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Importance of patient-centred signage and navigation guide in an orthopaedic and plastics clinic

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Abstract

Gulshan & Nanji Orthopaedic and Plastics Center at the North York General Hospital is the second busiest site after the emergency department serving more than 26,000 patients annually. Increase in patient flow, overworked staff, and recent renovations to the hospital have resulted in patients experiencing long wait times, and thusly patient dissatisfaction and stress. Several factors contribute to patient dissatisfaction and stress: i) poor and unfriendly signage; ii) inconsistent utilization of the numbering system; and iii) difficulty navigating to and from the imaging center.

A multidisciplinary QI team was assembled to improve the patient experience. We developed a questionnaire to assess patient stress levels at the baseline. Overall, more than half of the patients (54.8%) strongly agreed or agreed to having a stressful waiting experience. Subsequently, based on patient feedback and staff perspectives, we implemented two PDSA cycles. For PDSA 1, we placed a floor graphic (i.e. black tape) to assist patients in navigating from the clinic to the imaging centre and back. For PDSA 2, we involved creating a single 21”×32” patient-friendly sign at the entrance to welcome patients, with clear instructions outlining registration procedures. Surveys were re-administered to assess patient stress levels. A combination of both interventions caused a statistically significant reduction in patient stress levels based on the Kruskal-Wallis and Mann-Whitney U Tests.

The present project highlighted the importance of involving stakeholders as well as frontline staff when undertaking quality improvement projects as a way to identify bottlenecks as well as establish sustainable solutions. Additionally, the team recognized the importance of incorporating empirical based solutions and involving experts in the field to optimize results. The present project successfully implemented strategies to improve patient satisfaction and reduce stress in a high flow community clinic. These endpoints were achieved by incorporating patient friendly signage, as well as improving patient flow directors.

Problem

In all types of healthcare settings, patient satisfaction is strongly associated with their waiting experience. Many factors ranging from staff service, signage, and registration processes can affect the patient waiting experience, and resultantly patient satisfaction. Improving the patient waiting experience is of paramount importance, particularly in patients with injuries and/or fractures who have limited functional mobility. At the Gulshan & Pyarali G. Nanji Orthopaedic and Plastics Centre at the North York General Hospital (NYGH) in Toronto, Ontario, Canada, front desk staff members observed patients in stress and dissatisfied as a result of their waiting experience.

Currently, this centre operates two concurrent clinics (orthopedics and plastics) seeing follow-up patients, as well as urgent referrals of patients from the emergency department. The centre has 5 treatment rooms and a waiting area with approximately 30 seats. Although the number of patients varies throughout the day, wait times can range from 20 minutes to up to 2 hours. Furthermore, at peak times, there are often not enough seats for all patients. There is a numbering system that the clinic has implemented requiring all new arrivals to take a number and wait to be called to the front desk based on their status in the queue. However, due to unclear signage and registration instructions, this numbering system was not being utilized by all patients. Patients either lined up to talk to the staff or sat down without knowing what to do. Due to the resultant confusion and chaos, staff sporadically omitted the usage of the numbering system. Furthermore, since the clinic sees many fracture patients, these patients require imaging and are therefore sent to the imaging centre located in the hospital. Regrettably, there were no clear directions to guide patients from the clinic to the imaging centre and back. Additionally, due to the nature of the hospital, the route required to be taken to go the imaging centre was different from the route to return from it.

Therefore, in the Gulshan & Pyarali G. Nanji Orthopaedic and Plastics Centre, specific factors contributed to patient dissatisfaction and stress: i) poor and unfriendly signage; ii) inconsistent utilization of the numbering system; and iii) difficulty navigating to and from the imaging centre. Patient stress was very high, which was often expressed with anger towards the front desk staff members. Previously, clinic had placed a window shield to protect the staff members from patients who resorted to violence.

Background

North York General Hospital (NYGH) is a community teaching hospital based in Toronto, Ontario. Gulshan & Pyarali G. Nanji Orthopaedic and Plastics Centre is NYGH’s second busiest site after the emergency department serving more than 26,000 patients annually. Due to the ever-increasing patient flow, overworked staff, and recent renovations, there were many patients who experienced significant waiting times due to the inefficient patient flow. Two important bottlenecks were identified: ineffective signage and unclear patient director to the imaging center.

With increasing emphasis on patient-centered care and patient satisfaction, ensuring patients' needs and preferences is important.[1] Although a clinic schedules appointments for patients in advance, due to variations in the patient arrival time, service time and double-bookings, patients are forced to wait extensively for their appointments.[2] In our clinic, due to the high patient volume resulting from concurrent orthopedics and plastics practices and referrals from emergency department, the waiting times were exacerbated.

As previously reported, 64% of global patients rate waiting times to be unsatisfactory in hospital settings and clinics experienced appointment cancellations due to expectations of long wait-times.[3] Such "no-shows" are an undesirable consequence that further diminishes the flow of the clinic. Based on UK's National Health Service's Patient Charter, the target for the appointment waiting time is 30 minutes, however, this expectation is rarely met in Canadian Centers.[4]

Several studies have investigated solutions to improve the patient flow and patient satisfaction of outpatient clinics. Planning, streamlining workflows, patient-centered initiates, and priority-oriented scheduling are solutions suggested to optimize efficiency of patient care. These strategies have been shown to improve wait-times of patients and efficiency, and reduce no-shows and stress.[5-7]

Baseline measurement

As part of an Institute for Healthcare Improvement Open School project, a multidisciplinary quality improvement (QI) team with a shared vision to improve the patient experience was assembled. The team consisted of QI specialist, patient experience and quality team members, clinic manager, clinic staff, and medical and engineering students. A questionnaire was developed to assess baseline patient waiting experience, and it was validated by the QI specialist on the team. The questionnaire asked patients to rank their responses to questions assessing their waiting experience on a 4-point ordinal scale (strongly agree, agree, disagree, strongly disagree). Of the questions, the key question that we wanted to assess was patient stress levels due to the waiting process (outcome measure). The question asked was "I found the waiting process stressful".

Patients were recruited over two half-days using the consecutive sampling technique, and questionnaires were administered to those that provided informed consent. Furthermore, we employed a flow-mapping technique where we followed patients as they went through the clinic to assess impediments and inefficiencies, and gather patient perspectives (Graph 1). 42 patients consented to participate for the baseline assessment. The baseline results showed that 8/42 (19.0%) patients strongly agreed with the statement "I found the waiting process stressful". 15/42 (35.7%) agreed. 11/42 (26/2%) disagreed. 8/42 (19.0%) strongly disagreed. Overall, more than half of the patients (54.8%) strongly agreed or agreed to having a stressful waiting experience.

Design

A meeting was arranged with all team members to discuss ways to reduce patient stress levels, given that a significant proportion (54.8%) of our patients strongly agreed or agreed to having a stressful waiting experience. We discussed potential interventions to be executed using the Plan-Do-Study-Act (PDSA) methodology.

In the past, many patients had reported to our staff on multiple occasions about having difficulty finding their way from the clinic to the imaging centre in the hospital, with some patients getting lost in the process. In addition, the route taken to return to the clinic from the imaging centre happened to be entirely different from the route taken from the clinic to get to the imaging centre. Since a large majority of our patients are orthopedics patients who present with fractures, the difficulty with navigation and the inconvenience of having to take different routes can be extremely troublesome.

Secondly, it was recognized that there was a complete absence of any patient-friendly signs at the entrance to welcome patients to the clinic and increase their comfort levels, and to aid them with their understanding of the registration (numbering) process. Patients would often forgo taking this number if they missed the machine, and ended up having to wait longer. It became evident that there was a need to have a signage system that welcomes the patients and clarifies the registration process.

Strategy

The following PDSA cycles were planned, upon reaching agreement amongst the team members:

PDSA 1: Placing a floor graphic (i.e. black tape) to direct patients from the clinic to the imaging center, and back (see Figure 1 for a before-after comparison). Our balancing measure for this PDSA cycle was the cost of the tape: CAD $4. The tape was used as a temporary floor guide, while a permanent and more appealing floor guide is being created by the hospital administrators.

PDSA 2: Replacing the multitude of 8"×11" signs at the entrance with a single 21"×32" patient-friendly sign at the entrance to welcome patients, with clear instructions outlining registration procedures (see Figure 2 for a before-after comparison; see Figure 3 for electronic version of the sign installed). Our balancing measure for this PDSA cycle was the cost of the new sign: CAD $75. Note that the first intervention continued to be in effect while the second intervention was implemented.

Results

Patient questionnaires were administered following each intervention (consecutive sampling; half-day recruitment each) to determine whether a change in patient stress levels had occurred as a result of each intervention. 20 patients consented to participate post-1st intervention, and 25 patients participated post-2nd intervention.

Following the 1st intervention, 2/20 (10%) patients said strongly agreed to the question "I found the waiting process stressful". 3/20 (15%) patients agreed. 9/20 (45%) patients disagreed. 6/20 (30%) patients strongly disagreed. Following the 2nd intervention, 2/25 (8%) patients strongly agreed. 3/25 (12%) patients agreed. 7/25 (28%) patients disagreed. 13/25 (52%) patients strongly disagreed.

The proportions of patient responses at each time point (strongly agree, agree, disagree, and strongly disagree) is represented in Figure 4.

To check whether statistically significant change in stress levels had occurred, data obtained was imported into SPSS (version 20) for analysis. Responses to the question of interest were coded into numerical values: strongly agree – 1; agree – 2; disagree – 3; strongly disagree – 4. The normality of patient responses was assessed for each time point using the Shapiro-Wilk test, with p-values less than 0.5 being significant (a priori). P-values of 0.0003, 0.004, 0.00006 were obtained for baseline, post-1st intervention, post-2nd intervention time points respectively. Therefore, data on stress levels from each time point deviates from the normal distribution.

As data deviated from normal distribution, the Kruskal-Wallis test was conducted to assess changes in mean ranks between the time points with regards to patient stress levels. Result was said to be significant if the Monte Carlo 2-tailed p-value was less than 0.05 (a priori). A p-value of 0.040 was obtained, indicating significance. Therefore, the patient stress levels significantly differed between at least one of the time points. Table 1 confirms that the significantly different stress levels were in the direction of decreasing patient stress, as the mean ranks and medians appear to increase with each time point.

Subsequently, pairwise comparisons of mean ranks were done using the Mann-Whitney U test, with the Monte Carlo p-value adjusted using the Bonferroni correction method (p-value less than 0.017 being significant). Baseline vs. post-1st intervention p-value: 0.058; post-1st intervention vs. post-2nd intervention p-value: 0.221; baseline vs. post-2nd intervention p-value: 0.003. There is significant difference between the baseline and post-2nd intervention groups, meaning that a combination of both interventions* caused statistically significant reduction in patient stress levels.

*Recall that the first intervention continued to be in effect while the second intervention was implemented.

In addition to determining our outcome measure of patient stress, we also took a measurement of our process measures – what the patients felt about our interventions. We received very positive feedback, as shown in Table 2.

See supplementary file: ds6557.docx - "Figures 1-4, Tables 1-2"

Lessons and limitations

The present project successfully implemented strategies to improve patient satisfaction and reduce stress in a high flow community Orthopedics and Plastics clinic. Along the way, the QI team learned several lessons that will guide future endeavors.

The foundation of quality improvement entails convincing members of the healthcare team of the problem.[8,9] Our team was assigned to work with the healthcare team with the goal of improving patient flow, as well as reducing patient discomfort. Several members of the staff had previously witnessed patients lining outside the clinic doors prior to its opening. Since, we are working with orthopedic patients, this posed a special concern. When the QI team first came to the clinic, we encountered resistance from office staff, janitorial staff, and nurses because they did not believe any change was necessary. It is very important to survey key stakeholders early on prior to any intervention to fully understand the existing problems. Based on feedback from the frontline workers, the QI teams elected to flow map a day in the clinic. We noticed that some of the complaints we were brought in to address were no longer an issue. Patients were not coming in early and being forced to stand outside the clinic doors. If, on the rare occasion patients were early, the clinic staff would allow them to take a seat inside. This highlighted the importance of flow mapping before beginning any project. After flow mapping, and involving the frontline workers, we were able to recognize the real issues at the clinic, primarily, absence of patient-friendly signage as well as minimal directors to imaging areas. Additionally, involving frontline staff was crucial to the sustainability of the project. In order to convince and obtain buy-in from all members of the clinic, we performed a patient survey and presented the results showing baseline patient satisfaction and stress to all members of the clinic [10]. This presentation not only garnered us support for staff, but also gave us an opportunity to open the forum for potential solutions. We also understood the issues prevalent with QI initiatives that are top heavy. Involving the frontline staff not only gave further insight into the problems of prevalent in the clinic, but also fostered a collegial environment where everyone felt involved and needed.

There are several solutions to any given problem and it is challenging to identify the most appropriate and sustainable ones. One solution to this conundrum is to obtain opinions of several experts in the field. Another is to implement a temporary solution and explore endpoints. For the present project, we were unsure of whether to use floor signs versus other patient flow directors such as wall signs or information sheets. However, based on expert, staff, and patient opinion, we proceeded with temporary floor signs directing patients to the imaging center. Post-implementation, we surveyed the clinic staff as well as patients to determine the practicality and functionality of the signs. Based on excellent feedback, the QI team applied to hospital administration for permanent floor signage fixtures.

Patient-friendly signage is important to increase satisfaction and contribute to a positive experience.[11] Confusing signs can lead to increased stress, physical discomfort, and dissatisfaction with the healthcare system. Additionally, a difficulty in navigating the hospital adds to anxiety resulting in increased staff burden. Arthur et al showed that the additional time spent redirecting patients in a tertiary care center is equivalent to ten additional hours per patient bed per year.[12] There is a lot more to signage than simply the message. When the QI team was tasked with improving signage in the clinic, we employed the use of the patient relations and hospital informatics experts to guide us in the process. Working with these experts, we learned the crucial importance of effective signage. Effective signage should be recognizable, clearly visible and inform visitors on where they are as well as next steps.[13,14] The amount of information shared with patients in a hospital-setting tends to be overwhelming, thus signage should be concise. Additionally, signage should be interrelated via a design theme as well as visible and accessible.[14,15] Experts recommend that signs should be brightly coloured and include images or graphics to improve effectiveness.[16] Taking all these considerations into account, as well as staff and patient feedback, we designed a new sign that better informed patients on where they were and future steps. We also removed multiple distracting signs to reduce visual clutter and amalgamated them into a single large easily visible sign placed near the entrance of the clinic.

Patients are central to hospital-based QI projects and it is important to inculcate direct patient feedback into any optimization techniques. There are several ways to gather patient advice and we employed a few of these techniques during the course of our project. Firstly, when data from large numbers of patients are necessary, surveys or polls are useful. Another way is to select a subset of patients randomly and either discuss concern with them individually or in focus groups. The third way is to flow map with a patient as they go through the clinic and assess impediments along the way. While surveying or talking to subset of patients can guide change processes, we found that flow mapping along with patients was the best strategy. This method minimizes extra time spent by the patient, provides ‘real-time’ data, and allows better perspective on the patient experience.

There are a few other improvements that can be made to improve patient experience at this clinic. Several patients identified not knowing how long they would need to wait as a major stressor. While staff does their best to approximate the wait-time, it is often inaccurate since they don’t have control over it. We recommend a digitalized system wherein physicians and nurses, who are the ones directly seeing patients, input patient flow status into iPads that is then displayed on the screen in the waiting lounge. This would improve patient satisfaction and reduce stress levels. It would also better inform staff and help in streamlining clinic activities.

We faced two major limitations while completing the present project. One being lack of sufficient fiscal resources, which limited the QI initiatives. While implementing a computerized system could have improved patient flow and experience dramatically, we did not have the resources to carry out such a project. Even when improving signage around the clinic, the team was limited in options due to financial considerations. Additionally, being fiscally limited forced QI staff to complete the project without any outside help for patient flow mapping, and data dissemination, which consumed valuable time. The second main limitation of the study was a fixed six-month contract for the QI team. This restricted the end-points the team was able to achieve.

Our next steps include expanding the interventions to other clinics at the hospital and to other hospitals where patient signage and navigational guides are lacking, and patient stress and satisfaction associated with the waiting experience has been a concern. This would allow us to identify whether our interventions and findings are generalizable to different settings and patient populations.

Conclusion

The present project evaluating factors associated with the patient waiting experience represents an important aspect of QI. By evaluating patient and staff perspectives, and implementing PDSA strategies, we utilized a patient-centered framework to enhance the clinic waiting experience. We found that adding floor-embedded lines and improving signage significantly enhanced patient experience and reduced stress levels. Of note, signage makes huge differences to patient experience and should only be undertaken with after survey of patient population. Patients are flooded with overwhelming amounts of information when they come to the hospital and it is crucial to ensure that navigational information is conveyed in a patient-friendly easily navigable format.

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Declaration of interests

None declared.

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Ethical approval

No ethics approval is needed for quality improvement initiated at our institution.