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Attitudes Towards Quality Improvement Among Healthcare Professionals: Lessons from a Hospital-Wide Quality Initiative.

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Abstract

Purpose – The purpose of this article is to 1) describe how the training of healthcare professionals in improvement work can be performed, and 2) evaluate potential changes in attitude as a result of the initiative.

Design/methodology/approach – The study was carried out at a university hospital in Sweden. There were 443 participants in the study. The response rate before the intervention was 55% (242 respondents) and six months later, it was 43% (190 respondents).

A two-day training program about quality improvement was performed on seven different occasions and after the training had been concluded, participants were encouraged to translate their newly acquired knowledge into improvement projects. Surveys on attitudes toward improvement work were completed by the participants right before the training and six months afterwards. The results were analyzed using a *Mann-Whitney* test.

Findings – The analysis showed some statistically significant changes in attitude among the participants. There were also differences between groups of participants based on their profession and the number of years in their current position.

Research limitations/implications – A limitation of the study is that it was solely based on attitudes expressed during the survey and did not include any observed changes in behavior. Another limitation is that attitudes after the intervention were only measured once.

Originality/value – It is possible to use training to change attitudes towards improvement work. The result differs among groups of participants, which raises the question as to whether training should be tailored to better suit the needs of different groups in order to create positive change. Further research is needed regarding how to reach and fully implement a quality improvement mindset.

Keywords: Attitudes, Quality Improvement, Team training

Article Classification: Research paper

Attitudes Towards Quality Improvement Among Healthcare Professionals: Lessons from a Hospital-Wide Quality Initiative.

1   Introduction

Expenditures on healthcare are increasing at a fast pace. Reasons for this development include medical and demographic development, increasing demands for service and service quality, growing patient complexity and rising medicine and material prices (McKee and Healy, 2002). Traditionally, technical knowledge among medical staff has been sufficient to ensure the quality and safety of services rendered. Today, however, hospitals are complex organizations requiring administrative and organizational support to meet the demands placed on them (Ruiz and Simon, 2004). Such requirements call for a conceptual breakthrough in healthcare and for changing the focus from medical management to organizational management (Hansson, 2000).

Priorities for meeting these requirements include improvements in patient safety, accessibility to healthcare, an increased focus on patients and increased internal and external efficiency (Institute of Medicine, 2001). To meet the conceptual breakthrough that healthcare is facing, the knowledge of improvement, innovation and transformation of healthcare systems and processes are needed. In particular, improvement knowledge is getting increased attention as a possible solution to the contemporary challenges faced by healthcare (Batalden et al., 2011).

Deming, a pioneer in this field, identified four domains of improvement knowledge that an individual needs to grasp in order to gain profound knowledge; 1) appreciation of a system 2) knowledge of variation 3) theory of knowledge, and 4) knowledge of psychology (Deming, 1993). However, there are major obstacles to undertaking systematic quality improvement work in healthcare. Organizational structure, leadership style, organizational culture, the demand for autonomy in the profession, a lack of consensus, the priority of internal requirements and resource constraints may constitute such obstacles (Yang, 2003). Batalden and Davidoff concluded that considering the evidence alone is insufficient for realizing change but that one also needs to have the context in mind (Batalden and Davidoff, 2007). In addition, knowledge on how to accomplish change is needed, i.e. knowledge about "planning for change" and "the execution of planned change".

Building a culture in which managers and their organizations are capable of learning from evidence is a critical aspect in achieving greater customer satisfaction (Rousseau, 2006). However, the continuously high workload in hospitals results in a situation when individual patient care is often given priority over efforts for individual, team and organizational learning, improvement and innovation. Moreover, Vincent et al. suggest that multidisciplinary centers for safety and quality improvement are needed in which many different disciplines could come together to improve the delivery of healthcare services (Vincent et al., 2011).

Long-term success in quality improvement requires changes in attitude as well as behavior (Bergman and Klefsjö, 2010). Behavioral change among healthcare professionals may be promoted through "reminders (manual or computerized), multifaceted interventions (a combination that includes two or more of the following:

audit and feedback, reminders, local consensus processes, or marketing) and interactive educational meetings (participation of healthcare providers in workshops that include discussion or practice)" (Bero et al., 1998). On the other hand, interventions in the form of educational materials (distribution of recommendations for clinical care, including clinical practice guidelines, audiovisual materials, and electronic publications) and didactic educational meetings (e.g. lectures) have shown little or no effect. Grol and Grimshaw conclude that changes in behavior generally require comprehensive approaches at different levels (doctor, team practice, hospital, wider environment), tailored to specific settings and target groups (Grol and Grimshaw, 2003).

Regarding training in improvement knowledge, the focus of previous research has either been on changing existing educational programs for physicians, nurses and other healthcare providers (Kyrkjebo et al., 2001; Leach, 2001), or the training of healthcare professionals, which is the focus of this article. Vinci et al. studied the effects of a quality improvement curriculum on residents' knowledge and skills in improvement, showing that quality improvement projects may result in improvements of residents' knowledge (Vinci et al., 2010). Wallin et al. surveyed nurses that had participated in a national guideline project and concluded that the program resulted in an enhanced ability to carry out quality improvement processes (Wallin et al., 2002). However, the quality improvement was not sustained over a longer period of time. Heard et al. described the use of training courses in quality improvement for multi-disciplinary groups of professionals, showing that professional barriers were broken down when training across professions were undertaken. Almost all participants rated their learning as "highly important" and many altered their practices based on the training (Heard et al., 2001). François et al. assessed training programs in quality improvement at a French teaching hospital. The characteristics of what they called a decentralized intervention were 1) educating healthcare providers 2) creating multiprofessional groups for quality improvement, and 3) focusing on problem solving methods. However, the effects of the training were limited and knowledge was not widely disseminated to untrained staff, implying that training programs should involve the entire staff (François et al., 2005).

At the Sahlgrenska University Hospital in Gothenburg, Sweden, a training program was introduced to the entire staff to increase the knowledge about improvement work in general and some specific improvement tools in particular. The intention was to create enthusiasm and involvement for undertaking improvement work, as well as increasing knowledge of quality improvement amongst the participants. The purpose of this article is to 1) describe how the training of healthcare professionals in improvement work can be performed, and 2) evaluate potential changes in attitude as a result of the initiative at the Sahlgrenska University Hospital.

2   Description of Training

The study was carried out at the Sahlgrenska University Hospital employing 17,000 people. The two-day course, "Introduction to quality improvement knowledge for leaders at Sahlgrenska University Hospital", was offered to all managerial staff employed by the hospital on all levels, and to improvement facilitators such as staff coordinating quality improvement and patient safety projects. The course was initially given on seven different occasions during October-December 2010.

The course consisted of two days of study: the first day included presentations of various aspects of operations management, improvement knowledge, change

management and strategies for the practical application of improvement processes into daily routines. Further, the organization structure of the hospital and its overall goals and visions were presented in some detail. Some examples of successful relevant projects from industry and internal work at the hospital completed the first day. The second day was dedicated to the working model, *FOKUS,* developed at Sahlgrenska. In the *FOKUS* model, the components of quality improvement work are grouped into five steps:

1. Defining the problem to be solved and the way in which improvement would be monitored
2. Organizing the assigned group
3. Analyzing the root causes of the problem
4. Creating an action plan to solve these root causes
5. Defining a follow-up method to prevent the problem from reemerging

The day started with a detailed description of the model followed by a step-by-step exercise. This day of practical application included the entire process from problem identification to problem-solving methods and the evaluation of results. Among the tools used were brainstorming, pin bar chart registrations, histograms and cause-and-effect diagrams. The entire process of practical application and implementation was performed twice, once with a "problem" identified by the group on an *ad hoc* basis and thereafter repeated in all groups with the given aim of achieving enhanced improvement activities. At the end of each workshop, the various groups presented their findings and conclusions.

Course participants worked in groups created in such a way that individuals from similar disciplines would collaborate (approximately ten individuals per group). That group allocation principle was assumed to enable identification of common goals during the workshops. The profession of participants was not a determining criterion in grouping them; healthcare and medical staffs, administrative personnel and others were mixed into different groups. Teaching documents, lecture notes and reference texts were available to participants on the internal hospital website. At the end of both days, participants were encouraged to write "improvement suggestions". These suggestions were analyzed using the *FOKUS* method and the resulting improvements were applied to the following courses.

3   Evaluation of Change in Attitudes

3.1   Methodology
The effect of the course on changes in attitude was evaluated through questionnaires. A week prior to each of the seven sessions, a questionnaire was sent to all participants (Questionnaire 1). Approximately six months later, in May 2011, the same questionnaire was again sent to the same participants (Questionnaire 2). The answers contained in the two questionnaires were compared. Attitude changes were also studied among the following categories of participants: managers with responsibility for Finance and Human Resources, team leaders, residents and administrative staff.

The questionnaire was developed by the Department of Quality Improvement and Operations Management at the Sahlgrenska University Hospital and included eight questions. The questions were primarily based on the findings by Olsson, who had investigated factors for successful improvement of healthcare (Olsson, 2002). However,

the questions were formulated in such a way that they would fit the context and attract as many respondents as possible. The number of questions were limited to eight in order to make it possible to answer them quickly.

The questionnaires were sent by e-mail and answers were collected and categorized online using "Esmaker" software. Both questionnaires were sent to all 443 participants of the seven sessions. The response rate for Questionnaire 1 was 242/443 (55%) and for Questionnaire 2, the response rate was 190/443 (43%).

3.2   Data analysis
Due to the fact that the results of the first questionnaire had not been well tracked, data pre-processing was performed. A few data from the first survey were considered unreliable and were, therefore, excluded from the analysis. All results from the second survey were closely tracked. The perceptions of healthcare professionals were measured by Likert scale questionnaires using a scale of 1 to 5, where 1 meant 'do not agree' and 5 meant 'completely agree'. The software *Minitab* was used to carry out *Mann-Whitney* non-parametric statistical tests to see if there was any significant change in the perception before and after the training (Conover, 1980). All resulting *p*-values are shown in Table I. The data analysis for comparing the perceptions before and after the training was performed for the different categories and for the overall group.

4   Results and Analysis regarding Change in Attitudes
A comparison between the respondents' attitudes towards each of the questions asked before and after the intervention is presented in Table I. The table highlights the significant differences in attitude before and after the intervention and whether a change would occur towards a more positive attitude (noted 'positive') or a more negative attitude (noted 'negative'). For six out of eight questions, a significant change in attitude was found in at least one of the groups. In all groups, except the group of administrators, a significant change in attitude was found in at least one question. In the following paragraphs, key findings for each of the questions are presented and discussed.

Table I. *The table shows p values of differences in attitude before and after the intervention, categorized by the respondent's profession and number of years in current position. Significant positive attitude change is noted 'positive', negative change in attitude is noted 'negative'. N indicates the number of respondents for questionnaire 1 and questionnaire 2.*

	All	Managers				Team leaders	Residents	Administrators
		All managers	2-5 years	6-9 years	>10 years			
1. The improvement work is fun and provides good opportunities for the future.	p>0,5 N=242, 190	p>0,5 N=177, 134	p>0,5 N=65, 48	p=0,3657 N=32, 32	negative p=0,0718* N=49, 40	p=0,4935 N=21, 16	p=0,3774 N=27, 20	p=0,1594 N=17, 20
2. Improvement ideas are often discussed at your workplace.	p>0,5 N=240, 186	p>0,5 N=176, 133	p=0,2788 N=65, 47	p=0,3609 N=32, 32	p>0,5 N=48, 40	p>0,5 N=20, 15	p>0,5 N=27, 18	p=0,3603 N=17, 20
3. Ideas for change that are believed to lead to improvement for the organization, are received with enthusiasm at your workplace.	p=0,3608 N=242, 188	p>0,5 N=177, 132	p=0,3670 N=65, 48	p=0,2384 N=32, 31	p>0,5 N=49, 39	p=0,1168 N=21, 16	p>0,5 N=27, 20	p=0,2205 N=17, 20
4. Co-workers who think in new ways are encouraged by managers and colleagues and are considered assets.	p=0,4765 N=240, 189	p=0,3680 N=175, 133	positive p=0,0192** N=64, 47	p>0,5 N=32, 32	negative p=0,0819* N=49, 40	p=0,2088 N=21, 16	p=0,3559 N=27, 20	p=0,4665 N=17, 20
5. The general feeling at your workplace is that you need to work differently since the resource availability is decreasing.	p>0,5 N=240, 189	p=0,3717 N=176, 133	p=0,3644 N=65, 47	p=0,1011 N=31, 32	p=0,4965 N=49, 40	negative p=0,0475** N=20, 16	p=0,2482 N=27, 20	p=0,2771 N=17, 20
6. The results of the improvement work performed are well-known.	p=0,3085 N=239, 185	p=0,2416 N=174, 130	positive p=0,0706* N=63, 47	p=0,4224 N=31, 29	p>0,5 N=49, 40	p>0,5 N=21, 16	p=0,4515 N=27, 20	p=0,4537 N=17, 19
7. At your workplace there are clear criteria for determining if a change is an improvement.	positive p=0,0008*** N=241, 186	positive p=0,0009*** N=176, 131	p=0,1682 N=64, 48	positive p=0,0198** N=32, 31	positive p=0,0458** N=49, 38	positive p=0,0867* N=21, 15	p=0,4196 N=27, 20	p=0,2294 N=17, 20
8. At your workplace, enough time is set aside for improvement work.	positive p=0,0547* N=241, 190	p=0,2025 N=176, 134	p=0,3332 N=65, 48	p=0,2359 N=31, 32	p=0,2854 N=49, 40	p=0,1224 N=21, 16	positive p=0,0838* N=27, 20	p=0,4810 N=17, 20

4.1 Time for improvements

A significantly positive change in attitude was noted among participants regarding the time assigned to improvements (Question 8), in the overall group (p=0,0547) and specifically in the group of residents (p=0,0838). The National Board of Health and Welfare in Sweden put pressure on residents to develop a number of skills that are not at the core of medical education. For instance, residents are expected to understand quality improvement and are obligated to perform an improvement project. It is likely that time was set aside in some units in order for residents to be able to perform an improvement project. The training might have contributed to stressing the preference that time should be allocated towards such a project.

4.2 Criteria for improvements

There was an overall and positively significant change regarding the perception of clear criteria for determining if a change constituted an improvement (Question 7, p=0,0008). Turning to specific groups, there was significant improvement in attitudes for all managers (p=0,0009), for managers that had been working six to nine years in their current position (p=0,0198), for managers that had been working more than ten years in their current position (p=0,0458) and for team leaders (p=0,0867). These results should be understood in the light of the actual training, which stressed the importance of identifying measurements relating to organizational objectives. Since all improvement involves change, whereas all changes do not entail improvements, these measurements can also be used as criteria for finding out whether a particular change would constitute an improvement.

4.3 Working differently

There was no overall significant change in attitude with regard to the need for working differently because of decreased resources (Question 5). However, team leaders had a significantly negative change in attitude regarding this aspect (p=0,0475). Team leaders are normally under pressure from both team members and their subordinates. As they deal with complex operational problems on a daily basis and are present both on the shop floor and in managerial meetings, team leaders may be among those who most accurately perceive the shortcomings of an organization. The results may be partially attributed to expectations, if team leaders had hopes that the training would significantly alter work processes in their units, but once they returned to their units, they did not experience any differences in practice.

4.4 Thinking Differently

Results are unclear whether attitudes have been changing concerning co-workers who think in new ways and whether they are encouraged by managers and colleagues (Question 4). On the one hand, there is an improvement among managers who have been working in their current positions between two and five years (p=0,0192), but a negative change among managers who have been working in their current positions for more than ten years (p=0,0819). Newly recruited managers seem more inclined to express that after the intervention, they appreciate co-workers who challenge current ways of working. Experienced and established managers may not have sufficient energy to handle inspired co-workers and, therefore, feel that co-workers with new ideas have become a nuisance. Expressions like "we have tried that" or "it did not work before" are not uncommon, and managers who have been in their current positions more than ten years may to a great extent represent this viewpoint.

4.5 Improvement is fun and brings opportunities
No significant change was discovered on the question of whether the improvement work was fun and provided new opportunities, except for managers who had been working in their current positions more than ten years. These managers expressed a more negative attitude in the second questionnaire (Question 1, p=0,0718) which may be difficult to interpret as the question actually consisted of two statements ("the improvement work is fun *and* provides good opportunities"). Experienced and established managers did not appear to believe that the improvement journey was one upon which they would like to embark nor did they think it would be fun. These results indicate that it would be better to train employees who are new to the organization or to their position.

5   Discussion
Even though this study identified some significantly positive and negative changes in attitudes, results indicated that in order to change attitudes, a different kind of initiative might be called for. The results concerning established managers indicated that they require a different type of training and that the training provided was not suitable to the goal of changing their attitudes in a positive direction. The training only lasted for two days after which the participants were encouraged to perform improvement work. Changing attitudes is difficult and a more thorough intervention may be needed in order to accomplish such a change in a meaningful way.

Our method was using a questionnaire to measure the attitudes prior to and six months after the training. The results of this study should be interpreted with caution. First, many other factors may influence attitudes among employees, for example, changes in budget that might result in lay-offs, bad publicity in the local newspaper, etc. Other factors might have influenced the results. Second, the influence of a specific training program six months afterwards may be questioned. On the other hand, the impact of the training was reinforced during the period when participants were encouraged to take part in improvement projects, using what they had learned during the two days of training. However, this study does not measure the actual involvement in improvement projects, and no conclusions on the correlation between the involvement and attitudes may be drawn.

A study using identical standardized self-report scales before and after an intervention automatically assumes that the perception of the questions by the subjects remains unchanged by the intervention (Westlander, 2007). However, it is important to take into account what might have affected the frame of reference of a subject during the intervention and what might possibly have changed the perceived meaning of the self-report questions and scale intervals.

A limitation of this study is that a change in attitude does not necessarily imply a change in action and outcome. Only attitudes towards improvements have been surveyed in this study and all questions on a cognitive level suffer from a lack of "real" measurements.

After this study was completed, the Sahlgrenska University Hospital continued to train their employees in improvement knowledge and the training program was still ongoing in 2013. This situation may call for another study to investigate whether the Sahlgrenska University Hospital has been making any progress in its ability to improve.

6 Conclusion

To intensify the efforts at improving hospital operations, a comprehensive training in quality improvement was conducted. The aim was to encourage participants' efforts using quality improvement processes through enhanced commitment on their part. This article has described how a training program was carried out and has summarized the results of the training by evaluating indicators of a change in attitudes after a six-month period.

Some significant changes in attitudes were noted among participants. For all respondents as a group, there was a significant change regarding the criteria that may determine if a change would constitute an improvement. There was also a positive change in attitudes regarding the time set aside for improvement work. Managers who had been working in their current positions more than ten years showed a negative change in attitude both regarding the encouragement of their co-workers to think in new ways, as well as their perception of improvement work as being fun and promising. This outcome points up the issue that established managers may very well require a different type of training.

Given the limitations of this study, the results should be looked upon with some caution. However, it is interesting to reflect on the abundance of activities in healthcare that have not up to this point been the subject of evaluation. A more systematic approach towards various healthcare interventions would be needed in order to fully implement a quality improvement mindset.

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