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Informing Family About Patient Trajectory During Surgery: Design and Preliminary Evaluation

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Abstract. The patient empowerment movement has highlighted the importance of providing information to the patients to improve care outcome. However, relatives of patients are not yet taken into consideration. This is especially problematic during surgeries since families are often left without real-time information about the trajectory of the patient, inducing worries. Based on this observation we have developed the SMS-Chir solution that connects our surgery service management system with the automatic sending of SMS at key moments in order to inform families about the progression of the surgery. The system has been conceived thanks to the results of a focus group involving four experts. The evaluation was done by monitoring the use of the system over time and by sending questionnaires after intervention. Results analysis shows a limited use of the system but a high satisfaction of the beneficiaries. This study highlights the importance of managerial factors (resistance to change) in order to onboard the necessary stakeholders in the process.

Keywords. Surgery, Patient empowerment, Communication

1. Introduction

The healthcare system is becoming ever more patient-focused, with an increasing emphasis on patient empowerment. Patient empowerment is a concept that encompasses the ability of individuals to take control of their own health, to make informed decisions, and to actively contribute to their healthcare management. This trend, towards patient empowerment, is driven by the benefits it offers, such as improved health outcomes, better use of healthcare resources, and more personalized healthcare. However, there is a lack of attention to the needs of family members of patients, particularly in the context of medical procedures that may induce significant anxiety and stress. This is especially true for surgeries, which can be a highly stressful and anxiety-provoking experience for family members due to the lack of information about the patient's trajectory, from preoperative assessment to postoperative recovery. As a result, when no information is provided, families tend to harass caregivers to obtain information about the progression of the surgery. The request for information do not only interrupt frequently caregivers

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but also creates additional frustration each time caregivers do not have information to provide.

In response to this issue, a new system has been designed to address the lack of communication between healthcare professionals and family members [1]. This system consists of textual messages sent automatically to the family member's mobile phone at predetermined moments of the patient's care trajectory, such as preoperative assessment with anesthesiologists, admission to the operating theater and postoperative recovery [2]. The messages provide an update on the patient's progress and enable the family member to stay informed. This system has the potential to improve the experience of family members of patients undergoing a surgery and to reduce their levels of anxiety and stress [3].

The aim of this article is to discuss the implementation and evaluation of this new system. We will attempt to understand the importance of providing family members with meaningful and timely information as well as whether the information provided can be a source of stress for family members.

2. Method

2.1. Need analysis

The need analysis for our study was conducted by interviewing four experts from the operating theater, surgery programming, nurse directorate and IT department during a focus group. The experts were selected based on their expertise in the design of a system aiming at informing family about the progression in surgery of a patient. The focus group was conducted in a semi-structured manner [4]. We prepared a list of questions concerning the design of the system, such as what are the relevant moments to send information? who are the eligible patient? Followed by a more general discussion around the potential challenges that could arise when implementing the system. The questions were designed to elicit the opinions of the experts and to spark discussion. The experts were given the opportunity to provide additional comments or to ask questions.

2.2. Evaluation of the system

For the evaluation we relied on a descriptive assessment of the effectiveness of the SMS system. We included as participants all family members of patients who underwent surgery at a single medical center and were willing to use the system. The data were collected through a questionnaire whose link was provided by an additional SMS automatically sent after using the system. Participants were asked to complete the survey assessing the clarity of the information, its usefulness, and the reduction of anxiety. Participation was voluntary and anonymous. We analyzed the data using descriptive statistics.

3. Results

3.1. Design of the system

During two focus group sessions, four experts from the operating theater, surgery programming, nurse directorate and IT department were brought together to discuss the solution.

One of the strong constraints identified during the focus group was the need to rely on the events already available in the system of surgical theater management. The HUG relies on the Centricity Opera software developed by GE that is used to plan as well as monitor the use of resources in operating theatre. This software allows to monitor the surgery progression based on events reported by different actors all along the care process. In total there are ten different events that are recorded in the system that can potentially trigger a message to the family. These events range from the arrival in the surgical theater to the return of the patient in the care unit. Choosing the relevant events to communicate with the family was not straightforward. Indeed, if a strong consensus was found to trigger a message at the beginning of the surgery, the discussions were livelier for the other events. Indeed, for the end of surgery it is not unlikely that the event linked to the end of surgery is not reported directly in the system because the person in charge must prepare the operating theater for the next patients and may postpone the documentation task. The consequence would be that the SMS is delayed creating anxiety for the family. Therefore, it was necessary to ensure good communication among the surgery personnel to ensure the timely report of the end of surgery event. Finally, the last SMS sent is the questionnaire to the family to evaluate the satisfaction.

The second step was to define the content of the messages to send to the family. Choosing the SMS content had to be done carefully in order to respond to two constraints, the length of the SMS and the respect of privacy. Indeed, it was necessary to keep the message short to avoid costs associated with the sending of SMS. Regarding privacy, the messages must transit through international servers therefore the information transmitted should remain anonymous. After validation by the medical director and the jurist the following messages were implemented. *Hello, we inform you that the surgery of Mr/Mrs Surname Name first letter has started at HH.mm.*

3.2. Evaluation of the system

From September 2021 to December 2022, we monitored the use of the system that was open to every patient from the thoracic surgery. 117 patients were enrolled in the system during this period which represent 15.8% of the overall eligible patients (741).

We observed that the use of the system remained limited over time, if at the start of the project the trend seemed to increase quickly, the frequency of use dropped after that and then varies over the months without increasing. On this period only 7 events were missing at the start of the surgery. Regarding the satisfaction evaluation 35 (30.8% of the participants) person replied to the satisfaction questionnaire.

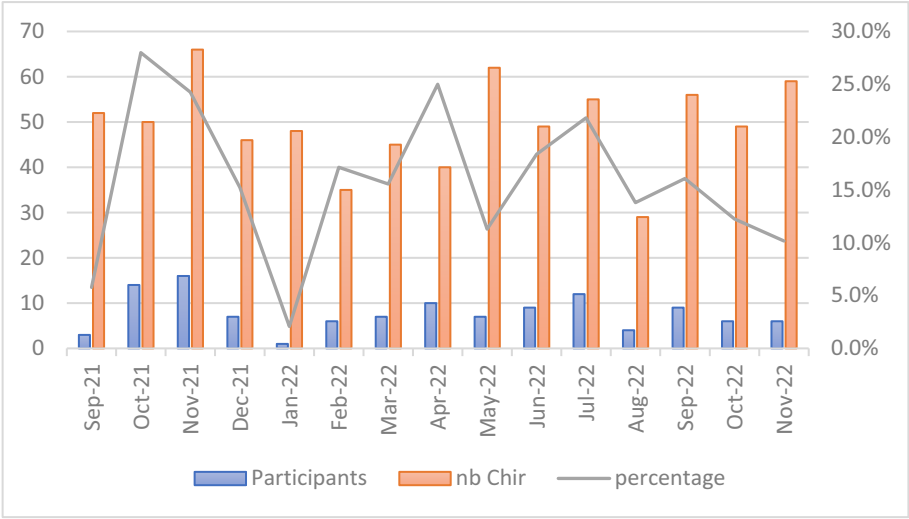

Figure 1. Use of the system between September 2021 and November 2022.

Table 1. Results of the satisfaction questionnaire

	strongly agree	Agree	disagree	Strongly disagree
Satisfaction	23 (65.7%)	11 (31.4%)	1 (2.9%)	0
Anxiety reduction	12 (34.3%)	21 (60.0%)	2 (5.7%)	0
Need for additional info	23 (65.7%)	10 (28.6%)	2 (5.7%)	0

Participants were strongly satisfied with less than 3% of the patients unsatisfied. Participants were also questioned whether they would like to receive information at additional moments of the patient trajectory. 24 (66.7%) would like to know when the patient returns to the care unit, 19 (54.3%) would like to know when the patient arrives in recovery room as well as departure from it.

4. Discussion

4.1. Managing the uncertainty

Surgery puts patients' health at risk due to many factors such as patient frailty, anesthesia, and complexity of the procedure. For patients with high risk factors there is no guarantee that the surgery will unfold as expected. It is not unlikely that complications are encountered during the surgery impacting its duration. In more severe situations, a patient may require intensive care or even die during the procedure. In such a case, it raises ethical question whether it is acceptable to automatically provide information to the family without being accompanied by explanation [5]. Thus, we recommend that caregivers should remain central in the relationship with the patient [6].

4.2. Involving stakeholder

One of the important difficulties encountered during the project is the enrollment of the family in the process. Indeed, the service must be proposed by the personnel in charge of programming surgery schedule. The employee enrolling the patient is perceived this task as an additional workload, whereas its benefits go to the caregivers in the care unit that are less disrupted by frequent requests by the families. The importance of perceived benefits has been demonstrated as an important dimension of technology acceptance. Also, another dimension that should be considered is the support from the hierarchy that must give clear instruction and objectives to the persons in charge [7].

5. Conclusion

Although patient empowerment interventions have become common in healthcare, the families of patients remain still discredited and lack of information about the situation of their relatives. This problem is particularly acute in surgery since patient's health is at risk and information to the families can be sparse, inducing a high level of stress. Following the implementation of the system, we observe that the system lead to high satisfaction confirming the findings of similar system in other contexts [1–3]. There is however an underutilization due to the resistance of surgery personnel and anesthesiologists to propose the service. This lack of motivation certainly due to misperception of the benefits can be a barrier to its full potential. Among the possible solutions, we could communicate about the benefits to the patients or to empower the patients one step further by letting them choose autonomously, through a patient portal, who are the people they want to inform.

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