, 16, 17 and 18).* What resistance will the initiative face? How do physicians and managers view change? How easy or difficult is it to implement? How do staff think about QIs?
- *Step 2b: Evaluate employee morale and abilities (Drivers 9 and 10, Challenges 15 and 18).* Study employees' willingness and ability to implement the initiative.
- *Step 3a: Prepare a detailed business case revealing all needed resources, cost and expected benefits/profits on the short and long terms (Driver 2).*
- *Step 3b: Ensure upper management buy-in and involvement (Drivers 1 and 2, Challenge 12).*
- *Step 4a: Perform an internal marketing campaign for all employees to convince them about the new initiative (Driver 5, Challenges 16 and 19).* Employees should know the initiative's importance and that senior managers are standing behind it.
- *Step 4b: Perform training for physicians about the initiative (Driver 6, Challenge 13).* Since physicians are considered key players, special attention should be paid to educate them on the initiative's importance and benefits. Senior managers may lead such efforts with physicians.
- *Step 5: Design the implementation approach (Drivers 8, 9 and 11, Challenges 14 and 20).* Implementation should be performed slowly and systematically. Start with a department or two before full deployment.
- *Step 6: Select an implementation team (Driver 9).* The implementation team should have employees with least resistance. Employees excited to drive the change and are passionate about quality should have priority.
- *Step 7: Train and empower the implementation team (Drivers 4 and 7).*
- *Step 8a: Control implementation (Driver 8).* Performance indicators should capture the success level. Key measures include profits, process time, customer satisfaction, etc.
- *Step 8b: Quantify benefits/profits gained from applying QI.*
- *Step 9: Review and continuously improve.* This framework is a learning experiment and if managers treat it as such then they will continuously find better ways of implementation.

The drivers and challenges shown by each step are those used by that step (see Table III). The framework is designed to ensure that drivers are used optimally and the best chance to overcome challenges to maximise implementation success.

Conclusions and future work

While QIs seem to succeed in the manufacturing and service sectors, they are not always successful in healthcare organisations. The literature review and the questionnaire survey revealed many implementation drivers and challenges. Both approaches agreed on the effect of most factors including: internal such as leadership commitment and involvement; empowering and training nurses and quality personnel; quality culture; and employee morale. Both also agreed on other factors like the QI's

nature and complexity, implementation, understanding the new initiative, its selection and how it suits the organisation. Further analysis revealed the physicians' unique perceptions. The questionnaire also revealed that trained physicians are an asset to implementation; therefore extra efforts are needed to include physicians in the team, since they can either help or hinder. The literature review and questionnaire results agreed that nurses seem to be valuable asset to implementation; therefore involving this group in any QI is needed. When attempting to apply QIs, one should realise that healthcare organisations are unique in many ways; i.e. structure, employees and customers. Extra efforts are needed to educate managers and staff members on new QIs before implementation. Managers should follow a systematic implementation approach to guarantee success. Realising the successful drivers and barriers may furnish managers with efficient decision making process to ensure better results when applying any QI. Future work can focus on this study's methods; questionnaire results and conclusions can be validated in different countries and different cultures. The framework was written in a general format and was based on questionnaire results. Future work may challenge this framework and evaluate it under different conditions. Future research may also compare nurse and physician mind-sets regarding QIs.

References

- Alexander, J.A., Hearld, L.R., Jiang, H.J. and Fraser, I. (2007), "Increasing the relevance of research to health care managers: hospital CEO imperatives for improving quality and lowering costs", *Health Care Management Review*, Vol. 32 No. 2, pp. 150-159.
- Arcelay, A., Sanchez, E., Hernandez, L., Inclan, G., Bacigalupe, M., Letona, J., Gonzalez, R.M. and Martinez-Conde, A.E. (1999), "Self-assessment of all the health centers of a public health service through the European model of total quality management", *International Journal of Health Care Quality Assurance*, Vol. 12 No. 2, pp. 54-58.
- Bahensky, J.A., Roe, J. and Bolton, R. (2005), "Lean Sigma – will it work for healthcare?", *Journal of Healthcare Information Management*, Vol. 19 No. 1, pp. 39-44.
- Brady, J.E. and Allen, T.T. (2006), "Six Sigma literature: a review and agenda for future research", *Quality and Reliability Engineering International*, Vol. 22 No. 1, pp. 335-367.
- Carman, J.M., Shortell, S.M., Foster, R.W., Hughes, E.F.X., Boerstler, H., O'Brien, J.L. and O'Connor, E.J. (2010), "Keys for successful implementation of total quality management in hospitals", *Health Care Management Review*, Vol. 35 No. 4, pp. 283-293.
- Castle, N.G. and Lin, M. (2010), "Top management turnover and quality in nursing homes", *Health Care Management Review*, Vol. 35 No. 2, pp. 161-174.
- Chakrabarty, A. and Tan, K.C. (2007), "The current state of Six Sigma application in services", *Managing Service Quality*, Vol. 17 No. 2, pp. 194-208.
- Dickson, E.W., Singh, S., Cheung, D.S., Wyatt, C.C. and Nugent, A.S. (2009), "Application of lean manufacturing techniques in the emergency department", *The Journal of Emergency Medicine*, Vol. 37 No. 2, pp. 177-182.
- Donahue, K.T. and Vanostenberg, P. (2000), "Joint commission international accreditation: relationship to four models of evaluation", *International Journal for Quality in Health Care*, Vol. 12 No. 3, pp. 243-246.
- Eitel, D.R., Rudkin, S.E., Malvey, M.A., Killeen, J.P. and Pines, J.M. (2010), "Improving service quality by understanding emergency department flow", *The Journal of Emergency Medicine*, Vol. 38 No. 1, pp. 70-79.
- Friedman, L.S. and Richter, E.D. (2004), "Relationship between conflicts of interest and research results", *Journal of General Internal Medicine*, Vol. 19 No. 1, pp. 51-60.

- Goldstein, S.M. and Schweikhart, S.B. (2002), "Empirical support for the Baldrige Award framework in US hospitals", *Health Care Management Review*, Vol. 27 No. 1, pp. 62-75.
- Gómez, J., Costa, M.M. and Lorente, Á.R.M. (2011), "A critical evaluation of the EFQM model", *International Journal of Quality and Reliability Management*, Vol. 28 No. 5, pp. 484-502.
- Graban, M. (2012), *Lean Hospitals*, 1st ed., CRC Press, New York, NY.
- Greene, S.B., Reiter, K.L., Kilpatrick, K.E., Leatherman, S., Somers, S.A. and Hamblin, A. (2008), "Searching for a business case for quality in Medicaid managed care", *Health Care Management Review*, Vol. 33 No. 4, pp. 350-360.
- Groene, O., Klazinga, N., Kazandjian, V., Lombrail, P. and Bartels, P. (2008), "The World Health Organization Performance Assessment Tool for Quality Improvement in Hospitals (PATH): an analysis of the pilot implementation in 37 hospitals", *International Journal for Quality in Health Care*, Vol. 20 No. 3, pp. 155-161.
- Grol, R. (2001), "Improving the quality of medical care: building bridges among professional pride, payer profit, and patient satisfaction", *Journal of American Medical Association*, Vol. 286 No. 20, pp. 2578-2585.
- Heuvel, J., Does, R.J.M.M. and Verver, J.P.S. (2005), "Six Sigma in healthcare: lessons learned from a hospital", *International Journal for Six Sigma and Competitive Advantage*, Vol. 1 No. 4, pp. 380-388.
- Holden, R.J. (2011), "Lean thinking in emergency departments: a critical review", *Annals of Emergency Medicine*, Vol. 1, pp. 265-278.
- Huerta, T.R., Ford, E.W., Peterson, L.T. and Brigham, K.H. (2008), "Testing the hospital value proposition: an empirical analysis of efficiency and quality", *Health Care Management Review*, Vol. 33 No. 4, pp. 341-349.
- Jackson, S. and Bircher, R. (2002), "Transforming a rundown general practice into a leading edge primary care organization with the help of the EFQM Excellence Model", *International Journal of Health Care Quality Assurance*, Vol. 15 No. 6, pp. 255-267.
- Leggat, S.G., Bartram, T., Casimir, G. and Stanton, P. (2010), "Nurse perceptions of the quality of patient care: confirming the importance of empowerment and job satisfaction", *Health Care Management Review*, Vol. 35 No. 4, pp. 355-364.
- Mehmet, T.T., Bulent, S. and Jiju, A. (2007), "An overview of Six Sigma applications in healthcare industry", *International Journal of Health Care Quality Assurance*, Vol. 20 No. 4, pp. 329-340.
- Minkman, M., Ahaus, K. and Huijsman, R. (2007), "Performance improvement based on integrated quality management models: what evidence do we have? A systematic literature review", *International Journal for Quality in Health Care*, Vol. 19 No. 2, pp. 90-104.
- Moeller, J. (2001), "The EFQM Excellence Model: German experiences with the EFQM approach in health care", *International Journal for Quality in Health Care*, Vol. 13 No. 1, pp. 45-49.
- Moeller, J. and Sonntag, A.K. (2001), "Evaluation of health services organizations – German experiences with the EFQM Excellence approach in healthcare", *The TQM Magazine*, Vol. 13 No. 5, pp. 361-367.
- Motwani, J., Sower, V.E. and Brashier, L.W. (1996), "Implementing TQM in health care sector", *Health Care Management Review*, Vol. 21 No. 1, pp. 73-82.
- Nabitz, U.W. and Klazinga, N.S. (1999), "EFQM approach and the Dutch Quality Award", *International Journal of Health Care Quality Assurance*, Vol. 12 No. 2, pp. 65-71.
- Naylor, G. (1999), "Using the business excellence model to develop a strategy for a healthcare organization", *International Journal of Health Care Quality Assurance*, Vol. 12 No. 2, pp. 37-44.

-
- Nembhard, I.M. (2012), "All teach, all learn, all improve? The role of interorganizational learning in quality improvement collaborative", *Health Care Management Review*, Vol. 37 No. 2, pp. 154-164.
- Ovretveit, J. (2000), "Total quality management in European healthcare", *International Journal of Health Care Quality Assurance*, Vol. 13 No. 2, pp. 74-79.
- Raja, M.P.N., Deshmukh, S.G. and Wadhwa, S.W. (2007), "Quality Award dimensions: a strategic instrument for measuring health service quality", *International Journal of Health Care Quality Assurance*, Vol. 20 No. 5, pp. 363-378.
- Roberts, J.S., Coale, J.G. and Redman, R.R. (1987), "A history of the joint commission accreditation of hospitals", *The Journal of the American Medical Association*, Vol. 258 No. 7, pp. 936-940.
- Rogers, W.A. (2004), "Evidence based medicine and justice: a framework for looking at the impact of EBM on vulnerable or disadvantaged groups", *Journal of Medical Ethics*, Vol. 30 No. 2, pp. 141-150.
- Sahney, V.K. and Warden, G.L. (1991), "The quest for quality and productivity in health services", *Frontiers of Health Services Management*, Vol. 7 No. 4, pp. 2-38.
- Shaw, C.D. (2000), "External quality mechanisms for health care: summary of the ExPeRT Project on Visitation, Accreditation, EFQM and ISO Assessment in European Union Countries", *International Journal for Quality in Health Care*, Vol. 12 No. 3, pp. 169-175.
- Shortell, S.M., O'Brien, J.L., Carman, J.M., Foster, R.W., Hughes, E.F.X., Boerstir, H. and O'Connor, E.J. (1995), "Assessing the impact of continuous quality improvement/total quality management: concept versus implementation", *Health Services Research*, Vol. 30 No. 2, pp. 377-401.
- Sommer, S.M. and Merritt, D.E. (1994), "The impact of a TQM intervention on workplace attitudes in a healthcare organization", *Journal of Organizational Change Management*, Vol. 7 No. 2, pp. 53-62.
- Straus, S.E., Richardson, W.S., Glasziou, P. and Haynes, R.B. (2011), *Evidence-Based Medicine – How to Practice and Teach It*, 1st ed., Elsevier, New York, NY.
- Timmermans, S. and Mauck, A. (2005), "The promises and pitfalls of evidence-based medicine", *Health Affairs*, Vol. 24 No. 1, pp. 18-28.
- Weinger, M.B., Slagle, J., Jain, S. and Ordonez, N. (2003), "Retrospective data collection and analytical techniques for patient safety studies", *Journal of Biomedical Informatics*, Vol. 36 No. 1, pp. 106-119.
- Yasin, M.M. and Alavi, J. (1999), "An analytical approach to determining the competitive advantage of TQM in health care", *International Journal of Health Care Quality Assurance*, Vol. 12 No. 1, pp. 18-24.
- Yasin, M.M., Meacham, K.A. and Alavi, J. (1998), "The status of TQM in healthcare", *Health Marketing Quarterly*, Vol. 15 No. 3, pp. 61-84.

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