Use of Lean and CAHPS Surgical Care Survey to Improve Patients’ Experiences with Surgical Care

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Abstract

Objectives. (1) Measure patients’ experiences with surgical care using the Consumer Assessment of Healthcare Providers and Systems (CAHPS) Surgical Care Survey. (2) Use lean thinking to analyze and improve quality of patient care.

Study Design. A prospective quality improvement study.

Setting. Hospital-based otolaryngology clinic.

Subjects and Methods. The CAHPS Surgical Care Survey was distributed to 17 surgical patients to determine their perception of the current state of care. Survey results were analyzed with lean thinking, and changes were made to improve critical areas. A second set of surveys was distributed to 10 patients to assess the success of the interventions immediately and 2 months later. The data were analyzed with the Mann-Whitney U test.

Results. Seventeen patients completed the CAHPS Surgical Care Survey to determine the initial state. A3 Thinking was used to analyze the results and design an improvement. Overall positive patient experience was 57% at the postoperative visit with 3 key aspects of care: time spent during visit, encouragement to ask questions, show of respect to the patient. Two causes were postulated; then, solution approaches were developed and tested in a series of rapid experiments. Two groups of 10 patients completed the CAHPS Surgical Care Survey to determine the postintervention state. Overall positive patient experience significantly improved to 93% (U = 474, P < .001) and 83% (U = 546, P = .009) immediately and 2 months later, respectively.

Conclusion. Lean thinking helps to eliminate defects by breaking down complex problem solving into a scientific process. When combined with the CAHPS Surgical Care Survey, it can be successfully used to improve patients’ surgical experiences.

Keywords

quality improvement, CAHPS, lean, A3 Thinking, surgical care
inches). This concept exemplifies the simple, concise structure that this methodology employs. We hope to show that with A3 Thinking, the results of the S-CAHPS can be easily and quickly improved on.

Methods
A prospective QI study on adult surgical patients was performed in an outpatient clinic of a teaching hospital between November 2013 and March 2014. Resident surgeons were involved as health care providers in the clinic under the direct supervision of an attending otolaryngologist. The study was deemed exempt by the Institutional Review Board of the Icahn School of Medicine at Mount Sinai. All patients who had undergone elective surgery were given the opportunity to fill out the survey during the study period. Patients’ perception of their care was assessed with the S-CAHPS at 3 time points: at baseline, immediately after implementation of the A3 Thinking changes, and 2 months after the initiation of changes. The surveys were filled out anonymously in the clinic after the patients’ final postoperative visits. The health care providers were not blinded regarding which patients received the survey.

The S-CAHPS is a publicly available tool and can be accessed at the website of the Agency for Healthcare Research and Quality. The survey consists of 45 items: 12 about the care before surgery, 11 about care during surgery, 9 about care after surgery, 2 about office staff during visits, 1 rating the surgeon, and 9 “about you” items. There are English and Spanish versions of the survey, and each was used, depending on the patient’s preferred language. The survey wording was modified slightly to better apply to our clinic, in which patients may see different providers before, during, and after the surgery. Therefore, the word “surgeon” in each question was replaced with either “healthcare provider in the ENT [ear, nose, and throat] clinic” or “ENT surgical team.” Also, the section regarding anesthesiology was removed to focus on the patients’ experiences with the otolaryngology staff. The “about you” section was also removed to make the survey anonymous.

After the S-CAHPS was completed at baseline, A3 Thinking was used to analyze the results and strategize on how to improve the patient experience. A work group consisting of all health care providers involved in the care of the patients was assembled to undergo the A3 Thinking process. This consisted of otolaryngology residents at all levels of training, physician assistants, and an attending otolaryngologist. The first step in A3 Thinking was to determine the “reason for action,” or to define the problem. The area with the lowest patient experience scores on the S-CAHPS was targeted for improvement. The second step was to determine the current state. In this step, the specific baseline S-CAHPS results were outlined. The percentage of times that the positive, “yes, definitely” answer was provided was assessed. The third step was to define the target state. Our goal was to reach a certain percentage of “yes, definitely” answers on specific questions in the S-CAHPS. The fourth step was to do a gap analysis, where the cause of the problem was identified. We performed the gap analysis by answering “why” questions until the group reached the cause of the issue. The fifth and sixth steps were to identify solutions and perform rapid experiments with them. The seventh-through-ninth steps were to develop a completion plan for any outstanding changes that needed to be made, determine the final confirmed state, and detail our insights from the project. The confirmed state was determined by having patients complete the S-CAHPS 2 months later.

For each of 3 questions (see below), percentages of “yes, definitely” answers were compared per time point (eg, “yes, definitely” for question 1 at preintervention vs immediately postintervention vs 2 months postintervention). “Yes, definitely” answers from all 3 questions were then combined per time point for comparison (ie, “yes, definitely” for all 3 questions at preintervention vs immediately postintervention vs 2 months postintervention). Analysis of the results was performed using SPSS 22.0 (IBM, Chicago, Illinois). The Mann-Whitney U test was used to compare the pre- and postintervention results of S-CAHPS and a value of P < .05 was used to determine significance.

Results
The S-CAHPS was completed by 17 patients at the beginning of the project to determine the initial state. The results showed that patient satisfaction was lowest during the postoperative visits. Specifically, the survey responses showed lowest scores for the following questions:

**Question 1:** After your surgery, did the health care provider in the ENT clinic spend enough time with you?
**Question 2:** After your surgery, did the health care provider in the ENT clinic encourage you to ask questions?
**Question 3:** After your surgery, did the health care provider in the ENT clinic show respect for what you had to say?

Therefore, the “reason for action” was determined: to improve the patients’ postoperative experience.

The 3 possible answer choices for these questions were “yes, definitely,” “yes, somewhat,” and “no.” In the initial state, 53% of patients felt that the health care provider “yes, definitely” spent enough time in the visit; 53% felt that they were “yes, definitely” encouraged to ask questions; and 67% of patients felt that the health care provider “yes, definitely” showed respect for what they had to say.

The work group determined that the target state would be >80% of patients answering “yes, definitely” to the 3 aforementioned questions. Gap analysis was performed, which determined that the causes of the problem included the following:

- Postoperative patients were not being seen by the same resident surgeon who was involved in the pre- and intraoperative care of the patient. Often, the
resident involved in the surgery would be unavailable to see the patient postoperatively because the resident would be in the operating room on the day of the patient’s postoperative visit.

- The health care providers in the clinic were not systematically addressing all possible postoperative issues.

The following solutions were established:

- Postoperative appointments were scheduled with the resident who participated in the procedure.
- The most common postoperative issues were determined, and residents were instructed to systematically touch on all of these issues with the patient at the postoperative visit.
- A list of standardized questions that needed to be addressed during the postoperative visit was placed in each clinic room to remind the health care provider to address all the common postoperative issues.

Over the course of 2 weeks, the following rapid experiments were conducted according to the proposed solutions:

- All postoperative visits were scheduled on Thursday afternoons, the one day of the week when all residents would be present in the clinic. Therefore, patients would be able to follow up with the specific resident who was involved in their surgery.
- A list of standardized questions that needed to be addressed during the postoperative visit was placed in each clinic room to remind the health care provider to address all the common postoperative issues.

After the rapid experiments were carried out over a course of 2 weeks, patient experience was reassessed with 10 patients completing the S-CAHPS. Ninety percent of patients felt that the health care provider “yes, definitely” spent enough time in the visit, which was significantly improved as compared with preintervention ($U = 52, P = .046$); 90% felt that they were “yes, definitely” encouraged to ask questions, which was significantly improved as compared with preintervention ($U = 51, P = .044$); 100% felt that the health care provider “yes, definitely” showed respect for what they had to say, which was also significantly improved as compared with preintervention ($U = 55, P = .038$). Given the improvement seen on the immediate postintervention survey results, the changes made in the clinic were kept in place. A postintervention survey was then conducted of 10 patients at 2 months after initiation of the changes. At that time, 70% of patients felt that the health care provider “yes, definitely” spent enough time in the visit, which was not significantly different versus preintervention ($U = 74, P = .531$); 80% felt that they were “yes, definitely” encouraged to ask questions, which was not significantly different versus preintervention ($U = 55, P = .070$); 100% felt that the health care provider “yes, definitely” showed respect for what they had to say, which was significantly improved versus preintervention ($U = 55, P = .038$). These results are shown in Figure 1.

The overall results—preintervention, immediately postintervention, and 2 months postintervention—were compared with the Mann-Whitney $U$ test. The overall positive patient experience improved from 57% answering “yes, definitely” preintervention to 93% immediately postintervention ($U = 474, P < .001$), which was a statistically significant difference. At 2 months postintervention, the overall positive patient experience was 83% ($U = 546, P = .009$), which was also a statistically significantly difference when compared with preintervention. These results are shown in Figure 2.

Figure 3 summarizes the A3 Thinking that took place for this project. Each step of the process is detailed.

Discussion

Our study showed that the S-CAHPS can be successfully integrated with A3 Thinking to develop an effective QI project in a surgical practice. S-CAHPS allowed us to identify aspects of our patients’ experience that needed improvement and, in turn, to assess the effectiveness of our project. We found that there was significant improvement in all 3 target quality measures immediately after A3 Thinking was applied. However, sustaining these results over time was challenging, and although the composite result was significantly improved at 2 months, improvement was sustained in
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1. Reason for Action

Patient experience more negative for post-op visit than pre-op visit.

4. Gap Analysis

Patients seen by resident who did not do the procedure. Not systematically addressing all possible post-op issues.

7. Completion Plans

Perform rapid experiments over course of 2 weeks and reassess patient satisfaction with S-CAHPS survey.

2. Initial State

S-CAHPS results: 54-64% felt physicians definitely spent enough time, encouraged questions, and showed respect on the post-op visit.

5. Solution Approach

Schedule patients to see resident who did the procedure. Determine all common post-op issues that should be addressed and have residents touch upon all these issues with the patient on their post op visit.

8. Confirmed State

S-CAHPS results 2 months post completion

3. Target State

S-CAHPS results: >80% patients feel that physicians “yes, definitely” spend enough time, encourage questions, and show respect on the post-op visit.

6. Rapid Experiments

Change post op day from Friday to Thursday afternoons. A list of post-op questions is to be placed in each clinic room to remind residents to address all common post op issues.

9. Insight

Patients benefit from seeing the same resident who did the procedure and require reinforcement of post-op instructions. Sustaining improvements often requires repeated cycles of assessment and change.

Figure 3. Outline of the A3 Thinking process as applied to our quality improvement project via the S-CAHPS. S-CAHPS, Consumer Assessment of Healthcare Providers and Systems Surgical Care Survey.

only 1 of 3 individual measures. Only 70% of patients felt that the health care provider “yes, definitely” spent enough time in the visit, as compared with 90% immediately after the QI project was implemented. In addition, only 80% of patients felt that they were “yes, definitely” encouraged to ask questions at 2 months, as compared with 90% immediately after intervention.

Several limitations of the study could have contributed to these results. First, we sampled a small number of patients with the S-CAHPS, so our sample size may not have been adequate to detect a significant difference in the results. Second, the health care providers consisted of residents in various levels of training. This could have led to variability in the data at the different time points that was due to the skill level of the resident rather than the actual efficacy of the project interventions. Third, the health care providers were not blinded and knew that the surveys were being distributed to their patients. This could have influenced their behavior during the period when the project was being actively worked on and when the immediate postintervention surveys were being distributed. Their behavior could then have returned to baseline after the surveys were no longer distributed. This may be why the survey results were weaker at 2 months than immediately after implementation of the QI project.

In general, to maintain improvements made in a QI project, continuous reassessment should be applied. This concept, known as continuous QI, states that to sustain improvements, a system or organization needs to be committed to constantly improving processes and operations in an effective and efficient manner. Every process in the care of patient should be continually evaluated and improved on. In our case, to have sustainable results, the A3 Thinking process needs be cyclical, similar to the plan-do-study-act cycle. Future work could include quarterly evaluation of the patient experience with the S-CAHPS, followed by A3 Thinking to analyze the results.

The feasibility of integrating the S-CAHPS into the otolaryngology practice has been assessed in prior studies and shows great promise. The study by Shulz et al showed that the S-CAHPS was successfully collected in 3 of 4 outpatient clinic practices through an electronic data capture system that did not require the involvement of the surgeons. The authors suggested that the S-CAHPS is a good tool from which to develop QI projects and that it was able to highlight priority areas to improve surgeon-patient rapport. Lenherr et al showed that the S-CAHPS was also easy to apply to urology practices. Interestingly, their study suggested that a better patient experience with the surgeon is more influenced by postoperative communication and information than by preoperative counseling. This finding dovetails with our study, in which we found postoperative care to be the area of lowest patient satisfaction. It may be that postoperative communication is neglected when compared with preoperative counseling because of the inherent bias of the surgeon. Otolaryngologists are taught as surgeons to develop a good rapport with the patient at the initial visit and to cover all surgical risks, benefits, and alternatives thoroughly. However, postoperatively,
especially in this era of “global periods,” physicians may be giving the patient the impression that they are rushing them out the door.

Despite the limitations of this study, we successfully showed how the step-by-step scientific process of A3 Thinking can provide not only a deeper understanding of how a system works but also effective solutions. By including individuals involved in all levels of patient care in the process, undergoing A3 Thinking may also improve satisfaction among the staff. For example, a study by Collar et al, which successfully decreased turnover time in the operating room, showed that morale among staff members improved by doing such a QI project.12 As patient experience data become increasingly important in health care, we are given another reason to develop sustainable QI projects to improve our quality of care. We have shown in our study that A3 Thinking can be easily and successfully applied to an outpatient otolaryngology practice. In a short time frame (3 months), we were able to improve our S-CAHPS results dramatically. However, sustaining such results poses a challenge, and continued reassessment is necessary to maintain any progress that is made.

Author Contributions
Nancy Jiang, collected data, analyzed and interpreted data, wrote article; Benjamin D. Malkin, designed study, revised article.

Disclosures
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