KEYWORDS: POST-OPERATIVE DELIRIUM, SENSORY DEVICES, PATIENT SAFETY, SURGICAL SAFETY CHECKLIST, LEAN METHODOLOGY.

IT JUST MAKES SENSE: KEEPING SENSORY DEVICES WITH SURGICAL PATIENTS

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ABSTRACT:

Operating room staff can develop simple strategies that significantly improve the patient's perspective on the perioperative experience. Research has shown the importance of sensory devices in minimizing the risk of post-operative delirium and confusion. Change management tools, such as Lean methodology, had, in 2008, become a critical component in improving organizational excellence to provide quality care at St. Boniface Hospital in Winnipeg, MB. Some of the Lean tools and strategies include the A3 framework which, along with the Rapid Improvement Events and the concept of Plan, Do, Study, Act/Adjust (PDSA), help facilitate rapid change. In 2008 St. Boniface Hospital embarked on a transformative journey to utilizing practices developed based on Lean methodology.[1] The Surgery Program was one of the first two programs to participate and continues to be involved today.

The purpose of this review is to provide an analysis of how Lean A3 change initiatives can improve patient access to their sensory device(s), throughout their surgical experience, as a means of enhancing their care, comprehension, and perioperative recovery while minimizing post-operative complications such as post-op delirium. Discussion includes, a description of the sensory device issues and relevant challenges, and the influence of Lean strategizing on the project.[1]

Method: Comprised a Lean A3 planning strategy and a Rapid Improvement Event involving direct care staff in the brain-storming processes and in the planning for change.[1] Anecdotal information was collected from previous patients and patients involved in the project's test days. A control group was not available for comparison.

The perioperative experience can be augmented and improved by ensuring patient's sensory devices remain with them throughout their journey to surgery.

Results: Staff understood the rationale behind the change process and patients and families were satisfied by the quick access to sensory devices in the post-anesthesia recovery room.

Conclusion: Research has shown the importance of sensory devices in minimizing the risk of post-operative delirium and confusion. Changes in the pre-operative area and in work processes enhance the patient's perception and comprehension throughout their surgical experience, as explained by anecdotal results.

INTRODUCTION:

Imagine you are an elderly person who is going into the operating room for a complex surgery. You are in a thin hospital gown, on a stretcher, without your glasses. You likely feel stressed and anxious about the procedure but those feelings are amplified if you feel disoriented, confused, and you find yourself squinting to try to read the information written on the white board in the OR theatre.

Having removed your dentures, in the pre-operative area, you may feel too embarrassed to speak up and ask if your allergies were all written accurately on the board.

The OR team begins the verbal discussion of your surgical care yet you can barely hear anything at all without your hearing aids so you miss the anesthetist's discussion of the general anesthetic, you can't hear the surgeon discuss the implants that will be used, and it's hard to hear if there's anything where you should be correcting the team. It sounds like the nurse asked you if you have any questions but you're not certain so you just shrug and close your eyes.

As you begin waking up after surgery you are not experiencing much pain but you feel very disoriented regarding where you are, what time it is, and what is going on around you. Without your assistive sensory devices to help you process your surroundings you become agitated and confused.

This version of a patient's experience raised a red flag for the St. Boniface Hospital's surgery program and highlighted the need to enhance the patient's ability to participate in their own surgical care and to feel as comfortable as possible throughout the experience.

The perioperative experience can be augmented and improved by ensuring patient's sensory devices remain with them throughout their journey to surgery. The concept of changing this, for patients, arose when a health care team member came to better understand the patient's perspective after undergoing a minor procedure without her glasses.

Lean methodology had, since 2008, become a core strategy, implemented to ensure organizational excellence and quality care, at St. Boniface Hospital. The Surgery Program was one of the first two programs to participate and continues to be involved today. In 2011, to the Surgery Program, this issue was a perfect fit for utilizing this change process tool to improve the patient journey.[1]

Background

Lean methodology provides a primary framework used to guide the shift towards including access to a patient's sensory devices in their perioperative experience. The primary strategy, used to lead the improvement initiatives within St. Boniface, was the Lean Transformation model. Lean process goals include improving customer satisfaction.

The overall goals of Lean initiatives at St. Boniface Hospital are to satisfy patients, engage staff, do no harm, improve patient flow through the hospital, and manage resources. The specific focus and intention of this project was to improve patient satisfaction related to the perioperative experience.

A Lean Rapid Improvement Event (RIE) is a standardized and structured five-day problem-solving event, where cross-

The World Health Organization developed the Surgical Safety Checklist in 2007.[3]

functional teams (including patients, staff, and stakeholders) determine, through experimentation, the best-known way to create value or achieve a specific outcome and develop a plan to implement and adopt the new standard.

St. Boniface Hospital uses Lean methodology as a means of conducting improvement projects in clinical areas by involving direct care staff over a focused short-term time frame by facilitating anRIE.[1] Some of the Lean tools and strategies include the A3 framework which, along with the Rapid Improvement Events and the concept of Plan, Do, Study, Act/Adjust (PDSA), assists in making change happen in a fast and focused way, engaging direct-care staff in the process. According to Tetrault, "Lean is more than just words and a set of tools – it is becoming the way we do business."[2]

Lean problem solving incorporates developing a defined set of values within the main project.[1] Tetrault stated that, "ultimately, improvements will spread to all clinical areas and involve all areas in the hospital. The goal is to attend to the right steps at the right time, every day, to remove risks, delays and waste, and to provide the best possible outcomes for patients."[2] Lean thinking can be used for a variety of problem-solving opportunities in any clinical program.

REASON FOR ACTION:

The Surgical Safety Checklist

Lean value streamed activities involve the hospital's previous patients in the projects in order to better enhance patient satisfaction. The reason for action, in this instance, was the identified need to reduce post-operative delirium and enhance patient satisfaction. Learning more, through anecdotal patient experiences in the operating room (OR), revealed that taking one patient's glasses from her made her so distracted that she wasn't able to focus on the surgical team's discussion of her care during the surgical safety checklist conducted prior to her surgery.

The team was also made aware, anecdotally, that patients are generally reluctant to speak without their dentures. In the Post Anesthesia Recovery Room (PARR), patients who were self-conscious without their dentures would be seen to cover their mouths with sheets/blankets and actually experience desaturations. It became clear that ensuring access to one's sensory devices was imperative to truly inclusive patient discourse, surgery, and recovery.

The World Health Organization developed the Surgical Safety Checklist in 2007.[3] A synopsis of the benefits includes cost-savings, creating a culture of safety and improving communication.[3] St. Boniface Hospital was the first center in Winnipeg to adopt the Surgical Safety Checklist in February 2009.[4] Incredible progress has been made in recent years, within the Winnipeg Regional Health Authority, to complete Surgical Safety Checklist Briefings with the patient awake and coherent.

It seemed to only make sense to ensure that the surgical patient is also able to effectively participate within this briefing using their full vision and hearing and when they are comfortable speaking. It has, in the past, been the norm of pre-operative units to ask the patients to leave their glasses, hearing aids, and dentures with the rest of their belongings to go with the family or to their post-operative unit.

In order to provide truly holistic care, and involve the patient in the surgical process, it is imperative that the patients are able to interact and communicate to the fullest of their ability with their sensory devices during the time of the surgical safety checklist discussion.

Post-Operative Delirium

Surgical patients with sensory impairments are at higher risk of developing post-op delirium when they do not have their sensory device(s), such as glasses and hearing aids.[4] Todd et al noted that

"Interdisciplinary plan of care for delirium guides nursing care and evidence-based interventions for patients such as the application of sensory devices (glasses, hearing aids, dentures)."[5] The American Geriatrics Society reiterates the same concept that devices used for sensory enhancement can reduce the risks of post-operative delirum.[6] With an aging patient population there are more individuals vulnerable to these associated surgical risks:

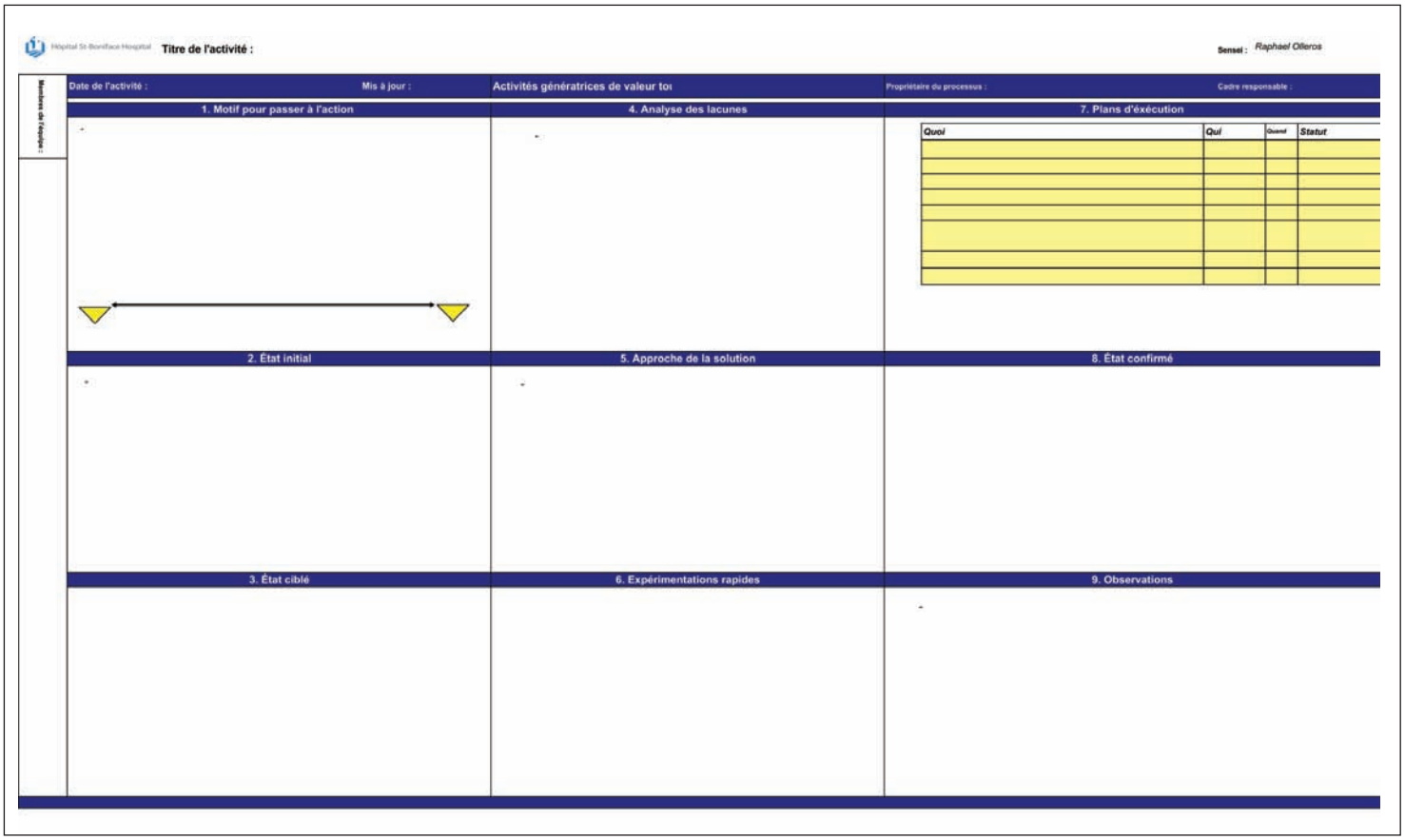
> "The longevity of the elderly has increased over recent years because of better medical care and living conditions. However, anaesthetic complications in elderly still mount a considerable challenge to the attending anaesthesiologist. Delirium is one of the common post-operative complications in elderly patients associated with increased morbidity and mortality. It may result in prolonged hospital stay, additional investigations and increased cost of treatment" (Vijayakumar, 2014).[7]

Vijayakumar noted that "providing access to glasses and hearing aids can largely help in communication and maintenance of nurse to patient or doctor to patient rapport…"[7] One of the non-pharmacological strategies to minimize the patient's risk of developing post-operative delirium is to ensure they are oriented to time and space and are able to effectively sense and communicate with others in the PARR after surgery. Ensuring patients have the ability to communicate fully, and effectively, with healthcare professionals assists in providing quality, client-focused care.

THE A3 PROJECT:

An A3 is a structured problem-solving process, usually performed collaboratively, and often captured and shared on a single sheet of A3 (11" x

Appendix A: A3 Framework[1]



The team decided to place all appliances in a transparent sealable plastic bag that would stay with the patient from time of pre-op (ward, pre-op holding, ER etc.) until the patient returned to the ward.

17") paper (see Appendix A). The left side of the paper is used to identify the reason for action, initial state, and target state and is considered the most important part of the initial process. The middle portion discusses points on the gap analysis, solution approach, and rapid experiments. Lastly, the right side of the paper documents the completion phase, confirmed state, and insights.

For this project it was documented that, in the initial state, patients had been going to the OR stripped of their sensory devices. There was, at times, a delay of up to eight hours post-operatively before the sensory appliance(s) were returned to the patient. This delay could cause fear, confusion, anxiety, and increased risk of delirium in the perioperative phase. The defined target state was for the patient to have increased accessibility to their sensory appliance(s), for as long as possible, during the surgical process.

Noted challenges to address included any lack of documentation regarding where the sensory appliance(s) were located (whether with family or on unit), a lack of consistent ways to store sensory devices near the patient (given to family, locked up, in security, at home), as well as a lack of consistent standardized procedures between wards (one ward locks up while another will put devices with belongings). As a result, sensory devices risked being misplaced or unavailable to the patient when needed most. Moving forward with the change would require standardization of the process and the creation of proper documentation.

SOLUTION AND APPROACH:

Lean projects are often completed using the tool of an RIE which is meant to expedite the pace of the change by having in-depth project planning for five days. An RIE incorporates staff from several areas of the organization and uses fast change implementation to remedy situations. For this process staff from the OR, recovery room, and pre- and post-operative units were included to gain input from all areas that directly manage a patient's sensory appliance(s). Expectations were clearly laid out indicating that participants were to keep an open mind, be prepared to brainstorm and think "outside of the box" in order to develop and implement solutions, remain focused and "stay on task", and to be ready to coach their colleagues after the five-day RIE was complete.

The brainstorming focused on creating ways to enable patients to keep glasses, hearing aids and dentures as they travelled through to the OR and to devise a way to ensure that the patients' sensory appliance(s) could be returned as quickly as possible after surgery. Proposed adjustments were made to the pre-operative checklist as well as clarification of the process for documenting the location of the sensory appliance(s).

APPLICATION TO PRACTICE:

Centres that are considering implementing such a change in process might consider the way this centre addressed logistical challenges prior to starting the process for change.

The team decided to place all appliances in a transparent sealable plastic bag that would stay with the patient from time of pre-op (ward, pre-op holding, ER etc.) until the patient returned to the ward. On the first day, two different sized bags were trialed – a specimen bag and a large sealable plastic bag. The location of the sensory device(s) was documented on the pre-op checklist and the devices were sent to the OR on, or with, the patient.

The results on day one showed that all devices were successfully either left on the patient or returned to the patient in the post-anesthesia recovery room. It was, however, identified that there was a need to label all sensory devices separately as well as the bag with the patient's addressographed sticker to minimize the risk of loss or misplacement with other patient's items. It was also noted that the clear bags could be easily misplaced or go unnoticed. As such a subsequent trial included using a brightly colored transparent bag or a specimen bag with a simple checklist on red paper so as to easily identify what sensory devices were with the patient and needed to go in to the bag.

On day two of the trial all sensory devices were labeled and identified on the simple red checklist located on the front of the bag. The locations of

Appendix B: PDSA Framework[1]

Version Date: **PDSA Worksheet** **Owner:**

Aim:

1. Plan	2. Do
4. Adjust	3. Study

Hôpital St-Boniface Hospital

sensory devices continued to be documented on the pre-op checklist. The results on day two showed that the red paper in the bag made it very noticeable that it contained the patient's belongings. This expedited the staff's ability to ensure some patients in post-anesthesia recovery room had their glasses on and the bags were at the bedside with the chart. Documentation was on the pre-op checklist and in the post-anesthesia recovery room notes, and the OR notes indicated there were "appliances with patient."

After the intial trial days, small clear bins were installed, within each OR, near the patients exit and the nurses' desk. This space allowed for safe storage of sensory devices during the operation and minimized clutter on the nurses' desk.

The analysis of the PDSA cycles revealed that the target of continuing this change was reached at 30 days and was sustained at 90 days and beyond. As of the time of this writing, in early 2017, this process change has been sustained (since initiated in 2011) and has become a normal and standardized part of the processes to improve the provision of quality care to our surgical patients.

TEAM APPROACH:

In order to facilitate this change it was essential to involve staff from various departments, and at all levels, in the RIE process. The team approach included the consultations and involvement outlined below.

Consultation was necessary with the hospital's Purchasing Department regarding acquiring the right size and colour of bags. A minor addition to the pre-op checklist was completed and this change was incorporated into face-to-face reporting as well. Infection Prevention and Control was consulted for advice regarding any risk to the patient.

Staff members within the surgical program were coached regarding the changes, rationale and benefits for patients. The input and feedback from the preoperative and OR nurses and direct care had a vital role in ensuring the success, and longevity, of the change. Coaching of Program Team Managers, Directors in Cardiac Sciences and Medicine and Emergency Department, as well as various Continuing Education Instructors, occurred throughout the hospital.

Direct care nurses and health care aids were educated and the standard work sheet, and sensory device bags, and red checklists were distributed across the various units. Clear, bold signage was posted in pre-op areas, PARR, and the OR reminding staff that "glasses and hearing aids will be worn by patients into the OR and will be removed after the briefing of the surgical safety checklist." Education occurred through staff in-services, super users training sessions, and coaching colleagues. Throughout all of these approaches the staff was encouraged to provide open and honest feedback.

OBSERVATIONS:

Staff seemed, generally, to be receptive to the changes and to understand that these changes made a lot of sense for the patient's mental well-being as well as for improved pre- and post-operative care. As this change affected many areas within the hospital, it was important to include all departments in the coaching process.

During the 2 days of trial several patients had glasses, hearing aids, and/or dentures returned to their use during their post anesthesia recovery room stay, which would not have been the case prior to the RIE change. Based on average schedules in this hospital it is estimated that a minimum of 20 patients would have been involved in this 2-day trial.

Today, for both general anesthesia or cases requiring sedation, sensory devices are consistently being kept with the patient throughout the entire surgical process and are being returned promptly once patient is awake and alert following surgery.

Engaging direct care staff in rapid improvement events is integral to ensuring that the improvement will be sustained and accepted as a normalized practice.

CONCLUSION:

Quality care, better integration of patient involvement, and potential reduction of post-operative delirium are key reasons to implement a change to allow patients to keep sensory devices with them during their surgical experience. Recognizing the patient's perspective and needs within this surgical journey is key to improving their care and experience including their involvement in the surgical safety checklist process.

Engaging direct care staff in rapid improvement events is integral to ensuring that the improvement will be sustained and accepted as a normalized practice. An in-depth analysis of St. Boniface Hospital's transformation process reveals how change management frameworks can guide change and foster the success of the project. The St. Boniface Hospital Lean Transformation tools provided a strategy for organizational change, planning, and improving the patient's perioperative experience.

REFERENCES:

1. St. Boniface Hospital. Transformation. (Internet). 2014 (accessed October 2016). Available from http://www.sbgh.mb.ca/aboutUs/transform.html

2. Tetrault, M. Better care starts at the top (Internet). 2013 (accessed October 2016) Available from http://www.sbgh.mb.ca/aboutus/files/leanarticle2013.pdf

3. World Health Organization. Patient Safety: Safe Surgery Saves Lives Frequently Asked Questions (Internet). 2016 (accessed October 2016). Available from http://www.who.int/patientsafety/safesurgery/faq_introduction/en/#Q0

4. St. Boniface Hospital. Clinical Care Programs: Surgery (Internet). 2014 (accessed October 2016). Available from http://www.sbgh.mb.ca/patientcare/surgery.html

5. Todd, K. S., Barry, J., Hoppough, S., & McConnell, E. Delirium detection and improved delirium management in older patients hospitalized for hip fracture International journal of orthopedic and trauma nursing (Internet).2015 (accessed October 2016) 19(4), 214-221. Available from https://www.ncbi.nlm.nih.gov/pubmed/26547684

6. Postoperative Delirium in Older Adults: Best Practice Statement from the American Geriatrics Society. American Geriatrics Society; 2014 (accessed 2017 January) Available from http://www.sciencedirect.com/science/article/pii/S1072751514017931

7. Vijayakumar, B., Elango, P., & Ganessan, R. Post-operative delirium in elderly patients. Indian Journal of Anaesthesia (Internet). 2014 (accessed October 2016) 58(3), 251. Available from http://go.galegroup.com.uml.idm.oclc.org/ps/i.do?id=GALE%7CA372912889&v=2.1&u=univmanitoba&it=r&p=HRCA&sw=w&asid=69cc969023c4096c6b2366d586b9098e

ORNAC Standards pertaining to this article can be found in the Operating Room Nurses Association of Canada (ORNAC) (October 2015). Section 1, p.39 -40, Standards 1.1.6, 1.1.7, 1.1.8, and 1.2.16; Section 2, p.42, Standards 2.3.8 and 2.4.3; Section 3, p.176, Standards 3.1.14 and 3.1.17; Section 4, p. 46, Standards 4.4.5 and 4.5.4; Section 5, p.47-48, Standards 5.1, 5.2, 5.3 and 5.4