

An Analysis of the Change Management of Two Patient Safety Programs
at Bluewater Health

by

Martin G.J. Lees MD, PhD, CHE

Special Project Submitted for the Fellowship Program

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Abstract

This Fellowship project studied the implementation, change management, and leadership of two patient safety programs that were implemented at Bluewater Health. These were the acute myocardial infarction (AMI) and medication reconciliation (Med Rec) patient safety bundles based on Safer Healthcare Now.

This project was conducted because there is more and more public interest in patient safety and increasing public policy requirements for the disclosure of patient safety indicators. Therefore, organizations need to be able to change to improve safety and do this effectively by using strategies and tactics that are effective such as proven leadership approaches and by using change frameworks. This project adds to the body of knowledge by analyzing the experiences of one organization's attempts to do this.

This study used a case study method to examine ex post facto whether these two safety programs were implemented and managed in a manner consistent with prescribed change management frameworks and published principles for patient safety and quality. The results of the study show that the hospital achieved some success in the metrics of these two safety programs. In some instances the hospital had used the change management frameworks but in other ways the alignment to these was less apparent.

The findings from this project are used to make conclusions about change programs aimed at improving patient safety and to suggest a number of recommendations for managers and leaders that are offered to assist in making their change programs and patient safety activities more effective. This is important because healthcare organizations and their leaders need effective strategies and leadership methods to continuously enhance the quality of care in their organizations.

CHAPTER 1

INTRODUCTION TO THE FELLOWSHIP PROJECT

This “special project” CCHSE Fellowship paper begins with an introductory chapter to the topic of study which is the analysis of the change leadership and management of the implementation of two patient safety programs at Bluewater Health. These were the “Safer Healthcare Now (SHN)” “AMI” (acute myocardial infarction) and “Med Rec” (medication reconciliation) bundles. This introductory chapter is followed by a literature review chapter, methodology chapter, results chapter, and finally conclusions and recommendations.

This topic was selected for study because of its relevance to both developing health care policy and the leadership and management of health care organizations. By the very nature of the industry, health care is integrally linked to quality and safety. This has always been true, but for a number of reasons, the performance of organizations on quality and safety measures is now one of greater interest to consumers, funding agencies, and others. The importance lies not only in safety and quality but also in what is needed to effectively lead and manage change required to implement and sustain organizational practices that result in improved quality and safety. Understanding the best ways to go about these kinds of changes is of enormous significance in healthcare management at both the theoretical and practical levels.

There are public policy initiatives underway to increase public reporting of patient safety indicators. The Ontario government and the Ontario Hospital Association are supportive of these initiatives as evidenced by the following quotations: The Minister of Health said “the new reporting framework reflects our commitment to uphold the highest standards of care for Ontario’s patients” (Ministry of Health and Long-Term Care Communication, 2008). The President and CEO of the Ontario Hospital Association recently stated “transparency may not always provide us with the news we want to hear but it leads to actions. Ontario's hospitals are committed to providing the safest possible care to patients. We strongly support the public reporting of patient safety indicators because we believe it will inspire improved performance, enhance patient safety, and strengthen the public's confidence in Ontario's hospitals” (Ministry of Health and Long-Term Care Communication, 2008). Also, “Accreditation Canada is committed to playing a major role in improving patient safety through accreditation. The accreditation process is a way of identifying conditions of unsafe practice and supporting health care organizations to promote safe care. In particular, it is a means of reducing risk and fostering attention to continuous quality improvement” (Accreditation Canada, 2008). Hospitals must meet these accreditation standards. Given these

significant influences, hospital managers and administrators must respond to these policy decisions and trends in safety indicators by establishing a robust approach to patient safety programs and the change management needed to implement them successfully. Indeed, this has taken on a level of strategic imperative.

Many organizations are approaching this renewed emphasis of patient safety and the public reporting by implementing the patient safety programs of “Safer Healthcare Now (SHN).” These programs have as their goal “to improve the safety of patient care in Canada through learning, sharing and implementing interventions that are known to reduce avoidable adverse events” (Safer Healthcare Now, 2009). Baker, Flintoft & Kam (2008) noted that many organizations are showing progress in the Safer Healthcare Now interventions. However, they found a pattern of early improvement followed by a slowing that might be evidence of a tendency of some improvement teams to stop monitoring performance once modest improvement is achieved. This might also suggest that organizations only partially adhere to the prescribed program framework for implementing these projects. Furthermore, Dobbins et al. (2002) noted that change in behaviour or organizational policies and practices that would be needed to establish safety programs do not result simply from the acquisition of “know how” knowledge. It is critical to acquire, adopt, and implement new knowledge for safety programs within the context of a guiding framework that engages stakeholders in the organization to support sustainable improvement practices (Institute of Health Economics, 2008). However, Kovner and Rundall (2006) found that health care managers make little consistent use of evidence to change practices and there seems to be an abundance of overuse, underuse, and misuse of management tactics and techniques. This applies generally to change practices and specifically to safety programs. In addition, they noted that there seemed to be little sense that there was an urgent need to change this situation with respect to integrating evidence into the management approaches. They offered solutions to this dilemma like those which are found in the approaches recommended by IHI and the SHN patient safety programs thereby tying management fallacies to quality improvement frameworks.

Frameworks like the SHN and the Institute for Healthcare Improvement’s (IHI) 100,000 lives campaigns provide such guidance and assistance with change management. The link between the 100,000 Lives Campaign (now 5 Million Lives Campaign) and SHN is found in six targeted interventions. There is evidence that shows that implementation of these practices saves lives in hospitals (Safer Healthcare Now, 2009). The Safer Healthcare Now safety practices, known as bundles, are a mechanism to transfer these six interventions into practice in clinical settings so that the benefits can be realized. Two of these interventions are studied in this special project.

The 100,000 Lives Campaign was a nationwide initiative launched in January 2005 by the IHI to significantly reduce morbidity and mortality in health care. Building on the successful work of health care providers all over the world, they introduced proven best practices to help participating hospitals extend or save as many as 100,000 lives. IHI and its partners in the campaign encouraged hospitals and other health care providers to take the following steps to reduce harm and deaths:

- Deploy Rapid Response Teams...at the first sign of patient decline
- Deliver Reliable, Evidence-Based Care for Acute Myocardial Infarction (AMI)...to prevent deaths from heart attack
- Prevent Adverse Drug Events...by implementing medication reconciliation(Med Rec)
- Prevent Central Line Infections...by implementing a series of interdependent, scientifically grounded steps called the "Central Line Bundle"
- Prevent Surgical Site Infections...by reliably delivering the correct perioperative antibiotics at the proper time
- Prevent Ventilator-Associated Pneumonia...by implementing a series of interdependent, scientifically grounded steps including the "Ventilator Bundle" (IHI, 2008).

The aims of this special project Fellowship study are discussed next and are directly linked to these issues of policy, patient safety, and management.

Project Aims and Purpose

There is incomplete knowledge and an apparent tension in the literature about the management and leadership of change program including those for patient safety. This Fellowship Project examines, analyzes, and evaluates two patient safety change programs that were implemented at Bluewater Health. The project uses a case study method to retrospectively examine the two patient safety programs and uses documents from the programs as well as interviews with key informants as the basis of the analysis. Results are used to draw conclusions that will hopefully assist managers in their own change programs. The findings are used to make recommendations and suggestions for future study. The goal of this project is to increase the understanding of successful approaches to change management and leadership at the clinical program level, to identify possible cautions in implementing these kinds of change projects, and to assist managers in being more successful in implementing these change programs related to patient safety.

It has been recognized that “research into adverse events has highlighted the need to improve patient safety” (Baker et al., 2004, p.1678). In reviewing the current state of knowledge of

leadership of change, the Institute for Healthcare Improvement (IHI, 2008, p.2) noted in relation to their change framework “that many of the points work well in the field without much modification, whereas others seem to need some reframing, or a special emphasis on particular elements or even substantial revision.” Griffith and Bea (2009) noted, in a review of award winning hospitals that had used the Baldrige quality framework, that the hospitals could use this approach to quality improvement to reach “high performance sustained over several years” (p. 68), but within this framework that a hospital had to chose its own particular approach and define its measurements and foci for improvement within the framework categories. Greenhalgh et al. (2004) found in their systematic review that there is much still unknown about the spread of innovation in health care organizations and that approaches to change are not well understood as to how effective they are at achieving change targets. Axelrod (2002) also tells us that our most current and modern change management paradigms and practices can often increase change resistance and cynicism thereby making change more difficult.

The aim of this project is to add to the body of knowledge on the use of improvement frameworks and prescribed leadership practices for patient safety programs. Specifically, this project compares what was done by the safety program leaders at Bluewater Health to the IHI change framework and other literature change methods to determine what was successful and what was not successful for the change leaders, the staff, and the organization. The IHI improvement framework and methods were selected in part because this author was aware that Bluewater Health was reviewing quality tools and looking at the work of the IHI. These improvement methods were created by Langley et al. (2009) and are noted by Dr Don Berwick, a widely acknowledged quality improvement expert, to be “the most useful single framework I have encountered in twenty years of my own work on quality improvement” (as cited in Langley, p. xiii). The other literature methods are a selection of elements that this author deemed influential based on a literature review and that he wished to examine in this study. Admittedly, could have been many possible items could have been selected, but this project had to be delimited. Selected for study were education, the link of safety programs to strategy, leadership style, team role, and physician engagement. These items and their major influences are discussed in more detail in chapter two and then used as the basis of the study questions described in chapter three.

The study is not intended to be a general analysis of change management. Instead, it is a comparison of several specific change tactics prescribed in the literature to what was done at Bluewater Health aiming to determine if and how these were applied and what resulted. The more detailed project questions arising from this general aim are discussed later in the methodology

chapter. Although the approach to investigation and analyzing the patient safety change programs could be pursued at several levels ranging from the macro to the micro, this project targets the change leadership and management at the clinical program level where the two patient safety change programs were implemented. This is the level of analysis that is emerging as the main focus of clinical quality improvement and the setting in health care organizations where effective teamwork has been shown to lead to better quality (Ferlie & Shortell, 2001). In addition to this, we know that leading with a systems level perspective on the organization and approaching change management this way is needed to create meaningful and sustained change and to take into account the complexity of effort needed for successful outcomes (Daft, 2008). Practically however, changing a whole system at the same time is very complicated and subject to large scale resistance, so the leader needs to approach things tactically with more discrete efforts that have specific focus and smaller aims and goals (Daft). This study focuses on these more tactical items through the research questions.

Strategic Importance

This project has strategic importance to health care organizations. The implementation of the safety programs themselves is the “case” that is studied to create a strategic understanding of what actions are effective in implementing evidence based safety initiatives and what actions are not effective. This Project links the literature and theory on best practices and evidence based change implementation to real change programs. It uses the IHI Berwick model of change as the major basis for this comparison. This is a very popular framework and experience with its application in the Canadian context is important. The findings of the Project serve as guiding knowledge to managers about how to manage clinical program change programs and the use of literature in managing program change. These issues are of immense strategic importance to leaders in health care organizations as the ongoing improvement of care delivery, effective change in response to new evidence, and continuous improvement are essential to the success of organizations at the present time. The other outcome of this Project is the better understanding of the spread and sustainability of improvement processes. Empirical experience is provided by the findings that facilitate the enhancement of management practices geared towards the improved effectiveness of change management.

Kovner and Rundall (2006) tell us that more knowledge is needed to better lead improvements in organizations. This Fellowship Project adds to this knowledge by defining, describing, and recommending strategies to (a) improve managers’ use of evidence in decision

making in change management and (b) focus evidence-based decision making on this strategically important change initiatives. This knowledge is critical to health care organizations and their leaders both operationally and strategically.

Theoretical basis of this project

The theoretical foundation of organizations on which this project is based is systems theory as described by von Bertalanffy (1968). These concepts and ideas are most currently applied to the modern organization as complex systems and complex adaptive systems such as that described by McDaniel, Lanham, and Anderson (2009). This will be discussed further in Chapter 2 where systems level approaches are discussed at the tactical application level.

Scope, Assumptions, and Limitations

This scope of this project is the two SHN bundles of AMI Med Rec. The findings presented and discussed here apply to this setting and may not be applicable to other settings. The data used in the analysis and formation of conclusions was also specific to this organization. The interviews are subject to potential bias in the collection and data phases, and the conclusions may be influenced by the particular key informants and their perceptions. Multiple sources of data and research techniques were used to minimize these effects, but, as such, these results may not necessarily be generalizable to other people in the organization, other settings, or organizations.

Relevance and transferability

Despite the limitations just discussed, the analysis, findings, and recommendations arising from this project could be transferrable to other hospitals and health care organizations either directly or by analogy, generalization, or transference. The findings could also be potentially transferrable to other kinds of change programs that are based on the implementation of new ideas or methods that arise from evidence and may not need to be limited to the AMI or Med Rec safety programs. Although this author cannot assure transference, practitioners and managers in other settings could assess the relevance of the findings to their own setting by analogy and assessing similarity of context and setting. It is expected that the findings and conclusions would be adaptable to many other health care settings and organizations to some degree and that managers would be able to benefit from the outcomes of this planned project and its recommendations. In addition, a specific change program will be studied, the comparison will be made to literature based general

change management and leadership approaches so the discussions and results should be of interest and use to many in the health care field.

Next, Chapter 2 provides a review and discussion of the relevant literature. This is followed by a discussion of the methodology used for this project and then the findings and conclusions are presented in Chapters 4 and 5.

CHAPTER 2

REVIEW OF THE LITERATURE

This chapter of the Fellowship project is an overview discussion of selected literature that is specific to the change setting of this project and to the topic of management of change associated with patient safety programs. The potentially relevant paradigms are numerous and a select sampling of theories and principles is difficult. The overview is presented here to give this Fellowship Project a literature and theoretical context. Collectively, the literature suggests that organizations are complex systems. What managers and leaders do to change these organizations often does not work. To increase the chances of success, change managers need an organized approach. Organizations like the IHI offer these frameworks, but their implementation and any success from their use still requires further assessment through application and analysis; hence its inclusion in this study. Typically, a large majority of projects fail due to the difficulty and complexity of change (Matta & Ashkenas, 2003). There is evidence that a detailed and organized plan for quality improvement initiatives is linked to successful outcomes (Luo, Hilty, Worley, & Yager, 2006). Furthermore, having an organized framework to create this assists the development and implementation of initiatives for quality and safety improvement (Fukuda, Imanaka, Hirose, & Hayashida, 2008). The IHI is a quality improvement framework that is based on systems approaches and the diffusion of innovation applied in a practical manner. This model for improvement has been in widespread use “successfully in hundreds of health care organizations in many countries to improve many different health care practices and outcomes” (IHI, 2010). It allows the leader to take systems level considerations and transform these into practical steps and actions.

Theoretical Concepts & Management Principles

The overarching theory of organizations on which this project is based is systems theory like that described by Ludwig von Bertalanffy (1968). He tells us that an organization is the sum of the elements plus the effects of the interactions between the elements. That is, the whole is greater than the sum of the parts. The most current iteration of these concepts and ideas as applied to the modern organization is found in complex systems and complex adaptive systems such as that discussed by McDaniel, Lanham, and Anderson (2009). Briefly, this paradigm posits that organizations are social systems composed of multiple mutually interacting elements. These interactions are complex and dynamic and both the interactions and the outcomes of these

interactions are unpredictable and unique to some degree. When the system incorporates feedback and communication mechanisms it is capable of adaptation and the development of rules and coordinated effort (Waldman, 2007). While this complexity and the dynamic nature may have some advantages in the ability of a system to adapt, it also makes the management of processes designed to achieve an outcome difficult, and to some extent uncertain. The irony in this is that certainty, safety, and predictability in health care services and organizations is a desired outcome. The National Steering Committee on Patient Safety (2002) tells us that health care systems are composed of three interdependent elements. These are structures, processes, and outcomes. This is based on the work of Donabedian (1980) who was a founder in the field of healthcare quality. He noted the importance of adopting a systems view and linking systems and process as the determinants of patient outcome. These three elements interact to create a complex environment and the goals for leaders and managers is to improve the structures and processes that in turn lead to improved outcomes. Consequently, the job of managing and leading these organizations is a difficult task and much knowledge is still needed in the way of best practices and information about effective change management. The manager's objective is to get the system's elements to work together to achieve a goal and if this is not achieved, the elements of the system will continue to function in isolation. To reach this goal, the manager needs to understand (a) why services are produced, (b) how they are produced, and (c) how these services can be improved. This triad of systems improvement fundamentals forms the basis of quality improvement management (Baker et al., 2008). At the micro-system level, successful improvement is dependent upon the ability to reach a state at which (a) people in a clinical program are able to comprehend their area as an interdependent part of a larger system that has an ability to change, and (b) there is a common sense of purpose to improve services and outcomes (Baker).

Resource dependency theory states that organizations are dependent on their environments for vital resources and must meet the demands of the environment if they are to survive (Schmid, 1992). Canadian hospitals and much of health care is publicly funded and therefore the provider organizations must satisfy the funders to receive continued resources. Organizations must recognize government and public influences and be able to respond effectively. Implementing change to succeed in measured quality and safety programs is essential for managers and their organizations given public interest and public policy with respect to patient safety programs and indicator reporting.

An extension of systems theory concerns the nature of organizations in that they are socially constructed realities (Kuhn & Beam, 1982), and their successful management depends on

understanding the nature and interaction of the individuals and groups who compose organizations. Within these patterns of interaction are forces that restrain and forces that promote change in a type of quasi-stationary equilibrium (Brager & Holloway, 1992). Change can occur either through small increments or large scale punctuations (Meyer et al., 1990). However, we are reminded that in health care settings this latter transformative change, guided by a compelling vision, is needed because incrementalism alone is often ineffective. Likely this is due to the culture of hospitals which have a traditional command and control paradigm and shifting to a complex management systems approach steered by shared values and purpose is difficult (Mullins, 2003). Cultural differences between the expert culture type found in professional groups and the affiliative culture in health care organizations threatens the formation of partnerships for effective management and change programs (Bujak, 2003). Coupled with this important issue is the fact that change programs based on standardized approaches to care and evidence based guidelines have not been effective, in many settings, in achieving consistent implementation or changing the behaviour of clinicians (Cabana et al., 1999). In attempting change to organizations there are constraints imposed from organizational culture, environmental conditions, control systems, and the power and influence structures (Tushman & Romanelli, 1985). Typically over 50% of large programs fail (Matta & Ashkenas, 2003). With such a high rate of failure, it is clear that hard-work and good intentions alone will not achieve tangible and sustained outcomes. Waldman (2007) agrees that healthcare is plagued with unintended outcomes and system fixes that fail, but he feels that these issues can be addressed to assist the success of change if the goals are approached through processes rather than outcomes. The processes must be specifically designed to engage people and get them interacting around a change project or set of actions.

Approaches to Managing Change & Innovation

While leaders and managers in organizations often see and understand the need to change, they frequently do not know how to go about making change successfully. Beer, Eisenstat and Spector (1990) believe, based on their studies of change, that this is due to “fallacies of programmatic change” (p. 158). Rather than focusing on cultural shifts and other whole organization changes, they found that change was more successful when managers operated with smaller groups at program and service levels and focused their efforts on concrete problems and created relationships among staff by aligning roles and responsibilities around a task or process.

Peter Senge (2000), one of the seminal writers on organizations, believes that we change only in increments if not faced with pressing problems and this puts us in a relatively poor position

for what is really needed and that is innovation. He further asserts that managers in organizations have a tendency to problem solve rather than create new ways of doing things and new processes. This seems to contrast with the principles of adaptation and new process emphasis just discussed in relation to systems theory and how organizations function. Ackoff (2006) believes this is in part due to the fact that few managers have a working knowledge of systems theory and how this paradigm impacts the behaviour of organizations and their role in pursuing managing through systems thinking. The psychology of human interaction may have some additional influence here because we tend to attribute failures that we experience to the system and failures that others experience to themselves. The result is that we are less likely to think at a systems level and tend to have a disproportionate emphasis on the failings or successes of individual actions. This is often coupled with an allegiance to our own particular part of the organization deemphasizing the need for linkages and cooperation across sections of the organization (Johnson, 2007). Furthermore, Ackoff (2006) found that we tend to place more importance on errors of commission. That is, we regard negatively things that don't turn out well because of something we did. We place less emphasis of errors of omission- things that we fail to do. The result is that we try to avoid errors of commission at the risk of inaction. Given these potential maladies of change management, what is needed is an organized approach or a framework for managing the process of change. These frameworks for change process need to be robust because organizations only change when the people that compose the organization change and this process of personal change needs strong leadership without which the change process will fail (Senge, 2003).

With respect to process, Christensen, Marx, and Stevenson (2006) remind us that the primary role of managers and the job of managing is to get people working together in specific ways centred on an organized set of tasks and activities. They also note that achieving this goal for the purpose of changing processes, procedures, and practices is quite difficult. Their solution to this dilemma is what they describe as an agreement matrix. Reaching agreement among participants and relevant stakeholders around a change event is felt to be the first step in managing the change. This agreement must be reached on two fundamental sets of factors. The first is what people want, their values and priorities, and which tradeoffs that they are willing to make. The second is the agreement on the cause and effect that will lead to the desired outcome of the change program. Christensen et al. (p.75) propose that managers have four general sets of tools that they can use in moving this agreement process ahead so that change can be implemented. The first is power and this can be used if there little consensus on the two agreement factors just mentioned. A second set of tools is management approaches such as training processes, policies and procedures, and measurement

systems. The third is leadership tools including charisma, salesmanship, role modelling, and creating vision. The final set is culture with its attendant influences from rituals, tradition, and democracy. These writers also note that this last set of influences is one that tends to develop from natural processes and is not something managers can control easily.

Diffusion of innovation is a type of systems theory that describes how new process and practices are adopted and spread (Reed & Jordan, 2007). Organizations such as hospitals are complex systems and getting their segments and divisions organized into a collective effort to improve performance and outcomes is difficult. Cabana et al. (1999) conducted a systematic review of the literature and found multiple barriers to improvement through the adoption of new practices and the subsequent diffusion of the innovation. These barriers fell into the categories of (a) knowledge, (b) attitudes, and (c) behaviours. Similar issues are reported by Corrigan et al. (2001) in their study in the mental health setting. They suggested that success would be improved by increasing staff knowledge of the proposed intervention or change, making manuals and guidelines user friendly, and improving organizational factors such as motivation systems, team leadership, and quality management systems. Grimshaw et al. (2006) advise that interventions should be selected based on feasibility, cost, and benefits. Greenhalgh, Robert, MacFarlane, Bate, and Kryiakidou (2004) found in another systematic review that intervention programs could span the spectrum ranging from letting change happen to helping change happen to making change happen. The approach depends on the intervention, the individuals involved, and the system responses to change management. So, with these multiple issues, managers would benefit from a framework or guiding system to help manage change. The complexity of the systems of organizations also necessitates an organized systematic approach to change.

The degree of understanding of these management approaches is not fully developed and Kovner and Rundall (2006) stress that we misuse, overuse, and underuse management techniques and tools frequently. They propose to us that this is because we don't apply the same evidence informed approach to management that we do to clinical care delivery. To overcome this limitation, they offer a set of four strategies to increase the use of evidence in management. These are (a) direct the focus and efforts towards strategically important issues, (b) develop teams and structures to diffuse innovations, (c) build a culture and tradition that values the use of evidences in planning and decisions, and (d) provide people with training to enable them to apply research evidence to the practices. With respect to implementing a change program for patient safety, they would have us follow a set of actions that formulate the questions we need answered, agree on the evidence to

inform our decisions, assess the validity of the evidence we obtain, present the evidence to those who will be affected, and finally, apply the evidence to decision making.

Don Berwick (2003) of the IHI found similar change influence factors to those reported by Cabana et al. (1999). He uses the concepts of the diffusion of innovation and notes that the spread of something new is dependent upon the perceptions of the innovation, the characteristics of the people involved, and the context of communication, incentives, and the leadership. In his experiences, he has found that even when changes are successfully implemented they are slow to disseminate. Similar to Kovner and Rundall (2006), he also found that there is a tendency to overuse unhelpful evidence and underuse helpful evidence about new practices and improvement processes. One particularly important set of factors that influences the success of change programs was felt to be the trialability and the observability of an innovation (p. 1971). He noted that the adopters followed innovation diffusion patterns that fell into the categories of innovators, early adopters, early majority, late majority, and laggards. As a result of his review he recommended the following general approach to change. His rules are as follows: (1) Find a sound innovation, (2) Find and support the innovators, (3) Invest in the early adopters, (4) Make early adopter activity easily observable, (5) Trust and enable reinvention, (6) Create slack for change, and, (7) Lead by example. Dr. Berwick reminds us that, although these rules may seem intuitive, they are often not followed in organizations. Rule 1 is neglected because leaders make the assumption that health care professionals are constantly improving. In his research at the IHI, he has found that the health care community is populated by people who are typically early and late majority in innovation diffusion terms. To overcome this discrepancy, leaders of change need a formal and deliberate set of tactics to find and implement innovations (p. 1973). Rule two often fails because new ideas frequently need to come from outside the systems in which the issue or problem exists and we don't have effective mechanism to seek these out. Berwick suggests that we formally create the time and opportunity for change managers to pursue change improvement as a dedicated part of their role. Rule 3 fails because we tend to have a rigid set of structures and processes in health care organizations that force compliance. This is the opposite of what is needed for innovation and Berwick recommends that change managers should focus on early adopters and allow these adopters to pursue change opportunities (p. 1973). We also need better mechanisms to make the early adopter more visible to the rest of the organization so that they can serve as an example for others and to act as a nidus for change improvement.

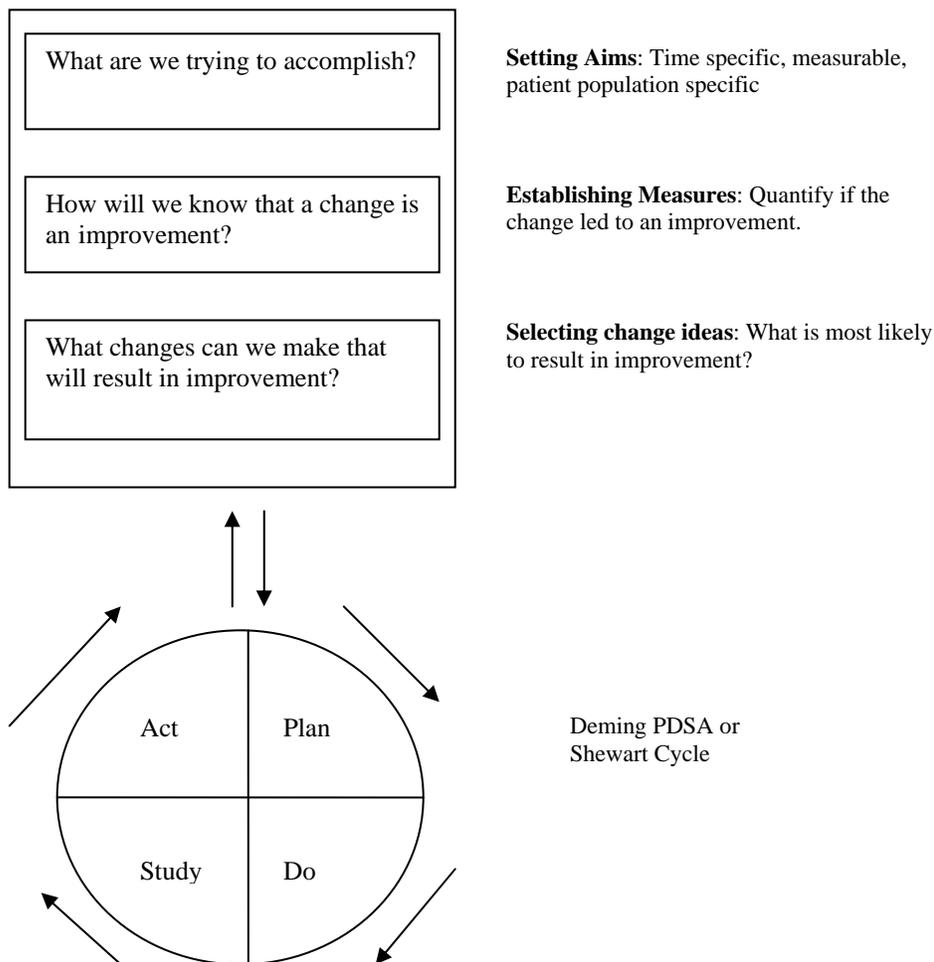
Selecting Quality Improvements

Even simple systems can become complex when a change is being considered or implemented. As a general approach, three key questions should be asked in selecting and planning a quality improvement (Langley et al., 2009). These questions are linked to setting aims, establishing measures, and selecting changes respectively. The measures that are established should cover outcome, process, and balancing elements of a planned change. The changes are then tested in a repetitive Plan-Do-Study-Act (PDSA) or Shewart Cycle.

These key questions can be pictured diagrammatically as follows.

Figure 1

Improving Organizational Performance (Langley et al., 2009)



The answers to the first question arise from the program or service profile and the generation of ideas. Opportunities for improvement are also generated by this analysis. The second question requires the selection of two to six indicators that could be process or outcome focused. It is also recommended that a balancing indicator be used to detect any unplanned deterioration in another element of the system arising as an unexpected consequence. The change idea is then approached through a Plan, Do, Study, Act or PDSA cycle. The third question arises from the work of Eliyahu Goldratt (1984) on “the theory of constraints”, in which he tells us that any improvement is a change but not every change is an improvement. In addition, there will always be people in an organization who view any given change as a possible threat. Nonetheless, we cannot improve unless we change. He suggests that we involve people in making change by sharing the problem not the solution. This is accomplished by (1) collectively defining the root or core problem, (2) constructing practical solutions, and (3) enlisting the appropriate people in creating and implementing the solution. Langley et al. (2009) proposed four principles of improvement to guide the change manager. These are (1) make sure that people understand why things need to improve, (2) create a method or set of techniques to ensure feedback is received while the change process is occurring, (3) develop change programs and plans that you are confident will result in improvement over the current state, and (4) test changes before any implementation occurs (p. 16-17).

Making Change Effectively

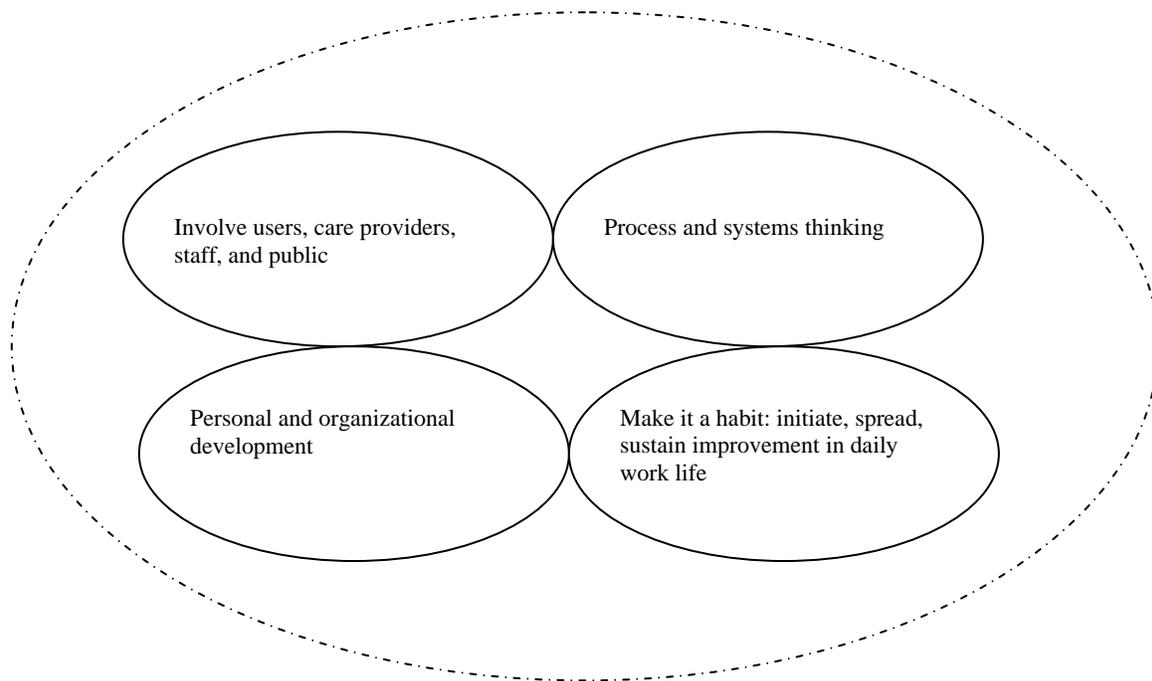
We are all familiar with what is called incremental change or first order change. This is found in adjustment and alteration to keep things functioning yet without significant departure from the status quo. In change studies it has been shown that first order change in health care organizations results in more or less of the same kinds and types of health care systems as before the change. Penny (2003) names these the “more” types of change typically see as more staff, more equipment, more money, and more time.

The type of change needed to change systems is punctuated or second order change that requires reframing, reorganizing, and rethinking. It also requires a shift from individual thinking to whole systems thinking. Penny (2003) found, in a survey of 100 health care professionals who had succeeded at improvement initiatives, that there were four equally essential elements to successful change leading to improvement. There are two people elements and two process elements that together form the successful change system. These can be pictured as shown in Figure 2. The two people elements in Penny’s approach tell us that we need involve and include the relevant stakeholders ranging from direct users to the public. We also need to engage in personal and

organizational development to facilitate effective change. At the process level, we must use systems level thinking in our approaches and practices and this must tie to a systematic approach to implementing, spreading, and sustaining change programs. It can be seen that this approach links to systems theory and to the IHI and Langley models of improvement.

Figure 2

The Elements of Improvement (Penny, 2003)



Spreading and Sustaining Quality Initiatives

One of the primary reasons why quality improvement is difficult to achieve in an organization is that about 70% of the changes that are started ultimately fail (Beer & Nohria, 2001; Daft & Noe, 2000). This is probably because quality improvement initiatives can be very broad and consequently too complex to manage successfully. To help achieve the aims and goals just discussed in this literature review as routes to success, this author has identified a set of tactical approaches based on published healthcare quality improvement frameworks. These approaches

have both leadership and implementation elements to them. The leadership strategy has been divided among three general phases and is an aggregation of published approaches in the quality arenas. These phases are engage, execute, and sustain.

Engaging Tactics The engage phase is built on the work of Reinertsen et al. (2007) at the IHI and their work on engaging clinicians in quality and safety programs. The authors at IHI note that approach is applicable in many health care settings and locations. The steps are:

- a) *Discover a common purpose* such as improving outcomes, decreasing wasted time, or understanding barriers and opportunities.
- b) *Reframe values and beliefs* by making physicians and other partners and promote system and individual responsibility for quality.
- c) *Segment the engagement plan* using the classic 80/20 rule, identify champions and engage them, educate and inform leaders, and indentify and work with laggards.
- d) *Use engaging improvement methods* by standardizing where possible, use data sensibly, and making the right thing easy to do and try.
- e) *Show courage* and provide backup all the way to the Board.
- f) *And, adopt an engaging style* by involving participants from the beginning, making involvement visible build trust with the quality initiatives, and value time and commitment.

Baker et al. (2008) in his analysis of high performing health care systems noted that a key element in success was physician involvement (p.18). To increase success, they found that physicians need to be involved in the planning of improvement programs as well as participating as team members of the change program group. Leaders of health care organizations should endeavour to create opportunities for clinical leaders to assist with and lead improvement programs. To ultimate goal is to create an environment and culture where clinicians have a sense of ownership of quality improvement.

Change Execution Tactics An approach to improvement would include strategic goals, defining systems capabilities, and managing and leading improvement initiatives. Within this large scope of potential areas for action, change leaders need to determine one or two places where change can get started and potentially have the greatest effect. Reinertsen et al. (2008) of the IHI proposed seven leadership leverage points as a way to define these starting points (please see appendix C for the list of seven). From a leadership perspective, there needs to be a focus on a few

specific leadership competencies that are highly likely to bring about system-level change. A few of these points will be later examined via the research questions namely setting aims, leadership focus, and physician engagement. As noted in the IHI Seven Leadership Leverage Points for Organization-Level Improvement in Health Care, execution strategy is critical in order to achieve breakthrough. As well as establishing the breakthrough aims the Executive Team must develop an achievable plan and attach capable leaders who can both drive the project plan and assist with implementing the front line day-to-day practical changes that will drive things toward achieving the target aim. Monitoring and implementing rapid cycle changes (Langley et al., 2009) based on real time data from the target unit must be applied to understand project progress as well as the system-level measures. Focusing on one or two aims, supported by key program leaders and front line staff keeps the unit focused on achieving the change target. Obtaining data and feedback regularly on the program execution and strategy as well as completing monthly Executive Team reviews helps prevent barriers and ensure the current strategy is producing the desired results at the desired pace of implementation. Interventions should follow these phases (Reinertsen et al. 2008):

Step 1: Setting the Aims (a) Establish the breakthrough metric, (b) Ensure adoption of the aim, (c) Communicate the aim from the highest governance level, and (d) Assign Executive Sponsor accountability for achieving the aim.

Step 2: Executing Strategy (a) Develop a plan to achieve the aim, (b) Assign capable leaders to the project, and (c) Establish Executive Team data/project review schedule.

Step 3: Focus Leadership Attention (a) Do executive reviews with project team, (b) Communicate measures of progress, and (c) Dedicate protected project time for leaders.

Change Sustaining Tactics The success of change programs depends not only on engaging and execution, but also on sustaining. The 5 Million Lives Campaign (2008) key components of sustainability have been demonstrated to be a successful way to improve and are summarized as:

- a) *A supportive management structure* through creating accountability systems with senior level responsibility for achieving improvements and monthly review of performance via an organized report scorecard. The targeted improvements and the importance of improving are regularly communicated as well as celebrating successes.
- b) *Structures to foolproof change* by capturing and documenting successful processes in guidelines and training materials and creating tools and techniques such as kits and checklists.

- c) *Robust, transparent feedback systems* using a measurement systems that gives regular feedback with details and levels of information specific for the audience. Improvement data is publicly displayed as well as targets for performance.
- d) *Shared sense of system to be improved* with common understating of the processes and goals including sharing of the process maps and allowing joint analysis of the results.
- e) *Culture of improvement and a deeply engaged staff* by ensuring everyone has a clear understanding of the improvement so that staffs see their work as part of the improvement process. Opportunities for participation are created.
- f) *Formal capacity building programs* by formally building and training skills in executive, managers, and staff. Skill mix of improvement teams is built and an effort to ensure everyone understands and uses quality improvement tools and techniques.

Prior to implementing any program, thought should be given to understanding how program change may be both implemented and sustained. Initiatives fail not only as a result of the lack of skill or motivation of the participants, but also because of a lack of capacity both within organizations and professions to engage in the change process (Berwick, James, & Coye, 2003). Within this context, those leading change initiatives need to keep in mind that a detailed assessment of both the readiness and capacity to engage in change must be completed and mitigation strategies should be identified prior to attempting any initiative. Other practical professional considerations include the presence of an empowering work environment for nurses and the presence of a climate of patient safety (Armstrong, Laschinger, & Wong, 2009). Regardless of the initiatives that are being considered, patient safety programs will be negatively impacted by the presence of negative work environment variables such as overtime and excessive workload (Sharp & Clancy, 2008).

Leadership

Greenhalgh, Robert, MacFarlane, Bate, and Kryiakidou (2004) found that chnage programs could span the spectrum from letting change happen to helping change happen to making change happen. The approach depends on the intervention, the individuals involved, and the system approaches to change management. In forming this impression, Greenhalgh et al. (2004) had performed a systematic review of the literature on the topic of innovation diffusion in health care organizations. They found a level of complexity that they coupled to systems theory in which the interaction of people was dynamic and adaptive. There were a number of influences that they found associated with change innovation but key among them was leadership. They concluded that

leadership was a systems element that was necessary to create a receptive context for change (p. 595). In general, people adopt change and spread these changes to others at different rates. Sometimes these are not spread at all and dropped or abandoned. Their review found that there was a relative advantage for innovation ideas if they were clearly more effective or had a cost advantage, but even this attainment of relative advantage status did not ensure adoption and spread of a change innovation. Leadership that was proactively geared towards the effective dissemination and sharing of knowledge was found to be a strong facilitator of change. This kind of leadership creates a receptive environmental context for change and enhances its chance of success. Leaders of change who could assist moving away from convergent types of thinking and were capable of creating capacity for change at the person level, motivating people, and creating effective team dynamics were found to be more successful at change. The ingredient of visible and present support for change including advocacy for implementation and the spread of innovation were also found to be key leadership functions in successful innovation. Baker et al. (2008) found similar themes in their study of high performing systems. They noted success factors included strong senior leaders who served as role models for organizational values. Also important in success was leaders who encouraged and facilitated the celebration of successes, Boards who support and encourage innovation, and organizational processes that included clinical leaders in change planning and implementation.

Any successful change begins in an organization with a few passionate individuals that initiate and help lead the change process so that things move from idea to implementation to generalization (Senge, 2000). Lichtenstein et al. (2006) advocate that we shift away from traditional leadership models and roles and marry our approach to leadership to the complex adaptive systems nature of organizations. They advise a set of principles as follows:

1. Shift from an isolated role to the context of interactions among people;
2. Focus leadership success on complex interactions rather than isolated variables;
3. Highlight the role of leadership in creating relationships around change; and
4. See leadership as the glue between ideas and people.

These sentiments are mirrored by April and Hill (2000, p.50) who recommend that we recognize that:

1. Leadership is something that occurs throughout the organization.
2. Power should be more generalized.
3. Leadership environment and the organization are constantly changing.
4. Successful change and problem solving occurs in groups.

Likewise, Dess and Picken (2000, p.19) who in the analysis of new leadership challenges for the 21st century note that traditional approaches to leadership must change so that:

1. People are empowered to pursue change at all levels;
2. Knowledge is accumulated and shared; and
3. Creativity is encouraged.

Personal Factors

Another practical consideration that is worth noting is the use of audits and personal feedback to improve uptake and sustainability of change initiatives. While a widely used strategy to improve practice, the use of audits and feedback has only a small to moderate impact on actual practice (Jamtvedt, Young Jane, Kristoffersen, O'Brien, & Oxman, 2006). It is evident that this modality, while helpful for some individuals and circumstances, is not an overly effective strategy that can be generalized successfully to all settings.

Watt and Piotrowski (2008) found in a study of healthcare workers in the US that organizational change cynicism attitudes were related to employee engagement in organizational activities. They concluded, based on a literature review, that a comprehensive multi-faceted approach to involving staff, communicating frequently, and effective leadership is critical to change success. The findings of Casalino et al. (2003) indicated that the adoption of care management practices was typically low in physician service organizations. Cabana et al. (1999) conducted a systematic review of the literature and found multiple barriers to the adoption of new practices and the diffusion of innovation. These barriers fell into the categories of (a) knowledge, (b) attitudes, and (c) behaviours. Similar issues are reported by Corrigan et al. (2001) in their study in the mental health setting. They suggested that success would be improved by increasing staff knowledge of the proposed intervention or change, making manuals and guidelines user friendly, and improving organizational factors such as motivation systems, team leadership and a quality management system. Grimshaw et al. (2006) advises that interventions be selected based on feasibility, cost, and benefits.

Kee and Newcomer (2008) additionally remind us that we need strategies for change management those are for the heart (e.g. inspire, celebrate, empower) and for the head (e.g. information, clarify purpose, incentives) if we are to be successful in change implementation.

Following the development of a comprehensive strategic execution plan, process needs to be implemented to ensure that tactical execution of the plan to achieve the desired outcome.

Motivation of staff to engage in change is essential to the tactical execution. While there are many

tools available to assess motivations, the results of a review of available tools has suggested that employees may be assessed on two variables: the extent to which people agree on what they want, and the extent to which people agree on how to get what they want (Christensen, Marx, & Stevenson, 2006). Evidently a change process has a higher probability of failure when those who are engaged in it have a greater disparity on the two variables amongst themselves. Based upon an assessment of over seven thousand business professionals, it was found that in order to achieve success, the leader needs to demonstrate competence in the domains of: influence, interpersonal facilitation, relational creativity, and team leadership (Butler & Waldroop, 2004). The leaders' role in facilitating change is to bring disparate people together to focus on a common outcome and to hold them together for that purpose.

While a strong leadership style will support the change process, there are also practical approaches related to day-to-day work that can monitor and sustain the changes that have been initiated. Within healthcare there is a dearth of systematic and sustained use of evidence in practice. This development-to-delivery gap may be reflective of the reality that significant resources are spent on research and care delivery, but there is not a commensurate commitment of resources to understanding how to translate new and innovative research into everyday practice (Bowen & The Winnipeg Regional Health Authority, Regional Language Access Committee, 2006). Traditionally the individual practitioner has been cited as the culprit. However a review of the factors associated with the lack of use of evidence in nursing practice has demonstrated that this lack of integration actually occurs at all levels of the organization (MacGuire, 1990). Supporting this perspective that the integration of new knowledge is an organization wide responsibility is recent research demonstrating the importance of effective evaluations of the use of evidence in practice. Organizations with a capacity to conduct effective evaluations of the use of evidence based practice are better able to implement evidence based practices more effectively (Danseco et al., 2009).

Kotter and Schlesinger (2008) reviewed change management and resistance and made a set of recommendations that are consistent with the literature reviewed in this chapter. They emphasize the importance of education about the change and change processes as well as communication. Participation and involvement is also offered as a strategy to assist the acceptance of change. Finally, they advise the use of facilitation and support as well as negotiation with stakeholders.

Education

The earlier discussion by Corrigan et al. (2001) who had found that increasing knowledge about change increased success. The National Steering Committee on Patient Safety (2002) found

that successful patient safety change programs occurred when there is a coordinated and multidisciplinary approach to create a critical mass of people skilled at implementing safety systems. This requires education. Pelletier and Beaudin (2008) wrote about education in the context of health care quality and they suggested that we need an efficient and effective education plans for our organizations. An education plan would cover three levels of requirements including a prioritization by senior leadership, staff education about standards and quality, and management education about implementing and influencing change. This is a constantly changing process in their assessment and one that must be updated and refined with time. The delivery and the content of the education has to be specific to the target audience and the delivery of the education should be done in advance of the need for the information or skill set that is the desired outcome of the education effort. Formal mechanisms should be in place to determine education needs and the sources of information might include job descriptions, asking participants, asking experts, testing participant's knowledge, and analyzing participant's performance.

Strategies typically employed by organizations to educate staff on new initiatives involve the use of teaching sessions, quality improvement training, and pre-printed education materials. A systematic review of studies evaluating the effectiveness of hand hygiene initiatives has found that single one-time educational sessions have little to no effect on changing practice (Gould, Chudleigh Jane, Moralejo, & Drey, 2007). As well research involving a group of rural hospitals demonstrated that there was no discernable improvement in patient outcomes following the implementation of quality improvement of staff (Filardo et al., 2009). While not conclusive, the results of this study support the premise that system wide change requires a multifactor approach from both a leadership and a front line perspective. Another popular method of improving performance is through the use of pre-printed education materials. A systematic review of the literature found that the use of pre-printed education materials will improve outcomes associated with process measures, but will not lead to an improvement in patient associated outcomes (Anna et al., 2008). The introduction of such a methodology needs to be considered carefully within the context of the overall change initiative.

With any change initiative there is a need to determine the degree to which the actual change is being integrated into practice. One method is the use of audits and other forms of direct feedback. Research has demonstrated that auditing and other forms of direct feedback have a moderate impact on performance in those instances where performance is far from the target (Jamtvedt, Kristoffersen, O'Brien, & Oxman, 2006). Feedback and audit will not, for instance be an effective tool in those instances where the performance target is narrow. With this finding in mind,

a multi-pronged approach must be created to assess and propel performance to achieve and exceed the target.

In support of the formal leader's implementation of a change process is the utilization of a local opinion leader to assist with the implementation of the change. A systematic review has found moderate evidence to support the use of local opinion leaders in the implementation of change initiatives (Doumit, Gattellari, Grimshaw, & O'Brien Mary, 2007). The challenge for the formal leader is to determine the most effective manner in which the opinion leader may be deployed in support of the program.

Having identified the structure and leadership attributes required to implement a successful change initiative, there is also a need to ensure that that attention is paid to the ongoing hard-factors associated with the sustainability of an ongoing program- the time and resources. In a comprehensive review of 225 companies, researchers identified a correlation between program success and the following four factors: duration between program project check-ins, integrity of performance, commitment of senior executives, and extra effort required by staff to engage in the program (Sirkin, Keenan, & Jackson, 2005)

Public Reporting of Patient Safety Indicators as a Change Impetus

One of the major motivating factors in the management of change for patient safety and quality arises from public reporting. The government of the Province of Ontario has initiated the mandatory public reporting of patient safety indicators. The purpose of this reporting ostensibly is to encourage healthcare organizations to reduce incidents of patient harm and unnecessary deaths as well as improve the overall quality of care. On November 29, 2007 the Hospital Standardized Mortality Ratio (HSMR) numbers were released publicly across Canada. The release of the HSMR numbers quickly gained large-scale public attention as they were related to patient deaths and there was tendency to want to use the numbers to compare hospitals and to create a scorecard of performance. Hospitals were assured that the public and the media would be informed that HSMR should not be used to compare hospitals, but people would do just that. Indeed, two major Canadian newspapers published rankings of hospital performance based on HSMR (Brien & Ghali, 2008).

There is debate in the literature and among the experts about the validity of HSMR as an indicator of quality and safety. Some authors suggested that there was disagreement over the relative "usefulness" or "uselessness" of the indicator (McKinlay, Gibson, & Ardal, 2008). Nonetheless, there is a plan for the public reporting of more patient safety related indicators and eight more will be in use over the next year.

The Hospital Standardized Mortality Ratio (HSMR) was the first publicly reported patient safety indicator. HSMR is a high level indicator that was first developed by Sir Brian Jarmin on the Imperial College (CIHI, 2007). It has been used in the United Kingdom to improve hospital care and the United States as part of Medicare data. It compares the number of observed deaths within an organization to the expected deaths in 65 diagnosis groups that account for 85% of deaths in Canadian Hospitals. The rates in Canada fell 5.6% between 2005 and 2007 (CIHI, 2007). It is also disputed as an effective measure of patient safety or quality because good hospitals could be inaccurately labeled as poor performing in HSMR and those with quality problems might have good HSMR numbers (Shojania & Forster, 2008). There are criticisms relating to the lack of empirical evidence supporting the use of HSMR in reducing preventable deaths (Penfold, Dean, Flemons, & Moffatt, 2008), but there is recognition that the HSMR can be useful in guiding higher level patient safety and quality initiatives with effective change in the medium term (CIHI, 2007). The HSMR is a measure that can be used to identify the need to look for areas of concerns and performance may be trended over time for a given organization (Wen, Sandoval, Zelmer, & Webster, 2008). HSMR would not be helpful in the implementation and assessment of specific quality improvement initiatives. Nor is HSMR a helpful comparative measure of performance among healthcare facilities as there remains far too many variables that may impact the ratio (den Ouden & van der Wal, 2008).

In addition to the HSMR, hospitals are also required to report publicly on a number of other patient safety indicators. These include various types of infection rates, such as ventilator associated pneumonia (VAP) and surgical site infection rates, as well as incidence of decubitus ulcers. The intention, clearly being, that through public reporting organizations will be compelled to improve performance on those measures. While it was previously noted that HSMR is a measure that provides an organization the ability to measure its performance against past performance, patient safety indicators are an effective tool in measuring performance across differing organizations (Rivard et al., 2008). This ability to compare organizations is a strong foundation upon which system wide benchmarks and organization specific accountabilities may be set. However, as with utilizing the HSMR as a measure of quality of patient care, inferences as to the relationship between patient safety indicators and quality of care need to be considered cautiously. The relationship between hospital quality of care and performance on select patient safety indicators is inconclusive (Isaac & Jha, 2008). The disconnect between patient safety indicator performance and overall measures of hospital quality may be a consequence of the patient safety indicators being a measure of overall performance instead of being related to specific patient related outcomes. It has been

suggested that a number of countries have opted to include a continuum of performance measures that range from patient specific outcome indicators to system wide (Kazandjian, Wicker, Matthes, & Ogunbo, 2008).

While the intention of public reporting of patient safety indicators is to improve safety, there is little empirical evidence to suggest that this actually happens. The public reporting process has been found to result in an increase in the number of quality improvement initiatives that occur within the hospital setting, but there is no evidence to suggest that there is a commensurate increase in overall safety (Fung, Lim, Mattke, Damberg, & Shekelle, 2008). Looking beyond the patient safety public reporting to the realm of the public reporting of medical error, it has been found that public reporting is not an effective intervention to reduce future errors (Hosford, 2008). Public reporting though does raise awareness to the topic of patient safety and places it on the agenda for public consideration. While creating a safe environment for patients has and will continue to take an exceedingly long time to achieve, momentum is gaining towards this goal (Leape, 2008). Supporting this momentum is the introduction of dedicated patient safety positions. These positions have been found to significantly increase the number of quality improvement initiatives that are undertaken within an organization (Fukuda, Imanaka, Hirose, & Hayashida, 2008). Availability of time is a major barrier to the engagement in systematic reviews of care to improve quality and safety (Gignon et al., 2008). Having dedicated staff and a supporting infrastructure facilitates the development and implementation of initiatives that will address quality and safety improvement opportunities.

While an organization's focus will typically be upon their performance on the specific publicly reported indicators, there is a need to do so with caution. For instance, while incidents of VAP (ventilator acquired pneumonia) are publicly reported, there is evidence to suggest that the actual incidence of VAP cannot be compared between settings due to clinical and setting specific differences (Uckay, Ahmed, Sax, & Pittet, 2008). In this instance organizations should consider their overall performance related to the implementation of specific best practices in the care of the ventilated patient. Conversely the public reporting of medication reconciliation rates may be compared across settings, as the activity is not impacted by clinical or setting specific variables. Completion of medication reconciliation at discharge has been found to prevent errors that would compromise quality of care (Grimes, Delaney, Duggan, Kelly, & Graham, 2008).

Embracing a Culture of Patient Safety

Widespread change is needed to achieve organizational patterns of practice and procedure that will affect HSMR, not just a set of discrete interventions (Reinerstein, Bisognano, & Pugh, 2008). Reason (2000) reminds us that “we can’t change the human condition but we can change the conditions under which humans work” (p. 769). The patient safety culture is an organized and deliberate method of working towards eliminating active failures and the latent systems conditions that contribute to adverse events. These adverse events are challenges to quality, safety, and loss in both financial and opportunity costs (World Health Organization, 2002).

The public reporting of patient safety indicators and organizations’ corresponding implementation of improvement initiatives to address opportunities for improvement will on their own not result in a shift of organizational culture to that of patient safety. The Board of Directors, the ultimate governance structure within an organization, must educate itself and set appropriate oversight processes in place. Such activities include: establishing appropriate policies and procedures, monitoring appropriate system level performance measures, as well as setting executive accountabilities (Conway, 2008). With an effective governance process in place, the executive within the organization is responsible for establishing the manner in which both achievement of the targets set by the Board as well as promoting a culture of patient safety within the organization. The barrier that senior leaders face in this process is that front-line staff feels that the senior leaders do not have an appreciation of the patient safety issues within the organization compared that of their supervisor (Pronovost et al., 2003). This result would suggest that senior leaders are seen as being out of touch with the realities of clinical services. Perceptions of commitment to patient safety have also been found to vary considerably between types of clinicians as well as between clinical and non-clinical staff (Singer et al., 2003). It is with this recognition, that each person’s perception and commitment to patient safety is unique, that any approach to integrate a culture of patient safety needs will require a number of targeted strategies to effect the desired change.

With the recognition that to achieve a culture of patient safety will require a multifaceted approach at the operational level, three possible areas of focus may include: executive level participation, front-line engagement, and patient participation. While it have been previously noted that there is a perception amongst front-line staff that senior leaders do not have a clear understanding of patient safety within the organization, some organizations have introduced executive patient safety walk rounds. While the intention of these rounds is to increase senior leader visibility as well as ensure that front-line staff have the opportunity to raise patient safety issues and have these issues addressed in a timely manner. These rounds though require a significant and

ongoing commitment to ensure that there is an actual benefit on the overall perceptions of safety and quality within the care environment (Frankel et al., 2008). The involvement of patients in their care is another important initiative that has been undertaken within Ontario by the Ontario Hospital Association. While the purpose of this initiative is to promote patient safety by having an informed and active participant, research still needs to examine the extent to which patients may reasonably be expected to be able to participate in their own care (Davis, Jacklin, Sevdalis, & Vincent, 2007). In any event the clinician remains responsible for the overall quality and associated safety of the care that they provide. The last potential strategy is the engagement of front-line staff in the process of identifying problematic care or work processes and redesigning them to address safety and quality issues. This is seen as an underutilized strategy and one that could have a much greater impact than simply focusing on narrow clinical conditions (Tucker, Singer, Hayes, & Falwell, 2008).

This summary of the relevant literature has shown that health care organizations are complex and that change is difficult with many potential sources of failure. Successful change requires the consideration of many factors simultaneously but there are frameworks proposed by quality improvement organizations and the management literature that offer assistance to change managers. What follows next is a description of the methodology used in this Fellowship project. The study research questions could have been chosen to highlight many different aspects of the literature just discussed. However, specific focus on the IHI improvement approaches and framework was selected because these are acknowledged to be widely used in similar settings to this study and have been demonstrated as successful tactical approaches and guides for change leaders and managers working in patient safety programs. Likewise, many other aspects of the literature could have been selected for research questions, but each study has to be limited in scope, so items were selected by this author because they were felt to have a demonstrated influence on patient safety programs. These were education approaches, leadership focus, team role in change, and physician engagement. Together with the IHI framework, these items form the research questions described in the next chapter.

CHAPTER 3

PROJECT METHODOLOGY

This Fellowship Project used the case study method to investigate an applied change. That was the implementation of two patient safety bundles as an improvement program at Bluewater Health. The case study methodological approach is appropriate when the researcher wishes to examine a phenomenon that cannot be separated from its context (Yin, 2009). The project evaluated which of best practices from the literature on organizational change related to patient safety management systems can be implemented successfully. It also aimed to define what structure and process are needed to make these kinds of changes successfully. A case study method was suitable for this project for three reasons: a) the author wished to study the implementation and management of the patient safety change program in depth, b) the events of the project were bounded in time, and c) the author wished to use a variety of data sources (Creswell, 2003).

Setting

Bluewater Health is a multi-site 320-bed community hospital with approximately 1600 employees including about 700 nurses. There are 150 credentialed physicians and 1000 volunteers. The hospital serves the County of Lambton in the province of Ontario with a population base of approximately 128,000. Overall the population within the region is declining. By the year 2016, the population is expected to increase by only 1%. Lambton County is aging at a higher rate than the rest of the province, with 16.3% of the population aged 65 years and over compared to 12.9% for Ontario. Lambton County also differs from the province with fewer 15-44 year olds. The low-income incidence for individuals in Lambton County was 6.5% in 2006, compared to a provincial average of 11.1% (APHEO, 2007).

Forty-three percent of patients at Bluewater are over the age of 65 years with the top 5 Inpatient Activity Groupings (excluding obstetrics and neonatology) being: cardiology, gastro/hepatobiliary, general medicine, pulmonary disorders, and general surgery. Annual inpatient days amount to approximately 55,000 inpatient days with an average acute length of stay (ALOS) of 5.78 days. Based on the Lambton County 2007 Health Status Report – Mortality and Chronic Disease, cardiovascular disease is the leading cause of death in Lambton, accounting for 38% of all deaths. The prevalence of Ischemic Heart Disease is significantly higher in Lambton compared to the province and hospitalization and mortality rates for respiratory disease are significantly higher for Lambton County females versus Ontario. (APHEO, 2007).

The AMI program and medication reconciliation program were conducted in the emergency department, intensive care unit and the associated medical care area of the hospital and involved managers, staff, and physicians working in these areas.

Project Questions: The following are the questions that were addressed in this Fellowship Project. These were created for reasons discussed in chapters 1 and two. Briefly, the author wished to test aspects of the IHI approaches because these are widely used and acknowledged as effective change management approaches for safety programs. They have been used in settings similar to that of this study. The other items which are education, leadership focus, team role, and physician engagement have been shown in the literature to be significant influences on patient safety programs and this author wished to examine these items in the setting of this study. The questions are:

1. What goals of Bluewater Health's patient safety change programs were achieved? Which were not?
2. To what extent was a literature informed approach to change management used? Which of the literature recommended practices used were successful? Which of these literature recommended practices were not successful?
3. To what extent was staff education used in the change management process (e.g. as in Pelletier & Beaudin, 2008)? What were the difficulties in conducting the education?
4. Did the organization follow a change plan like that advised by the IHI (i.e. Berwick, 2003)? Why or why not? If a change plan was adopted was it followed consistently or did it serve as a guide only?
5. What were the sources of difficulty and/or failure in initiating change? Were these difficulties managed in a manner consistent with the approaches described in the literature on avoiding failure in implementing patient safety program change?
6. How was spread of the change managed? Was the approach consistent with the strategies on diffusion of innovation found in the literature (e.g. Berwick, 2003)?
7. What were the difficulties experienced in maintaining and sustaining change efforts and how were these managed? Were these consistent with those found in the literature?
8. What approach was used to sustain the change efforts? Were these approaches consistent with those in the literature (e.g. Berwick, 2003)? Were they successful?
9. How was the change program linked to the strategy of the hospital? Was a strategic approach for the program developed consistent with the literature advised approach (e.g. Kovner & Rundall, 2006)?

10. Does the implementation of an AMI and medication reconciliation patient safety program result in an increase in teamwork and patient safety climate as measured by survey?
Hypotheses 1: The implementation of a patient safety program is associated with an increase in the teamwork and patient safety climate as measured by the Safety Attitudes Questionnaire (Sexton et al., 2006).
Null Hypothesis: There is no change in the teamwork and patient safety climate as measured by the Safety Attitudes Questionnaire after the implementation of a patient safety program.
11. What approaches were used to engage staff in the change programs? Were these consistent with those in the literature (e.g. Christensen, Marx, & Stevenson, 2006)?
12. What leadership styles and approaches were used in these change innovation programs? Were they consistent with the advised approaches in the literature (e.g. Greenhalgh et al., 2004)?
13. Did the clinical program teams involved in the two patient safety programs develop (a) the sense that they had an ability to make change and (b) a common purpose of quality improvement as proposed by Baker et al. (2008)?
14. What physician engagement strategy was used and how did it compare to the proposed IHI physician engagement strategy (i.e. Reinertsen et al., 2007)?

Data Analysis- Qualitative Methods

The research questions were approached using qualitative data analysis techniques. This was done by organizing the data into what Yin (2009) calls a chain of evidence. Information was collected from multiple sources that included documents and key informant interviews. Documents were analyzed directly by this author. Interview notes were made from the interviews as the raw source of data. These data sources were analyzed to identify themes or patterns of responses or data that were then used as evidence. Authenticity or validity was pursued through triangulation among data sources which was used whenever possible to confirm evidence through multiple sources. In addition, where possible, “member checking” by reporting themes or ideas back to participants as confirmation was done as recommended by Creswell (2003, p. 196) during the interviews. This evidence was then compared to the literature propositions pertaining to the research questions as described by Yin (1994). In this way, this author was able to make conclusions to answer the research questions and conclusions as to whether the observations of this case are consistent or

inconsistent with the relevant literature pertaining to the research questions. Data analysis followed the six step process recommended by Creswell (2003) as follows.

Step 1: The data was organized and prepared for analysis by transcribing the interviews into interview notes. These notes and other data from documents were reviewed and were sorted into types of information.

Step 2: This author read through all of the data to develop a general sense of the content and possible meaning of the information. This included general ideas expressed by the interview participants and the tone of these ideas. Additionally, this step included forming conclusions about the depth and credibility of the data (p. 191).

Step 3: The next step was a detailed analysis through “coding” that organized the data into larger themes or grouping of ideas to facilitate data analysis but without giving meaning to these larger data elements. This coding process used the approach of segmenting the narrative from the interviews and the text from other documents into segments and labeling these segments by terms that represent themes related to the research questions.

Step 4: The results of the coding was then used to generate a description of the setting, the people, and the themes related to the research questions (p. 193). These descriptors and themes were supported by quotations and specific evidence from the data.

Step 5: The themes and descriptors from step 4 were then conveyed and presented in a narrative description of the results. Descriptive themes are presented in tables as appropriate and linked to the research questions.

Step 6: At this stage interpretation and meaning of the data was developed. These are the “lessons learned” (p. 194). These lessons are presented for both the data from the events of the patient safety programs and also by comparison to the literature. The lessons are be used to formulate answers to the research questions and may also suggest questions for future research.

Data Analysis- Quantitative Methods

The single hypothesis in this Fellowship project was tested using a t-test comparing responses to the survey of teamwork and patient safety climate attitudes from a time at the start of the two patient safety programs in March, 2009 to a time after the conclusion of these programs in January, 2010. These surveys were completed by staff of the patient care areas in which the two patient safety programs took place at Bluewater Health and program project team members. A survey was distributed to all staff working in the patient care areas in which these patient safety programs were conducted. One hundred and four surveys were distributed on each of the two

occasions. They were collected anonymously and were handed out and collected in paper form by nurse managers. Staff received a \$2.00 coffee voucher for returning a completed survey. This data from these surveys was captured and analyzed quantitatively. The survey instrument used was the “teamwork and safety climate safety attitudes questionnaire” created by Sexton et al. (2006). It is a 27 item questionnaire using a 5-point Likert-type rating scale that asks respondents to indicate a range of responses from “strongly disagree” to “strongly agree” in reply to a series of statement that measure teamwork climate and patient safety climate attitudes. Strongly disagree was coded as 1 for numerical data analysis and strongly agree as 5. As such a score of 3 would be neutral. Fourteen of the questions summate to a teamwork climate profile and the other 13 summate to a safety climate profile. Kerlinger (1986) argues that data collected using these types of scales can be treated as interval level data and as such a t-test is an appropriate analysis. The survey has been previously validated in the hospital setting by its creators. It has a Raykov’s p-coefficient of reliability of 0.90. The chosen significance for the t-test was defined in advance to be the 5% level. This is the most commonly used significance level in the social sciences (Balian, 1994).

Data & Information Sources

Data sources were purposefully selected to be consistent with those recommended by Creswell (2003). These sources allowed the author to review and analyze the four key areas of the setting, the actors, the events, and the processes that Miles and Huberman (1994) say are the key elements of qualitative inquiry. Those that assisted this author in answering the research questions are as follows.

Semi-structured interviews A major information source was obtained through conducting semi-structured interviews by this author. Interviews were conducted with key informants that included all members of the patient safety program teams. This included the executive leaders of these two patient safety programs, program team members, and an informal physician lead. These interviews used a semi-structured approach with a series of guiding questions aimed at the issues relevant to the research questions of this Fellowship Project. Each interview lasted approximately one hour and they were conducted between December 22, 2009 and January 7, 2010. A total of 12 interviews were completed. Participation was voluntary and each participant was contacted personally by this author. The project aim and scope was limited by design to the analysis of leadership and management of the patient safety programs and the interviews were confined to the group of people who led and managed the projects and did not extend to other staff.

Safety program records Additional data was obtained from program records that included minutes of meetings, program documents and data, and summaries of program progress that were created by Bluewater Health. An attempt was made to obtain all documents used in the two patient safety programs by asking each member of the program team to provide all document that he or she had available. These were collected and then checked for duplication. Altogether, 107 documents were reviewed.

Survey A patient safety climate and teamwork survey result gave the main quantitative data element to this Fellowship project and provided an assessment of pre and post change program levels of these two elements at the Hospital.

Other data sources Others available safety program data elements were monitored and these included the frequency of use of AMI and medication reconciliation bundle elements, drug adverse event rates, mortality from AMI, and readmission rates. These supplemented the analysis of the AMI and medication reconciliation change programs and their outcomes.

Limitations of Methodology

The scope of the study was confined to a single set of programs at Bluewater Health. It concerned the management of these two patient safety programs only. This hospital and these interviewees may have had characteristics that influenced their responses to questions in a way that is unique to this case. The responses to the survey and the interview questions were subjective, and it was not be possible to verify these results with external objective data. However, multiple sources of data were used, and this should have helped to strengthen the findings of this case (Yin, 2009). Interviews were held only with the people who managed and led the safety programs and did not extend to others.

The interviews were conducted by this author and unrecognized personal characteristics of this author may have influenced the responses to the interview questions. In addition, the subjects may have attempted to modify their responses to provide answers that they believed were those sought by the author. This may have been influenced by the fact that this author has worked as a physician and medical leader at Bluewater Health. Using a structured interview should have helped minimize these concerns (Sproull, 1995). Finally, the patient safety programs had occurred prior to the collection of data. Consequently, the subjects were asked for retrospective recall. This recall may have been influenced by memory or factors that affect perception that have occurred subsequent to the safety program implementation. Nonetheless, one of the goals of this study was to

understand the consequences of the patient safety programs, and these potential biases in attitude measurement may aid this understanding.

A potential influence on the patient safety culture and teamwork survey result is related to the pre and post nature of the timing of when the two surveys were done. Maturation may have affected the results. This is the influence of biological, psychological, and social processes on people that occur over time independent of what the investigator is trying to measure (Frankfort-Nachimas & Nachimas, 1992).

Permissions & Reviews

Permission was obtained according to Bluewater Health's policies and procedures relating to management analysis and research projects. A copy of the permission letters is found in Appendix A.

CHAPTER 4

RESULTS

This chapter contains the results of the data gathering and analysis. Both documents and interviews were used as data sources. A summary of the documents and the interviews is provided and organized by Fellowship project research question. Data examples are provided and then the results are discussed. The documents located by this author did not discuss or describe all of the themes related to the research questions of this project but examples are given where they did. Likewise, interview participants had different levels of information, comments, and details that they relayed about some of the research questions subject matter. Examples are given as paraphrases or quotations to provide the reader with a sense of the thoughts of the participants and a flavour of the interviews.

Document Review

A review of documents was completed looking for themes, content, and ideas related to the research questions. These included a program project charter, program plans, reports, meeting minutes, flow charts, data reports, education handouts, and some personal notes of team members. In total 107 documents were reviewed.

Interviews

Twelve interviews were conducted between December 22, 2009 and January 7, 2010. Each lasted about one hour and was conducted in a semi-structured manner using the question set enclosed in the appendix. Each member of the program team was interviewed as well as the two medical directors and the informal physician lead involved in the AMI program. These interviews of the program team members included two educators, the two executive leads, the performance support manager, directors of the patient care programs, and other staff as coded below. Notes were made from these interviews and then analyzed according to the approach described in the methodology described in Chapter 3.

The interview participants were coded as follows:

DIR1- The director for the medical care, ICU, and ER areas. Directors are above managers and report to vice presidents.

DIR2- The director who leads the performance management department that supports improvement work.

EDU1- A nurse educator who works with the medical care areas.
EDU2- A nurse educator who worked with the ER.
EXE1- The vice president of clinical care areas.
EXE2- The chief nursing executive.
MGR1- The manager of the ER.
MGR2- The manager of performance improvement and a lead for the program.
MGR3- A manager of one on the medical care inpatient units.
PHY1- An ER physician who was an informal program lead.
PHY2- The medical director physician for the ER.
PHY3- The medical director physician for the medical care program.

General Results

The programs at Bluewater Health that were analyzed for this study were two patient safety programs. These were the Safer Healthcare Now AMI and Med Rec bundles. This analysis was completed between mid December 2009 and February 2010. The documents that were available for review showed that the program team at Bluewater Health had selected two patient safety programs to implement. These were patient safety programs that contain processes and practices designed to improve patient safety and quality of care. A letter from the CEO of Bluewater Health dated December 9, 2008 was circulated to the program leads and managers of the clinical areas of the hospital where the two patient safety programs would occur and also members of the health information department, performance support, IT, and educators asking them to participate. The letter also explained the purpose of the two safety programs and linked it to the quality of care in the organization. General goals of improved quality and patient safety were mentioned. The program project was to last approximately the first nine months of 2009. A program steering committee document from February 2009 showed that the team was developing a program plan for these two initiatives, had objectives, and created terms of reference.

What follows is the information collected from the document reviews and interviews and the results are organized according to the Fellowship project questions. Extracts and summaries from these information sources are included as findings to serve as illustrations and examples of the findings related to the themes and topics of the project questions.

Results pertaining to Question 1: What goals of Bluewater Health's patient safety change programs were achieved? Which were not?

Documents

The two patient safety programs that were implemented by Bluewater Health and that are the subject of this Fellowship Project were the Safer Healthcare Now Patient Safety Bundles Acute Myocardial Infarction (AMI) and Medication Reconciliation (Med Rec). Documents named “Project Tree AMI” and “Med Rec Change Plan” were created by the safety program team members in December 2008 and these set out the goals of the patient safety programs and a set of timelines for stages in the programs. The goals for the AMI program were to “To provide ‘perfect care’ to patients admitted through Bluewater Health or CEEH ER with diagnosis of ST elevation Myocardial infarction through 100% compliance with parameters defined through the Safer Healthcare Now Acute Myocardial Infarction Bundle.” The goals for the Med Rec program were to “Achieve 70% compliance with medication reconciliation within 24 hours of admission and to have less than 10% medications not-reconciled at 72 hours organization wide by September 2009.” These documents show that the team did have goals for these two programs and specifically what they were.

Table 1 summarizes the data elements relating to the AMI safety programs and compares data from two time periods. These are January 2009, which is a time when the team at Bluewater Health was implementing the programs, and September 2009 after the programs had been implemented for approximately nine months. The information contained in table 1 was obtained from a Bluewater Health program summary created in November 2009.

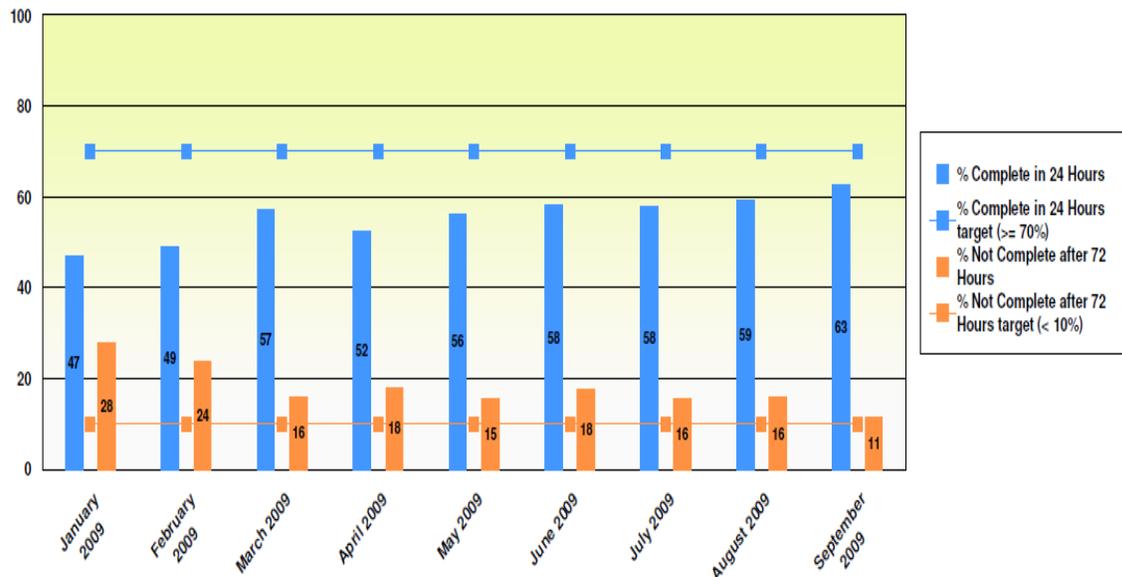
Figure 1 is a graphical depiction of the rates of Med Rec from January 2009 until September 2009. It shows both the 24 and 72 hour targets and the actual data from the patient care units.

Table 1
Pre & Post AMI Safety Program Indicators

Bluewater Health Critical Care Unit			
Indicator Type	Measure	Date: January 2009	Date: September 2009
Outcome			
	AMI Bundle Component		
	1. Aspirin at Arrival	100%	100%

	2. Aspirin at Discharge	100%	100%
	3. Beta Blocker Prescribed at Discharge	100%	100%
	4. Thrombolytic Agent Received (<30 minutes)	50%	100%
	5. Thrombolytic Agent Received (retrospective)	100%	100%
	6. Percutaneous Coronary Intervention (concurrent)	N/A at BWH	N/A at BWH
	7. Percutaneous Coronary Intervention (retrospective)	N/A at BWH	N/A at BWH
	8. ACE – Inhibitor or Angiotensin Receptor Blockers	100%	100%
	9. Adult Cigarette Smoking Cessation Advice	100%	55%
	10. AMI Inpatient Mortality	25%	0%
	11. Statin Prescribed at Discharge	100%	50%
Balancing			
	Patient Satisfaction	100%	100%
	Readmission Rate – 28 day for Same or Related Diagnosis	23.19%	2.27%
Process			
	Compliance with Overall Bundles AMI	100%	100%
	Compliance with Overall Bundles Med Rec	25%	25%

Figure 3: Medication Reconciliation by Month



Interviews

PHY1- The informal physician lead for AMI felt “yes they were achieved” when asked about goals. His focus had been on getting ECGs done quickly and the “door to needle time” for treating AMI patients with clot dissolving drugs when the ECG showed an AMI. He did note that there was still work to be done and that ECG time for people arriving in the walk in area of the emergency department was still subject to delay.

DIR1- “As I look at the AMI bundle they have done a great job, they picked apart the problem areas, and achieved physician involvement, all of which has driven all of those indicators. We don’t yet fit perfect care, but we are close.” “I think so” was her reply to the goals being achieved but also noted “don’t ask me why Med Rec is so problematic.”

ERM- He felt that the change in door to needle time was improved and described this as “very successful.” He did wonder about long term sustainability of the improvement. He noted the improvement goal was met “easily” but also noted “you can’t take your eye off the ball.”

PHY2- “The ECG has improved but there are still times when it takes longer than we planned.” “The physician lead has reported to us [the physicians] that things are good in decreasing the time for the test. The feedback from him has been good.”

EDU1- “We definitely had goals...we originally set 100% compliance with Med Rec but later adjusted to 70%.” “We are very close to achieving those goals but we are not there we because of things out of our control.” “It takes a lot to get that extra 10%.” He said an issue is that staff “haven’t related Med Rec to the importance of medication errors.” He felt that correlating these two items with data would help improve compliance rates.

MGR3- “Med rec is where we want it to be.” “The AMI project got really large...there was a lot of brainstorming and that went well, and our primary goal became door to needle...that went well.” She felt the initial goal of perfect care was too big.

DIR2- “It has been a successful project.” “We had a project plan that was adopted and it really did help to lay out what we are trying to achieve and how to do that.”

MGR2- “Yes we had goals and in the AMI we didn’t achieve 100% [perfect AMI care] but we achieved our sub aims.”

EXE1- “I felt that they had goals but that they were unrealistic to begin with...we planned to implement the bundles, but as the tasks were broken down each required a discrete focus. We learned how much time it does take to go through a process change that involves staff, project leaders, and different disciplines...the process changes have to be chunked off.” “The initial goal to reach 100% bundle compliance has not been reached...we learned to break these down into aims and have achieved some and in others we have dramatic improvement but are still working to achieve the aim. AMI is done but med rec is difficult...one of the most difficult everywhere.”

EXE2- “The med rec had clear targets but the AMI was a bit more nebulous because it has so many components.” “I think med rec can be achieved but it remains to be seen if it is hard wired with practitioners. The AMI will be easier because process changes have been hard wired. People jettison what they perceive as more work to do as soon as they get busy.”

EDU2- “I think they were partially achieved” was her assessment of the goals of the project. “We decreased our door to needle time...the question is whether it gets sustained...we need to look 6 months or a year from now to see if we are still doing better.” She also concluded that “our initial goal of perfect AMI care was too big.”

Discussion of Findings

In summary, the data shows that the AMI component of the program had good compliance with some elements of the bundle at the start of the program. The door to needle time of less than 30 minutes, which had become the main program goal, increased from 50% to 100%. The mortality also decreased. But, the use of a medication called statins and smoking cessation counseling

decreased over the program life. The Med Rec showed improvement with an increase in meds reconciled at 24 hours moving up from 47% to 63% which is below the program target goal of 70%. The number of meds not reconciled at 72 hours decreased from 28% to 11% which is just above the target goal of 10%. Overall, the door to needle time was met but the Med Rec was not, but there was improvement. Some of the other AMI bundle elements, which were not main program foci, worsened during the project (i.e. smoking cessation counseling and stating use).

The interviews gave a mixed perception of whether the program had achieved its goals. Everyone agreed that the program did have goals. Some felt that the goals had been achieved; others that the goals on which their efforts had focused had been achieved, but still others felt that only part of the goals had been met. Several interviewees spoke of the perception that the initial goals had been too large and not realistic, and some wondered if the gains that had been made to date could be sustained. In general, there was a general feeling that the programs had been successful even if the goal target had not been reached.

Results pertaining to Question 2: To what extent was a literature informed approach to change management used? Which of the literature recommended practices used were successful? Which of these literature recommended practices were not successful?

Documents

There were three progress reports on the safety programs titled progress reports 1 through 3. They were authored by the executive sponsors. The second report dated July 2009 contained a number of pages discussing the literature on change management, the use of evidence to influence practice, and improving performance. The discussion included specific reference to the Institute of Medicine quality improvement principles and the IHI improvement framework and guiding steps. The third report dated November 2009 contained discussion on the IHI's seven leadership leverage points on influencing change. Recall that these points speak to setting aims at high levels, focusing leadership attention on these aims and engaging physicians.

Documents show that an analysis approach called FMEA or failure mode and effects analysis was used to look at the AMI care specifically for arrival to treatment time and the process for obtaining ECGs. A FMEA is a preventative safety approach that identifies opportunities for error or failure so that these can be identified and steps taken to prevent them (Pelletier & Beauduin, 2008). A January 20, 2009 document titled "QI Team- Bluewater Health" contains some discussion and information about the Baldrige Framework for Healthcare Performance Excellence, quality

improvement methodology, and PDSA cycles. There is also information on how to apply these methods and on setting aims and goals. This document also has several paragraphs talking about sustaining and spreading improvement. A program committee meeting of April 9, 2009 showed that the team was reviewing discussing “project trees” and a published “FLO collaborative” related to patient flow. The group was also using project tree methods and their meeting minutes describe talking about the IHI model of improvement as well as PDSA cycles of change management. The team used the Safer Healthcare Now “getting started” guides for both the AMI and medication reconciliation initiatives and these guides contain evidence as well as implementation plans. A program progress report of July 2009 talks about using quality improvement tools including checklists. A document entitled “Planning for the spread of improvement a Bluewater Health” spoke of the IHI change model and had a reference list of literature upon which the document was based. An overall project plan contains a milestone and due date to have “a completed literature review related to the intervention” but does not have the results of that review.

Interviews

DIR1-The Director recalls that two safety programs were based on Safer Healthcare Now programs and she knew that these “are highly evidence based.” “How the project unfolded, I make some assumptions that that was based on quality improvement theory and seemed to unfold in that manner” she noted about the program management itself. She observed that the front line staff were more concerned with, and influenced by benefits to the care of patients rather than understanding change process or its management. She spoke of the literature influence and evidence of the elements of care processes and practices rather than the evidence based approach to change management and program implementation when asked about these ideas. She suggested that the use of evidence is influenced by position in the organizational hierarchy and that people higher would want to know more about the evidence. She saw things as more of a team effort with brainstorming than a formal change plan.

MGR1- When the ER manager was asked about the evidence and the process used, he noted it was “clear that she was” referring to the educator lead the change program for AMI and her use of evidence, but he wasn’t sure how it was literature based. He noted that “you need a methodology” when managing such programs. In respect to a change plan he spoke of the ECG, patient flow, and thrombolytic element of the AMI bundle and described that a change plan flowed from an analysis of those processes. He recalled that “we were all surprised” at where the data showed the processes to be and that they were not as good at getting the ECG on time as they had

been in the past. There was “lots of initial change resistance” in his impression and this was communicated to the managers who in turn informed and adjusted the change management plan.

PHY2- The medical director of ER noted that “literature evidence is important.” He said “we respond to deviance from the norm.” He felt that “evidence will change that.” He was speaking of the evidence used in care practices rather than evidence to apply to change management.

PHY3- The medical director of the medicine program said “it is very important to use literature and evidence.” He too was speaking of evidence to inform care practices of physicians rather than change practices. He focused on the programs at hand and felt the discussion scope should “include coronary care unit, the intensivists, and the ER.”

EDU1- The medicine program educator noted “we did try to follow safer healthcare now standards and accreditation standards.” “We did follow a plan on the pilot care units with rounding and 80% of the responses were that staff wanted more education.”

MGR3- The manager of medicine recalled that “safer healthcare now provided the evidence.” She wasn’t sure if there was evidence used as a plan and felt that others would have more knowledge about that item. “There were changes to make and we determined how to make them” she noted but was not sure if there was a document or a specific plan to guide the programs.

DIR2- The director of organizational performance remembered that “the actual project and improvement were based on best practices clinically...these were informed by literature and evidence...the tactics used in the change project were based on things we have used previously with success...maybe not literature per se but things we learned through conferences.” Flow charts and project trees “showed the breakdown of activities and goals that you are trying to achieve.”

MGR2- The manager of organizational performance, who was a program lead, said “yes we used evidence and literature.” “We had a project tree that served as our change plan. There were some difficulties in implementing it due to staffing...getting the educator’s time and getting staff time to do training...and my time.”

EXE1- One of the executive leaders of the organization felt “evidence and literature was used to determine the approaches were best practices for patient care and that they were appropriate initiatives to implement.” “When it comes to the process change itself, literature and best practice was used for FMEA, IHI improvement model, and rapid cycle. The change processes were not all literature based but came from process analysis and what had to be done differently such as late ECGs. Overall project based on literature...some of the changes were just good sense. We used the IHI model and created decision trees as a change model.”

EXE2- The chief nursing executive felt “we looked at the literature on how you go about change and how you change clinical practice. I am not sure how transparent for staff we were reviewing literature and evidence though. I think at first there was a change plan but it wasn’t strong and it evolved to something more concrete. Getting a defined change strategy faster in the project would have helped.”

EDU2- “We used all of the safer healthcare now literature...my project had oodles of research that supports AMI care.” She also spoke of literature to support the use of the FMEA tools used in the program. She felt that there was a change plan and this came from analyzing care and determining the changes they would make to meet the AMI bundle elements. She felt that a key source of success came from that fact that “we involved the people that are actually doing the work...the change was driven by the people who actually do the work.”

Discussion of Findings

The intent of this Fellowship project question was to determine if literature was used to inform the two safety programs, whether this led to a change plan, and what was successful and what was not in using these literature based approaches. The documents show that the executives were thinking about literature and evidence in their progress reports. These described the literature on change management and performance improvement. Also included was the IHI improvement approach and their seven leadership leverage points (IHI, 2008). This is a commonly used set of change tactics found in the quality literature. Program documents also spoke of the Baldrige quality improvement approach, FMEA analysis, and PDSA cycles. One document was entitled a planning document for the spread of improvement.

The interviews also showed that the executive sponsors were thinking about the literature and evidence as they approached these programs, but one did wonder if that was “transparent” to staff. The educators spoke more about the safety program elements themselves and how these patient care items were based on evidence such as safer healthcare now. These approaches to clinical practice were the basis of their education initiatives for the program. The physicians acknowledged the importance of literature and evidence in influencing practice but did not have much more to say about its use in the programs. The directors felt evidence and quality improvement literature was used but the managers spoke more of how the program’s patient safety bundles were linked to safety literature.

In summary, it appears that the program team members had several different concepts about the use of evidence and what level at which this was applied. Executives spoke about broad level

evidence and theory and managers and staff spoke more about how the clinical practices they were trying to implement were based on evidence. Other than the data elements presented in Fellowship project question 1, there wasn't any documentation or discussion from the interviews on how people assessed the use of evidence and what this had in the way of outcomes or influences on the safety programs. The assessment of the programs appears to have been based on the data related to the clinical practices and how these changed over the life of the safety program rather than assessing the use of evidence. When asked about what was successful and what was not, the responses from informants were about logistics and program milestones and data.

Results pertaining to Question 3: To what extent was staff education used in the change management process (e.g. as in Pelletier & Beaudin, 2008)? What were the difficulties in conducting the education?

Documents

A document entitled "Planning for the spread of improvement a Bluewater Health" spoke of education as part of the improvement strategy but did not contain specific details or a plan. Two documents were created by the program team that were called "quick tips" and these were given as handouts to the staff as reference resources. Flow sheets were created that graphically depicted each step in the care process and how these tied to AMI care and Med Rec. These were created to be used a reference and education device for staff. Similar process maps for the actual safety programs were also created and shared with staff. Two PDSA program documents contained information about timing of education initiatives about the safety program elements that were to be implemented.

Interviews

PHY1- The informal physician lead for AMI felt that there was use of education in the planning and implementation of the safety program. He recalled that this focused on the main element of time savings in AMI care and that was getting quick ECG testing done. He felt that this education was informal. He did observe that education caused the team to shift their attention from a task focus of getting ECGs done quickly to the "big picture" of how to improve patient safety and quality of care.

DIR1- "There was education as results were found" and these were modified as monthly results were reviewed. The education was about the results rather than the safety programs

themselves. “I think the project was seen to be a priority” by senior leaders but she noted that there were many competing priorities. “As I look at the strategic plan, the quality plan, and the prospective planning documents, I see these projects given priority...where that priority originates from, I am not certain, but there has been a lot of attention paid to and support for these projects” commenting with respect to senior leaders’ focus on these initiatives. She did not recall any education about influencing or managing change noting “none that I was included in, and I think that speaks to the sustainability.”

MGR1- He recalled that an education process was used and that the content arose from a failure mode effects and analysis (FMEA) that was done for the program. The programs were a priority for senior leaders and he feels that “the projects came from them.” There was education about standards and quality and this arose when the program team noted the delays in obtaining ECGs. “They tried to convey that the ABCs of resuscitation included an ECG” but this was a change in routine and there was staff resistance to the change. He remembered the education about what other hospitals were doing and that 90% of them were following a revised approach, but staff saw the change as added work. A trial process was used to gradually introduce the changes. He believes that the education plan was updated with experience and that he felt that the changes were “half way” to being sustainable. “Both education sessions and printed materials were used.”

PHY2- This physician felt that “education depends on the issue.” He described that education depends on whether one is targeting an individual so as to learn and change or whether it was aimed at team behavior. “The team process and the individual processes are different” he noted and felt that individual education was for the individual to pursue.

PHY3- This physician remembers that education was a component of the safety programs and “it was lead by the ER nurse director and the educators as well as the CME team for the physicians, as well as the medical directors.”

EDU1- “There was a full project plan and a project tree with goals and objectives.” “Based on rounding we determined what staff wanted and provided that. We really tried to get staff to relate Med Rec to medication errors and patient care.” He remembers that he “got feedback that staff understood but just didn’t have time to do the med reconciliation.” “We did some reeducation about Med rec and expected a spike but to really get improvement we realized that it would require process change not just education. We did have success in getting staff to relate why they are doing it. If you can relate it to everyday tasks than it will become part of normal practice...if the nurse aren’t buying in it won’t work. It was one of our successes in getting staff to realize this was part of patient care and why we are here.” He recalls that the safety programs were given leadership

priority through meetings, follow up, and problem assistance. “I wasn’t clear about the roles of the project team participants.” He felt that education covered “how we change and about standards and practices. The education was “catered to each nurse” and each was asked about personal needs and whether the education has met those needs.”

MGR3- “there was education about med rec and AMI focused on door to needle time.” “It was one on one coaching.” She felt that the coaching was about “what was expected...some things we could still do a lot of work on like smoking cessation.”

DIR2- This director’s recollection was that “I was a bit removed from that” and didn’t know any more details about the education efforts or plans for the program.

MGR2- “We had plans on how we were going to educate” that included planning sessions for staff and “blitzes and sessions.” “I helped in ER with the AMI and the physician lead did a lot of education. Also in the PDSA documents we had a lot of discussion about education including who would do what. Education focused on the goals and changes being made to achieve the goals.” The program was given priority by senior leadership in her assessment.

EXE1- “I think that [education] came as a part of the PDSA cycle and diagnosing...example, med rec; as they looked into poor compliance it was clear people needed education about what is med rec, why are we doing it...when we implemented new processes the education was about the new process such as a new electronic form for med rec.” “Education was very much emphasized by the project leads...they recognized it was key to making the changes.”

EXE2- “It think it was more informal. It seemed a bit ad hoc for AMI with one group focusing on smoking cessation and another on door to needle time. It was focused on standards of care. I am not sure it was a coalesced plan or change management strategy.” This executive felt that education should be a priority for senior leaders and safety program managers “because it is the only why you will change practice.”

EDU2- As an educator she concluded that “I think we could have done better in the education piece of it...we could have done a formalized needs assessment and created a plan.” The education that was provided was focused on standards and raising awareness, she thought.

Discussion of Findings

The ideas described by Pelletier & Beaudin (2008) are the basis of this Fellowship project question. These are the creation and use of an education plan and that this is given priority by leadership. Education ideally would cover both standards and quality but also influencing change. Finally they suggest it be targeted specifically at its audience in both content and delivery.

The documents mentioned an education plan but none was found in written form. Educational materials and data reports were created and circulated to safety program team members and staff with the purpose of educating them about program progress.

One executive emphasized that there was education and that it arose from an analysis of what was needed to change practices related to the two safety programs. The other executive felt that education was more “ad hoc” but similarly agreed it was related to the safety program elements linked to patient care. One director was unable to relate the education details. The other felt there was education and was tied to how the program metrics were progressing and education on what was needed for further change in practices by the staff. Managers also remembered education discussions and activities and that these were aimed at why we are doing what we are doing and the changes they were seeing from the safety programs. The physicians spoke of education as an influence on practices but spoke of this in an abstract manner or applied education to teaching staff how to do things differently in relation to the safety programs. One did observe that the education had caused bigger picture thinking. The educators agreed that education had been provided throughout the programs. One felt that there was a full program plan and his education work had arisen from that. He recalled consulting with staff and doing in person needs assessment and then providing education based on that. The other educator, however, felt that the process had been less formal and that a “better job” of needs assessment and education provision could have been done. Several people agreed that education had been a priority by leadership.

In summary, education was planned in the documents and was provided in practice. The education was not based on a formal education plan but seemed to be less formalized; although one educator did informal needs assessments. The education seems to have been based on the patient care steps that are part of these patient safety programs including data relating to progress on the safety program outcomes. There was some updating and refinement of the education with time but this seems more a result of changes in their progress towards program goals than knowledge of quality of care practices or influencing change. There seems to be mixed opinion as to whether there was refinement to the target audience based on needs and the extent to which this was done was likely was informal.

Results pertaining to Question 4: Did the organization follow a change plan like that advised by the IHI (i.e. Berwick, 2003)? Why or why not? If a change plan was adopted was it followed consistently or did it serve as a guide only?

Documents

A safety program progress report authored by the executive sponsors of the programs dated January 2009 contained a conceptual framework for quality improvement that described education, safety culture, and knowledge transfer as three main elements of improving patient safety and the quality of care. It spoke of creating a baseline profile of the data and care practices and then designing an implementation plan based on this information. It then listed phases of implement, assess, and evaluate. The second executive report dated July 2009 also discussed an implementation plan with phases. These were engage, execute, and sustain. In each of the stages, several steps were listed and these steps were based on the IHI model of change and the 5 million lives campaign to engage people in quality improvement.

A January 27, 2009 email showed that a program team had been established and the membership was listed. The executive leads were identified and some information on patient safety data was provided. A committee agenda from April 2009 contained discussion on the need to identify and have “champions” participate as part of the efforts. Undated documents contained the results of PDSA cycles for testing “door to needle time” for AMI care. There were several “cycles of change” conducted and the resulting analysis of each step was contained. Actions were identified and responsible persons were noted. Process flow charts were also created for both AMI care relating to ECGs and for medication reconciliation. Two “project tree” documents were created. One for AMI and one for Med Rec. The documents contained program aims, measure, sub aims, and change ideas to achieve the change.

A letter from the CEO of December 2008 was sent to members of staff and physicians expressing the importance of these programs and asking people to participate. This was followed by similar letters from the directors of the patient care programs to these same potential participants.

Interviews

PHY1- The informal physician lead for the AMI program felt “there were too many planning and update meetings.” He was aware of a program plan and all of his information came from these meetings and other less formal on-on-one discussions.

DIR1- This director spoke of the impetus for change as “my awareness is that we had quite a poor result for HSMR [Hospital Standardized Mortality Ratio].” She noted that the idea was to affect the “big dot” HSMR by improving “the small dots” that contribute to patient safety and thereby improve HSMR as the reason for choosing these safety programs for innovation. She felt there was no gain to be made by focusing on what was done well, and instead, change could be

made by aiming at what could be improved. She felt that the program participants were chosen as a “logical group” such as managers of the patient areas, utilization department, quality improvement, and the education team as the reasons for selecting these innovators. She did also note that some members were not “innovative” but were “creative.” Observability of the programs was created in her impression through data collection and discussion at regular meetings and by presenting this data to the patient care teams, charge nurses, and unit councils. She recalled that the data influenced several other planning and management endeavors and this showed that the program was “not the flavour of the month.” Slack for change was not created and this program was an “add on” initially, but she noted that because the program was related to patient care “that was okay because later it became main stream work” that was part of the normal practices of the team members. In commenting on leading by example she said “I saw that demonstrated when it became a standing item on the operations team, unit council, and staff meetings.”

MGR1- This manager of ER said “the ER is competitive and people want to improve” so when the safety program committee showed people the data “they wanted to change because it caused people to be surprised.” The innovators “were not a problem” to find, but he noted that the participating people are “always the same people.” He also noted that the physician lead was an informal leader and that it “was nice to see the docs step up to the plate.” This assisted with getting people interested in change- both staff and physicians. There was a change plan that he described as “to do debriefs if change plans and targets were not met.” Activity was made visible by sending update communications by hospital message system to all staff. This manager also recalls that he personally “confronted people who were negative” about the new process and provided education and rationale for the changes. He did have to adjust schedule and workload assignment to free up people for meetings and participation in the program. The amount of time was longer at the start of the program and decreased as the program progressed. He felt there was “some of that” in reference to leading by example and this was demonstrated by the lead nurses, the physician lead, and the managers.

PHY2- The ER medical director said “Dirk [the informal physician lead] set a good example for the staff in leading as an example.” But he observed that “I am not sure that affected the other docs. I don’t think so.”

PHY3- The medicine program medical director recalled that “we had Sean Goodman and the provincial AMI session.” This was an education session that spoke of quality improvement and the evidence behind changing practices. He felt that change was based on “meetings bring us together as human beings and that creates relationships that improve things.”

EDU1- The medical program educator remembered that “staff stated they just didn’t have the time to do med rec even though they understood the reason for doing this.” He used the term “piling on things for people to do.” “I was never actually told how the projects were found...I was told what had been chosen and my role in the projects” “I was never clear on how people were chosen or what their roles were.” “I think in order to do a project there needs to be some reallocation of time. We had these projects and a lot of other projects and sometimes you have to dial it down because it is too much at once – do you do less and make sure it is done well. We had to reeducate this time and I wonder if we really had the right people at the table.” He felt “absolutely” that the leaders and program team members led by example but he also felt that everyone was so busy you wonder if it was a best effort.

MGR3- The ICU manager said she “didn’t know” how innovators were selected and she believed she was chosen because of her role as a charge nurse. She remembered that “people did the data collection on their own time. We did a lot by using modified workers.”

DIR2- The director of performance support understood that “the projects were selected as part of the patient safety work...I think it might have been because they were safer healthcare now initiatives. We picked participants by drawing on learnings from a previous project and knew that we needed strong clinical leadership... we chose folks that were influential amongst their peers.” She also remembered that “we devised the role of an improvement advisor and selected a person with experience and did a bit of a job description. We talked about the need to have physician support and the medical director was identified.” Performance management staff was chosen to help with data and reporting. “There was definitely a strategy” in selecting people. “I think it is critical” in selecting and supporting innovators. Investing so they have time to plan and reflect and investing in them so they have skills and abilities was felt important based on her experience. “There was a letting go of other projects to allow my staff member to participate.”

MGR2- This manager thought “I don’t know how or why I was selected. Another member was selected because she was doing some work on the topic. I think it was tied to previous work on safety projects.” The biweekly support meetings really helped to provide support and get help with barriers in her assessment. She noted that it was “fitted in for me” rather than slack created to free up time for her to participate in the safety program. “It became a priority for me as well- I was allowed by my director to make time for it.”

EXE1- This executive recalled that “one was selected because she demonstrated an interest to develop her leadership skills. Two were selected because they were the educators but also demonstrated change leadership skills. It became part of their corporate responsibility for the

educators. We delegated one member's other responsibilities to someone else to enable her to participate. We did not create dedicated QI time for the managers and we could improve on that."

EXE2- This executive understood that "we picked the projects because they were safer healthcare now initiatives. Med Rec was an accreditation requirement and we weren't meeting that. AMI had a reportable outcome publically. We picked the nurse educator because she has a passion for AMI care. The change manager was chosen because of her skills in leading projects. We chose the educators from the poorest performing area for Med Rec." He felt that "it depends on the person...the project lead led by example in the use of evidence but others were just learning and developing."

EDU2- She remembers that participants were picked because they worked in the emergency area and were natural participants because of their work. She believed that these people were "self starters but they needed support when we rolled out the algorithm." "A couple of time we needed managerial support in helping people with the change." "The project was propped up and publicized by unit 'huddles' and unit based council and update letters and notes."

Discussion of Findings

This question was created to explore the IHI change approach authored by Berwick (2003) and how these related to the patient safety programs that were analyzed. The themes of the IHI strategy include identification of innovators and early adopters, supporting them, making change activities observable, creating slack for change, and leading by example. All elements should be done within the context of a change plan or guide.

The documents contained evidence of a safety plan and the programs being driven by safety culture ideas and knowledge transfer. There were safety program plans that spoke in IHI terms of engaging and ways to include and create interest in change programs. This engagement section spoke about finding early adopters. Other program documents spoke of plans to recruit program "champions." It seems fair to conclude that there was a plan to guide the program but the other IHI strategies were discussed generally rather than a specific action plan.

The interviews of the leaders showed that patient safety data drove the programs as well as what was described as a competitive desire to improve when data is given to staff. People were selected as program participants for a variety of reasons. Several spoke of natural fits or people who were logical choices because of where they worked or the work that they performed. Others described that people were selected more purposefully because they had particular skills, wanted to develop skills because of interest, or were felt to be able to influence others or were innovators. It is

also noted that the participants were the same people who normally engage in such activities or as stated the “usual people.” A few did not know how participants had been selected including themselves. There was mixed opinion about whether slack was created for change. Some felt that slack had been created and staff supported with modified workers to assist. Others felt that the program work was an “add on” in addition to other duties. Others still felt that there was a transition from additional work initially to the project practices being eventually incorporated into normal practices.

The commonly shared view about making the programs observable was that this was done by collecting, discussing, and disseminating data and results pertaining to project progress. It was generally felt that program participants did lead by example in showing others about new ways of delivering the care found in these patient safety programs.

In summary, people were identified as “innovators and early adopters” for a variety of reasons, but it seems they may have been the usual people who join such efforts. The safety programs seem to have been additional work rather than being done in specifically created slack time but may have progressed to a normal part of duties. Observability seems to have been achieved mainly through program reports containing updates and data. There seems to have been a change plan based on the IHI concepts but this seems to have been a guide at a leadership level and was implemented and used somewhat informally rather than precisely.

Results pertaining to Question 5: What were the sources of difficulty and/or failure in initiating change? Were these difficulties managed in a manner consistent with the approaches described in the literature on avoiding failure in implementing patient safety program change?

Documents

A review of the documents that were available showed mainly logistical issues with respect to elements of the Med Rec and AMI care processes. No content about change management difficulties was found in these records. As an example, an August 2009 document discussed the difficulty in implementing and monitoring change for ECGs because multiple time pieces were being used by the staff and none were synchronized making process measurement and time review very difficult. Other items were contained in the minutes of program team meetings and included such items as documentation by paramedics, getting information about cardiac rehab services, physicians not documenting why something wasn’t done, access to patient records in the

information systems, and the logistics of educating nurses on the Med Rec process in the computer documentation system.

Interviews

PHY1- The informal physician lead for the AMI program components felt that “concerns about job security” were an influence that was expressed in meetings and also influenced the program at a less conscious level. He felt this arose because discussions led to the need for process change in how ECGs were ordered and processed and relayed the following details. Patients needed to have these tests quickly to determine if further treatment was needed and so that this additional treatment could be provided quickly. At the start of the program there were delays in obtaining ECGs and discussion about where, how, and what technology should be used caused fear of reorganization and job loss in his perception.

DIR1- She felt that a source of difficulty was found in “the variability of results and it speaks to sustainability and why we can’t continue to move up...its sort of up, down, and it’s a real saw tooth as well.” “I think that is what is frustrating for people” when the same continued focus and effort seems not to produce results one month but it does other months she noted.

MGR1- He believed that the main difficulty and source of resistance was the change in ECG acquisition process from staff that he felt arose from “fear of job loss.” The other was related to the difficulty in trying to have consistent communication about the program and its progress and “the ability to get to everyone because they are shift workers.”

PHY2- The medical director of ER stated there were “no real difficulties.” His main memory of a problem was that the ECG techs would stay outside the patient’s room until the physician invited them in. He felt that “techs saying to the docs do you mind if I do that now?” was a step achieved in the program to resolve this practice.

PHY3- The medical director of medicine said there were “no difficulties.”

EDU1- This educator noted “we had to reeducate staff on things we had done before so I wonder if we had the right approaches to sustaining and spreading...you look back and wonder if I did all of that right.” “Everybody wants to do well and that is apparent...the managers were great in terms of support...there really was not a whole lot other than lack of funds- resources and time.”

MGR3- This manager said “I don’t think so” when asked about difficulties. “I think everybody tried very hard...it is hard to get stuff done.”

DIR2- The performance support director felt “it is difficult to measure health related indicators and that is what we would like to be able to demonstrate with these projects.” “I can’t comment on implementation” [of the programs].

MGR2- She remembered that “there were difficulties because informatics was overloaded.” She also mentioned availability of time for herself and other participants and that this was a difficulty throughout the program at all stages. “A lot of the difficulty was the nurses seeing things as extra work for them or ‘I don’t have time’...so trying to educate them on how this will save time in the end or how it affect the patients was difficult...some of the nurses don’t know that Med Rec is actually a standard of practice for their [regulatory] College.”

EXE1- She concluded that “one of the key barriers is that people who wanted to be in a leadership role needed help to define that role- enablers versus doers. It means a change for the executive as a whole to create organizational priorities and show demonstrable support to the project.”

EXE2- This executive felt “getting operationalized and getting it off the ground was a challenge...I think the legs got underneath it a few months into as the team was created and began working well. This would have been helped if formal change techniques were used at the outset- a change management plan with discrete dates for goals.”

EDU2- She also made mention of the time clocks being a big challenge because none were synchronized. “I think the ECK department felt threatened at some point because they thought we were saying that you aren’t doing your job well.”

Discussion of Findings

The findings from the interviews and documents speak mainly to practical issues such as logistics as the main source of difficulty in initiating change. These were things such as clocks and watches not being synchronized, documentation difficulties, information access, and the logistics of education scheduling. In the interviews, the issue of fear of job loss or job insecurity was raised by two participants. Some members of the ECG tech staff had been perceived to have concerns about this item. Another difficulty mentioned by several was lack of resources mainly in the way of time for program team members to lead and accomplish tasks and that of the staff who didn’t have time to learn about and implement changes in practices required by the safety programs. Finally, one executive spoke of the difficulty of getting the program team up and running and functioning well. This was eventually achieved but was difficult at the start in his perception. Interestingly, two of the physicians, who were also the medical directors, and one manager felt that there were really no

difficulties in the programs at all. Most of these difficulties were discussed at the biweekly meetings of the program team and solutions were offered via brainstorming and team problem solving approaches.

The literature presented in chapter 2 described change difficulties arising from focusing the change efforts on culture and changing attitudes rather than targeting work tasks. It was suggested that this is best done by using small groups focused on a specific program (Beer et al., 1990). It seems that these safety programs were indeed organized this way and perhaps a reason they met with some degree of success as determined by the program data.

Ackoff (2006) talks of difficulties arising from not using a framework and emphasizing the individual issues over system issues as a source of difficulty. It appears that a framework was used at least at some level and that the system of care was analyzed in these programs so it seems that the programs were conducted in a manner consistent with this guiding advice. Kovner and Rundall (2006) tell us that difficulty in change arises from us overusing ineffective techniques and under using effective techniques. None of the documents spoke of overuse or underuse and none of the interview participants were able to state anything that they felt was either over or under used when asked.

Kotter (1995) speaks of failure from not creating a guiding coalition or having a vision. The program team had an organized team that did come together as an effective group that had a plan and what might be described as a vision. It would appear that the Berwick (2330) IHI approach was also used to some degree and this perhaps assisted with the program being able to move ahead and not fail.

Results pertaining to Question 6: How was spread of the change managed? Was the approach consistent with the strategies on diffusion of innovation found in the literature (e.g. Berwick, 2003)?

Documents

The executive program progress reports did mention spread of change. A phased approach was described in the July 2009 report that listed “sustain” as the final step in the change process. Here the sustain strategy was tied to the IHI change approach and the 5 million lives patient safety campaign. It also described the IHI’s seven leadership leverage points as mechanism for spreading and promoting change. The leverage points include focused leadership attention and building change capacity.

An undated document showed that the program team had looked at the computer based ordering system for tests and the team had changed the sequence of questions and answers in the algorithm to obtain the ECG sooner in the process. This change caused the process to be spread to all staff ordering ECGs so that the improvement moved beyond the program team. They also created a consistent process by which the nurse personally notified the physician of a chest pain patient and made this a consistent practice. An August 2009 email was circulate widely and spoke of the need to complete medication reconciliation as a requirement of hospital accreditation. There was also a “spread issue list” and a plan to handle these issues mentioned in a subsequent email. The January 2009 QI team document previously discussed contained discussion on sustaining and spreading change and referenced the “National Health Service” approach to spread and sustainability. A document entitled “Planning for the spread of improvement a Bluewater Health” described several phases of work ranging from awareness to planning to deployment to maintaining. The IHI improvement model was mentioned in this document as well as resource lists for change practices. An overall program project plan document contained milestones with dates and action steps. This document covered the model to be used for the program implementation and spoke of a plan to “ensure the spread and sustainability of the intervention” but did not contain details of how this would be done. “Project goals and gaps” documents were produced listing the program goals and what was successful and what still needed attention as well as a plan to address the gaps.

Interviews

DIR1-She remembered that the safety program “became a standing item and it became minuted in meetings and part of discussions and that spread the ideas and the successes as well as the practices.” She summarized that Med Rec is now organization wide and all managers have been required to participate in this program and meet the goals. Getting people excited about the program is also important and she heard a charge nurse “yelling down the hall, we only have 40 minutes left to get this done.” This nurse regularly encouraged others to complete the Med Rec tasks on time.

MGR1- He felt that spread had been achieved by stating that “what was done is accepted...it will not go back.” The AMI treatment time with thrombolytic drug, which was the sources of this comment, had now been achieved 100% of the time under 30 minutes. The spread was not complete as evidenced by his belief that it “need some tweaking in the low acuity area” where targets were not being met for ECGs.

EDU1- He recalled “based on the pilot unit I knew we had to spread so I went ahead and did that...other units without direction. The spread to each unit is different so I spent a lot of time

trying to standardize and coordinate approaches.” “I took it and just ran with it...it can't stop here with this project”

MGR3- This manager had some thoughts about spread summarized as follows. “I think you need somebody to continue as the champion. If we are slacking that person can bring it to everybody's attention... I think if we stay on top of it our numbers will improve.”

MGR2- “I think we did a really good job. We made sure we brought someone in from every area that had the ability to share information. We spread information through unit based councils...we did education blitzes.” She felt that there had been success by stating “it is pretty hard to go to ER and have somebody not know what we were doing. It was nice to have the physician who was advocating the change.”

EXE1- This executive felt “some of the change processes in one areas were identified as the same as in other areas and the changes were transferred to other units. Targeting ER as a key area to initiate the processes was key as that is where the patients enter the hospital. We recognized that we had to focus on a few areas of the hospital to address the root cause needed for improvement so we spread to other areas.”

EXE2- He felt that “what really started driving the change was the regular reporting of the metrics.”

EDU2- “I don't think we really spread it out to everyone...I think we focused on the emergency room...now we need to look at the admission piece and the rest of the care.” She noted that the data is shared around the organization and also forms part of regularly created quality reports that are shared widely. Also, these reports are given to the medical directors who take the information to physician department meetings.

Discussion of Findings

This Fellowship project research question shifts the focus from implementing the safety program to a later stage of spreading the program to more people and more of the organization so that it moves beyond the program team membership. The themes of Berwick's (2003) strategy for this are the same as implementation and include identification of innovators and early adopters, supporting them, making change activities observable, creating slack for change, and leading by example.

The executive progress reports discussed the spread of change at a level of general principles but not with a specific action plan for this element. It did refer to using the Berwick approaches to doing this. Other documents contained narrative about changes to computer ordering,

process flow charts, and care processes that were used to embed changes in the practices of the care providers and this was used as a way to cement the changes and spread it to all care providers in the clinical units in which these safety programs were conducted. One document has specific reference to a “spread issue list” and action plans to overcome logistics issues for the Med Rec element of the program.

The interviews also revealed that people were thinking about and using some elements of spread strategies. A director used meetings and minutes to create a standing item of program progress and the data to cause discussion and circulate information to others as a way to enhance the observability of the safety programs. One of the executives also felt the data collection and dissemination was the major route used for spread. The director also spoke of the importance of a nurse champion in spreading the Med Rec practices. One of the managers also spoke about the continuing need for champions but didn't have a plan on how that would be pursued. Another said she brought someone from every care area to observe the program reviews so that they could share that information and spread the word. One of the educators tailored his efforts to an individualized approach to assisting people to embed the Med Rec practices and spread this change.

The ER manager felt that safety program would be sustained and had spread in his comments that we “will not go back” but the educator who also worked on AMI felt the team had not spread the program beyond the ER and felt the need for more work.

In summary, there were efforts to spread the safety programs via education and through data collection and dissemination of these and program progress reports to enhance observability and create awareness of the initiatives. There was some discussion of champions but not what appeared to be a formal strategy to engage more and maintain champions in the sense suggested by Berwick and the IHI. There appears to have been a guiding set of principles found in the executive program summaries but it appears that the implementation of these was informally done.

Results pertaining to Question 7: What were the difficulties experienced in maintaining and sustaining change efforts and how were these managed? Were these consistent with those found in the literature?

Documents

A review of the documents that were available showed mainly logistics issue with respect to elements of the Med Rec and AMI care processes. No content about change management

difficulties was found in these records pertaining to maintaining and sustaining other than these logistical items that were presented previously in the findings for question five.

Interviews

PHY1-The AMI informal lead physician felt that the safety program had created improvements in the timing of care processes and felt this improved safety and quality but he did note that “it will need work” to sustain the gains and to prevent slippage back to old processes.

DIR1- She stated that everyone gets a report every month but “people give it different care and attention. People put it in context with everything else they have to do and missing some of the Med Rec isn’t given importance. However, missing a few seems like such a small amount, the other questions is why couldn’t you get that done” which creates a tension over priorities. So there are two sides to that.” She noted that some of the difficulties arise from trying to integrate and coordinate different departments. “Another is did we want to do it well or to meet the project deadline” and she felt that creates a difficulty of spreading and sustaining. “Med Rec appears to be task focused versus patient focused and I think that is the problem we have. But we are not the only organization who has struggled with that.”

MGR1- He felt that there was potential challenge is sustaining and a need for “reinforcing what we have learned.” As suggestions he felt a “need to continue the positives...we have achieved so there can be no stoppage.” He believed that many positive improvements had been achieved by the programs and that they would now need continued effort to reinforce those gains and make sure that they lasted.

DIR2- “In a quality improvement project there is a lot of enthusiasm with some positive results behind you and there is investment of time and resources...can the staff continue without that same level of involvement from others? What if the good performance was Hawthorne effect and then it starts to decline will we lose momentum or interest? To what extent does the staff own it now?”

MGR2- “I think people having the perception that the project is over, they slack off. We have to make sure they know we are continuing and there are more things we are going to do. Keeping the project team even for a once a month half hour check in on what are the numbers and what do we need to work on.”

EXE1- “It takes quite awhile to grasp and embed a new change into everyday practice...it naïve to believe we can do this for 6 months and that it will be cemented...we need to have dedicated resources to drive continued change, ongoing review and measurement and addressing

slippage and that is new to the organization and health care in general. We need to do resource analysis to make sure there are dedicated resources because it won't happen on its own."

EXE2- "Maintaining the interest in the project when other things would come along- the crisis of the day of other things to do" was one of the main sources of difficulty. This competing interest for limited time was a constant challenge. He offered the suggestion that "we may have to scale it down but we are not going to stop working on it. Otherwise you stop and then waste a lot of time trying to get the momentum back."

EDU2- "Keeping the focus will be difficult." She planned to keep reviewing data regularly and taking this to meetings to keep shifting the focus back onto the patient care elements of the safety program.

Discussion of Findings

This question shifts the analysis from spreading to maintaining and sustaining the efforts of the safety programs. One thing that must be considered in this analysis is that the safety programs studied here had been pursued only for a number of months and the full extent of maintaining and sustaining may not have been realized as the team was likely still in the early stages of the change program. The documents spoke of continuing logistics efforts about implementing and moving ahead the change efforts rather than difficulties with maintaining and sustaining the safety programs.

In the interviews, people were more forward looking about the source of problems in sustaining that may follow rather than discussing actual sustaining difficulties when they were asked these questions. The physician program lead noted that achievement of the programs but also felt "it will need work" to maintain the gains. The director responsible for organizational performance also wondered about this and spoke of "what if this is a Hawthorne effect" meaning that the gains were temporary and the result of attention focused on the processes. The educator said that the program team and the origination needed to "keep the focus" in order to maintain what had been achieved.

A director concluded that people gave the program elements different levels of care and attention and that there was a tension resulting from competing priorities for people's time and attention. An executive agreed with this as evidenced by his feeling that there would be a need to maintain interest when other competing priorities came along. The manager had similar idea and saw the need to reinforce what had been accomplished and to support and continue to highlight the

positive achievements. Another echoed this need to reinforce to prevent what she saw as a risk that people would “slack off.”

These potential sources of difficulty would seem logical and likely linked to past experience. This author was not able to tie these difficulties to an analysis of the literature performed by the program team. They seemed more “common sense” derived. However, the literature in chapter 2 does speak of difficulties that follow similar themes. Reinertsen et al. (2007) speak of the need to reframe values and beliefs to make change program successful. The discussions by the interview participants suggested they are wondering about whether people have really adopted new values and beliefs with respect to these safety programs or whether they will shift to other things when pressures or schedules make demands. The 5 Million Lives Campaign documents speak of needing to create robust and transparent feedback systems using measurement that gives regular feedback and creating a shared sense of improvement. If that doesn’t happen, change programs are at risk of failure. It seems that from early analysis that this sense of improvement was present but the question remains is how widespread this is and whether it has spread beyond the program team to sufficient numbers to make these programs sustainable. The feedback systems were in plans and measurement was being used for this purpose, but it remains to be seen if this will persist in the face of competing pressures that the interview participants spoke about. There is a similar theme but related to persisting leadership. This stems from Reinertsen et al (2008) and their observation that continued success require executive attention and dedicated leadership time. This safety program did have the attention of leaders but now seems to be coming to an end of the formal program and it remains to be seen if this leadership focus will be maintained. Finally, the 5 Million Lives Campaign says we need to create a culture of improvement and deeply engaged staff to sustain safety programs long term. It remains to be determined if that has happened at Bluewater Health.

Results pertaining to Question 8: What approach was used to sustain the change efforts? Were these approaches consistent with those in the literature (e.g. Berwick, 2003)? Were they successful?

Documents

In the November 2009 executive progress report, a section discussed “next steps” in which sustaining change was planned through linking the safety programs to leadership strategies and regular reviews by the senior leadership team and the quality committee of the Board.

A general program document with milestones calls for a plan to ensure sustainability but has no further details on this item. There is also a plan to produce progress reports at intervals and to share these widely. A January 2009 document speaks about using the National Health Service approaches to sustainability as part of the program. The terms of reference for the program team contain a plan to regularly report to the executive team of the hospital about program progress. The program team created process maps with a diagrammatic representation of patient flow and the steps involved and implemented this as a standard care process for all staff. Quarterly reports containing data on the care process for AMI and the rates of med reconciliation were produced quarterly and these were circulated widely for information and as a planned mechanism to encourage further improvement.

Several meeting agendas documented discussion about change ideas and brainstorming about “road block” and plans to deal with them. “Report back” for follow up and ongoing attention items were frequent parts of the meetings. “Project goals and gaps” documents were produced and circulated several times. These listed the program goals and what was successful and what still needed attention as well as a plan outline to address the gaps. Team meetings were held every two weeks throughout the safety program and regular progress updates are documented in the minutes as well as problem solving discussions and actions addressing things needed to sustain the program.

Interviews

DIR1- “Monthly monitoring helps because people come to realize that it is part of monthly work” in which she likened this to budget review and analysis. One of the safety programs Med Rec has now been embedded in another program designed to enhance the time that nurses have available to interact with patients and this has helped. She also noted that linking to other things that staff find important such as vital signs and patient assessment ties things like Med Rec to routine practices, and achieving “this is a really good sign for sustainability.” This was achieved to some degree but needs further work, she feels. “Not that I have been involved in” was her response when asked about a plan for sustaining the safety program. She notes that AMI improvements such as door to needle time are sustainable because they have been linked to changes in physician practice. There has “been really great buy in” due to the physician lead. The behaviours of the multidisciplinary team also changed and that helped. They were able to join national monitoring of SHCN and get support for that. This tied our efforts to other safety and quality programs we had participated in previously.

MGR2- She remembered that “I was at an IHI conference and they spoke of the need to ‘bring them back to the table’...that can keep things moving.” She also felt that “it’s got to be a group effort to keep things going.”

EXE2- He felt that sustaining was about several key actions. “It is maintaining the focus on the performance outcome. Keep a focus on it with some indicator that you continue to follow. Otherwise people will treat it as flavour of the day...you need to reflect focus back on it.”

EDU2- She felt that “we try to tackle too much” and suggested a prioritization to a smaller number of programs upon which the hospital would focus to make sure this smaller number was done well.

Discussion of Findings

To quickly reiterate, the themes of Berwick’s (2003) strategy for this are the same as implementation and include identification and support of innovators and early adopters, making change activities observable, creating slack for change, and leading by example. This Fellowship project research question seeks to explore if these were applied to the safety programs to sustain their efforts.

The documents spoke to a plan to link efforts to sustain the program by aligning it to leadership strategies. Specifically mentioned were plans to report to the executive team and to give updates to the quality committee of the board of the hospital. There was a general mention of sustainability in other documents but no additional details of a specific plan. There were ongoing reports and discussion documented including “report back” and “road block” discussions.

In the interviews it was a perception of this author that the respondents had thought of sustaining and spreading as really the same set of activities and perceived these as a very similar part of the program to their implementation efforts. When asked these questions they referred back to the earlier responses that they had given when asked about implementation and spread. However, one director did note that there was a specific effort to get staff to incorporate Med Rec into their normal patient practices such as doing admission histories and obtaining vital signs. She did say that she was not aware of any formal plan for sustaining their program work. A manager who was a program lead did mention that she was aware of the IHI framework for sustaining change and that it was a team effort but there was no formal effort to use the IHI methods. An executive felt that there would need to be a continuing focus on performance and this should be made a priority for the organization.

In summary, it does not appear that there was a formal plan or specifically organized effort for sustaining the safety program apart from the other efforts of the team to implement and spread. Perhaps this was in part due to the relatively young age of the program. Likewise, there did not appear to be a formal set of actions linked to activities or practices like those advised by Berwick or a sustaining plan that was above and apart from other program efforts other than maintaining observability through ongoing measurement and observation of performance. It remains to be determined what the organization might do to sustain should there be a negative trend in these measurement in the future.

Results pertaining to Question 9: How was the change program linked to the strategy of the hospital? Was a strategic approach for the program developed consistent with the literature advised approach (e.g. Kovner & Rundall, 2006)?

Documents

The program terms of reference document contained the following bullet point as a responsibility: “Align the unit’s strategic directions, operating plans, multi-year capital equipment planning and operating budgets to incorporate application of evidence-based change models.” An executive progress report of November 2009 spoke of following the data from the program and the continuing outcomes of the two safety programs by linking these to the hospital’s governance goals and the strategic efforts of the organization via reports to the quality committee.

Interviews

DIR1- She summarized that “Med Rec is now part of the goals arising from our strategic plan and prospective performance plan.” “It was recognized that it was a priority within the organization.” When her program was creating its strategic goals it was recognized that good evidence existed for these safety practices that were part of the programs. “We were able to participate in national monitoring programs and get support for the Safer Healthcare Now projects.” She noted that by participating they had good indicators of care and didn’t have to develop others. “We also knew that these programs were based on evidence.” “We started with a ‘big list’ of potential things to monitor for quality and these programs fit well with our final choices.” She felt that nothing was overused as a strategy in the program. She concluded that “front line needed to adopt more and they are complacent and practice doesn’t change.” She felt that they needed to push from the front line rather than from the top, feeling that “we had a good program team but we

needed to involve staff more...staff with a proactive outlook when harnessed can really move things along.”

MGR1- He felt that the program work was “in keeping with the quality committee of the board” and its work to improve quality and safety as a strategic goal. He also believed that the work done in the program “linked to quality of care” strategic plan emphasis. He thought that the program did not create a culture of evidence use but could in the future but that “would have to use this approach repeatedly” such as more programs like the one in which he participated.

EDU1- He surmised that “I don’t think that was ever mentioned...I related it myself to patient and family centered care and patient safety.”

MGR3- She was able to tie the program directly to her own goals that had been developed to tie to the strategic plan. “My strategic plan goals were Med Rec so it was included.”

DIR2- She saw a clear link to the strategic plan and felt that “most certainly” these programs “link to our overall strategy and our quality plans and what we are monitoring and reporting to the Board.”

MGR2- “It was under the quality piece” of the strategic plan. “We have a whole section for quality improvement and this fits under that. We could have done more if we had more time and resources.”

EXE1- “The strategic plan includes quality of care and patient safety and this project was tied to that as a key patient safety initiative. This project has helped in creating a culture of evidence use...there has been a marked change in what people are relying on such as IHI white papers, quality evidence. We have come a long way but have further work to do.”

EXE2- He also saw a link and noted that “it was tied into the patient safety and quality aspect of the strategy.”

Discussion of Findings

This question was aimed at the ideas of Kovner and Rundall (2006) and their encouragement for program teams to strategically approach improvement work by creating a strategic plan link, using team efforts, and using evidence to inform activities. Documents and interviews were again used to explore these ideas in relation to the safety programs.

The documents spoke specifically about a strategic plan link. The terms of reference for the program team covered aligning efforts to the hospital’s strategic plan, the multi-year goals, and planning efforts. The executive progress reports tied the safety programs to governance level goals and strategic efforts.

Only one person, an educator, did not feel things were formally tied to strategy, but he made a connection by himself. All of the other interviewees saw a clear link. The directors saw the link to patient safety and quality and one tied her own department goal to Med Rec implementation. Others spoke of the tie to the strategic goal of patient safety and quality care.

In summary, it seems that the patient safety programs analyzed here had a planned link to strategy and people participating saw that link. From other analysis elsewhere in this report, there is evidence that a team approach was used to pursuing these efforts and this too seems consistent with Kovner and Rundall (2006). The strategic evidence used to inform these choices and plans appears to have been the evidence for patient safety practices largely from the Safer Healthcare Now programs and their supporting literature.

Results pertaining to Question 10: Does the implementation of an AMI and medication reconciliation patient safety program result in an increase in teamwork and patient safety climate as measured by survey?

Hypotheses 1: The implementation of a patient safety program is associated with an increase in the teamwork and patient safety climate as measured by the Safety Attitudes Questionnaire (Sexton et al., 2006).

Null Hypothesis: There is no change in the teamwork and patient safety climate as measured by the Safety Attitudes Questionnaire after the implementation of a patient safety program.

Table 2
Survey Responses Summary

	March 2009	January 2010	
Number of Responses (% response)	80 77%	71 68%	t-test results
Team Climate	Mean= 3.73, *sd= 0.58	Mean= 3.68, sd=0.69	t=0.52, p=0.60
Safety Climate	Mean= 3.27, sd= 0.68	Mean= 3.32, sd= 0.08	t=0.44, p=0.66

*sd= standard deviation

Discussion of Findings-

The response rates to the surveys were 77% on the March 2009 survey and 68% on the January 2010 survey. Both these would be considered high response rates.

Sexton et al (2006) promote this survey to gather baseline data and to test the effectiveness of patient safety practices and changes. The mean team climate score at the start of the safety programs was 3.73 and was 3.68. There was no statistically different differences between these two scores ($p=0.60$). The mean safety climate score early in the safety programs was 3.27 and was 3.32 after, but again this difference was not significant ($p=0.66$). These results show that no significant difference between the two scores occurred between the two intervals. The null hypothesis could not be rejected. The measurements were only several months apart and perhaps a significant effort and repeated activity with time is needed to change these climate scores. An alternate interpretation is that these two patient safety programs had no effect on teamwork and safety climate attitudes in this setting.

Results pertaining to Question 11: What approaches were used to engage staff in the change programs? Were these consistent with those in the literature (e.g. Christensen, Marx, & Stevenson, 2006)?

Documents

Quarterly summary reports with data and metrics from the safety programs were produced and circulated widely. These documents were also reported to the executive sponsors of the project and the senior leadership team of the hospital.

Interviews

DIR1- She concluded that “staff is only interested when it is about patient care.” “If it is about getting something done by a specific time, they are less interested” she noted. “There needs to be a changeup of that conversation.” She felt that you need to get them thinking about improvement and showing them how these efforts improve things because “people are always motivated by improvement.” She “didn’t see any evidence” that people reached agreement on how to go about things related to the program.

MGR1- He believed that motivation to participate in the program resulted from a “sense of competitiveness in ER.” He felt that “when pointed out they were falling short of the mark” people “went looking at ways to improve such as door to needle time.” The program team had a sense of agreement on what they wanted from change but was different between ER and ECG staff in his judgment. The agreement on how to get things done was show in the program documents in his opinion, and he felt that a leader’s role is to know who to talk to get change happening. He

remembered that leaders identified work arounds for program problems. “They helped create the analysis and plan and showed how to use a method.”

EDU1- As a nurse educator he concluded that “communication is always a problem...what was effective was all of the reports we produced and shared with staff.” “We got managers and staff talking about these on the units.” “Nobody wants to see a big red bar” and he felt that the data reports created awareness and a motivation to change.

MGR3- She wasn’t sure about motivation saying “I don’t know.” She felt that “trying to get other people on board is difficult. The unit council doesn’t help...it is a matter of finding champions who will continue things.”

DIR2- She did remember that “we spoke about some of the benefits and learnings people would gain from participating in the project” as a benefit of participating and a plan to engage people. She also noted that “the experience that would come from serving in this role” was a conversation that happened with participants and staff.

MGR2- She felt that celebration was a motivating force in these programs. “It was good for us to celebrate the good stuff like the gains we made. The group in ER was pretty darn proud when we hear we were under 30 minutes for an entire quarter- them seeing and knowing the numbers...we don’t do that a lot...that helps.”

EXE1- She had these comments to offer about engaging people in this program. “It was a project about patient care and has a common appeal to leadership and front line staff. It was a bit of a burning platform in the need for compliance with accreditation. We recognized when people had done good work by having celebrations. We had people in front line positions as leaders and that help engage the staff. Agreement developed over time...started with whole AMI bundle and Med Rec bundle and quickly learned that needed to be chunked down.”

EXE2- He saw that “personalizing the story, using videos and engaging staff in conversation” was a key to engaging and motivating. He also spoke of accountability as “it is very hard to get people to agree on what they want and also to hold people accountable for the results. Someone has to hold people to account.”

EDU2- “I think you have to get people at the front line...people who are going to do it. You have to hear what they are saying and what I constantly hear is if you want us to do all this stuff, what are you going to take away so we can do it.” “As leaders we can facilitate but change has to come from them.”

Discussion of Findings

Christensen, Marx, and Stevenson (2006) recommend that programs be pursued with efforts to motivate participants and that agreement must be reached on what the participants want and how to get that if a program is to be successful. They also advise that leaders must be active in creating these outcomes. This Fellowship project question was designed to examine how the patient safety programs compared to these guiding pieces of advice.

It seems that a main focus to motivate progress with respect to the documents was the regular production of progress reports and data on the changes that was then circulated to people and discussed at meetings. The interview participant's responses suggested that this may have been effective at motivating because, as one educator said, nobody wants to see a "big red bar." A manager agreed with this and felt that giving the data created a sense of competition to improve. The directors felt that motivation was created by linking the safety programs to patient care. She noted that staff is interested when it relates to care but she did also feel that more emphasis by staff on quality improvement was still needed. The executives saw motivation arising from the common appeal through the patient care emphasis and the other that this like to patient made it feel "personal" for the staff.

Others spoke of promoting the positive outcome from participating in the program such as personal development and leadership development. A program lead remembered regular celebration as program milestones were achieved and this promoted a will to move ahead. Interestingly, one manager did not know how to motivate people and felt success was dependent upon champions. There seemed to be a feeling that people within the program team had developed a sense of common goals and that they had agreed through program planning meetings about how to go about things as Christensen, Marx, & Stevenson (2006) recommended. It was unclear however how widespread this common purpose had spread beyond the program team. There was discussion that practices had changed but also a concern about whether these changes would persist. From the data contained in this question and in others, it seems that the program team and its members had assumed a leadership role in creating change and were attempting to motivate through some mechanisms and this too seems consistent with Christensen et al.

Results pertaining to Question 12: What leadership styles and approaches were used in these change innovation programs? Were they consistent with the advised approaches in the literature (e.g. Greenhalgh et al., 2004)?

Documents

An executive progress report of November 2009 included a discussion on using the IHI's "seven leadership leverage points" as a mechanism to drive and sustain change efforts by tying the safety programs to recommended leadership practices of priority setting and staff engagement. These included linking quality improvement to strategy, measurement systems, leadership priority setting, governance team engagement, and physician engagement.

Interviews

PHY1- This physician lead for AMI felt that the safety program was "led and not a let it happen project" on the Greenhalgh spectrum of let it happen versus leading the change. He also felt that physician involvement was important to achieving the successes that were realized.

DIR1- She remembers that there was no cost advantage discussion about these programs. "Front line doesn't care about the money, so I purposely don't have that conversations." "It certainly wasn't let it happen because there was a lot of care and attention...it would be closer to lead the change...about 80% down that continuum...we didn't look at how front line interpreted this."

MGR1- He felt that the program was "led and standardized." He summarized that cost was looked at informally with respect to the cost to the patient (non-financial) and the cost of transfers to other centres for care etc.

EDU1- "Overall everybody agreed what the main goals were...timeframe wasn't very clear." He remembered that he thought the program was to be 6-8 weeks in length but that it turned out to be months. He felt that is was "probably the middle" on lead vs. let it happen spectrum. He concluded that people had too many things to focus on. "I wanted to focus more time on this, and could have done better...that's what I mean about the middle...you need glue." He did feel that leaders involved in the program did create a receptive change environment.

MGR2- "We reached agreement of goals and actions when we did our terms of reference. That created what we wanted and where we were going with it. At one point an executive had to say the educators are going to focus on this and until that point we didn't have the focus we needed. When he said the team leads have to make it a priority...at that point things improved. That was a big turning point."

EXE1- "I think there was a need for leadership in everything...it needed executive drive at the start but as things got started the leads of elements of the project were self sufficient. I think the biweekly progress meetings were necessary or things might have dropped off. The leaders were

change advocates and that was demonstrated by some fairly significant improvement that we have seen. A physician champion was also key to leadership. People had an engaging and accepting style. There was very little focus on cost but more on quality.”

EXE2- “I would say this project used a lead the change process. Things were not progressing prior to these projects and now the metrics have moved forward...the challenge will be what happened when attention moves away. Once they began getting positive outcomes an environment receptive to change was created. Gains made them more passionate about it.”

Discussion of Findings

This question looked at the issues raised by Greenhalgh et al., 2004 in relation to change programs. Namely, the need for leaders to take an active role in adopting and spreading change as well as creating an environment that is receptive to change. They also talk of a spectrum of leadership involvement ranging from let it happen to active leadership.

The documents reviewed contained a short discussion on the planned use of the IHI seven leadership leverage points for the safety programs. These were then to be linked to strategic efforts and organizational priorities. Recall that the leverage points speak to the need to focus leadership attention at the highest level to make change related to safety programs successful.

The physician who led the ECG and AMI program felt that the efforts were clearly led rather than let happen. The two executives agreed with that conclusion and that leadership was needed in all aspects of the program including biweekly progress meetings to keep things moving ahead. One of the executive also wondered what will happen after this focus leadership attention comes to an end when the programs are over. The ER manager also felt that the efforts were led and that they were standardized. Another manager who was program lead recalls that goals were agreed to by the team but there was slow progress initially. She noted that when an executive made everyone aware that the safety programs were to be a priority that things move ahead more effectively. This speaks to the role of leaders. A director felt that things were 80% toward the end of the Greenhalgh spectrum of being led and an educator felt that things were in the middle of this range. He attributes this to there being many distractions and competing interests for everyone’s attention.

In summary, there seems to have been leadership attention on this program and most felt it was focused but some felt there were competing interests for the leader’s attention. The leadership focus seems to have been one of moving the program along and keeping focus on the priorities and goals rather than creating a receptive change environment.

Results pertaining to Question 13: Did the clinical program teams involved in the two patient safety programs develop (a) the sense that they had an ability to make change and (b) a common purpose of quality improvement as proposed by Baker et al. (2008)?

Documents

No documents were found that discussed these issues.

Interviews

PHY1-The AMI physician lead felt that the program team developed the ability to make the change happen as they gained experience and saw that their actions were making improvements in the care process. "They initially saw it as a task to get the ECG done quickly" but he noted that later in the program through education that the team linked their actions to "the big picture ideas of patient safety."

DIR1- "It was quite autonomous work for them" and she concluded that they did have a sense of common purpose and an ability to make change. "I think they felt empowered" to make things change if they felt it was needed.

MGR1- "Starting to get these better now than 3 years ago" was his summation when asked if he felt that people were getting to a stage of a common sense of quality improvement. He believed that "some are still embedded in the old culture."

In talking further about this common sense of improvement, he said "staff are more focused on patient outcome...they are discussing patient safety more."

EDU1- This educator felt overall yes they "had a sense they could make change...but a sense we have all these other things to do and are distracted."

MGR3- "I think so" was her reply when asked if she felt that the team members believed that they had the ability to make changes and a sense of a common purpose for quality improvement.

DIR2- "I did get that feeling" that they had a common sense of improvement and an ability to make change. "They also felt that they had sense early on there was a sense of ownership...they were very motivated to make some changes because they weren't pleased with the initial performance."

MGR2- She felt the program was far along the lead it approach vs. let it happen. "Now I think we are in the coasting phase. They are still aware of it but the intensity is not there." "But we

may be at a point when we don't need that because everybody is doing it. I saw big changes... at the beginning it was it can't be right... at a point we said ok here is what we are going to do."

EXE1- "They did" have a shared sense of change ability. She gave the FMEA example to improve door to needle in which the staff felt they had full control and they were able to do this without executive intervention. "I do think there was a sense of quality improvement... the primary motivator became a desire to improve patient safety."

EXE2- "They actually started to believe it because [that they could make change]... at first they didn't because each barrier or setback caused them to think this won't work... as the number moved they saw that it could work."

EDU2- "I think everybody felt that they had the ability to make change... it is whether you have the resources to support the changes that is the problem." "We were lucky that what we did don't take a lot of money."

Discussion of Findings

Patient safety experts such as Baker et al. (2008) tell us that change success in patient safety activities is contingent on getting people to a stage where they feel an ability to make change and have a common sense of the importance of quality improvement. This research question was designed to explore whether these conditions were achieved in these patient safety programs and Bluewater Health.

There were no documents located that discussed creating these conditions specifically. However, documents discussed elsewhere did have a program plan with milestones and goals that guided the team and could be thought of as a mechanism to create a common purpose.

The interviews showed that these elements suggested by Baker were developing. The physician lead was confident that people had developed an ability to change care processes to improve the program goals. He also felt that people "did see the big picture ideas of safety." The two executives were of similar opinion who felt that both the elements grew over the life of the program and that participants had developed a sense of being able to make change and for an understanding of quality improvement. The directors also felt that people has felt "empowered" and had a sense of "ownership." The educators had a bit of a different conclusion in that they agreed that people had a sense that they could indeed make change but that this was limited to some extent by availability of time and a wondering about support via resources and other commitments. Finally, the program lead manager felt that change ability was felt but she wondered if that had peaked and that the program was now going into a "coasting phase."

In summary, the findings support that a common sense of purpose had developed and that people felt a sense that they could make change, but there is some question about whether these will last and persist as the formal program winds down.

Results pertaining to Question 14: What physician engagement strategy was used and how did it compare to the proposed IHI physician engagement strategy (i.e. Reinertsen et al., 2007)?

Documents

Only one document, dated November 2009, was found that discussed physician engagement indirectly. In one of the executive progress reports, it described the planned use of the IHI's seven leadership leverage points, one of which is physician engagement. Although this document was mentioned, no physician engagement strategy was included in the progress report.

Interviews

PHY1-The AMI physician lead did feel that creating a common sense of purpose was important to the improvements that were realized. "We all want to do the best for the patient" was his observation and the physicians needed to change their practices to facilitate the change that were implemented in the program such as allowing the ECG technician access to the patient by stepping away. "This advice to the docs came better when another physician said it." He felt that having a physician was important to creating this influence and has more impact than had other staff or managers alone be leading the change. He recalled "when I said it, they could see why it needed to be done."

DIR1- "We now review these programs and the results and the program operations team and at the physician meetings. The project physician lead was the main influence in interacting with the physicians more so than formal physician leader."

MGR1- He felt that enlisting a physician lead was an key engagement strategy because of "communication from one to their own...they take notice." And he noted that it is "all about engaging."

PHY2- "We do what we do because we like doing it. We change if a committee, colleague, patients etc ask or require us to change. We look to evidence to make a change."

PHY3- "Everyone should participate. We had a combined ER and internists meeting. We should have more of these meetings. Everyone is busy but we need to get together."

EDU1- He felt that “we could have done better.” “I did use colleagues who have rapport with the physician groups. We brought it to the internal medicine groups for discussion. Time was an issue as I couldn’t get there as much as I wanted to... there is still much needed in education for physicians.”

MGR3- “It is difficult to bring them to the table...it is easier to talk to them one on one. We use the medical director to present issues and take them back to the physicians. We need physician to buy in on care practices and there has been some difficulty with getting that.”

DIR2- “I can’t really comment there...I was a little too distant.”

MGR2- “We spoke one on one to medical directors. I went to Dr P when I needed a physician. I also spoke to the physician lead and personally asked him to join. If you go to the medical director first it kind of funnels down. We used a questioning approach rather than a blaming approach.”

EXE1- “FMEA outcomes were presented to staff and physicians and high priority areas were identified. The use of physician time was directed to where they could have the lost input and did not impose on their time. We kept discussion to areas in which they were interested. We have access to the IHI physician engagement plan and we followed those guidelines...we did not create a plan but used these principles.”

EXE2- “For door to needle there was physician engagement in ER about performance and there was a physician champion. Physician involvement is terribly important.”

Discussion of Findings

This final Fellowship project question was designed to examine the approaches used to engage physicians in the patient safety programs. Also, it was to determine if these approaches were similar to the approaches recommended by the IHI (Reinertsen et al., 2007). More specifically, was creating a common purpose, an engagement plan, standardization, and an engaging style used in these safety programs?

The documents showed that the IHI seven leadership leverage points were considered and this set of change tactics does include physician engagement. However, no actual Physician engagement plan was created by the program team.

The physician who served as the informal physician program project lead for the ECG element of the program did indeed feel engaged in the programs and he also felt that other staff members were engaged as well. Perhaps the reason for this was that the programs emphasized the quality of care and important care elements that everyone could relate to in the roles as health care

providers. Other spoke about the physician involvement as being influential to other physicians and staff and this was felt to be an engagement approach. A director spoke of her strategy to engage physician by taking the program reports and the data summaries to physician meetings so they could see the successes and room for further improvement. This could be thought of as using evidence to engage physicians. One of the educators did feel that “we could have done better” with getting physicians involved. Everyone agreed that physician attention and participation in programs like these was essential. The choice of working with the formal physician leaders in the form of the two medical director s also appears to have been a purposeful strategy.

In summary, there were physician engagement strategies used in the safety program but they seem to be less formalized that that advised by the IHI (Reinertsen et al., 2007) and no actual plan was created. It does appear that a common purpose was created, at least with the immediate people participating in the program efforts, and that an engaging style was used because physicians were involved. Although physician engagement was part of the executive sponsors’ plan in the documents, these plans appear to have been enacted informally.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

This final chapter summarizes the findings of this Fellowship special project as they relate to the project research questions. This is followed by recommendations, suggestions for future research, and a brief discussion of the contribution of this project to healthcare management.

Summary of Findings and Conclusions

The first question of this Fellowship project dealt with whether the hospital had goals for its two patient safety programs. The findings support the conclusion that the programs had goals for both the medication reconciliation and acute myocardial infarction portions of their efforts. This was evident at the planning stage and throughout the implementation. Although the results fell short of the initially planned targets, there were definite improvements in the data. Most interview participants considered the safety program successful at least to some degree. The hospital had approached these patient safety programs using focused smaller groups at the service level. This is consistent with the advice of Beer, Eisenstat and Spector (1990) as a success strategy. Interviewees had somewhat differing perceptions of the program outcomes which suggests that people either had different expectations for the programs or had different perceptions of the outcomes. Alternatively, they may have focused on different elements or different portions of the programs in determining success. This is an interesting finding and potentially links to systems theory. Recall that McDaniel, Lanham, and Anderson (2009) tell us that systems are complex and that outcomes are unique and somewhat unpredictable.

The second question of this project assessed the use of literature to inform the change management of the safety programs and the practices used in conducting them. It appears that the executive sponsors of these programs were aware of the change management literature including that specific to the healthcare setting and implementing patient safety programs. This was detailed in their program reports and in their interviews. However, as one executive noted, this use of literature may not have been transparent to the whole program team. When members of the program team were asked about the use of evidence and literature, they spoke of evidence specific to the patient safety programs such as “Safer Healthcare Now.” They also spoke of specific project tools such as PDSA cycles, project trees, and FMEA analysis. This seems to be more of a use of applied project management techniques rather than a more holistic use of change literature. As noted previously, the patient safety programs did achieve some successes, so an item needing future study is whether the type and scope of literature is appropriately customized or adapted to a person's role

or leadership function in a program. This idea links to the earlier discussion of Christensen, Marx, and Stevenson (2006) who tell us that program success is linked to getting people to work together within specific roles and tasks and that deciding who does what and how is key.

The third project question was about education and education plans. Pelletier and Beaudin (2008) write that an education plan that is given priority by senior leadership and that is focused on both education about standards and quality and on how to influence change is important to the success of change programs. The findings from the documents and interviews show that education was used in the implementation and management of the two patient safety programs. Although an education plan was mentioned, a formal education plan was not created. Education needs assessments were done by educators and managers speaking with staff to determine their understanding about what was being done in these programs and about the components of the two patient safety bundles. Information was then provided in response to these informal assessments. The education was about standards and quality rather than influencing change. In summary, it seems that the education was less formal and less comprehensive than that advised by Pelletier and Beaudin (2008). Teaching sessions and printed materials were used. However, other authors (e.g. Anna et al., 2008; Gould, Chudleigh Jane, Moralejo, & Drey, 2007) have found that these approaches do not result in changes in clinical practice or patient outcomes. As such, it remains to be seen if these education efforts simply supported the program execution or whether they will contribute to longer-term changes in the practices and procedures of the clinical staff.

The findings from questions four, six, and eight will be discussed together because they all relate to using the Institute for Healthcare Improvement's strategy (i.e. Berwick, 2003) for quality improvement programs. Question four relates to the implementation phase, question six to the spreading phase, and question eight to the sustaining phase. In general, this strategy proposes that success is tied to finding and supporting innovators and early adopters and investing in these people. Also important is making the activities of the change program and its participants observable, leading by example, and creating slack time so these people can effectively participate. All of these factors should be approached within the guiding framework of a change plan or guide. This change framework is currently one of the most popular and prevalent methods used for quality improvement and patient safety programs in health care organizations.

There is documented evidence of program plans that assumed various forms. These served to guide the program team during the implementation and ongoing management of the safety programs. Both the documents and the interview participants spoke of "champions" who would help to ensure the success of these initiatives. However, it seems that these participants were selected

because they were a "natural fit" for the work that was being done or "the usual people" who had participated in programs and initiatives in the past. There seems to be evidence that the people selected did have influence and many spoke of the positive effects of the informal physician leader. The program metrics did improve, and this suggests that the program participants were effective in implementing and spreading these safety initiatives. Nonetheless, selecting people as natural fit or the usual people might lead to concerns about how effectively these programs might be spread to others on a longer-term basis.

Observability of the safety programs was pursued largely by having the program project team members interact with other members of the patient care staff in the parts of the hospital in which the medication reconciliation and acute myocardial infarction programs were implemented. This scope was limited. The other main approach appeared to be the collection and dissemination of data relating to program milestones and how effectively the patient safety bundles had been implemented. There was some mention that successes in achieving milestones had been celebrated.

Spreading and sustaining had been pursued by embedding process change by rearranging computer order sets and altering sequences of patient care activities through flowcharts that were transferred to other members of the patient care staff. Spread also seems to have been pursued in a practical or logistics manner through problem solving and solution finding so that the success of the elements of the patient safety bundles could be enhanced. Sustaining the programs was also planned through leadership efforts largely by reporting the ongoing data collection information to senior levels in the organization including the governance level quality committee. There is some evidence that the program team members thought of and approached spreading and sustaining as a set of activities and concepts rather than independent activities. The prescribed change frameworks suggest complementary but independent strategies for these two elements.

The Institute for Healthcare Improvement's framework appears to have been a guiding set of considerations at a program planning level and the ongoing use of this framework appears to have been informal. This shift to informal use of Safer Healthcare Now programs bundles is similar to that noted by Baker, Flintoft, and Kam (2008). Cabana et al. (1999) found that successful change management required the influencing of knowledge, attitudes, and behaviours. Don Berwick (2003) agreed with this finding based on his work with multiple improvement programs in healthcare settings. Kovner and Rundall (2006) noted that in trying to achieve these three areas on influence, we tend to approach them inconsistently while overusing unhelpful management approaches and under using helpful management approaches. Berwick agrees with this. The Institute for healthcare improvement change management framework was developed to help guide practices and mitigate

some of these inappropriate overuse and underuse situations. Their change framework has been used successfully in many settings. Its use in the setting that was the subject of this study appears to have been informal and used more as a set of guiding principles rather than a formal change framework. The patient safety programs met with success, but it remains to be determined whether these successes will be sustained. However, it will be difficult to determine whether the adherence or lack thereof to the change framework has contributed or not to the long-term status of these safety programs.

Questions five and seven will also be discussed together. They both relate to difficulties or sources of failure. Question five speaks to initiating change and question seven to maintaining and sustaining change. It has been noted previously that organizations are complex systems and that change is difficult to manage. A number of cautions, pitfalls, and solutions for these were discussed in Chapter 2 while reviewing the literature.

It seems that the actual difficulties experienced by the program team in the implementation of these safety programs were practical in nature. The documents and the interview participants most commonly spoke of logistics issues related to program components. There was some discussion by a few interview participants about the influence of a fear of job loss during the early phases of changing the process for ECG acquisition. This seemed to subside as the programs progressed. Another source of difficulty that was mentioned was the challenges involved in assembling and reaching an effective level of functioning for the project team. Nobody spoke of any aspects of the project or its management that they felt had overused or underused techniques or change practices. Their thoughts with respect to sustaining were forward focused and they mused about the need for ongoing work and continued monitoring to maintain the gains that had been achieved. There seemed to be a theme of concern that competing priorities for resources and time would distract attention away from these programs as time progressed.

Question nine looked at the strategic approach to these two patient safety programs. Kovner and Rundall (2006), who wrote on sources of program failure, believe that success depends upon having a link between a program and the strategy of the organization. They also believe that a team and teamwork is integral to success. The team must be able to effectively diffuse the innovation through a mutually agreed set of goals and actions towards the program that in turn is designed to eventually change culture. Actions must be informed by evidence. The quantitative measure of safety culture and teamwork culture is the subject of question 10 and will be discussed later. It seems reasonable to conclude that there was a conscious effort to link the two patient safety programs to the strategic goals of the hospital through the elements of patient safety and quality of

care. There is also evidence that the team had set goals, and agreed upon a course of action and how to implement the programs in a manner consistent with Kovner and Rundall (2006). There was also an alignment with the use of evidence found in the form of data and program status reports that was used to inform and adjust the process among members of the program team and with a staff in the patient care areas in which these safety programs were conducted. Of course, causality cannot be implied between the approaches to these programs and the advice of Kovner and Rundall (2006) in achieving success but it seems reasonable that these approaches were helpful to the safety programs.

Question ten looked at the survey measures of team climate and safety climate attitudes. The data analysis did not show a significant difference between the first measurement in March 2009 and the second measurement done ten months later. The hospital is a complex systems environment with many activities and changes. Factors other than these two patient safety programs could have influenced the teamwork and safety culture climate responses and affected the values either up or down in the interval between the two measurements so it cannot be determined if these results are solely in response to the two patient safety programs. It remains to be determined if repeated emphasis on patient safety programs and re-measurement has different results. Nonetheless, these two patient safety programs were not associated with changes in these attitude measures in this setting. Changing attitudes likely takes a longer term effort and continued emphasis in the organization. Cabana et al. (1999) and Corrigan et al. (2001) both found that successful change requires changing attitudes and that attitude change is difficult and represents a barrier to change. This represents a potential barrier to long term improvement for these safety programs.

Christensen, Marx, and Stevenson (2006) emphasize the need to motivate and to create motivating conditions through effective leadership as a key success strategy for change management. These thoughts are echoed by Beer and Nohria (2000) who also speak of encouraging bottom-up participation and enhancing motivation. This topic was the subject of question eleven. This motivation requirement is also linked to the need to create agreement on the goals of the change program and the methods that will be used to achieve the goals. Motivation for these safety programs appears to have been tied to the fact that they were patient care activities. The participants were healthcare professionals and patient care is the primary focus of the professional activities. It would seem that the projects had an appeal for this reason and it was noted in the findings that the project team members and the staff were motivated to improve when the data showed that the care could be delivered more effectively. There were also celebrations when these improvements were

achieved. The project team members did appear to have reached a common agreement on goals and methods to achieve these goals. These project management elements are consistent with Christensen, Marx, and Stevenson. What is not evident from the findings of this study is whether there is motivation among larger groups of health care providers in the remainder of the organization and whether conditions have been created to achieve this motivation to assist spread and sustainability.

Question 12 examined program leadership. Greenhalgh et al. (2004) promote the importance of leadership as a route to successful change. In particular, leadership is necessary to prevent change programs from falling into a "just let it happen" mode. Leadership, in their view, is important in the adoption and spread of change and for creating a receptive change environment arising from the role of leaders as change advocates. The program team for these two safety programs consisted of executive leaders, directors, managers, and physicians. It is evident that formal leaders were participating and active in leading and managing these change programs. The key informants in the interviews generally agreed that the programs were actively led and that environments conducive to change were created; at least in the immediate area of the safety programs.

Question 13 looked at two other factors considered important to the success of patient safety programs. These are the factors proposed by Baker et al. (2008) as creating a sense that a team has the ability to make change and also achieving a common purpose of quality improvement. These ideas have arisen from large studies on patient safety and quality improvement practices. Baker also believes that managers must understand and then assist quality improvement teams to appreciate why services are produced, how services are produced, and how these services can be improved. Once all these factors are in place, improvement teams tend to have enhanced effectiveness and are able to integrate their activities in safety improvements into a larger systems approach to quality. This, of course, links us back to the concepts of complex systems theory that have been discussed previously. It appears from the findings that the program team examined in this study and their colleagues in the patient care areas undertaking these safety programs had felt an ability to make change. Perhaps this may not have been fully developed at the start of the program, but was evident at the time of this study which was some months after the safety programs had begun. It would also appear that the findings support that the team had developed a common sense of quality improvement. Baker and others would suggest that this is linked to the success of these patient safety programs, however, as with other influences, causality cannot be inferred.

Finally, question 14 reviews physician engagement strategies. Reinertsen et al. (2007) believe that physician engagement is critical to the success of improvement programs in healthcare settings. At the same time, they note that achieving physician engagement and motivation is complex and difficult. Reinertsen, in his work at the Institute for Healthcare Improvement, has created a white paper on physician engagement. Some of the key themes in this paper are the need to create a common purpose, to standardize approaches as much as possible, and to create a style that engages physicians. The members of the patient safety program team agreed that physician engagement was essential to the program success. They spoke of one physician from the emergency department being quite influential in the implementation of the program and its continued success. This physician had been recruited as a champion and his involvement contributed to the success of the program. The formal physician leaders were the two medical directors. Their involvement appeared to be one of assisting with logistics difficulties and presenting data at physician department meetings. In general, the IHI strategy for physician engagement was mentioned in program documents but it does not appear that it was formally integrated into the program plan, and overall physician engagement appeared to be less formally approached. Given the relative importance of physician engagement and quality improvement programs, it remains to be determined what influence these physician engagement approaches used at Bluewater will have on the future of these safety programs.

Overall, these findings are an interesting collection of results. It appears that public policy did drive this organization's leaders toward selecting and implementing two patient safety programs. Over several months, these programs were able to improve the quality of care metrics for AMI and Med Rec. In many respects these safety programs would be deemed successful. Literature, evidence, and proven change frameworks were used in the planning and at conceptual levels. Perhaps more so by the executives than the managers and staff. At most levels, these items were used informally and people implementing the safety programs focused more on practical issues of implementing the projects and associated program analysis tools. No doubt, there was a lot of focused attention received by these programs and leadership and management attention was likely a key factor in their success. What is yet to be seen is how well these two safety improvement programs will fare in the longer term as formal attention shifts away.

Recommendations

The findings of this project lead to several recommendations for managers and leaders of programs of change to improve patient safety. Five general areas of suggestions are offered by this author arising as key learnings from this research. The first is the need to adopt and use a systems approach to change management preparation and implementation. The second is to establish and then maximize the use of quality improvement teams. Also, it is suggested that organizations try to create a continuous state of readiness. Next, the use of proven change approaches guided by established change frameworks is recommended, and finally, we should shift our leadership emphasis from traditional control systems to one of learning and improving directed to better quality and safety. Ideally, leaders should aim to establish all of these to best prepare their organizations for improved patient safety.

1. Adopt a systems approach to change management.

We need to have systems thinking guide our thinking and actions. Peter Senge (1990) in his seminal work on organizations, the fifth discipline, tells us that organizations are very complex and that we must use systems thinking to lead to these organizations effectively. Healthcare organizations are arguably among the most complex. Senge would have us deal with this complexity by shifting our management and leadership focus on controlling to improving and learning. Karp and Helgo (2008) have similar thoughts with respect to the complexity of the internal and external environments of public service organization. They too advise us to adopt systems approaches because without this, people will adopt coping mechanisms rather than changing systems in response to quality issues. Clearly, this kind of philosophy is at the heart of the work of organizations such as the Institute for Healthcare Improvement, safer healthcare now, and the Canadian Patient Safety Institute. Change is at risk of failure if we don't adopt organized and systematic approaches to quality improvement and if we don't pay attention to relationships and interactions in our organizations. The IHI (2008, p.19) reminds us "the key to reliable, safe care does not lie in extorting individuals to be more careful and try harder. It lies in learning about causes of error and designing systems to prevent human error whenever possible."

2. Create effective quality improvement teams.

We need to have effective improvement teams. There are many factors that make improvement more likely. One of the pioneers in quality improvement, Deming (1986), tells us that improvement is more likely to be successful when we structure the work so that we have quality

improvement teams that are empowered to achieve the outcomes proposed by Baker (2008). These are having teams reach the stage at which they feel ownership of the improvement activity and are able to make decisions about their areas of responsibility. Baker spoke of these as a sense that a team had the ability to make quality improvement and a shared sense of quality. Kouzes and Posner (2002) support this approach to leadership and they propose we aim to establish a shared vision that is focused on quality. In addition, our leadership practices should allow ourselves and others to challenge processes to improve quality and enable others to act to improve quality.

3. Create a continuous state of readiness.

We need to prepare our organizations to be in a state of readiness to meet the demands of improved patient safety, new technology, and public interest and public policy (O'Connor & Fiol, 2005). These will represent increasing demands and challenges for healthcare organizations in the future and failure to be prepared will have many negative impacts including those of increased organizational stress and decreased confidence in leadership. Carter (2008) thinks that we will need a comprehensive approach to address strategy, skills, and organizational structure.

4. Use proven change frameworks formally and consistently

O'Connor and Fiol (2005) accept that we cannot be 100% successful in our efforts as leaders or in quality improvement, nonetheless feel we can be dramatically more successful at our change efforts if we use a consistent and tested change strategy. The patient safety programs that were studied here achieve success by using a quality improvement framework in a semiformal manner. It is however recommended that we use proven change strategies and frameworks formally and consistently. These would be used to guide implementation, spread, and sustaining quality improvement and change programs. Pelletier and Beaudin (2008) tell us that no single model will be useful in every situation however. Improving our systems requires us to address policies, culture, management systems, communication, environment, education, and organizational structure to mention just a few items. However, our success will be improved through the incorporation and use of a proven quality improvement framework.

5. Shift our leadership emphasis from controlling toward learning and improving

We should emphasize the approach of learning about what the evidence says, analyzing what we are doing in comparison, and applying change frameworks to match best practices. This should be done in a setting and environment of learning rather than telling. The findings of this

project show that programs that are led with a focus on quality improvement and learning about patient safety systems and improvement techniques can be successful. The approach taken at Bluewater by the executive sponsors and safety program leads was founded in literature, evidence informed approaches, and learning how to apply these to changing care practices at the bedside. The safety projects were accomplished through learning about existing practices and using the evidence and data measurement to assess and then monitor change in AMI and Med Rec. This is a different approach than simply imposing and requiring safety practices and it seems to have had some success in the setting studied. This fits with the larger literature body of evidence on patient safety programs and quality improvement.

Suggestions for Future Research

This Fellowship project was conducted in a single hospital and within this hospital only in several patient care areas that were participating in the two patient safety programs. Although the findings are informative and of assistance to health care managers and add to the body of knowledge, there are things that might be learned by future study.

One such example would be to have more safety programs followed from inception to conclusion with a continuous analysis so that information can be gathered, items probed, and propositions explored in real time during the safety program project life. This Fellowship project was conducted retrospectively and a real time analysis may yield further information or definition to the findings. This would help to mitigate the reliance on retrospective recall that has a potential influence in retrospective studies like this one. Additional studies gathering information from front line staff about their thoughts and experiences with safety programs and the associated changes would also be useful.

Another study that would be helpful would be to return to the setting of this Fellowship project a year or two from now to see what gains had been maintained and what had evolved with the passage of time. It remains to be seen whether the improvements achieved in the patient safety programs that were analyzed here will be maintained, will grow, or will be lost. This is well beyond the scope of this project but would be an interesting study.

Finally, to add to the body of knowledge and practitioner skill set in managing change and patient safety programs, this study should be repeated in other settings and other situations to see which of the findings here are replicated and which are different.

Contributions of this Project Study

This Fellowship project has made contributions to healthcare management and the body of knowledge in the professional field. Although the study was done in the small setting of the implementation of two patient safety programs at a single hospital, the findings should be of assistance to other managers and leaders considering the implementation of these kinds of programs. The experiences and results described and analyzed here could inform their change management practices and also influence how people go about changing clinical practice in response to knowledge and evolving standards. The participant “stories” through the interviews that were conducted are purposely included in these results so that these narrative experiences are available to others. This is of immediate practical value.

The findings, discussion, and conclusions also have importance at a strategic and policy level. Patient safety and the quality of care resulting from safe practices are gaining more attention in the eye of the public and at the policy level. The public reporting of safety indicators is increasing notably and will likely continue to do so in the future. Leaders of organizations need strategies to respond to these influences.

Managing change in organizations is difficult even under ideal circumstances and the experiences and results discussed here add to the body of knowledge and literature on applied change and links these to well publicized change frameworks and change management literature. Knowledge is accumulated incrementally through applied case studies in change and these give us a better idea of what in the literature can be applied and what results are achieved when doing so.

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Appendix A
Permission and Approval



89 Norman Street Sarnia Ontario N7T 6S3
Administration Office T 519 464-4400 F 519 336-8780 www.bluewaterhealth.ca

December 21, 2009

Fellows Council
Canadian College of Health Service Executives
292 Somerset Street West
Ottawa, Ontario K2P 0J6

Re: Martin Lees, Fellowship Project

Dear Council:

This is to confirm that Martin Lees has the necessary permission to conduct his CCHSE Fellowship project at Bluewater Health tentatively titled "An Analysis of Patient Safety Program Change Management".

The project does not require any contact with patients or families nor any direct review of health records and we would consider this a management analysis project under our review process, and it would fit well as part of our quality plans at the hospital.

We look forward to being able to review the project findings once it is completed.

Yours truly,

Sue Denomy
President / CEO
Bluewater Health



Canadian College of
Health Service Executives
Collège canadien des
directeurs de services de santé

November 30, 2009

Dr. Martin Lees, CHE
Chief of Staff, Bluewater Health
89 Norman Street
Sarnia, ON
N7T 6S3

Dear Martin,

I would like to take this opportunity to thank you for your recent updated CCHSE Fellowship Project Outline that you submitted on November 18, 2009. The outline was discussed at our Fellows Council Meeting on November 26 and I am pleased to inform you that the Fellows Council has accepted your revised Project proposal.

I know I speak for all members of the Fellows Council when I wish you well in your pursuit of Fellowship within the Canadian College.

Kindest personal regards and if I may be of assistance at any time please feel free to call me at your convenience.

Sincerely,

Mimi Lowi-Young, M.H.A., FACHE, FCCHSE
Chair, Fellows Council

Appendix B

Interview Guiding Questions

The following questions were used as the basis of the semi-structured interviews. The items asked about were specific to this Fellowship Project's questions and designed to gather informant's impressions and ideas about these topics.

1. Did the program have goals? What goals were achieved? Which were not?

2. Was a literature and evidence used to management the programs? What was successful?
What was not successful?
Was/How was literature used?
Was a change plan followed?
How was change planned and implemented?
How as evidence used?
What was successful? What not?

3. To what extent was staff education used in the change management process? What were the difficulties in conducting the education?
Education plan?
Priority by senior leadership?
Education about standards and quality?
Education about influencing change?
Was it updated and refined with time?
How was it targeted to the audience? Any needs assessment?
Education sessions in person vs. printed materials?

4. Did the organization follow a change plan? Why or why not?

If a change plan was adopted was it followed consistently or did it serve as a guide only?

How did you find the innovations/projects?

How did the project find and support innovators?

How did the project invest in innovators early adopters?

How was project activity made observable?

How did slack for change get created for people?

Was Lead by example used?

Did you use a change plan or guide vs., Informal? Consistently?

5. What were the sources of difficulty and/or failure in initiating change and how were these managed?

Difficulties and sources?

How did you manage them?

Did you use techniques or evidence to do this?

6. How was the spread of the change project managed? Were they successful? Why/Why not?

Ask about:

Invest in early adopters and others?

Make activity observable

Create slack for change

Lead by example

Did you use a change plan or guide vs., Informal? Consistently?

7. What were the difficulties experienced in maintaining and sustaining change efforts and how were these managed?

Difficulties in maintaining and sustaining?

How were these addressed?

Did you use literature or evidence?

8. What approaches were used to sustain the change efforts? Were they successful? Why/Why not?

Ask about:

Invest in early adopters and others?

Make activity observable

Create slack for change

Lead by example

Did you use a change plan or guide vs. informal? Consistently?

9. How was the change project linked to the strategy of the hospital?

How did you tie to strategic plan?

What things were overused?

What were underused?

Were teams or team approaches used?

Creating culture about evidence use?

Training to use research evidence?

10. What approaches were used to engage staff in the safety projects?

What was done to motivate?

What was the extent of agreement on what people wanted from the project?

What was the extent of agreement on how to get that?

What was the leaders role in influence and facilitation?

11. What innovation leadership styles and approaches were used in these change projects?

Rate it on a spectrum from Let it happen to. lead the change?

What was the leadership role to adopt and spread the change?

Was a cost advantage considered?

Did leaders create a receptive change environment? Change advocacy?

12. Did the teams involved in the two patient safety projects develop (a) the sense that they had an ability to make change and (b) a common purpose of quality improvement?

Such as- Why services are produced? How? Why they need to be changed?

Did they see their actions as part of a larger plan?

Was there a common sense of improvement purpose?

13. What physician engagement approaches were used?

Was there a common purpose?

Was there an engagement plan?

Were things Standardized?

What was done to create a engaging style?

Appendix C

The IHI Seven Leadership Leverage Points

1. Establish and oversee specific system-level aims for improvement at the highest governance level
2. Develop an executable strategy to achieve the system-level aims and oversee their execution at the highest governance level
3. Channel leadership attention to system-level improvement
4. Put patients and families on improvement teams
5. Make the CFO a quality champion
6. Engage Physicians
7. Build improvement capability

Reinertsen JL, Bisognano M, Pugh MD. *Seven Leadership Leverage Points for Organization-Level Improvement in Health Care (Second Edition)*. IHI Innovation Series white paper. Cambridge, MA: Institute for Healthcare Improvement; 2008. (Available on www.IHI.org)