Increasing Portal Adoption Rate in a Nurse Practitioner (NP) Led Family Practice Primary Care Clinic

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Abstract

Background: Patient satisfaction is a key indicator of the quality-of-care health professionals provide and the performance of healthcare organizations. Patient portals are one of many influencing factors of patient satisfaction. Patient portals have been shown to improve patient engagement, empowerment, and self-care, and reduce costs and errors (Kruse et al., 2015). Nationally, only 57% of patients have accessed their portal once in the last 12 months (Strawley & Richwine, 2023).

Purpose: The purpose of this Quality Improvement (QI) project is to increase the current portal adoption rate of 72.7% by 20%, in a 12-week time frame, for patients 13 years and older at a Nurse Practitioner led Family Practice Primary Care Clinic.

Methods/Intervention: Education on patient portals and their effect on patient satisfaction was provided during two in-services to providers and staff. Evidence-based, informational brochures were created and passed out to all patients not registered for a portal upon check in for their in-person appointments. Poster versions of brochures were placed on the back of each exam room door. Patient satisfaction surveys were already in place at the clinic, sent via text, email, or phone call. Data was collected monthly from September 2023 through January 2024. Patient satisfaction scores and portal adoption rate were measured via percentages and compared pre and post intervention.

Results: Prior to September 2023, portal adoption rate was below 70%. After implementation of the intervention, portal adoption rate increased by 4% at the end of December 2023. Patient satisfaction scores prior to implementation of the intervention in September 2023 were 52.1%. Patient satisfaction scores were increased by 30% at the end of December 2023.

Conclusions/Implications: Statistical significance was not found due to the lack of raw data, but clinical significance was found. This QI project has proven that for successful portal adoption and use, it is important that staff and patients receive education. The evidence provided by this QI project reveals that portal adoption allows for improved patient satisfaction, communication, and patient empowerment. Although inferences cannot be made regarding the correlation between portal adoption rate and patient satisfaction scores, this relationship will be an area that may be investigated for future study.

Keywords: Primary Care, Patient, Physician, Provider, Clinical Team, Communication, Physician-Patient Relations, Satisfaction, Recommend, Experience, Engagement.

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Patient satisfaction is a key indicator of the quality of care health professionals provide and the performance of healthcare organizations. However, many factors can influence how patients perceive and evaluate their experiences with healthcare services. One of these factors is the use of patient portals. Patient portals are secure online platforms that allow patients to access their personal health information, communicate with their providers, schedule appointments, request prescriptions, and more. Patient portals have been shown to improve patient engagement, empowerment, and self-care, and reduce costs and errors (Kruse et al., 2015). However, not all patients are aware of the portal services offered by their providers, nor the positive impact portal adoption might have in their lives.

Background and Significance

Patient satisfaction surveys are a driving quality improvement initiative for primary care offices, especially those receiving performance-based reimbursement (Agency for Healthcare Research and Quality [AHRQ], 2020). According to the AHRQ (2020), efforts to improve patient experience reduces employee turnover, lowers malpractice risk, improves workflow, and decreases the chance of patients switching practices. They go on to report that patient satisfaction surveys can identify gaps in communication between provider and patients. They further share that improved patient experience and satisfaction are associated with improved health outcomes, better self-management skills, and compliant disease prevention and management.

Primary care provides health services that patients utilize to learn about promotion of health, disease prevention, and management of complex conditions. Self-care management is an

essential strategy to empower individuals to lead a healthy lifestyle and promote longevity (Nahm et al., 2017). On February 17th, 2009, the Health Information Technology for Economic and Clinical Health (HITECH) Act was put in place to reimburse providers promoting meaningful use of health information technology (U.S. Department of Health and Human Services, 2017). The fundamental part of HITECH for primary care providers includes the use of electronic health records (EHR). This is relevant because patient portals are a key component of EHRs. According to Mao & Hovick (2022), the use of messaging via an online patient portal between a patient and provider increases patient satisfaction and improves health outcomes.

While a significant portion of Americans utilize smartphones and have access to the internet, the adoption of patient portals remains relatively low. In 2020, the Health Information National Trends survey reported that about six in ten patients were offered patient portal access and only 40% of people have accessed their portal once in the last 12 months. In comparison, findings in 2022 by the Office of the National Coordinator for Health Information Technology reported that 73% of patients were offered a portal platform however, only 57% of patients accessed their portals in a 12-month period (Strawley & Richwine, 2023). The ongoing low adoption rate is of interest because portals are easily accessible via smartphone apps or the internet. Remarkably, 95% of Americans use the internet and 90% own a smartphone (Gelles-Watnick, 2024). Although portal adoption has increased over the years, Chen et al. (2022) explain that portal adoption rates depend heavily on whether providers are offering this service to their patients. Furthermore, evidence suggests providers are less likely to offer portal education to non-White and non-English speaking individuals (Chen et al., 2022). Along with the need for providers to promote the use of portal messaging, Mao & Hovick (2022) discuss the need for patient education on portal use in underserved populations. According to Ahmed et al. (2023),

patients are either unaware of the idea of a portal or unsure of the steps needed to sign up for said portal.

Rationale

Patient portal adoption is an important concept in healthcare. Portal adoption benefits users by allowing for improved communication with providers and assists in increasing patient satisfaction (Ahmed et al., 2017; Hovet, 2017; Kruse et al. 2015; Sieck et al, 2017; Sorondo et al., 2017). Additional literature research reveals that portal adoption can be linked to a decrease in the utilization of emergency department (ED) visits and hospital admission rates (Tapuria et al., 2021). Despite the benefits of portal adoption, the national portal adoption rate remains low. Identifying common barriers to portal adoption and creating interventions to improve portal adoption rate increases likelihood that the patients will become portal subscribers (see Appendix B Fishbone Diagram that discusses barriers to portal adoption).

Specific Aims

The purpose of this Quality Improvement (QI) project is to increase the current portal adoption rate of 72.7% by 20%, in a 12-week time frame, for patients 13 years and older at a NP led Family Practice Primary Care Clinic in the Midwest. This QI project will provide patients with easy-to-read information that explains how portals can benefit them, and how to register for the portal. This intervention will facilitate knowledge and empowerment, therefore promoting adoption of patient portal use, with a goal to lead to improved patient satisfaction.

Methods

Search Strategies

A thorough and comprehensive review of the literature was conducted to answer the question of "In a primary care clinic, how does the use of a patient portal affect patient

satisfaction?" The search engines used were CINAHL and PubMed. Keywords included primary care AND patient AND physician* OR provider OR clinical team AND communicat* OR "physician-patient relations" AND satisfaction OR recommend* OR experience* OR engagement. In PubMed the medical subject heading of "patient portals" was included and portal was included as a text word (tw). In CINAHL, the subject headings of nurse-patient relations AND portal* OR "patient portals" were included. A search conducted in CINAHL produced 51 results. Inclusion criteria of the English language only eliminated one article. The publication date filter of 2017-2023 was applied and 34 articles resulted. After reading through titles and abstracts 14 articles were eliminated due to lack of relevance. This left 20 articles for further review in CINAHL. The key words in PubMed produced 102 articles. After removing non-English articles, one article was eliminated, leaving 101 articles. The publication date filter of 2017-2023 limited the results to 65 articles. Upon reading titles and abstracts, there were 11 duplicates found in PubMed that were also in CINAHL. 54 titles and abstracts were read, eliminating 32 articles that were irrelevant to patient portal use in a primary care setting. This left 22 articles for further review in PubMed. Five articles were removed because of denied access. 38 full text articles were read for the literature review.

Selection Criteria

Articles were selected based on their applicability to the effect of portal use on patients in an outpatient setting. For this project's purpose, 10 final articles were included in the literature review.

Context

Patient satisfaction is important for both the patient and provider. A disconnect in satisfaction of care can cause a domino effect. It can lead to a breakdown in communication,

mistrust, and even a termination in the relationship between patient and provider, which can then cause failure to follow up on preventative care or management of chronic conditions. This eventually leads to poor health outcomes for the patient and a heavier burden on the healthcare system (Tapuria et al., 2021).

The Centers for Medicare and Medicaid Services (CMS) has implemented tools such as surveys to better understand trends or issues that affect healthcare quality and to improve quality of care. The CMS (n.d.), states that the quality of services is measured clinically, administratively, and with patient experience of care surveys to improve the quality of care provided for patients. They go on to share that the Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey is one of the surveys used to measure patient experience. The CMS (n.d.) also shares that some CAHPS surveys are used for reimbursement for merit pay rewarding providers/clinics for providing high-quality services instead of only paying for the number of services provided. To further motivate providers/clinics to provide high-quality care the survey results are made public. This is important because, among the patient experience questions asked on these surveys, there is one that focuses on patient satisfaction with their provider. Publicized low scores might create hesitancy in new patients choosing to get care with that provider or it may be a catalyst for established patients to question the quality of care they are actively receiving and to leave the practice. Not only does this affect the provider/clinic financially, but it may also cause issues with the individual provider's performance reviews which may put them at risk of losing their job. Patient satisfaction is an important factor in the healthcare industry; both for the patient and provider. Thankfully, evidence has surfaced relating to different ways to improve patient satisfaction, including

adoption of the patient portal (Ahmed et al., 2017; Hovet, 2017; Kruse et al., Sieck et al., 2017; Sorondo et al., 2017; Tapuria et al., 2021).

Patient and Provider Communication

The literature review for this QI project revealed an abundance of information related to differing dynamics of patient portal use allowing for various themes to be identified in the process. Both patients and providers can benefit from EHR patient portal use (Ahmed, 2017; Cross et al., 2021; Hovet, 2017). Patient portal usage can improve patient-provider communication (Ahmed et al., 2023; Cross et al., 2021; Ordaz et al., 2021). Communication between the patient and provider is a key factor relating to patient experience and satisfaction (Ahmed et al., 2017; Cross et al., 2021; Hovet, 2017; Ordaz et al., 2021; Ramsey et al., 2018, Sieck et al., 2017; Tapuria et al., 2021; Young and Nesbitt, 2017). Patient portal usage can improve communication leading to increased patient satisfaction (Ahmed et al., 2017; Hovet, 2017; Sieck et al., 2017; Sorondo et al., 2017). Patient portal use also improves patient empowerment (Ahmed et al., 2023; Ordaz et al., 2021; Ramsey et al., 2018; Hovet, 2017).

Barriers to Portal Use

Lack of insurance reduces portal usage (Ahmed et al., 2023; Saif et al., 2022). According to a study by Saif et al. (2022), Medicaid/Medicare users were less likely to use portals. However, Sorondo et al. (2017) found that 49% of portal users were enrolled in Medicare. According to Tapuria et al. (2021), older adults over 60 are less likely to sign up for the patient portal. Cross et al. (2021) further elaborates that the older adult’s perception of primary care and their likelihood of portal use hinges on their provider's attitudes and whether the provider encourages them to use the portal. They go on to state that in the older population, patient

satisfaction also depends on how well the provider/staff can use technology during in-person care. In addition, they share that some adults have difficulty using technology to communicate with their healthcare providers. This concept is in direct correlation with study findings by Sieck et al. (2017), which report both patients and providers may need further education about portal use including rules of engagement for messaging through portals. Sieck et al. (2017) go on to share that the patient is concerned about when to use the portal or imposing on their provider while the provider worries about what is appropriate to talk with the patient about while communicating via the portal. Ramsey et al. (2018) found in their study that adolescents prefer to communicate in their portal via email or text. Ramsey et al. (2018) further share that more information is needed to address proxy access because there is not enough information currently that speaks to this topic. Studies by Saif et al. (2022) and Tapuria et al. (2021) share a common theme in that some patients decline to use the portal platform out of fear that there is lack of security or there may be confidentiality issues.

While some individuals were worried about security and confidentiality, others were worried about the type of data they would find. Some individuals declined to use the portal out of fear of finding information that would be alarming to them such as finding out they have cancer or other conditions (Tapuria et al., 2021; Young & Nesbitt., 2017). Other findings related to portal adoption included mixed reports regarding racial and ethical dynamics of patient portal use. Sorondo et al. (2017) report that of their participants, 99% were white or non-Hispanic. Ordaz et al. (2021) share that their study found that in relation to African Americans, the use of patient portals improved patient empowerment and decreased trust issues while improving patient-provider communication. However, they did point out that utilization of the patient portal does require more work from the patient and the provider. Ahmed et al. (2023) state that there

were no findings that revealed differences in demographics such as race/ethnicity when examining portal usage in their study. It should also be noted that studies have found that portal users have higher education and earn a higher wage than non-users (Ahmet et al., 2023; Sorondo et al., 2017).

Other obstacles to portal adoption can be further categorized into two main groups, the patient perspective and the provider/staff perspective. From the patient perspective there is lack of knowing that the provider offers a patient portal, not wanting to deal with the time with signing up, confusion with sign up, and lack of education (Ahmed et al., 2023; Cross et al., 2021; Sorondo et al., 2017). From the provider perspective, Cross et al. (2021) proposes considerable evidence summarizing barriers that the clinic/provider might experience relating to portal adoption. They state that technology adoption is stymied by factors including expense, staff attitude, disruption in care processes and workflow, education requirements, and competing priorities for practice improvement. They share other factors such as the providers' reimbursement mindset. Sieck et al. (2017) and Sorondo et al. (2017) also share that barriers to portal adoption may stem from lack of understanding/education about portal use and the workflow issues.

Incidental key findings from the literature review found that patients with chronic conditions are more likely to utilize their portal to communicate with their providers (Ahmed et al., 2017; Ordaz et al., 2021; Sorondo et al., 2017) and that portal users are better prepared for their visits and more likely to embrace preventative health (Tapuria et al., 2021). These revelations support further findings by Tapuria et al. (2021) who share that patient portal usage decreases ED utilization and hospital admissions.

Data on Interventions to Increase Portal Adoption Rate

Interventions to increase portal adoption and portal use were identified during the literature review. Saife et al. (2022) implemented a multi-faceted intervention involving distribution of flyers that discussed patient portal benefits and a QR code for the portal signup link, education for providers, and the development of a SmartPhrase for documenting portal education. Results showed an increase in portal adoption rate of 11% in adolescents, 12% in adults aged 19-44, and 10.7% in adults over the age of 65. The education for providers focused on the technical process for patient signup to allow another check in point for promoting portal adoption to patients (Saif et al., 2022).

In a quality improvement project performed by Ramsey et al. (2018) at an adolescent clinic, patient portal education executed by volunteer medical students resulted in 87.5% of 96 patients approached, signing up for a patient portal. The education included tech savvy medical students assisting patients to sign up for the portal on the spot (Ramsey et al., 2018).

Another important factor to consider when attempting to improve portal adoption rate is the patient's concern for placing a burden on providers when using the patient portal. Sieck et al. (2017), conducted a qualitative study with telephone interviews and found that portal users did not know when to message providers via the portal because they were afraid to waste their providers time. This implication discusses the need for not only standardizing portal messaging in a patient-provider relationship, but also informing patients on urgent versus non-urgent messages and expectations for response times from their provider.

Summary of Literature Review

According to Cross et al. (2021), the patient portal can enhance communication by making clinical information, assessments, and results available to patients. Patient portals can also provide secure messaging for simple questions to providers, facilitate medication refills, and coordinate appointments and billing activities. Patient education can be tailored and delivered through the portal. For example, communication sharing between staff/provider and patient with the ability to visualize data summaries can improve individualized care and enhance motivation for health behavior change. Portal education is an important tool for successful utilization of the patient portal (Ahmed et al., 2023; Cross et al., 2021; Ramsey et al., 2018; Saif et al., 2022; Sieck et al., 2017).

Intervention

The Midwest NP led Family Practice Primary Care Clinic that this QI project was conducted in is part of an integrated health system associated with a large University, whose overall goal is to improve health in the community utilizing their advanced research and academic mission (MSUHealthCare, n.d.). This large health network employs over 650 clinical faculty members and 9,359 community-based faculty across 21 academic departments and 20 clinics (MSUHealthCare, n.d.). The NP led Family Practice is served by seven Nurse Practitioners. It is estimated that the clinic sees over a thousand patients of all ages each month (M. Herrera, personal communication, June 1st, 2023). The clinic staff includes health care representatives (HCRs), medical assistants (MAs), triage nurses, an RN manager, a supervisor, and a director that are all involved in daily operations (C. Woodford, personal communication, August 3rd, 2023).

In April of 2023, the clinic's EHR was updated, and every patient had to go through the portal registration process again or had to sign up for the first time (T. Vommero, personal communication, July 25th, 2023). At the start of this project, there were a few different processes in place to increase portal registration. According to M. Herrera, personal communication, August 8th, 2023, one process utilized manually searching for portal adoption in the patient's chart while checking the patient in. If the patient was not registered for the portal, the HCR was tasked with informing the patient about the patient portal and then asking if they can send them a link to join the portal via an email address that the patient provides to the clinic. Additionally, the other process was that the patient could ask for a link from the clinic to gain access to the portal. Previously, the clinic tried to promote portal usage by having HCRs use scripted dialogue while interacting with patients to educate them about what a portal is and how to access it. They have also provided handouts such as brochures or business cards with a QR code on them that instructed patients on how to gain access to the portal, and finally, they utilized posters in the clinic that taught readers the step-by-step instructions on how to sign up for a portal. It was also shared that these interventions occurred simultaneously when the new EHR system was implemented in April 2023, but were only utilized for a few months, and outcomes were not measured (T. Vommero, personal communication, July 25th, 2023).

Participants

All patients 13 years old and older and non-portal users at the NP-led Family Practice Primary Care Clinic were given a brochure. According to the clinic's patient portal proxy workflow document, parents or guardians of patients 13 years of age and older have a billing only view of the portal, unless the minor grants proxy access via verbal consent to clinic staff.

This is to protect the patient's confidential information relating to reproductive and mental health as stated by Michigan Law.

Team Members Roles and Responsibilities

A brochure and poster design were created by the authors of this QI project with the help of a graphic artist (see Appendix E). These individuals were overseen by the manager of marketing and communications. The brochure and poster aim were to educate the patients on how the patient portal would benefit them and promoted their desire to subscribe to the patient portal platform. The brochure was a trifold handout. The cover of the brochure included an image of a mock patient utilizing a patient portal. Inside, the first page included benefits/reasons to sign up for a portal that were supported by the literature synthesis performed. The inner page displayed a simple Q&A regarding portal use. Next, the inner right page included steps to follow to sign up for the portal and a QR code that guided patients to the portal sign up page. The first page of the back of the brochure discussed proxy access for the portal. Proxy access was discussed because barriers to portal use included adolescents and older adults worrying about what their caregivers might be able to access (Saif et al., 2022 & Tapuria et al., 2021). Lastly, the clinic's contact information and a portal help number were listed on the outer back page. The poster was an enlarged brochure with a slightly different design for aesthetic purposes.

The Clinic Coordinator/Supervisor delegated the brochure distribution task to the HCRs who worked at the front registration desk (T.Vommero, personal communication, July 25th, 2023). Brochures were housed at the front desk which was the HCRs designated workstation. Poster versions of the brochures were placed by HCRs on the back of the doors in all patient exam rooms. The posters were placed on the back of the exam room doors for patients to see them while they were waiting to be seen by a provider. Posters were displayed from October 3,

2023, through January 2, 2024 (M. Jegla, personal communication, August 2nd, 2023). Similarly, brochure distribution started on October 3, 2023, and went through January 2, 2024.

Before the QI intervention's official rollout began in the clinic, the authors of this QI project conducted an in-service with clinic staff and providers on September 27 and 28 of 2023. During these in-service presentations staff and providers were educated about the purpose and goals of the intervention and given instructions on what their part would be in assisting with increasing portal adoption rates. During this conversation staff were provided with data and statistics about how portal adoption might affect them and the patients. Feedback was encouraged from staff about how they felt about the portal program, and what they might have heard from patients regarding the patient portal platform. For staff not working on the in-service days the Clinic Coordinator/Supervisor ensured they were educated about the QI project purpose and instructions via face-to-face conversation or email.

Study of the Intervention

Portal adoption rates were collected by the Quality Director-Care Manager Supervisor/Community Liaison and communicated to project creators via biweekly meetings. Portal adoption rate data was analyzed at the end of the 12-week intervention period to assess if the portal adoption rate increased by 20%. The model used to study the intervention for this QI project was the Plan, Do. Study, Act model.

According to the Institute of Healthcare Improvement (IHI) (2023), they designed the Plan-Do-Study-Act (PDSA) model to be used for documenting a test of change. The PDSA model is a cycle that can be used in quality improvement (QI) projects such as this one by developing a plan to test the change (Plan), carrying out the test (Do), observing and learning

from the consequences (Study), and determining what modifications should be made to the test (Act).

Plan.

The initial meeting to discuss this QI project was conducted via Zoom and included clinic stakeholders and administration. During this meeting the purpose and goals of this project were identified. It was determined that the clinic would like to address the NRC survey regarding patient satisfaction. After this meeting, a literature review was conducted, and it was determined that patient utilization of the patient portal via their EHR is an evidence-based intervention to improve patient satisfaction scores. Furthermore, the evidence revealed that in order for portal adoption rates to increase, patients, staff, and providers must be educated if they are expected to use the portal (Ramsey et al., 2018; Saife et al., 2022, Sorondo et al., 2017). Following evidence from Saife et al. (2022), it was decided that the intervention for this project would be to create a brochure and a poster that could be used as visual aids to educate patients as well as an in-service to educate staff on the intervention. The Clinical Coordinator/Supervisor and Quality Director-Care Manager Supervisor/Community Liaison approved of this intervention in July 2023. Projections about the intervention were discussed in July and August of 2023. Regular Zoom meetings were conducted with the Quality Director-Care Manager Supervisor/Community Liaison to keep key stakeholders updated on the progress of this project and for approval of any decisions impacting the clinic. Zoom meetings with the Marketing and Communications Manager and the marketing graphic artist were also performed for the brochure and poster creation.

Do.

In-services were conducted with staff and providers as discussed earlier. During these in-services, staff were given a prototype of the brochure printed by marketing. Printing a prototype allowed the authors of this QI project the opportunity to educate the staff about the information on the brochure as well as seek feedback from staff in real time relating to any changes they would like to see in the brochure design. This was done out of respect for the staff and to assist with stakeholder buy-in for the QI project. No recommendations were made by staff to change the brochure design. Feedback from the in-service included many staff members being unaware of how to use the portal, how to help patients with the portal, or the benefits the portal provides. The project creators addressed this gap in knowledge by supplying the staff members with education to effectively access the portal themselves and to ensure they felt comfortable assisting patients with signup. During the in-service it was discovered that one of the HCRs had recently trained as a portal superuser. This team member agreed to be the delegated resource staff member to help those with questions about portal adoption and use. After IRB approval, 320 brochures were printed and delivered to the clinic on October 3, 2023, and poster versions of the brochure were placed on the inside of each patient exam room door. It should be noted that 1,500 brochures were ordered on October 19, 2023, and were kept with a Clinic Coordinator to allow the ability for Clinic Managers to request more brochures from her as needed. Brochures were distributed to non-portal users and all patients had access to the poster. To encourage staff member feedback and continued stakeholder buy-in, a suggestion box was placed in a high-traffic area utilized by staff. The suggestion box was checked for content every two weeks. During the intervention, monthly clinic site visits by the QI authors were planned to assess progress and keep staff engaged.

Study.

The project's short-term aim was to increase the portal adoption rate by 20% in a primary care setting, with a long-term aim of improving patient satisfaction. It was anticipated that about 1,300 patients would be given brochures and over 3,000 patients would be exposed to the poster on the back of the door in the patient exam rooms, should they look at the posters. Portal adoption rates prior to and post intervention were measured. Originally, project creators hoped to improve patient satisfaction scores through increasing portal adoption rates, but because internal validity could not be measured on why a patient may recommend their provider, portal adoption rate was measured instead.

Act.

In attempt to reach the short-term goal of increasing portal adoption rate by 20%, interventions were adjusted. To ensure continued stakeholder buy in and prevent burnout the QI authors visited the clinic monthly. During these site visits staff was provided information about how the portal adoption rate was going, education was reinforced regarding the goals and rationales for the project, and positive reinforcement was provided as well as gestures to thank staff for their efforts in the QI project.

Along with the clinical site visits it was decided to add two more areas for distribution of brochures to promote portal adoption. This meant that along with clinic staff handing out brochures, brochures became available for patients to take outside of patient exam rooms and by the clinic's entrance/exit door. Of note, after the development of the brochure, the authors of this QI project were notified by marketing that the portal adoption brochures were being distributed in all 20 clinics within the same health system. Although not planned, the widespread distribution of brochures can greatly benefit staff and patients in other clinics.

Measures

The project creators had a telephone discussion with an NRC health representative to understand how patient satisfaction survey results were calculated. The monthly report the clinic received from NRC consisted of a net promoter score (NPS). The NPS was calculated from three different factors which were promoters, detractors, and passives (J. Fast, personal communication, August 9th, 2023). The chosen NPS at the project site was the question of "how likely are you to recommend your provider to a friend or family member" measured via Likert scale. Fast went on to explain that a score of 9 or higher was considered a promoter that added one point to the NPS, passives were scores of 7 or 8 that did not negatively or positively affect the NPS. Detractors were scores of 0-6 that subtract one point from the NPS. Although it was important to understand how the scores were calculated, they were analyzed as percentages during the data analysis phase.

The portal adoption rate measurement was a proportion of the number of patients signed up for a portal over the total number of patients seen in the clinic. It was impractical to show a direct correlation between portal adoption rate and patient satisfaction scores because the reason patients would or would not recommend their provider could be multifactorial and complex. The authors of this paper hoped to look for an increase in portal adoption rate and patient satisfaction, with future implications to study the direct correlation between the two variables. The plan was to create a side-by-side bar diagram showing patient satisfaction and portal adoption rate before and after the intervention. Statistical significance was a challenge to obtain without raw data from the NRC surveys and random sampling was not an option, but clinical significance was accomplished.

Setting Facilitators and Barriers

A Strength, Weakness, Opportunity, and Threat (SWOT) analysis table was created by the project authors with guidance from the NP led family practice primary care Clinic Coordinator/Supervisor and Quality Director-Care Manager Supervisor/Community Liaison (see Appendix A). The SWOT analysis is an important strategic tool to compare organizations to its competition (Teoli et al., 2022). Low patient satisfaction scores were the issue brought forward to the project creators by the organization's Quality Director-Care Manager Supervisor/Community Liaison. As of August 8, 2023, the average score for patients' likelihood of recommending their provider was 76.5% (NRChealth, 2023). This is 7.6% below the national benchmark of 84.1% (NRChealth, 2023).

Internal facilitators for the proposed intervention included re-occurring meetings with staff members discussing new workflows. This allowed for the introduction of the QI project to all clinic staff. Also, there was considerable portal support among all staff members. According to Cross et al. (2021), positive attitudes from staff toward the portal help increase patient portal use and improve patient perception of primary care. The success of this intervention relied heavily on the involvement from the clinic's HCRs. Two HCRs were interviewed on their perceptions of this intervention and showed genuine interest, without feeling a burden on their already demanding workload. Most staff members were aware of the bountiful benefits of patient portals and were looking forward to having more patients registered for their portal, but most importantly, were hoping to increase patient satisfaction.

Barriers to implementation included lack of consistency in staffing the registration desk with core clinic staff. Many times, the clinic used cross-trained employees to staff the registration desk. Some days, a medical assistant or someone who usually does not work at the front desk filled in if there are staffing shortages (T. Vommero, personal communication, July

25th, 2023). Temporary staff members may not have known the responsibility of handing out brochures to non-portal users or may not have chosen to prioritize this, among a myriad of their other responsibilities. The Clinic Coordinator/Supervisor worked hard to ensure a standardized process for passing out brochures to non-portal users.

It was important to recognize external factors that facilitated the success of this project. To start, the literature review provided credible evidence that adoption of patient portals can increase patient empowerment and patient satisfaction (Ordaz et al., 2021). As mentioned in the introduction, the HITECH Meaningful Use Act of 2009 can incentivize providers to use portals intentionally (U.S. Department of Health and Human Services, 2017). At present, there are no associated reimbursements with NRC survey results but may be a potential motivator in the future (M. Herrera, personal communication, July 18th, 2023).

In addition to discussing strengths, weaknesses, and opportunities to the project, external threats were also analyzed. For example, patients may not have had an email or the technological means to use a patient portal. In terms of threats to providers, the NRC survey results were keenly monitored, and providers were held to a high standard. Repercussions to repetitive low scores for a provider may have led to a performance improvement plan (T. Vommero, personal communication, July 25th, 2023). This threat may have motivated providers to improve patient satisfaction scores, in addition to their genuine intent to empower patients.

Another threat to the project's success included delays from College of Nursing internal review, IRB approval, or denied approval of the intervention from the clinic's stakeholders. The project creators were in frequent contact with the key stakeholders, including the Quality Director-Care Manager Supervisor/Community Liaison, faculty project advisor, and clinic's

supervisor and manager to keep everyone updated on the project's progress. Conclusively, the implementation of the intervention aligned with the healthcare organization's objectives.

Analysis

Graphic analysis of the data was performed, and a trend line was created. As portal adoption rate increased, patient satisfaction increased, which aligns with the findings from the literature. Although scientific correlation cannot be made between the two variables, two bar graphs were created to display the findings.

Ethical Considerations

Prior to initiating the QI project, an internal review from the Michigan State University (MSU) College of Nursing and MSU IRB approval were granted. Project creators did not ask for or obtain protected health information (PHI) throughout the QI project. HCRs and clinic supervisors were the only personnel interacting with patients. The information shared with the authors of this paper included portal adoption rate and NRC survey reports. There were no patient identifiers on monthly reports of portal adoption rate nor on the NRC survey reports sent to the project creators. The in-service was strictly with clinic staff in a private meeting room, interactions between project facilitators and patients were prohibited. Participant PHI will not be identified in reports or publications of this QI project.

Results

Throughout the quality improvement project, the projected timeline was continuously adjusted. See Appendix C for a final timeline. Data from NRC reports and portal adoption rates were sent to the project creators by the organization's Quality Director-Care Manager Supervisor/Community Liaison. Prior to September 2023, portal adoption rate was below 70%. (M. Herrera, personal communication, August 8th, 2023). After implementation, portal adoption

rate increased to 71.2% at the end of October 2023, 75.5% at the end of November 2023, and 76.3% at the end of December 2023 (M. Herrera, personal communication, January 4, 2024). As a reminder, for this section's purpose, patient satisfaction scores refer to one question on the NRC survey identified as the Net Promoter Score asking patients how likely they are to recommend their provider to a friend or family member. Patient satisfaction scores prior to implementation of the intervention in September 2023 were 52.1%. Patient satisfaction scores increased to 64.6% at the end of October 2023, then 83.3% at the end of November 2023, and lastly, 82.6% at the end of December 2023. This is only 2.1% below the national benchmark, in comparison to being 7.6% below the benchmark prior to this QI's intervention.

As shown in Figure 1, portal adoption rate slightly decreased from September to December, and then increased again in November and December, showing a positive trend. Although the short-term goal of increasing portal adoption rate by 20% was not met, a 4% increase was successfully produced. The portal adoption rate was a direct measurement of the percentage of patients seen each month with an active portal account. The portal adoption rate did not measure the number of new patients signing up for the portal each month. To protect private health information, it was unknown if repeat patients were included in more than one month's data. The number of patients seen in clinic each month varied, affecting the portal adoption rate percentage, as displayed in Figure 1.

Patient satisfaction scores and portal adoption rates are shown in Figure 2. All patients seen in the clinic were asked to fill out the satisfaction (NRC) survey. Of the patients seen each month, only 48 responses were received for September 2023 and October 2023, 36 responses for November 2023, and 23 for December 2023. Surveys were sent out to patients via email, text, or phone, depending on the patient's preferences. The patient satisfaction score was calculated via

Likert scale. As seen in Figure 2, portal adoption rate increased by 4% and patient satisfaction scores increased by 30%. Although inferences cannot be made regarding the correlation between portal adoption rate and patient satisfaction scores, this relationship will be an area that may be investigated for future study.

Figure 1

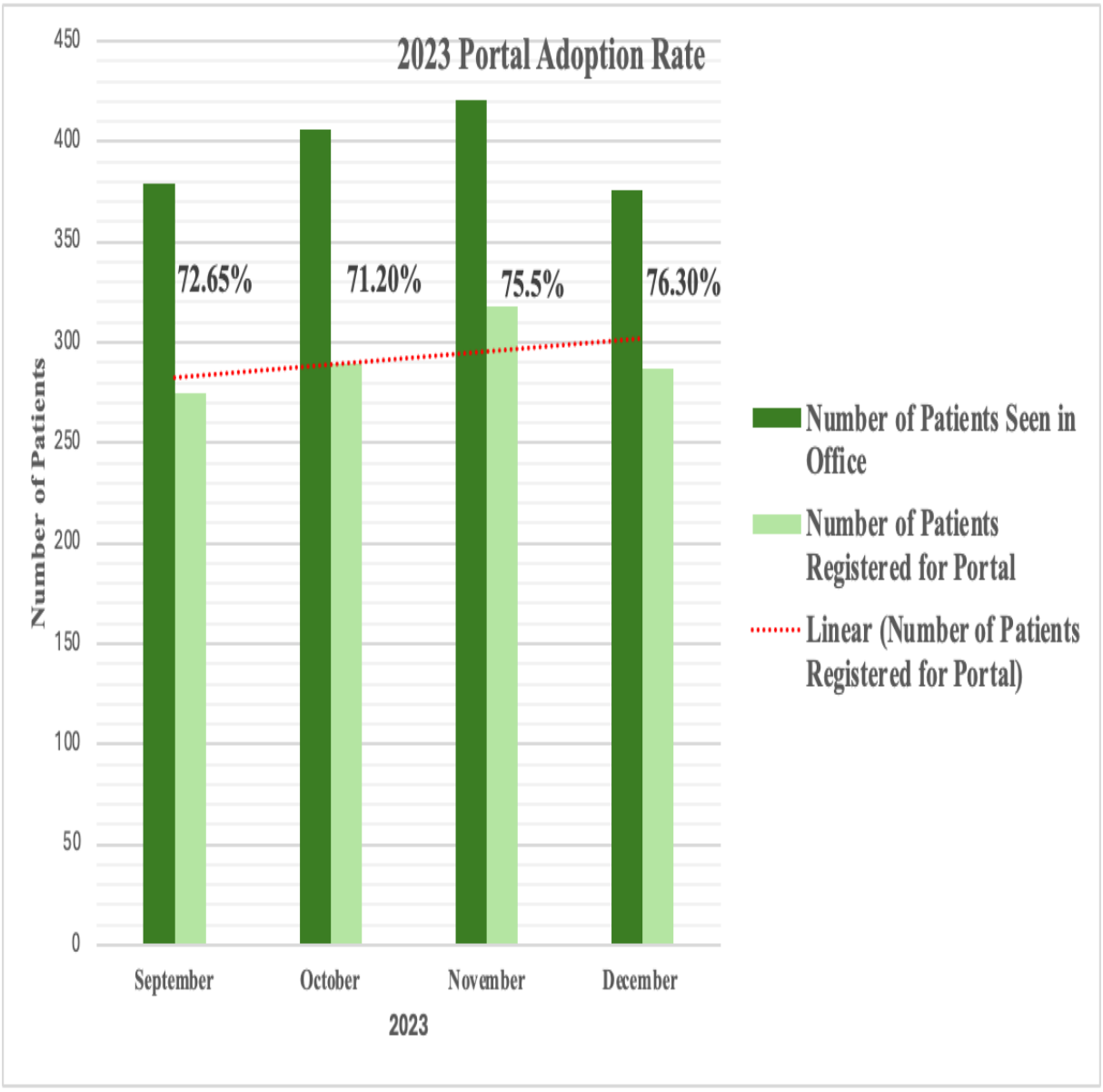
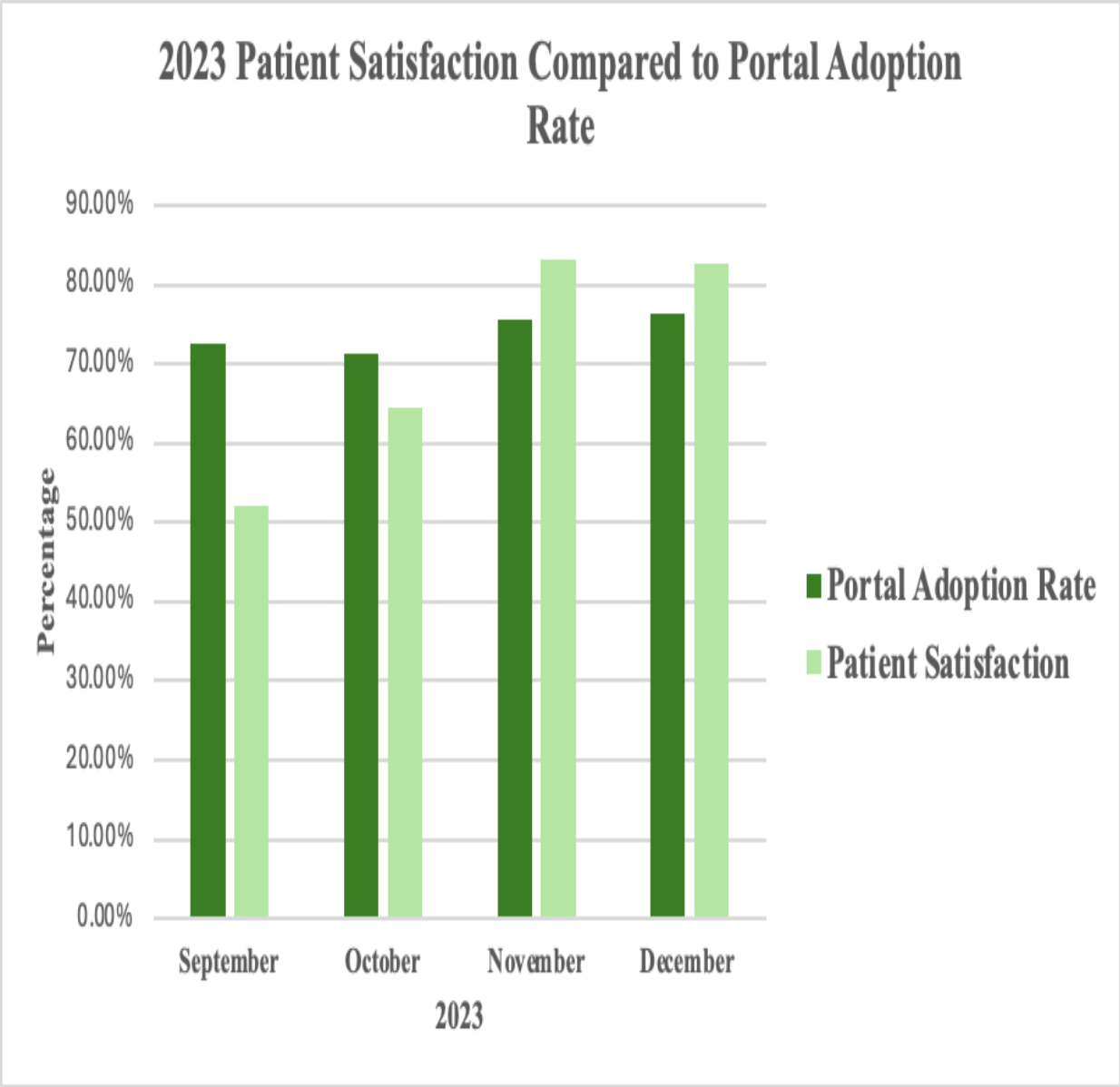


Figure 2



Discussion

Summary

This QI project proved clinical significance with a proven increase in portal adoption rate after an intervention consisting of staff education and evidence-based brochures and posters for patients. Positive feedback was received from clinic staff members regarding the brochure. An easily accessible informational tool to pass on to patients can be greatly resourceful when

appointment time is limited and when patients have questions regarding the portal. Not only do brochures continue to be passed out and on display at the project site past the intervention phase, but the brochures are also being distributed in 20 other clinics within the large health organization. This project's aim was to increase portal adoption rates among patients at a NP Led Family Practice Primary Care Clinic to improve patient satisfaction and enhance patient empowerment. Staff at the clinic now have the knowledge base and rationale behind why patient portals should be promoted. Along with an increase in staff knowledge, brochures will continue to be passed on to patients beyond this project's implementation phase. With as little as a 4% increase in portal adoption rate, hopefully portal educated staff and the use of portal informative brochures can continue to increase portal adoption rate as well as ascertain the relationship between patient portals and patient satisfaction.

Interpretation

With the implemented interventions, there was an overall 4% increase in patient portal adoption rate. Although this percentage seems small and the goal of increasing the portal adoption rate to 20% was not met, the increase still represents a positive impact improving portal adoption rates as well as leaving room for opportunities for improvement. The increase in portal adoption rates after providing education to staff and patients is supported by Saife et al. (2022) who also used education as an intervention in their study to assess how it would affect portal adoption rates. This QI project had further findings that revealed that there was a 30% increase in patient satisfaction after the QI interventions had been implemented. These findings are in agreement with Ahmed et al., (2017); Hovet, (2017); Kruse et al., (2015); Sieck et al., (2017); Soronda et al., (2017) who share in their research that utilization of the patient portal assists in increasing patient satisfaction. During follow-up visits to the clinic, it was noticed that staff

appeared to be invested in the QI project. Everyone approached by the QI authors was hands on and able to give updates regarding how implementation was going, what their part was, and able to share valuable feedback they had received from patients relating to portal adoption and use. Some comments that patients shared with staff about portal adoption and use were that they were not aware that the clinic offered a portal platform. Other feedback from patients indicated they did not know the value of portal adoption including what services it offered and that they would be able to communicate with office staff including their provider. Feedback was also shared by some patients that they felt that the portal was too much of a hassle while others either didn't have technical knowledge or have access to a computer, tablet, or smart phone. The staff shared that most individuals that declined to adopt a patient portal were 65 years old and older. This information collaborates with findings from Tapuria et al. (2021) who share in their research that individuals over the age of 60 are less likely to adopt the portal. Another way staff tried to encourage patients to adopt the portal was by telling them it would be easier to get in contact with the clinic via portal messaging instead of calling. This was in response to the frequent complaints staff received from patients who voiced frustrations of excessive difficulty getting through to the clinic, since phone services were contracted with a third-party. When clinic providers were interviewed about patient portal adoption, the consensus was that there is value in portal use, but they also shared concerns. There was concern that portal adoption would cause more work for staff or interfere with workflow. This concern is not unknown to providers. Cross et al. (2021); Sieck et al. (2017); and Sorondo et al. (2017) all share in their work that healthcare providers may see portal adoption as added burden in their daily workflow. Clinic providers also share the question whether time spent caring for the patient via the portal can be financially reimbursed. Reimbursement for care via patient portal is a hot topic in healthcare right now.

According to Cross et al. (2021), many providers believe care via patient portal should be reimbursed. Moore et al. (2020) shares that some provider/patient portal communication does qualify for reimbursement if the communication falls within specific guidelines. Other feedback from clinic providers is their concern that sometimes fear, or misunderstanding can be generated by information patients find within their portal. They admit some of the information can be factually concerning, but most times test results are often misunderstood therefore causing undue anxiety and fear when the findings are benign which aligns with findings from Tapuria et al. (2021).

Limitations

This QI project interventions are reproducible and generalizable. As mentioned above, the educational brochures have already been adopted by all 20 clinics within this large healthcare system. However, there are multiple factors that might have impacted the outcome of this QI project. As stated previously, the original intent of this project was to measure how patient portal adoption impacts patient satisfaction but because there are a variety of reasons why a patient might not recommend a provider it takes away the ability to measure direct correlation between portal adoption rate and patient satisfaction scores. Other factors that might have affected the outcome of this QI project are the lack of consistent core staff at the clinic to ensure each patient who was registering was audited to see if they had portal access and to ensure they received a brochure if the patient did not have portal access. Staff also admitted that on rare occasions they were too busy to assist the patients with portal adoption. Other limitations were in the ability to measure the demographics of those who did and did not adopt portals, including age, gender, ethnicity, financial and educational backgrounds. Although the specific aim of the project was to measure portal rates in patients 13 years and older, due to limited demographic data, this

objective was not met. Having this information might have allowed the QI authors to create an intervention geared towards specific populations. Another important factor that might have affected this QI project outcomes was that the interventions were implemented during Halloween, Thanksgiving, Christmas, and New Years which were times the clinic was either closed, had shortened hours, or providers were seeing less patients than normal. The decreased patient flow directly impacted portal adoption percentages.

Budget

Financial implications were considered prior to implementing the intervention. The estimated total budget of this quality improvement project was $18,623.95. See Appendix D1 for a breakdown of the budget. For sustainability purposes, the cost of the intervention would only include HCR's hourly rate and printing materials. The personnel for this project included the two project creators, one HCR per shift, and the Nurse Manager. The QI project's design and planning process included a marketing and communications manager and a graphic artist. Two hours of the marketing and communications manager's time was dedicated during the planning process and one hour spent during follow-up. The graphic artist spent 11.5 hours assisting project authors with the brochure's creation.

Patient registration protocol consists of opening a patient's chart but with the adoption of the intervention, HCRs were looking for portal status and handing out brochures to non-portal users. Based on the August 2023 portal adoption rate of 59.8% and an estimated traffic of 50 patients on a busy day, about 20 non-portal users a day would be given a brochure. The addition of HCRs verifying portal status and passing out brochures was estimated to take one extra minute per patient, over a three months' time leading to an additional 54 hours of HCR's time. The clinic manager's time for delegation of tasks and overseeing the intervention took about

three hours in total. The intervention was in place from October 3, 2023- January 2, 2024, which equals 58 business days, considering holiday hours. Marketing covered the costs of brochures and posters which totaled to be $350. The clinic and marketing team took responsibility for the personnel's salary. Front desk staff workflow, portal adoption rate, and patient traffic was continuously analyzed to adjust for cost saving accordingly.

Conclusions

This QI project has proven that for successful portal adoption and utilization, it is important that both staff and patients receive education. Further, this QI project revealed that portal adoption appears to positively impact patient satisfaction. The educational materials utilized in this QI project were in-services, brochures, and posters, all of which are reproducible and sustainable. This is evident by the brochures created in this QI project already being adopted by all 20 clinics within the large healthcare system. Of interest, the intervention clinic shares staff who float to another family practice in the same building. The staff disclosed that since this QI intervention brochure had started to be distributed, there was a drastic jump in portal adoption at that clinic. Other clinics could easily use this brochure as a tool to increase portal adoption among their patients. Insurance companies may reimburse or provide merit pay based on satisfaction scores so understanding how portal adoption and use affect patient satisfaction might lead to more sound financial futures. It might be beneficial for providers to investigate the latest regulations relating provider/patient portal communication because reimbursement policies have been created that allow providers to charge for certain services rendered on the portal (Moore et al., 2020). This QI also revealed that older populations are more prone to not utilizing the portal. It may be beneficial for clinics to create a special hands-on class that teaches patients all about the portal as well as teaches them step by step on how to get signed up as well as the different

tools available once they are logged in. This action might be important because the older adult population tend to make up a large percent of patients seen. The clinic might want to create a space in the office where a patient can sit at to create or access their portal account if they are unable to do so from the comfort of their home or lack a trusted support system that can help them with signing up or accessing a portal.

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Appendix

Appendix A

Table A1

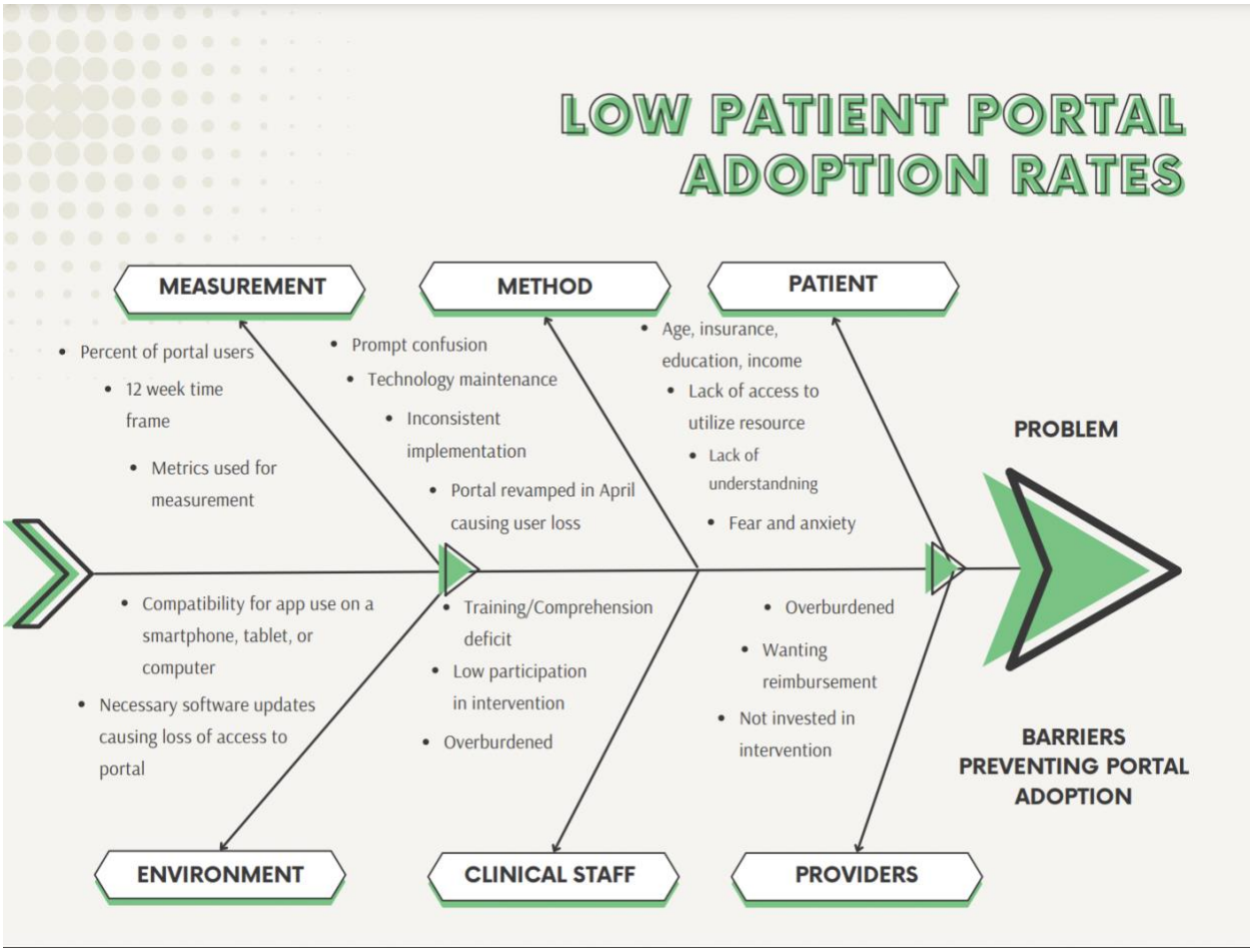
Strengths, Weaknesses, Opportunities, and Threats

Strengths	Weaknesses
● Clinic utilizes their version of a Chronic Care Model ● Focuses on individualized care ● Constant recurring meetings to make sure staff is staying on top of progression and workflows ● Many different committees for different colleges ● Internal workflows constantly assessed by different department's leaders ● Staff works well together ● Support for the portal from the staff ● Front desk staff willing to pass out brochures ● Staff educated about the patient portal	● Staff is cross-trained ● Front desk staff does not always remember to inform non-portal users to sign up and/or send the signup link during prep work
Opportunities	**Threats**
● Literature showing the benefits of patient portal use ● HITECH Meaningful Use Act of 2009	● Patient push back because they do not want the portal or do not have technology to use portal ● Score is 7.6% below national benchmark ● Providers are held to a standard on NRC survey results and if they do not meet it they are put on a performance improvement plan (PIP) ● Possible future reimbursement for scores ● Delays from CON internal review or IRB approval ● Denied approval from clinic

Appendix B

Figure B1.

Fishbone Diagram of Cause and Effect



Institute for Healthcare Improvement (IHI, n.d.)

Appendix C

Table C1

Project Timeline

Task	Aug 2023	Sept 2023	Oct 2023	Nov 2023	Dec 2023	Jan 2024	Feb 2024	Mar 2024	Apr 2024
Project Approval		X							
Meet with faculty project advisor and clinic stakeholders	X	X	X	X	X	X	X	X	X
Create brochure and poster		X							
Implementing intervention			X	X	X				
Data collection			X	X	X				
Analyze data with a statistician						X	X		
Interpret results							X	X	
Disseminate results and final recommendations								X	X

Appendix D

Table D1

Project Budget

Personnel	**Pay**	**Total**
Charlene	$47.14/hour X180 hours	$8,485.20
Samantha	$47.77/hour X180 hours	$8,586.60
Clinic's supervisor	28.77$/hour X3 hours	$86.31
Healthcare Representatives	19.22$/hour X54 hours	$1037.88
Marketing and Communications Advisor	43.79$/hour X3 hours	$131.37
Graphic Artist	25.79$/hour X11.5	$296.59
Other Expenses	**Cost**	
Brochure paper & Ink	$300	
Poster paper & Ink	$50	
	Project Total	$18,623.95

Appendix E

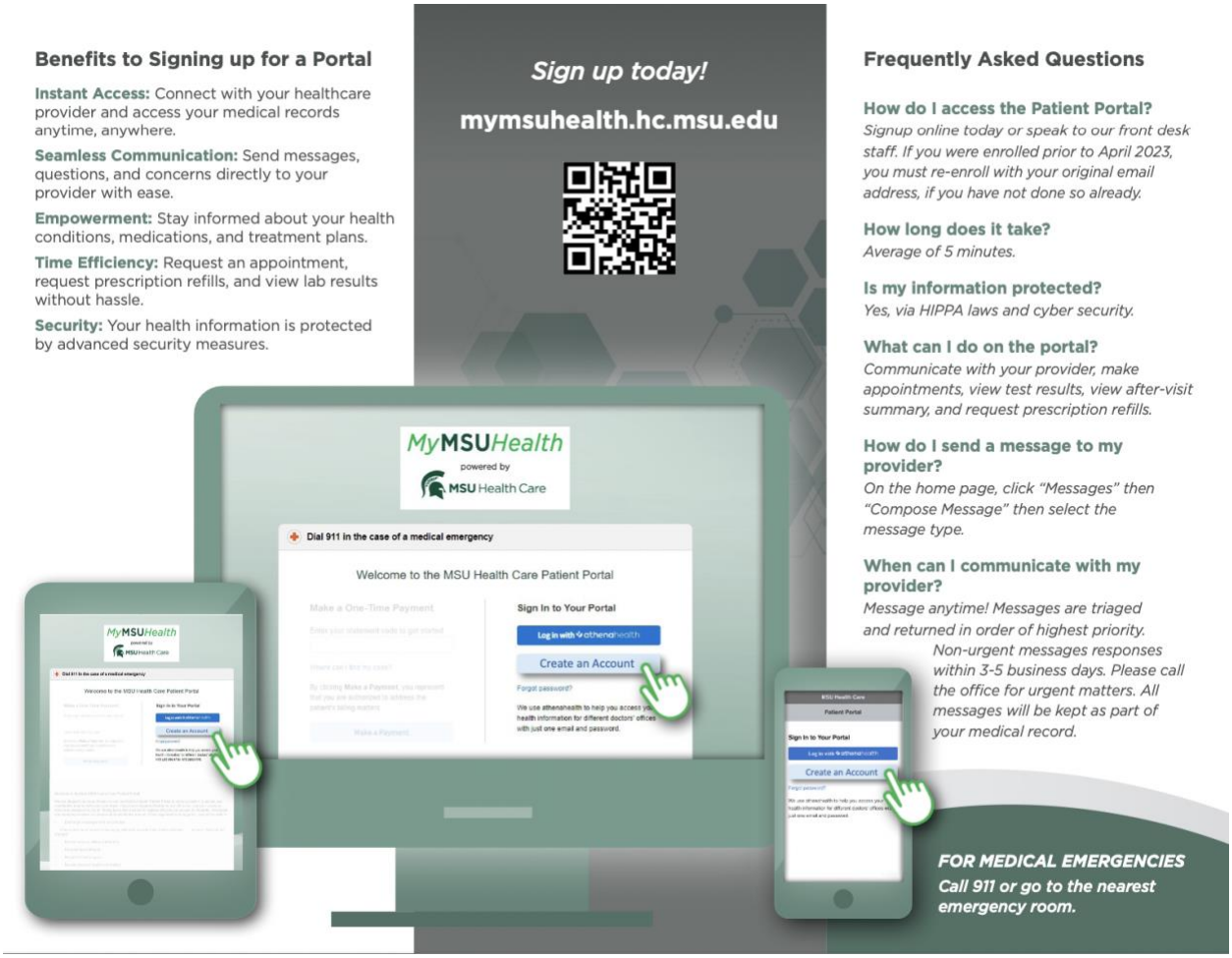
Figure E1

Intervention Brochure part 1

Appendix E (continued)

Figure E2

Intervention Brochure part 2



Appendix E (continued)

Figure E3

Intervention Poster