Implementing Non-Value-Added Time as an Indicator of Patient Satisfaction in a Student Run Free Clinic

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Abstract

Improving patient satisfaction in a student-run free clinic setting presents unique challenges as free clinics often receive very high patient satisfaction scores. It may seem odd to label this "a problem"; however, this phenomenon may mask patient concerns and impede a clinic's abilities to measure the effect of interventions on patient satisfaction. In this article we detail our experience with addressing patient satisfaction in a student-run free clinic, the approach we took, key lessons learned, and recommendations for future clinics creating project goals aimed at improving patient satisfaction.

Problem

In student-run free clinics, patient satisfaction is increasingly used as a proxy for healthcare quality, and higher satisfaction rates have been shown to be associated with better healthcare outcomes. For example, measures of patient satisfaction have led to unforeseen needs of clinics surfacing, which when addressed better serve the needs of the individual clinic's patient population, leading to high quality healthcare. [1-3] In part, this is due to the inherent challenges faced when attempting to assess the quality of services provided through these clinics, as they are run by student volunteers and cannot be compared to other traditional clinics. Patient satisfaction is often measured using patient-completed feedback surveys; however, accurately measuring patient satisfaction in the setting of a free clinic presents unique challenges. Patients who utilize free clinics often have little leverage with respect to where they receive health care.[4] These individuals may also lack confidence in the medical system based on community and personal histories with the institution of medicine. While patients at free clinics are often extremely grateful for their care, they may be reluctant to voice any concerns for these reasons. From a quality improvement (QI) standpoint, this is often challenging and may confound the ability to evaluate and interpret patient experience in the clinic and the effectiveness of interventions.

The Saturday Clinic for the Uninsured (SCU) is a student-run free clinic operating through the Medical College of Wisconsin in Milwaukee, Wisconsin. Our clinic operates every Saturday from 8am-1pm and serves approximately 10-20 patients each Saturday. SCU is staffed by medical students, pharmacy students, volunteer physicians, and pharmacists. It provides a full range of medical services, including a free-of-cost dispensary, phlebotomy services through our laboratory, point-of-care testing, and women's health. Specialty clinics are offered on particular weeks, including ophthalmology and neurology services, for which patients must be scheduled separately. In providing a variety of services, we aim to tailor patient visits to every patient's individual needs. We attempted to increase patient satisfaction at SCU to improve the quality of care we provide to our patients. In this report, we describe the specific barriers we identified to using patient satisfaction as a metric in a student-run free clinic. We also describe what we learned about implementing quality improvement interventions in a student-run free clinic. Some of these lessons

include that patient surveys may not be the most useful tool to measure and track clinic improvements and patient wait times are a bigger threat to patient satisfaction than in traditional outpatient clinic settings. Additionally, implementing quality improvement interventions without impeding clinic workflow presents distinct challenges due to high volunteer turnover, as students often do not have the time or capacity to volunteer week after week.

Approach

Measuring Satisfaction

To improve patient satisfaction in our clinic, we needed a method of evaluating the efficacy of our interventions. Initially, we used a previously administered survey (Online Appendix 1) that asked how satisfied patients were with their clinic experience at the end of their visit. We noted, however, that our average satisfaction score was 9.4/10, which we did not feel was an accurate representation of the observed patient experience at our clinic. We also felt that using this measurement tool would make it difficult to identify statistically significant changes in patient satisfaction over time.

Our first intervention was to create a survey that would provide a more accurate picture of patient satisfaction in our clinic. However, despite updating the survey to include both quantitative and qualitative satisfaction questions (Online Appendix 2) and taking steps to ensure patient anonymity was protected, we obtained similar results, with an average satisfaction score of 9.4/10. As managers at SCU working and talking directly with patients, we continued to be concerned that these high scores were not reflective of reality. In our clinic, patient visits were expected to take 3-4 hours to complete, although that duration could vary significantly based on the numerous variables in play at student-run clinics, including the availability of volunteers. For example, managers knew of a patient who had waited almost two hours to receive their medications from our pharmacy and subsequently lost valuable personal time before their afternoon work shift and of another patient who had waited so long in the exam room, they worried their student doctor had forgotten about them. It was not uncommon for

patients to walk out of the clinic prior to visit completion because of the wait times. Similar events occurred nearly every clinic day suggesting that our patients had valid grievances and concerns about their experiences. Additionally, we knew from qualitative comments in our survey and patient comments made to managers and other volunteers in the clinic that wait time was indeed a problem in our clinic, but we were not adequately capturing this in the quantitative survey scores.

Changing Our Approach

At this point, we elected to take a step back and reimagine our process for improving patient satisfaction at SCU. We worked with a faculty member with expertise in quality improvement and began by constructing a driver diagram to identify primary and secondary drivers as well as potential interventions (Figure 1). A driver diagram focuses on identifying key factors, or "drivers", of the primary problem and then analyzing factors that influence each of those primary drivers.[5] In our clinic, two of the biggest contributors to the current wait times were an overall physician shortage and the length of time needed to fill medication prescriptions, which we knew both from comments left in our feedback surveys and from personal experience as clinic managers and student doctors. Together with our advising faculty, we developed a specific aim of decreasing overall wait times in clinic over the next twelve months, and then reviewed the primary drivers of that problem, such as wait times themselves and the experience and training of volunteers in our clinic (Figure 1). We then considered secondary drivers, identifying specific causes of these issues; many of these, including backups in our dispensary and confusion regarding clinic flow amongst our volunteering students, were familiar challenges for us as managers. Our goal in devising this driver diagram was to organize our aims and the challenges that we faced, and to better design interventions to improve these aspects of our clinic.

Using the driver diagram as a guide, we chose interventions we felt would be most impactful and used Plan-Do-Study-Act (PDSA) cycles to implement them. Used commonly in healthcare quality assurance, PDSA cycles are a way to test a

Figure 1. Global and specific aim of project with corresponding drivers and suggested interventions
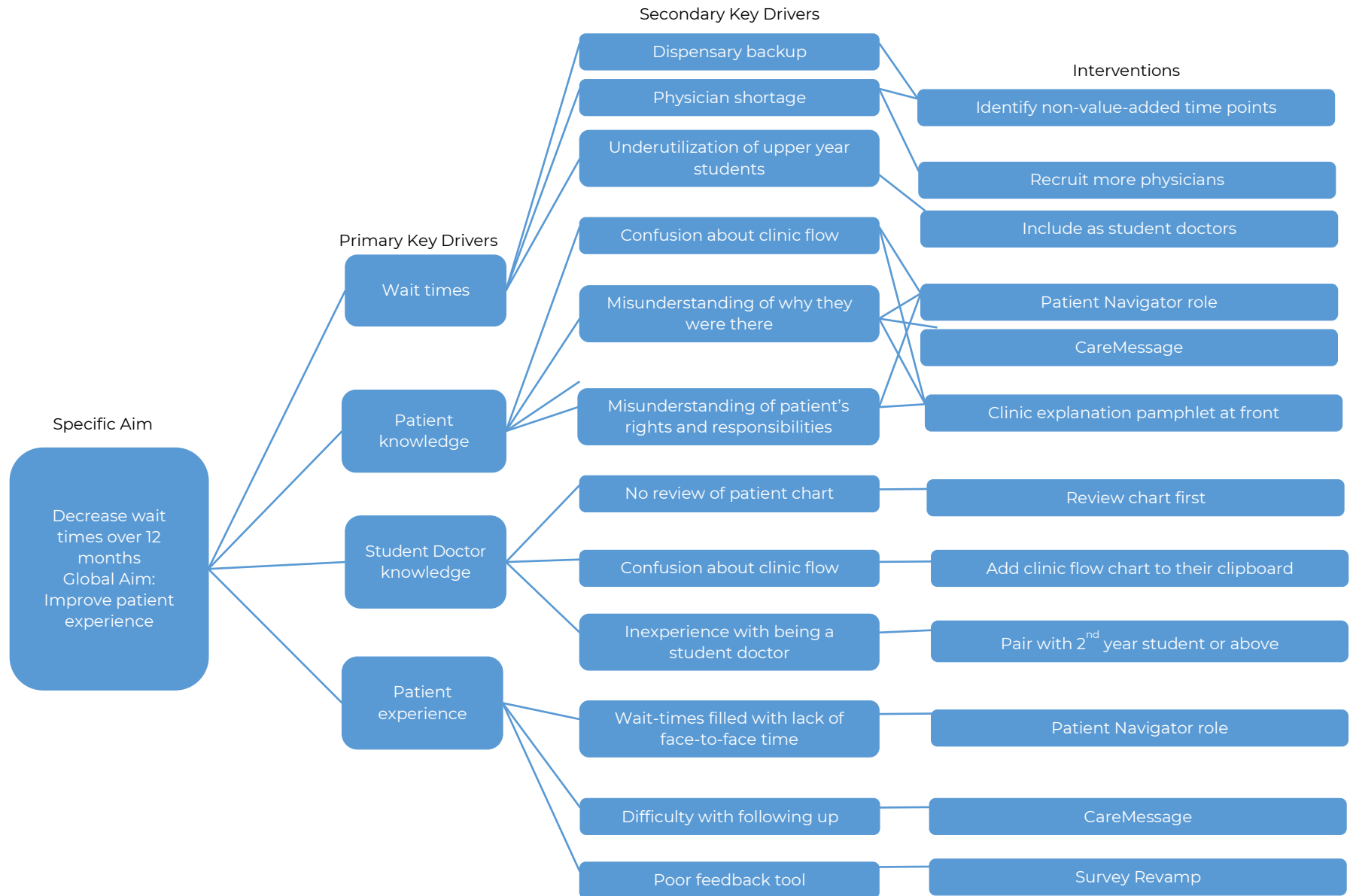
Table 1. Examples of interventions generated from Plan-Do-Study-Act cycles with suggested interventions and end results

Intervention	Description of Intervention	Adopt, Abandon, or Modify
Measuring total wait times (April 2019)	Managers and clinic staff were trained to collect timing data at each point throughout a patient's visit at the clinic	Abandon: measuring total wait times was done for six Saturdays, after which only time to physician was recorded due to workload complaints
Measuring non-value added time (April 2019)	Time that patients were not directly receiving care or interacting with staff was assessed through creation of a clinic flow chart	Modify: volunteers to shadow patients in clinic
Implementing CareMessage (November 2019)	Use a patient messaging platform to facilitate better communication between staff and patients	Adopt: this messaging platform is a convenient way to communicate with patients and easy to train volunteers on how to use

Figure 2. Run chart of patient time until seen by physician with notable factors and interventions
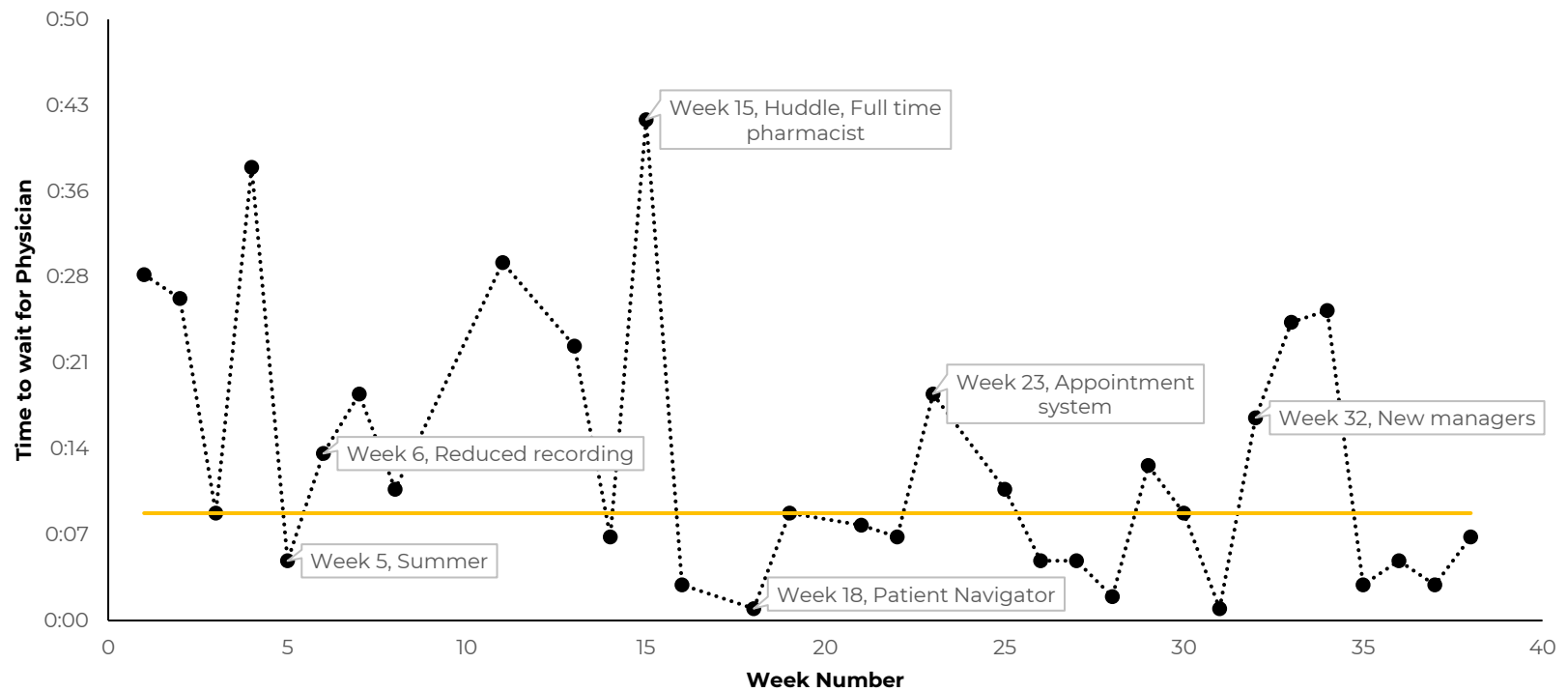
change by developing a plan to test the change (Plan), carrying it out (Do), observing the results (Study), and determining what modifications should be made (Act).[6] Ultimately the decision is made to adopt, abandon, or modify the change (Table 1). As an example, we knew that to address our long wait times adequately, we needed to implement a process to measure total wait times as this was not routinely done before this project. To accomplish this, managers and clinic staff were trained to collect timing data at each point throughout a patient's visit. Soon after implementation, we received feedback from clinic managers and volunteers that this new process was increasingly burdensome and impeding clinic workflow. We realized the need for re-evaluation and ultimately decided to abandon this approach and attempt to find another strategy to assess wait times.

Our next approach involved the identification of "non-value-added time" (NVAT), i.e., time in our clinic in which patients were not directly receiving care or interacting with staff. We hypothesized that if patients were interacting with team members more frequently or for longer periods of time during their clinic visit, they would interpret their visit time as more valuable even if they waited in clinic for a similar amount of time. We approached this by creating a process chart of the clinic visit and identified several time points patients were not interacting with healthcare team members. This included the time from patient arrival to being roomed, time from being roomed until seen by the physician, time waiting to pick up medications, and time waiting for labs to be completed. With the insight gleaned from our attempt to timestamp and the frustrations that ensued, we determined that it would be important to have a separate role for someone whose primary responsibility would be to shadow patients in the clinic and gather the necessary timing data.

Our final intervention was the implementation of CareMessage (CareMessage 2019, San Francisco, CA, USA) in our clinic. CareMessage provided our patients with a secure messaging platform, which our clinic managers could use to communicate appointment reminders and other information without any additional cost to the patient. Working with our clinic staff, we discovered that CareMessage was a convenient, intuitive communication method, saving time on telephone calls and voicemails and ensuring that time-sensitive information could be conveyed to patients easily. Our volunteers were able to incorporate CareMessage into their clinic tasks without major hurdles, and we chose to keep this intervention as a part of our clinic flow and operations.

To analyze our data, we created a run chart based on the timing data stored in a Microsoft Excel (Microsoft Excel 2020, Seattle, Washington, USA) database. Run charts are important to understanding whether implemented interventions are significantly changing the process. Using a run chart, we were able to determine that switching from a walk-in to an appointment-based system had a significant impact on the time it took for patients to be seen by a physician (Figure 2). Using paired t-tests, we found that none of our interventions, including CareMessage or Walk-in appointments, had a statistically significant effect on the patient satisfaction scores ($p<0.05$).

Reflections and Future Directions

Our team set out to improve the patient experience in our student-run free clinic and learned several key lessons in the process, the most important of which is including a faculty member from the start who has experience in QI methodology. With their expertise, they can assist with framing the project in addition to providing guidance on how to utilize the appropriate QI tools, including driver diagrams, PDSA cycles, and run charts. Had we done this from the onset of our project, we likely would have had a more systematic approach and would have been able to monitor the success and failures of our interventions more accurately.

Our project reinforces the necessity of considering beforehand how an intervention might impact overall clinic flow and the effect it may have on those overseeing and providing patient care once it is implemented. This is particularly important in a busy clinic such as ours that has rotating managers and frequent turnover of volunteer students and physicians.

Lastly, we learned that a new patient shadow

program could provide a more accurate understanding of the patient experience. This would take the form of assigning a student volunteer to accompany consenting patients throughout their visit and record timestamp information. We envisioned these patient shadows not participating in patient care directly and remaining outside the room while student doctors and physicians examine the patient; however, they would be responsible for gathering an accurate log of the amount of time spent in every stage of the clinic visit. Patient shadows would remove the burden of time logs from clinic managers and student doctors, who have numerous other tasks to manage during clinic, and would provide us with clear, systematically collected data with which we can study the impact of our interventions and alter them as needed. Premedical and medical students, especially in the first and second years, are eager for clinical opportunities in which they can participate in clinic and would therefore be the volunteer population we would aim to recruit patient shadows from. Enlisting their help would be a way for students to get additional clinical experiences while also allowing continuation of the project in the least intrusive way possible. Unfortunately, we have thus far been unable to implement this program due to the Coronavirus disease 2019 pandemic, but we aim to do so once clinic operations and pandemic-related constraints allow.

Improving patient satisfaction in free clinics is challenging. Patient satisfaction scores may mask the severity of patient concerns and be too high to accurately measure the effect of interventions.[1] This is only proven by the fact that patient satisfaction scores were not statistically different after the appointment-based change, despite the statistically significant change in physician wait-times. As a result, we recommend approaching this goal with the help of a faculty member experienced in QI. Our patients were most concerned about wait-times. We elected to identify key contributors and then, using PDSA cycles, measured their effect and intervened on them. Due to the time constraints and numerous demands of working in a student run free clinic setting, it is important to designate a separate role dedicated solely to data collection. We recommend targeting interventions to improve the patient experience based on non-value-added time. For us, this has proven more effective than using patient-completed questionnaires to identify areas of improvement.

Disclosures

The authors have no conflicts of interest to disclose.

References

1. Stephanie M, Nikhil Y-R, Kiersten F, et al. Patient expectations and satisfaction when using a student-run health clinic. J Stud Run Clin. 2017;3(1). LINK
2. Ellett JD, Campbell JA, Gonsalves WC. Patient satisfaction in a student-run free medical clinic. Fam Med. 2010;42(1):16-8. LINK
3. Lu KB, Thiel B, Atkins CA, et al. Satisfaction with healthcare received at an interprofessional student-run free clinic: invested in training the next generation of healthcare professionals. Cureus. 2018;10(3):e2282. LINK
4. Bettigole C. An uninsured immigrant delays needed care. Health Aff (Millwood). 2015 Dec;34(12):2192-5. LINK
5. Driver diagram: IHI [Internet]. Institute for Healthcare Improvement. [cited 2022 Jun 15]. Available from: http://www.ihi.org/resources/Pages/Tools/Driver-Diagram.aspx. LINK
6. Quality Improvement Essentials Toolkit: IHI [Internet]. Institute for Healthcare Improvement. [cited 2022 Jun 15]. Available from: http://www.ihi.org/resources/Pages/-Tools/Quality-Improvement-Essentials-Toolkit.aspx?-PostAuth Red=%2Fresources%2F_layouts%2Fdownload.aspx%3F SourceURL. LINK