Journal of Student-Run Clinics
Descriptive Report

Risk Stratification-Guided Patient Navigation Model for Student-Run Health Fairs

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Published: August 23, 2024

Abstract

Background: The patient navigation model has been used to connect patients who attend community health fairs with follow-up care. Optimizing the organizational structure of a patient navigation model centered around risk stratification may be important for improving rates of successful healthcare coordination and access. This report describes the experience and lessons learned from implementing and optimizing a patient navigation model to fit the needs of a low-income and ethnically diverse South Florida community.
Methods: A patient navigation model based on an algorithmic risk stratification system was created and implemented with the focus on tailored follow-up and specialized navigator training to achieve successful patient contact and follow-up.
Results: Incorporating patient risk stratification which was used to guide student navigator training and follow-up guidelines led to a hands-on learning experience for medical students with skills that could be applied to clinical practice as well as higher achievement of successful patient contact and navigation outcomes. Over the three years that navigation outcomes were monitored, this system allowed students to successfully complete the navigation process with 52.5% of patients who attended health fairs.
Conclusion: The structure based on risk stratification and set follow-up timeline all contributed to greater success in teaching medical students how to connect patients to local community resources as well as achieving patient contact and navigation outcomes in our patient navigation program serving the South Florida community.

Introduction

Patient Navigation (PN) is a framework to provide support to patients in addressing the challenges that arise when accessing healthcare. These challenges can include financial, language, political, and healthcare literacy barriers. Navigators receive training in how to address these barriers and thus aid patients by reducing obstacles to care, clarifying many idiosyncrasies in the process of applying for financial assistance and insurance, and ensuring appropriate and consistent follow-up care.[1] The ultimate goal of the PN health access model is to provide patients with knowledge about the healthcare system as well as skills on how to access it so that they are eventually empowered to navigate the system independently.

The PN model was established in the 1990s to address healthcare disparities for low-income cancer patients.[2] The initial goal of the program was to decrease the time between a patient being notified of a positive test result and receiving appropriate diagnostic and therapeutic management. In supporting patients during this vulnerable time period, navigators were able to connect their patients to appropriate healthcare services and community resources. The results of this program revealed that the PN process significantly contributed to earlier diagnosis and more timely treatment.[2] With these overwhelmingly positive results, PN was embraced across a variety of healthcare settings as a method to decrease health access inequity.

At the University of Miami Miller School of Medicine, the Mitchell Wolfson Sr. Department of Community Service (DOCS) serves the South Florida community to provide underserved patients in local communities with necessary healthcare through student-led health fairs and clinics. Each year, DOCS hosts nine health fairs across South Florida, serving approximately 1,500 patients each year. The patient population consists of primarily underserved populations, many of whom fall below the Federal Poverty Line, are uninsured, have limited English proficiency, are undocumented, or experience other significant barriers to accessing regular healthcare. At the health fairs, patients receive free annual health screenings, preventative care, health education, and access to primary and specialty care physicians. At the end of patients' health fair visits, they are directed to the 'Final Doctor Evaluation' station, where their care is summarized, and next steps are discussed with a physician. If the patient requires any further care or needs help with accessing the healthcare system, the patient is provided with an opportunity to follow with a trained patient navigator to support the patient in the next steps of accessing follow-up care, including applying for financial assistance, establishing care with a primary care physician, and seeking follow-up testing for suspicious findings at the health fair.

As DOCS is primarily a student-run organization, medical students also serve as navigators. Students participate in extensive training, covering topics such as barriers to healthcare, local resources available to patients, communication strategies, and other components of navigating the healthcare system. Working closely with their patients to address these healthcare barriers to healthcare, navigators learn firsthand about the challenges that arise in this process due to healthcare disparities.[3] As students are exposed to local resources and clinics through advocacy, they also learn about communication, flexibility, adaptability, empathy, and resilience. These hard and soft skills are directly transferable to the clinical environment so that medical students can also apply their PN experience to the clinical environment.

Since inception, our PN model has focused on connecting patients to care, addressing the unique healthcare disparities faced by the patient population served by DOCS health fairs. The previous model was generalized, where all patients who required navigation were grouped and then randomly assigned to a navigator. Navigators also received generalized training and were encouraged to check in with their patients regularly, but the program lacked expectations regarding follow-up timelines and frequency of patient contact. Because navigators did not receive specialized training to manage a wide range of health conditions, all navigation was approached with the same timeline and sense of urgency, regardless of health condition. Thus, patients with malignancy suspicions were navigated with the same timeline as those who were looking to switch insurances. With this structure, many higher risk patients were being lost to follow-up or faced delays in accessing urgent care.

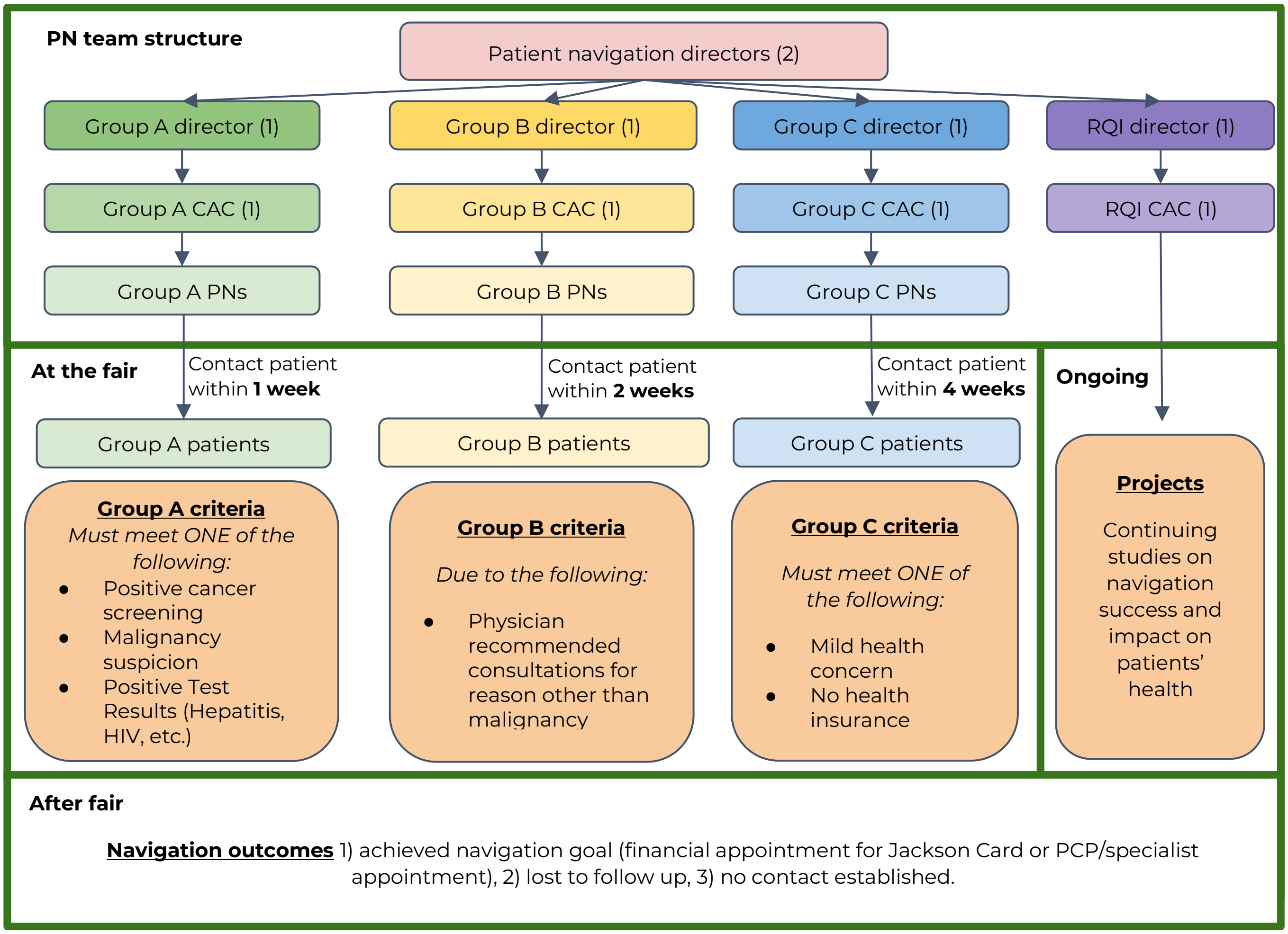
To address the healthcare disparities faced by the patient population served by DOCS health fairs as well as our previous system's gaps contributing to losing patients to follow-up, we developed a new PN model. Through a risk stratification system guiding a navigator training and tailored navigation timelines, our PN model aims to improve contact with patients and achievement of navigation outcomes, while also teaching medical students the necessary skills of advocating for their patients in accessing healthcare.

Methods

Organizational Context

This project was conducted in a student-run, community-based healthcare system from 2020-2023, supported by our home medical school. The system serves the South Florida community, with a specific emphasis on members who are low-income and ethnically diverse. Annually, nine health fairs are offered across the region with locations determined by areas with lowest

Figure 1. The patient navigation model implemented using risk stratification



PN: Patient Navigator; RQI: Research & Quality Improvement; CAC: Care Access Coordinator; HIC: human immunodeficiency virus; PCP: primary care physician.

socioeconomic status (as determined by county-level census data) cross referenced with greatest distance from a state Department of Health-sheltered clinic or federally qualified health center (FQHC). Health fairs are staffed by medical students as well as volunteer physicians. Participants in the health fair seek a variety of services based on risk factors and/or symptoms, undergoing appropriate screening and diagnostic evaluation (online appendix A). All participants conclude their day at the health fair at the Final Doctor Evaluation station, where a student and a physician review all screening tests and recommendations and provide guidance regarding next steps for follow-up care. The patient is then introduced to a navigator, who is a medical student trained in connecting community members to local resources and healthcare providers.

The PN team is directed by two PN Directors, who also serve on the Executive Board of DOCS. These directors serve as liaisons between the other directors of DOCS and the PN team. These directors also oversee all four teams: Group A, Group B, Group C, and the Research & Quality Improvement (RQI) team. Groups A, B, and C are the PN teams, overseeing the care of patients categorized according to risk factors. The RQI team works with all directors to assess the success and impact of the program on patients' health and subsequently implement projects to improve the overall model. Each team is led by a director with at least a year of experience in the navigator role and each director is assisted by one Care Access Coordinator (CAC), a student who helps communicate with the larger team and keep each navigator accountable in contacting patients in the appropriate timeline. Finally, the directors with the assistance of the CACs oversee a larger team of navigators. The patient navigation model is outlined in Figure 1.

The Intervention

The first focus of the new model was organization though patient risk stratification. When patients attend a health fair, their information collected throughout the various stations is inputted into the REDCap software (2023, REDCap Consortium, Vanderbilt University, Nashville, TN). This informs our risk stratification algorithm built into REDCap in which patients are stratified by risk characteristics. Those with the highest risk characteristics were categorized as “Group A”, those with moderate risk characteristics were categorized as “Group B”, and those with low risk characteristics were categorized as “Group C”. Specific risk factors incorporated into the algorithm are shown in online appendix B. Generally, Group A patients include those who meet one of the following criteria: positive cancer screening, malignancy suspicion, or positive test results (e.g. Hepatitis C and human immunodeficiency virus [HIV]). Group B patients include those for whom a physician recommended follow-up consultations for reasons other than those in Group A. Group C patients are those who do not have a primary care physician (PCP) but would like to establish care without a Group B medical concern or those who do not have health insurance.

The second focus of the new model was to implement a standardized timeline according to a patient’s risk stratification group. This timeline was created to ensure that higher risk patients were prioritized and those with urgent health issues were appropriately connected to necessary care. The timeline is as follows: All navigators, no matter the risk group, are expected to attempt at least three times to contact their assigned patient via phone call or email within the designated timeline. Group A navigators are expected to complete these contact attempts within 1 week of the health fair, Group B within 2 weeks, and Group C within 4 weeks. 6 weeks after the fair, all navigators should have achieved their navigation goal. All navigators share their progress and details of each contact attempt on a secure spreadsheet behind the school’s firewall which is accessible to the PN Directors. The Directors and Care Access Coordinators (CACs) of each group review the spreadsheet weekly and individually contact navigators who are experiencing challenges contacting their patients or keeping up with the timeline.

The third focus of the new model was creating a navigator training system centered on risk stratification to improve the specialized navigation offered. Whereas in the previous model all navigators received the same generalized navigation training, in our new model, navigators instead selected which risk group of patients they would navigate throughout the year. The new model trained each group of navigators separately, focusing on different topics depending on the risk category of the patients the navigator would oversee. Group A and Group B navigators could start the position without experience, while Group C navigators were all first-year medical students who participated in the program as part of the medical school curriculum. Initially, navigators in each risk group underwent training through a self-guided virtual platform to learn about local community resources, how to identify insurance options, and how to communicate effectively with their patients. Navigators were also trained in the REDCap software where patient information was stored and accessed as well as the ArcGIS software (2021, Esri, Redlands, CA), which is a resource for navigators to identify local clinics for patients to transition to chronic care once access is facilitated.

Then, Group A and Group B navigators underwent further training focused on their future areas of expertise. Because Group A navigators worked with higher risk patients, they learned about how to share positive test results, including those of cancer, hepatitis, and HIV diagnoses. They were also taught to more vigorously pursue a variety of communication avenues with the expedited timeline described above, as they tended to oversee more urgent health matters. Group B training focused more on familiarizing students with local community clinics and financial assistance programs in the area. Finally, monthly navigator meetings were held for each risk group, including the group director, CAC, and fellow

Table 1. Comparison of navigation completion between risk groups in 2020-2023

Group	Navigation Complete	Navigation Incomplete
Group A	123	81
Group B	110	130

navigators in the risk group to troubleshoot any specific issues that may have arisen or share their insights for other navigators to learn from.

The Group C PN team was added to the medical school's first year curriculum so that students gain experience in navigating the healthcare system for this patient population early on in their educational career. These students underwent the same basic PN training and were then placed in a group to collaborate to contact their patient and connect the patient to care. The student groups were encouraged to seek assistance from the Group C leadership for any challenges that may have arisen.

Results

During the 2020-2023 academic years, 123 of 204 (53%) Group A patients and 110 of 240 Group B patients (47%) met a navigation goal defined as the creation of a physician or county safety net system financial aid appointment or provided with the requested and applicable resources for the patient to access health care (Table 1). This accounted for an overall 52.5% successful completion rate of the program. Comparison of these risk groups using a chi-square analysis showed statistical significance (p=.002). Unfortunately, there was no formal data tracking of outcomes before the years of this intervention, so change from previous baseline was not possible. Group C navigation was instituted in the 2022-2023 academic year and was thus left out of comparison. However, Group C navigation had a 46% success rate (n=65).

Discussion

The new model demonstrated that Group A patients had better rates of completing navigation, in comparison to Group B. This suggests appropriate resource allocation to ensure that the patients with conditions that were the most difficult to manage did not have any lower navigation completion rates than other groups. Additionally, the overall completion rate of 52.5% suggests that the student-run navigation program is reaching an appropriate goal of follow-up across both Groups A and B, as previous studies have suggested that 15% is the average rate of navigation completion in professional settings, though data is still limited regarding patient navigation outcomes.[4]

Additionally, assessment of the model suggests that there may need to be a more multifactorial approach to how we define success of navigation. One systematic review has noted that while not all data has consistently shown higher quality of life outcomes with PN, PN is associated with much higher rates of patient satisfaction.[5] Currently, completed navigation is defined as whether or not the goal that the navigator believed most important was reached, but these goals may not have been the ones most impactful to the patients. Additionally, some patients may stop engaging with the program when they feel satisfied with their progress prior to achieving the established individual goal. In future iterations, we hope to take patient feedback and satisfaction into account while measuring success.

Overall, the model improved workflow and ensured that the patients with the most advanced need received greater resource allocation. Integrating navigator and patient feedback, we will continue to update the model in future years as more data is collected. Ultimately, our program's goal is more of an aspirational metric: to support better health care outcomes in these communities facing significant access barriers to the healthcare system. As we continue to identify areas to improve patient contact and follow-up, we will optimize our system to achieve this goal and continue to improve our South Florida community's overall health.

Conclusion

In summary, we have described our experience applying risk stratification to power patient navigation tailored to a patient's health risk characteristics with the goal of improving follow-up care within our student-led health fair system as well as bettering overall community health outcomes. Prior to the implementation of this model, we experienced challenges in our patient navigation process with losing patients to follow-up, especially those with higher risk conditions. Through the risk stratification process that allowed for specialized navigator training and designated a standardized timeline to assist with accountability, we created changes that have contributed to a more reliable and comprehensive system. Additionally, the model has proved to be successful in connecting patients with follow-up care, though there is still room for improvement. Moving forward, we plan to further analyze weak points within the model to identify areas where we can improve our contact rate and navigation goal achievement across all risk groups.

Disclosures

The authors have no conflicts of interest to disclose.

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