Impact of a first-year medical student patient navigation initiative on healthcare access and students' skills

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Abstract

Background: Medical schools with complex patient populations, characterized by linguistic diversity and uncertain immigration status, face challenges in imparting essential skills in patient care, particularly in understanding healthcare barriers, building rapport, and fostering empathy. A South Florida medical school with a predominantly non-English-speaking and undocumented patient population piloted a Patient Navigation (PN) program within the first-year curriculum to address these challenges. We present the student feedback from the program's first two years to guide medical schools in simultaneously caring for this unique patient population, with the aim of enhancing medical education. **Methods:** This program diverged from traditional Patient Navigation approaches by leveraging specialized hospital-associated translation services and collaborating with the Health System's Financial Assistance program. We performed a cross-sectional study on student feedback surveys to identify program features significantly associated with a satisfying PN experience, and to provide insights to optimize and refine the program for future implementations. **Results:** The program engaged 245 out of 306 first-year medical students in PN for 118 patients. Successful contact was established with 55% of patients and 70% achieved their navigation objectives. Satisfaction metrics revealed that students given patients were nearly five times more satisfied than their counterparts. This positively impacts both student experience and patient outcomes, showcasing the program's effectiveness in bridging healthcare disparities. **Discussion:** The PN program proved successful in linking low-risk patients to follow-up care, offering medical students first-hand exposure to the challenges of care for primarily non-English-speaking and undocumented populations. The initiative aimed to enhance healthcare access for marginalized patients while providing medical students with an immersive understanding of patient-centric care beyond conventional curricular offerings. Key lessons learned include improving communication channels between students and patients, and optimizing community resources for streamlined patient support. Future iterations will prioritize these lessons, emphasizing cultural competence and patient advocacy to enhance both student education and patient care outcomes.

Keywords: patient navigation; medical education; health care access; medical students

Introduction

Patient Navigation (PN) is a healthcare service that connects patients with appropriate care, reduces barriers, and improves timely diagnosis.[1] Initially designed to address health disparities for low-income cancer patients, PN has broadened to cover various healthcare issues and provides learning opportunities for medical students as patient navigators.[2–3] Medical student navigators undergo training and gain first-hand

experiences to actively engage with crucial components of healthcare delivery, like addressing health determinants, navigating health system challenges, orchestrating care coordination, and championing patient advocacy.[3] These learning objectives are core learning outcomes of the American Medical Association's third pillar of medical education—Health System Sciences.[4] Additionally, they align with the shift in medical school curricula towards early clinical immersion, continuity of care, and training beyond inpatient settings.[5] Many medical schools, including Duke University and University of Texas Southwestern, have established their own PN programs and serve as examples for this medical school's PN initiative. [3, 6–8]

The school's Department of Community Services (DOCS) manages the PN program and delivers healthcare services to a South Florida patient population characterized by diverse language abilities and uncertain immigration status. Spanish is the predominant language among navigated patients, posing a communication challenge for non-Spanish-speaking medical students and can also affect the patient's health outcomes.[9] Additionally, about 500,000 undocumented immigrants live in South Florida, most lacking access to conventional healthcare services.[10] These patients face the issue of marginalization due to geographic location, race, ethnicity, documentation status, socioeconomic status, and disability. This unique patient demographic positions the DOCS health fairs as critical providers of primary care, distinguishing the PN program from other programs that cater to patients with existing care access, who speak English as their primary language, and who are United States citizens.

The PN program addresses these challenges by using hospital-associated translation services and the Health System's Financial Assistance program, which offers low-cost healthcare options. Annually, the PN program serves about 1,500 patients, with approximately 250 patients assigned to medical student navigators for establishing long-term care and accessing specialty services. While about 70% of navigated patients meet their goals, 30% cannot be contacted or are lost to follow-up, indicating the need for improvement in the program.

To mitigate this inequity, the medical school integrated the PN program into the first-year medical student (MS1) curriculum as a longitudinal clinical experience. Now in its third year, this program gives MS1s the chance to see a patient's perspective on the healthcare system, while increasing the number of navigators to serve more patients. Each year, the program solicits student feedback to improve its offerings. In this paper, we present the MS1 feedback from the program's first two years to guide medical schools caring for primarily non-English speaking and undocumented patients. The program aims to provide care, introduce MS1s to healthcare access challenges, and educate future physicians on delivering culturally- and linguistically-appropriate care through PN.

Methods

Patient Navigator Training. At the start of the academic year, MS1s undergo self-guided PN training through the DOCS PN Training website. This training covers topics like barriers to care, the provision of resources to patients, and effective communication skills. To begin navigating, students must pass a quiz with a minimum score of 80%.

Health Fair Patient Selection. Patients receive a comprehensive assessment at each DOCS health fair and are stratified into low-, moderate-, and high-risk groups based on their health conditions and health fair findings. Highly trained second-, third-, and fourth-year medical student navigators manage moderate- and high-risk patients with pressing health concerns, such as uncontrolled diabetes, hypertensive urgencies, and suspected cancer. Meanwhile, MS1 navigators are paired with low-risk patients, typically those needing a primary care physician.

First-Year Medical Student Selection. One week after the health fair, the program assigns low-risk patients to MS1 teams. Of the 306 eligible MS1s, 245 were grouped into 109 pairs and nine trios. Each team received one low-risk patient, resulting in a sample size of 118 patients. A shortage of low-risk patients compared to the available number of MS1s resulted in some students not receiving a patient assignment.

Patient Assignments, Follow-Up Intervals, and Navigation Goals. Once designated a patient, students received the patient's name, date of birth, contact information, and reason for referral. They initiated patient contact within one week of obtaining this information and maintained regular follow-ups every 1–2 weeks to address barriers and achieve their navigation goals. Students had access to the Health System Language Line for translation services, funded by the Department of Medical Education.

PN Progress Tracking. Faculty members and PN student leaders monitored the navigation process of each patient through individual "Navigation Logs"—secure, HIPAA-compliant, cloud-based Excel spreadsheets. These logs documented the patient's contact information, the reason for referral, dates of each contact, and conversation summaries. Faculty and PN student leaders reviewed logs to assess the student's progress in guiding patients toward their goals. Navigation progress was distinguished into three categories: complete navigation, loss to follow up, or no contact established. "Complete navigation" was designated when the patient received the requested resources, scheduled a doctor's appointment, or secured a financial assistance appointment. "Lost to follow up" was given for patients initially contacted but

subsequently unreachable after three further attempts to communicate. "No contact established" was appointed if the patient did not respond after three initial call attempts. These statuses provided an assessment criterion for the PN outcomes.

Medical Student Evaluation. The program used a pass/fail grading system to assess student performance. Students received a "pass" grade if they made at least three attempts to contact their patient, as documented in their navigation log, regardless of the patient's response or successful navigation. This equitable evaluation recognizes the intricate and non-linear nature of PN, valuing the experiential learning students gain from addressing real-life challenges in patient navigation and overcoming healthcare access barriers.

Post-Navigation Reflection Session, Survey, and Data Analysis. At the end of the academic year, students finished navigating their patients and submitted an individual written reflection on their experience, either navigating a patient or learning about PN through the training modules. Following this, students participated in faculty-led small-group reflection sessions to discuss their PN experience. Each student was asked to complete a 14-questions survey evaluating their perceptions of the PN experience, encompassing the PN training and interactions with PN student leaders. Using a Likert Scale, participants rated their encounters with the PN leadership team, the training website, and the translation line. The survey, conducted online through Qualtrics Software, included a mix of multiple-choice and free-text questions to collect detailed feedback. The multiple-choice responses underwent quantitative statistical analysis, including chi-square analysis and logistic regression models. Using SPSS software and a significance level of 0.05, we conducted a Fisher's Exact Test to pinpoint program aspects significantly linked to satisfactory PN experiences. This analysis aimed to identify opportunities for program enhancement and refinement for future cohorts.

Ethical considerations
This study was reviewed and approved by the University of Miami Institutional Review Board. Informed consent was obtained from all participants. Data analysis was performed anonymously.

Results
306 (100.0%) MS1s completed the PN program, with 245 (80.1%) of them appointed a patient (**Table 1**). Program leadership divided the students assigned to patients into 109 (92.4%) pairs and nine (7.6%) trios. These students navigated 118 (100.0%) DOCS health fair patients who spoke various languages: 51 (43.2%) spoke English, 57 (48.3%) Spanish, 5 (4.2%) Portuguese, 4 (3.4%) Creole, and 1 (0.9%) Thai. Most patients were uninsured; only 18 (15.3%) having private insurance, 3 (2.5%) having Medicare, and 2 (1.7%) having Medicaid. We aimed to match every MS1 with a patient from a health fair. Though not fully realized in total, we observed an increase in the percentage of patient assignments from 70% in 2022 to 91% in 2023, likely secondary to serving a larger patient population after lifting COVID-19 capacity restrictions (**Table 1**).

Common navigation goals included establishing primary care, facilitating financial assistance applications, enrolling in public health insurance, and securing access to age-appropriate cancer screenings not offered at the health fair, such as mammography. Student navigators successfully contacted 66 (55.9%) patients. However, they lost 11 (9.3%) of these patients to follow-up, while the remaining 55 (46.6%) achieved their navigation goal. 219 (71.6%) MS1s completed the post-navigation survey, including 155 (50.7%) students who had navigated a patient. Students without a patient assignment completed the survey due to the mandatory curriculum, which required all MS1s to undergo training and participate in reflection sessions at the end of the year. However, the discussion mainly focuses on the 155 (50.7%) MS1s assigned to navigate a patient.

The first part of the survey gauged the overall PN experience for all students, regardless of patient assignment. 49.3% (N=108) felt neither satisfied nor dissatisfied, 26.9% (N=59) felt satisfied, and 23.7% (N=52) felt dissatisfied (**Table 2**) Among students given a patient, the satisfaction levels were more evenly split: 33.5% (N=52) satisfied, 38.1% (N=59) neither satisfied nor dissatisfied, and 28.4% (N=44) dissatisfied. A chi-square analysis revealed a significant difference ($p < 0.001$) in the PN experience of students assigned a patient compared to students not assigned a patient. Our logistical regression analysis, yielding a $\chi2(2) = 15.979$, df=2, $p < 0.001$, significantly indicated that students satisfied with their PN experience were 4.8 times more likely to have been assigned a patient compared to those who were dissatisfied.

Only students assigned a patient completed the second part of the survey. Among them, 71.6% (N=111) were mostly satisfied or neutral about their PN experience, 90.3% (N=139) navigated in pairs, 59.1% (N=91) did not use the interpreter line, 68.8% (N=106) were satisfied with the DOCS PN training website, 68.2% (N=105) were satisfied with the amount of patient information received, 55.2% (N=85) were able to get in contact with their patient, and 58.3% (N=67) felt neutral about the assistance from PN leadership (**Table 3**). We stratified the results based on the students´ satisfaction with their experience and found statistically significant differences in overall PN satisfaction related to interpreter service, the DOCS PN Training website, the volume of patient information received, and contact with the patient. Dissatisfied students significantly less often used the interpreter service, whereas satisfied students significantly appreciated the Training website, the amount of patient information received, and their contact with patients.

Table 1: Student Team Demographics by Year

	Total	2022	2023
Student Assignments	*N = 306*	*N = 155 (50.4%)*	*N= 151 (49.5%)*
Assigned	245 (80.1%)	107 (69.6%)	138 (91.4%)
Not Assigned	60 (19.6%)	47 (30.3%)	13 (8.6%)
Team Styles *(per assigned student teams)*	*N = 118*	*N =53 (46.2%)*	*N = 65 (53.8%)*
Pairs	109 (92.4%)	52 (98.1%)	57 (87.7%)
Triplets	9 (7.6%)	1 (1.9%)	8 (12.3%)
Navigation Outcomes *(per assigned students)*	*N = 245*	*107 (43.5%)*	*138 (56.5%)*
Complete	112 (45.7%)	51 (47.7%)	61 (46.2%)
Lost to Follow Up	24 (9.8%)	14 (13.1%)	10 (6.2%)
No Contact Established	109 (44.5%)	42 (39.2%)	67 (47.7%)
Navigation Outcomes *(per patient)*	*N = 118*	*N =53 (46.2%)*	*N = 65 (53.8%)*
Complete	55 (46.6%)	25 (47.2%)	30 (46.2%)
Lost to Follow Up	11 (9.3%)	7 (13.2%)	4 (6.2%)
No Contact Established	52 (44.1%)	21 (39.6%)	31 (47.6%)
Student Survey Completion	*N = 306*	*N = 155 (50.4%)*	*N= 151 (49.5%)*
Yes	219 (71.6%)	122 (78.7%)	97 (64.2%)
No	87 (28.4%)	33 (21.3%)	54 (35.8%)

Table 2: Overall Patient Navigation (PN) Experience Satisfaction by Student Assignment

		Was the student assigned a patient?		
	Total	Yes	No	Logistic Regression, P-value
Overall, how satisfied were you with the PN experience? *(all students who completed survey)*	*N = 219*	*155 (70.8%)*	*64 (29.2%)*	< 0.001*
Satisfied	59 (26.9%)	52 (33.5%)	7 (10.9%)	4.815 [1.994-11.627]
Neither satisfied nor dissatisfied	108 (49.3%)	59 (38.1%)	49 (76.6%)	NS
Dissatisfied	52 (23.7%)	44 (28.4%)	8 (12.5%)	Reference

Table 3: Survey Answers by Overall Patient Navigation (PN) Experience Satisfaction					
	Total	**Satisfied**	**Neither satisfied nor dissatisfied**	**Dissatisfied**	**Chi-Square, p-value**
Team Style	*N = 154*	*N =52 (33.8%)*	*N =58 (37.7%)*	*N=44 (28.6%)*	NS
Pair	139 (90.3%)	47 (90.4%)	50 (86.2%)	42 (95.5%)	
Triple	15 (9.7%)	5 (9.6%)	8 (13.8%)	2 (4.5%)	
How satisfied were you with the Interpreter?	*N = 154*	*N =52 (33.8%)*	*N =58 (37.7%)*	*N=44 (28.6%)*	0.003*
Satisfied	44 (28.6%)	20 (38.5%)	14 (24.1%)	10 (22.7%)	
Neither satisfied nor dissatisfied	17 (11.0%)	1 (1.9%)	13 (22.4%)	3 (6.8%)	
Dissatisfied	2 (1.3%)	0 (0.0%)	2 (3.4%)	0 (0.0%)	
Not Applicable (I did not use the service?	91 (59.1%)	31 (59.6%)	29 (50.0%)	31 (70.5%)	
How satisfied were you with the DOCS PN Training website?	*N = 154*	*N =52 (33.8%)*	*N =58 (37.7%)*	*N=44 (28.6%)*	< 0.001*
Satisfied	106 (68.8%)	47 (90.4%)	36 (62.1%)	23 (52.3%)	
Neither satisfied nor dissatisfied	32 (20.8%)	3 (5.8%)	19 (32.8%)	10 (22.7%)	
Dissatisfied	16 (10.4%)	2 (3.8%)	3 (5.2%)	11 (25.0%)	
How satisfied were you with the amount of information shared with you about your patient?	*N = 154*	*N =52 (33.8%)*	*N =58 (37.7%)*	*N=44 (28.6%)*	< 0.001*
Satisfied	105 (68.2%)	47 (90.4%)	37 (63.8%)	21 (47.7%)	
Neither satisfied nor dissatisfied	28 (18.2%)	3 (5.8%)	18 (31.0%)	7 (15.9%)	
Dissatisfied	21 (13.6%)	2 (3.8%)	7 (15.9%)	16 (36.4%)	
Were you able to get in contact with your patient?	*N = 154*	*N =52 (33.8%)*	*N =58 (37.7%)*	*N=44 (28.6%)*	< 0.001*
Yes	85 (55.2%)	40 (76.9%)	27 (46.6%)	18 (40.9%)	
No	69 (44.8%)	12 (23.1%)	31 (53.4%)	26 (59.1%)	
If you reached out to the PN leadership, how satisfied were you with their support?	*N = 115*	*N = 36 (31.3%)*	*N = 47 (40.9%)*	*N=32 (27.8%)*	NS
Satisfied	43 (37.4%)	14 (38.9%)	17 (36.2%)	12 (37.5%)	
Neither satisfied nor dissatisfied	67 (58.3%)	21 (58.3%)	29 (61.7%)	17 (53.1%)	
Dissatisfied	1 (2.8%)	1 (2.8%)	1 (2.1%)	3 (9.4%)	

Of the patients contacted, 83.3% (N=66) successfully achieved their navigation objectives (**Table 1**). Unfortunately, 44.8% (N=69) of students did not have patient contact—a crucial aspect of PN that is beyond the control of both students and medical education faculty, yet can significantly impact the PN experience. Stratifying the results by patient contact, a chi-square analysis compared the survey answers to the PN contact outcome and found significant differences in "Overall, how satisfied were you with the PN experience?" and "How satisfied were you with the amount of information shared with you about your patient?" (**Table 4**). A logistic regression was performed to analyze the association and the model had a significant prediction performance, $\chi2(12) = 38.760$, df=12, p < 0.001 (**Table 4**). Students with patient contact were 14 times more likely to be satisfied with their overall PN experience than those without contact. However, these students were also 7–8% more likely to express dissatisfaction with the amount of information received about their patients compared to their counterparts.

Some students submitted free text feedback on different aspects of the PN experience. The PN Training website feedback highlighted several positive aspects: "outline of step-by-step process on navigating the patient," "visually appealing," "easy to find necessary resources," "especially helpful was the map with all clinic sites," (i.e., a student-crafted geographic information system (GIS) map database that details local free and sliding-scale clinics organized by specialty in the tri-county area) and "FAQ." The suggested enhancements for the website include: "links to potential resources," "more specific resources," and "information on what happens after navigation,". Regarding the interpreter service, students suggested providing a translator to help draft patient emails, considering the high frequency of communication via email. While mostly satisfied with the granularity of the patient information provided, students recommended adding details like employment status, working hours, and preferred contact times.

Dissatisfied students suggested several PN program improvements. One participant stated, "I think requiring PN is theoretically a good experience for students, however, I think that giving people the option to do so, and actually being passionate about it would be better." Some participants proposed pairing Spanish-speaking students with Spanish-speaking patients. Several students recommended restructuring the program into an individual assignment, emphasizing the advantage of patients interacting with a single point of contact. Additionally, a segment of students expressed their interest in a more comprehensive navigator role.

Discussion

Overall, the program effectively guided patients into follow-up care while acquainting first-year medical students with the healthcare access challenges. The high navigation success rate could be attributed to MS1s

navigating low-risk patients with straightforward goals, such as scheduling a primary care appointment or attending a financial assistance appointment. Further, assigning it as a graded task likely increased the students' motivation to engage with patients. Assessing the navigation process from the patient's perspective through surveys or focus groups would offer insightful data.

The program invited all MS1s to share their feedback on their PN experience through a post-navigation survey, regardless of patient assignment. We adopted this approach since all MS1 students had participated in mandatory training and a faculty-led reflective session. Students assigned to patients, regardless of contact, were almost five times more likely to report satisfaction with the PN experience than their counterparts (**Table 2**). This finding underscores the benefits of pairing theoretical training with practical application.

Approximately one-third of the students reported satisfaction, and another third reported dissatisfaction with the PN experience. The PN Training website, the interpreter service, the provided patient information, and patient contact were key determinates for participant satisfaction with statistical significance. Implementing the refinements suggested from the free text feedback, such as direct links to potential resources, additional patient information like preferred contact times, and specific interpreter services for writing emails, would optimize the interaction between students and patients.

Student satisfaction also hinged on patient contact. Intuitively, students who engaged with their patients felt more satisfied with the navigation process—a trend witnessed in other medical school PN programs.[3] Interestingly, students who did not have patient contact were more satisfied with the amount of patient information received than those who had patient contact (**Table 4**). Although the 7% difference is practically insignificant, we postulate that these students were unaware of the data needed to enhance their interaction. The program still awarded passing grades to students who could not guide their patients toward achieving navigation goals, recognizing their earnest efforts and resilience in navigating the complexities of healthcare accessibility and resource distribution.

Dissatisfied students suggested improvements for the PN program, such as restricting participation to enthusiasts; pairing Spanish-speaking students with Spanish-speaking patients; restructuring the program as an individual assignment; and allowing a more comprehensive navigator role. Firstly, although multiple students agreed with the sentiment of narrowing participation to interested individuals, this undermines the aim of acquainting MS1s with healthcare access challenges. Most medical schools offer the PN experience as an elective rather than a mandatory curriculum; however, many still require some form of longitudinal patient care experience.[3] A mandatory PN

curriculum in medical education represents a rare instance and underscores this study's importance. Regarding the Spanish patient-student pairing, this approach dilutes the program's pragmatism. In diverse clinical settings, healthcare professionals rely on interpreter services to bridge language barriers.

Several students recommended restructuring the program into an individual assignment. The initial rationale behind pairing students was twofold: to amplify the number of students gaining exposure to the navigation process (since there were more students enrolled than low-risk patients requiring navigation) and to provide an opportunity for students to exercise teamwork in patient care. Many of the medical schools that served as examples for our PN program had student pairs to navigate patients.[3,6] Nevertheless, we acknowledge the merit of streamlined communication through one student. In future iterations, the decision to pair students will hinge on the volume of low-risk patients opting for navigation. Additionally, a segment of students expressed their interest in a more comprehensive navigator role. Notably, the DOCS program includes moderate- and high-risk PN teams led by student volunteers, providing opportunities for students to undertake more robust navigation responsibilities. As the program evolves, we will consider these enhancements. However, it is important to highlight that the primary objective of the MS1 program is introductory, designed to impart a foundational grasp of healthcare access challenges.

The program's design and execution have inherent limitations. The primary limitation is the absence of a quality assurance mechanism to verify patient experiences or the accuracy of student log entries, as PN leadership did not contact patients for feedback. Consequently, the reported achievement of navigation objectives relies predominantly on student self-reporting. Another limitation is the program's narrow focus on patient entry into care without ensuring sustained continuity of care. In its current form, the PN program does not possess the capacity to guarantee subsequent patient adherence to scheduled appointments. The expectation is that the designated clinics will shoulder the responsibility of maintaining continuity of care. Moreover, the annual enrollment of new MS1s limits the potential for sustained patient engagement.

Conclusion
In our pilot, we integrated PN into the first-year medical curriculum, achieving two objectives: ensuring follow-up care for low-risk patients and exposing MS1s to local community resources and the challenges their prospective patients might face. The DOCS health fairs, primarily serving non-English speakers and undocumented immigrants, enabled students to directly engage with the healthcare barriers these groups encounter. To address these challenges, students employed key resources, including the interpreter line and the financial assistance program offered by the county hospital. Even for those students who did not actively navigate a patient, the Training website and reflection sessions instilled an understanding of how social determinants impact an individual's health and wellness. Based on the feedback received, future iterations of the program will aim to improve student-patient communication and bolster the repository of community resources.

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