



Use of text messaging to improve patient experience and communication with pediatric tonsillectomy patients

Laurie Newton*, Cecille Sulman

Children's Hospital of Wisconsin / Medical College of Wisconsin – Milwaukee, 8915 W. Cornell Ct., Milwaukee, WI, 53226, USA



ARTICLE INFO

Keywords:
Pediatric
Tonsillectomy
Technology
Text messaging
Patient experience

ABSTRACT

Objectives: The aims of this quality improvement project were to develop a text messaging service to deliver messages to pediatric tonsillectomy patients to improve communication and overall experience.

Method: Text messages were developed to deliver important information and reminders both preoperatively and postoperatively to pediatric tonsillectomy patients. After success with a small pilot program of five patients, a sample of 85 patients who underwent tonsillectomy participated in the program.

Results: Similar to the pilot program, the larger sample size had no canceled procedures and no visits to the emergency department. Approximately 25% of the participants called the ENT clinic nurse line for a question or concern postoperatively. The majority of phone calls were for concerns with pain or pain medications. Parental survey results were positive with respect to the value and overall helpfulness of the text messages. Respondents found the information useful, easy to understand, and it also helped reduce anxiety or level of worry during and after the surgery. Respondents all felt that the number of messages was just right.

Conclusion: With the explosion of technology and smartphone use, text messaging is an innovative way to provide patient/family education for surgical procedures such as tonsillectomy.

1. Introduction

Tonsillectomy is a common surgery performed across the country, with estimates of 530,000 procedures performed in patients younger than 15 years of age annually [1]. At a large pediatric academic medical center in the Midwest, over 1500 of these cases were performed in the last year. While there are clear benefits to this surgery, there can be complications during the postoperative period, including excessive throat pain, bleeding, nausea/vomiting, and poor oral intake, to name a few [1]. After this surgery, parents and caregivers must be educated about the expected postoperative course, possible complications, and how to care for their child at home. Because it is such a high volume surgery that may carry significant morbidity, many quality improvement efforts have focused on this patient population at our institution over the last few years. A few of these include revision of teaching sheets, standardization of postoperative order sets, a trial of postoperative phone calls, development of a tonsillectomy discharge tool which clearly delineates discharge goals, and health literacy work, including integration of “teach-back” principles into all discharges. While each of these initiatives in and of themselves were effective in some manner, none of these efforts focused on integrating technology into the improvement efforts. A small pilot program was developed that texted

families pre-and post-operatively; feedback suggested this was an effective and helpful method to communicate with and provide education to families. This follow up quality improvement project aimed to implement this on a larger scale with the goal of providing overall improved communication and patient experience.

1.1. Background

With the explosion of technology in recent years, it seems obvious that this should be embraced within medical practice. In 2014, 90% of Americans owned a cell phone and 64% of these were smart phones [2]. Additionally, text messages are a low cost way to communicate asynchronous messages through cell phones and is increasing in popularity [3]. In 2015, it was reported that over 6 billion text messages were sent in the US daily and 80% of American adults text [3]. A recent survey found that those who are poor and less educated are more likely to use texting, and send an overall higher number of texts on a daily basis [4]. Text messaging is therefore a powerful method to communicate with people of all backgrounds, regardless of education or socioeconomic status. Further, this is not only for personal use; businesses are using these for appointment reminders (both in healthcare and in non-healthcare fields) as well as for health and wellness, including disease

* Corresponding author.

E-mail addresses: newton@mcw.edu (L. Newton), csulman@mcw.edu (C. Sulman).

management and promoting self-care at home.

Several recent studies in the medical literature have looked at using text messages in differing capacities. Mobile phone smoking cessation interventions were found to be beneficial on six-month cessation outcomes [5]. Similarly, mobile text messaging was effective in enhancing adherence to antiretroviral therapy for patients with HIV infection [6], reducing parental anxiety during posterior spinal fusion for adolescent scoliosis patients [7], and improving medication adherence and reducing rejection episodes in liver transplant recipients [8]. Weems and colleagues [9] also recently evaluated mobile use and communication preferences in a population of minority NICU mothers; their survey found that receiving electronic messages about their babies was viewed favorably, and text messaging was the preferred route. These mothers also felt that electronic messaging would improve communication but should add to and not replace verbal communication [9].

More specific to pediatric otolaryngology, two recent articles were written on the use of text messaging with pediatric tonsillectomy patients. One study compared the effectiveness of providing caregivers with information on tonsillectomy care by smartphone text messaging versus conventional methods; the authors found that the text messages were effective in increasing mother's knowledge and reducing children's anxiety [10]. Additionally, text messages were used by another group as a way to obtain real-time feedback of pain severity in children following tonsillectomy for a 2-week period [11].

There are several reasons why a texting tool to walk patients and families through their surgical procedure is helpful. Parents often forget important pieces of information and are worried when they aren't sure what to do. Procedures may get canceled if parents do not follow instructions, for example, NPO instructions. Also, if parents have a poor understanding of how to care for their child after surgery or simply forgot what they were told, there may be unnecessary postoperative phone calls and or emergency department (ED) or urgent care visits. Texting is also another way to connect with patients and families during the postoperative period following tonsillectomy.

The aims of this quality improvement project were to develop a text messaging service to deliver messages to pediatric tonsillectomy patients to improve communication and overall experience.

2. Methods

A "Patient Journey" application was developed for tonsillectomy patients. This contains timely information and reminders sent out via SMS/email. This has the capability to include preoperative, intraoperative, and postoperative messages. Since tonsillectomy is a relatively brief procedure, the decision was made to not send out any messages intraoperatively. A private vendor was selected by this institution to run the program.

Text messages were designed to provide education and information for parents and caregivers of tonsillectomy patients during the preoperative and postoperative period. The content of the messages was created with feedback from a team of otolaryngology physicians, nurse practitioners, and nursing staff. The messages start 14 days before surgery and finish 9 days after surgery; the end date was selected as the team felt that most patients were nearing the end of recovery around that time period. Fig. 1 depicts the flowsheet of text messages that families receive during the program. Several of the text messages contain hyperlinks embedded within the message; these links direct the user to video clips that provide further information on specific topics. The text messages are standardized and not customized for individual patients.

A previously documented texting pilot program was initially developed with the above text messages. Five families participated in the pilot program. While a small pilot, the most important findings were no emergency department visits or phone calls to the ENT clinic postoperatively and there were no canceled procedures. Participants in the pilot were surveyed regarding the entire texting process, including their ability to link to videos and the overall helpfulness of the texts and

videos in assisting them to care for their child. Table 1 lists the survey questions participants answered. The majority of survey responses were "strongly agree" to questions of the text messages being helpful, easy to understand, and reducing preoperative and recovery anxiety. Additionally, all respondents noted that the number of texts received was "just right." [12].

With the success of the pilot program, a larger scale roll out of this program was developed. Knowing the high volume of this surgery, messages needed to become automated. In working with a multidisciplinary team from communications and marketing, the tonsillectomy patient journey messages were fully integrated with the electronic medical record (EMR) at the institution. Eligible procedures are automatically assigned to enrolled patients. The procedure date/time/location are pulled from the EMR. Any rescheduled procedures are automatically detected and updated.

All patients scheduled for tonsillectomy are offered the patient journey during the consultation clinic visit. A confirmation text is generated to start the process and then the series of messages begins 2 weeks prior to the surgery. For this project, all surgeons in the practice participated, thus the sample size included patients from all 10 of the providers. The majority of surgeons in this group use electrocautery for tonsillectomy, however there is some variation in technique. Eighty-five consecutive patients who participated were reviewed for this project through the selected vendor's database.

3. Results

A sample of 85 patients who participated in the program were reviewed. Similar to the pilot program, with the larger sample size there were still no canceled procedures and no visits to the ED. Approximately 25% of patients who received the text messages still called the ENT clinic nurse line for a question or concern.

Fig. 2 shows the reasons for the postoperative phone calls to our office. The majority of phone calls were for concerns with pain medications. Questions included how to wean pain medicine, concerns for side effects on the medication, and concerns about ear pain or headache. Smaller percentages called for general anticipatory guidance for postoperative care, concerns for possible oral infection or thrush, poor oral intake or nausea/vomiting, and two of the patients called for a small amount of bleeding (no further intervention was necessary).

All patients were sent a link to a survey after the last text message was sent; survey questions were identical to those sent in the pilot program, which were delivered with Likert scale response options. Survey results again speak to the value and overall helpfulness of the text messages. Respondents found the information useful, easy to understand, and it also helped reduce anxiety or level of worry during and after the surgery. Respondents all felt that the number of messages received was "just right."

4. Discussion

After success with a small pilot program, this institution was able to successfully implement a large-scale implementation of a formal texting application to walk patients and families through the journey of tonsillectomy. Because this surgery is often an outpatient procedure or patients are observed as a short stay for an overnight period only, providers strive to make sure that families are educated on the postoperative course and how to care for their child at home. The texting application is a unique and innovative way to provide information to families about commonly asked questions and concerns.

The goals of the project were to improve communication and overall patient experience. Our findings from the chart review described above clearly meet this goal. Canceled procedures, particularly because of NPO violations, have been a long-time struggle for many operative procedures at our institution. Attempts to educate families on this have included verbal instruction, written teaching materials and a reminder

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