IMPROVING MISSED APPOINTMENTS OR NO-SHOWS IN A FEDERALLY QUALIFIED HEALTH CENTER

by

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Abstract

An appointment missed or canceled less than 24 hours before the scheduled appointment is referred to as a no-show. No-shows can have a detrimental effect on patient health and negatively impact a clinic's revenue. No-shows at a federally qualified healthcare center (FQHC) can result in more problems for an underserved population with limited access to healthcare. Patients who do not show up cause a longer lead-time for other patients to receive treatment. This doctor of nursing practice (DNP) project aimed to determine the reasons for the no-shows and to develop interventions to decrease their frequency for a local FQHC. The health belief model was incorporated into the intervention to address the behavior problems associated with missed appointments. Interventions of text messaging and a personal phone call decreased the number of no-shows by 12.2%. Consequently, no-shows decreased, providing the patient, the FQHC facility, and the community with better opportunities.

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Chapter I: Introduction

Missed appointments, otherwise called no-shows, can create a problem for any primary care facility, especially when building continuity of care for the patient. Moreover, no-shows can interfere with the facility's ability to service other patients who need to see their healthcare provider. No-shows are patients who fail to show up for a scheduled appointment or forget to cancel their appointment more than 24 hours before the appointment (Tuso et al., 1999).

Compliance with keeping appointments is the foundation of a good relationship between the patient and the provider and can result in better patient outcomes. No-shows can drastically alter the provider-patient relationship and create a problem. No-shows negatively affect a federally qualified health center (FQHC) that offers community-based primary care to various patients across the socioeconomic spectrum (The Primary Health Network, 2022). The FQHC primary care center is designed to serve areas with limited healthcare access, including the insured, underinsured, and uninsured (The Primary Health Network, 2022). In an FQHC, healthcare costs are among the lowest of all healthcare providers, reducing the need for more costly treatments. FQHCs minimize the amount of taxpayer dollars necessary (The Primary Health Network, 2022). Despite this, an FQHC may struggle to remain open if patients do not attend their appointments. In addition, no-shows may interfere with the facility's ability to serve other patients (Nguyen & Kuzara, 2020; The Primary Health Network, 2022).

At a local FQHC primary care clinic in central Indiana, a significant portion of patients are in the lower socioeconomic (LSE) categories. Most LSE patients serviced by this facility receive Medicaid or are uninsured. A major challenge with patients in a LSE

category is their difficulty in keeping appointments, which may negatively affect their ability to receive health care. (Phillips, 2008). No-shows are costly to the medical facilities and the patient's health (Marbouh et al., 2020; Ofei-Dodoo et al., 2019). No-shows create gaps in the care of chronic illnesses that could lead to an increased risk of comorbidities, poorer health outcomes, or even premature mortality (Crutchfield & Kistler, 2017; McQueenie et al., 2019; Phillips, 2008).

No-show rates were reported as 21% of scheduled appointments at the facility for the doctor of nursing practice project. It is relevant to note that, despite the previous no-show percentage rate being below the national average of 23% to 34% (Crutchfield & Kistler, 2017), there were inaccuracies in recording those no-shows at the FQHC. For example, patients who rescheduled their appointments less than 24 hours before their scheduled appointment had their appointments moved to the new time slot and were not reported as no-shows.

Statement of Problem

No-shows within a primary care clinic are an ongoing concern many FQHCs face in providing accurate and timely patient care. When patients fail to keep scheduled appointments, healthcare outcomes may suffer. At a local FQHC primary care clinic in central Indiana, the 2021 no-show rate for two nurse practitioner providers was 20.7%.

Purpose/Aim of the Project

The primary purpose of this DNP project was to decrease the number of no-shows by 3%. The plan was to identify the effectiveness of the current reminder system and assess whether other interventions would be more successful in encouraging patients to keep their appointments. This DNP project was designed to improve the scheduling

process by implementing a minimum of two consistently used interventions to increase the number of kept appointments, thereby decreasing the number of no-shows. It was essential to look at various methods to connect with the patients at the FQHC facility by embracing flexibility and innovation. If interventions such as phone calls or text messages decrease the number of no-shows, then it would be better for the facilities to sanction these interventions (Phillips, 2008). Moreover, with early personal contact and allowing patients who need to reschedule an opportunity to respond, no-shows would be less, and other patients could have a chance to see the provider.

The population, intervention, comparison, population, and time (PICOT) formula provided a framework for the project question. The project's population included healthcare providers, a community health worker, medical assistants, support staff, and patients. The interventions included a text message 3 days before the appointment, a personal phone message from the project manager 2 days before the appointment, and an appointment card. No-show rates between the customary process and the new interventions were compared for four weeks.

Strengths, Weaknesses, Opportunities, and Threats

One of the strengths of the FQHC is the automated appointment reminders sent 7 days and 3 days before the appointment. The support staff also provided patients with appointment reminders the afternoon before or the day of their appointment. There are areas for improvement due to inconsistencies in the standard protocol and the lack of consequences for patients when appointments are missed. External opportunities include increasing patient reminders and ensuring that current ones are being utilized systematically, as well as offering bi-directional communication (i.e., a messaging

system, text), so patients can confirm or cancel appointments. With the assistance of a messaging service system, support staff would have more time to answer telephone calls and respond to cancellation messages. The timely acknowledgment of reminder messages allows vacated appointment slots to be assigned to other patients. Among the external threats may be incorrect phone numbers in the electronic health record or patients who cannot receive voicemail.

Gap Analysis

According to the FQHC, practice manager, the standard protocol for reminding the patients about upcoming appointments were initiated from the automated reminder system in the EHR and included phone calls from the support staff (M. Casuscelli, personal communication, June 23, 2022). If the patient did not attend the appointment, the medical assistant would call the patient to reschedule. Often the staff did not make the reminder or the rescheduling calls, or the patient could not be contacted. Issues included a non-working phone number, no answer to the phone call, or the inability to leave a voice message. The facility has a standard no-show policy which places the patient on a probation period where they are on a “walk-in” basis only for six months after two consecutive no-shows. Unfortunately, this company policy is rarely enforced. With the use of evidence-based practice in the form of consistent interventions, this DNP project could increase the continuity of care, the morale of the staff, and the revenue gained as a result of the decrease in no-shows.

Background/Problem of Interest

Putting patients at risk is one of the dangers associated with missed appointments. In primary care settings where underserved populations receive care, no-shows can result

in more adverse outcomes for chronic illnesses (Kaplan-Lewis & Percac-Lima, 2013). No-shows can reduce productivity and increase healthcare costs (Cohen & Bennett, 2015). Other patients affected by not showing up could range from a timely follow-up of a patient recently discharged from a hospital setting, acutely ill patients, or a new patient needing to get established with a provider with undiagnosed or untreated health problems (Daggy et al., 2010).

No-shows cost the healthcare system approximately $150 billion annually (Ullah et al., 2018). Primary care visits range from $79.00 for Medicaid, $104.00 for Medicare, $130.00 for private insurance, and $186.00 for patients without insurance (Machlin & Mitchell, 2018). If the average no-show rate were 23% for a primary care clinic with 160 patients scheduled weekly, the funds lost would range from $151,174.40 to $355,929.60 annually (Machlin & Mitchell, 2018).

Significance of the Project

Aside from improving patient outcomes and decreasing exacerbations of chronic diseases, providers may also reduce the risk of morbidity and mortality by reducing no-shows (McQueenie et al., 2019). As a result of a decrease of 3% at a local FQHC facility with an average of 130 patients seen per week by two providers, 39 more appointments would be kept, resulting in a minimum revenue recoupment of $3,081.00 weekly and a maximum revenue recoupment of $7,254.00 weekly. (Machlin & Mitchell, 2018).

Impact of the Project

This quality improvement DNP project was to improve healthcare delivery at the FQHC primary care facility by developing and using evidence-based practices to decrease the number of no-shows. (Cohen & Bennett, 2015). If the patients do not keep

their appointments, inferior health outcomes can result, such as exacerbation of chronic illnesses and a possible increase in mortality. The missed appointment also contributes to the underutilization of providers and staff and creates a working atmosphere of frustration (Crutchfield & Kistler, 2017; Kaplan-Lewis & Percac-Lima, 2013).

Chapter II: Literature and Theory Review

No-shows happen in any clinic that schedules appointments. No-shows are costly to a medical facility and the patient's health (Marbouh et al., 2020; Ofei-Dodoo et al., 2019). No-shows add to gaps in the control of chronic illnesses and could increase the risk of premature mortality (McQueenie et al., 2019). Research has demonstrated that if patients keep their scheduled appointments, they will have healthier outcomes and a healthier status overall (Phillips, 2008).

Literature Review

The literature search for this DNP project was guided by searching the Cumulative Index to Nursing and Allied Health Literature and using the following search words and phrases: appointments and schedules, federally qualified healthcare facilities, missed visits, no-shows, primary care, and problems caused by no-shows. Five major categories emerged from the articles, including why appointments are missed, methods to reduce no-shows, including appointment reminders, health problems caused by no-shows, the economic cost of no-shows, and ways to predict potential future no-shows.

Why Appointments are Missed

Patients cite several reasons for being a no-show. Ofei-Dodoo et al. (2019) and Ullah et al. (2018) noted reasons for no-shows included forgetting, personal concerns, or transportation problems. Alkomos et al. (2020) and Hussain-Gambles et al. (2004) identified the most common reasons for no-shows as forgetfulness, work-related issues, and lack of patient reminders.

Other reasons that appointments were missed included a need for more patient education regarding the importance of keeping follow-up appointments. Smyth et al.

(2018) and Copeland et al. (2017) reported patients need to understand that continuity of care plays a significant role in their healthcare outcomes. Patients need to have questions answered, and their fears alleviated to comply with their treatment plan, including follow-up appointments. Samuels et al. (2015) noted that older patients and African American patients were more likely to miss appointments. Other factors involved personal barriers like transportation, language barriers, and family. Poll et al. (2017) argued that addiction and possibly the nature of the illness, among other reasons, could be the underlying causes of no-shows. Lacy et al. (2004) found several factors that played a significant part in the number of no-shows involving fears about possible causes of their conditions, feelings of disrespect, or no longer needing the appointment.

Ofei-Dodoo et al. (2019) noted that worsening clinical symptoms were the reason for no-shows. In contrast, Lacy et al. (2004) found that improving clinical symptoms was the reason for the missed appointment, noting that patients are less likely to keep the appointment or follow up when symptoms disappear. Neal et al. (2005) agreed that when patients no longer define themselves as ill, they are less likely to keep the appointment.

This DNP project was primarily focused on determining why appointments were missed and what could be done to decrease the instances. The no-show questionnaire (Appendix B) was developed by the project manager from information gathered from Ullah et al. (2018), Ofei-Dodoo et al. (2019), and Alkomos et al. (2020), to identify the reasons FQHC patients missed visits.

Methods to Reduce No-Shows, Including Appointment Reminders

Researchers disagree on whether scheduling systems are the reason for no-shows (Marbouh et al., 2020; Ullah et al., 2018) or whether the issue lies with the patient

(Samuels et al., 2015; Smyth et al., 2018). Margham et al. (2017) attempted to identify a correlation between the improvement of coaching and increased clinic attendance and the change in the method of reminding patients. The researchers noted that clinics that opted to modify their existing reminder systems rather than altering the patient's behaviors showed a significant difference in their outcomes with a more considerable decrease in no-shows. Ullah et al. (2018) concluded that the appointment system should be more flexible and easily understood by the patient.

Telephone reminders are one method to remind patients of their scheduled appointments. Teo et al. (2017) found that only 3% of patients who received a live reminder failed to attend, whereas 24% of patients who received a voicemail reminder failed to attend, and 39% of those who did not answer their phone and could not receive a voicemail reminder failed to attend. However, Teo et al. noted that a two-way reminder was even more effective because patients who responded were more likely to keep or reschedule their appointment.

In a study by Liew et al. (2009), the participants were divided into three groups. Group one received telephonic reminders, group two received text reminders, and group three, the control group, did not receive any reminders. At the end of their study, groups one and two had significantly reduced no-shows, while group three had little change. It was also noted that there were minimal differences between group one, those with phone reminders, and group two, those with text reminders (Liew et al., 2009).

Smyth et al. (2018) found participants appreciated a call when they missed an appointment, believing the communication provided proof that the therapist cared. A similar statement could be made regarding appointment reminder phone calls made by

the provider or another staff member. Moreover, Cohen and Bennett (2015) noted that a personal call from a staff member had more of an effect in reducing the number of no-shows rather than relying on an automated system.

An automated phone system is a patient reminder system set to call patients at preset intervals before the appointment. Research conducted by Satiani et al. (2009) and Hixon et al. (1999) found no changes in the rate of no-shows after implementing an automated reminder system. In contrast, Marbouh et al. (2020) found using automated systems effectively reduced the number of no-shows. In addition, Marbouh et al. claimed a separate line that was used as a cancellation line, and the use of smart communication language in the phone call reminders afforded the patients the confidence to cancel the appointment if they no longer needed it.

Other methods to reduce no-shows include a patient-centered approach to keep the patient involved and informed, especially in scheduling (Epstein & Street, 2011), which will help patients understand the importance of keeping appointments (Copeland et al., 2017). Whether the increase in no-shows is caused by changes in scheduling processes (Nwabuo et al., 2014), worsening health (Ofei-Dodoo et al., 2019), or improving health (Lacy et al., 2004; Neal et al., 2005), no-shows can still cause other health-related problems. With the assistance of the no-show questionnaire, the project manager will identify interventions to decrease the number of no-shows for the local FQHC facility.

Health Problems Caused by No-Shows

Missing appointments can negatively affect a patient's health in several ways. According to Teo et al. (2017), no-shows can result in the mismanagement of medication

regimes related to no-shows, which can exacerbate chronic illnesses. Kheirkhah et al. (2016) documented that postponed testing, missed screenings, or patient no-shows may delay disease detection. Ullah et al. (2018) found no-shows also interfered with diagnosing new disorders promptly or identifying changes in the current diagnoses that led to worsening conditions.

Not only can no-shows affect long-term diseases by causing exacerbations or delayed diagnosis, but they can also increase morbidity and mortality. Poll et al. (2017) stated that no-shows in patients with hepatitis C could put those infected at an increased risk of morbidity and mortality and increase the risk of infecting others. McQueenie et al. (2019) noticed that patients who missed more than two appointments during a long-term mental illness increased the risk of premature death. One external factor that might cause premature death is suicide (McQueenie et al., 2019).

Bokinskie et al. (2015) noted that no-show appointments were associated with decreased quality of care and poorer patient health outcomes. Additionally, no-shows can alter the professional-patient dynamic, resulting in a lack of communication, a reduction in empathy, and a lower level of care. Marbouh et al. (2020) discovered that among no-shows, emergency department services were used more frequently, care was interrupted, and waiting times for rescheduling appointments were longer. Furthermore, no-shows impacted access for other patients, creating discord among patients and healthcare providers. Nwabuo et al. (2014) noted that appointment noncompliance constituted an obstacle to providing adequate care with poor control of chronic illnesses, the possibility of an increased risk of hospitalization, and reduced clinical efficiency. Minorities with chronic conditions such as hypertension might experience ethnic disparities, including

premature mortality. Efforts must be made to encourage better communication between the healthcare provider and the patient (Nwabuo et al., 2014).

This DNP project was implemented to decrease the number of no-shows, thereby reducing the possible complications that could arise from patients not keeping their scheduled appointments. Complications include mismanagement of medication, undiagnosed illnesses, and exacerbation of current chronic diseases that could affect the patient's health in a negative aspect.

The Economic Cost of No-Shows

No-shows not only negatively affect the patient, but they also affect the FQHC facility's ability to operate at maximum potential. Bokinskie et al. (2015) noted that decreased staff productivity and increased medical costs could result from no-shows. Marbouh et al. (2020) discovered that 67,000 no-shows cost the healthcare system approximately $7 million. At the same time, Ullah et al. (2018) noted that in the United States, 150 billion dollars were lost annually due to no-shows.

With primary care visits ranging from $79.00 for Medicaid patients to $186.00 for patients without insurance at an FQHC (Machlin & Mitchell, 2018), no-shows can be economically detrimental. This DNP project was developed to find interventions that would decrease the number of no-shows, thus increasing the revenue for this local FQHC facility. It was noted that during the year 2021, this FQHC facility had 5,910 appointments scheduled between the two providers with 1,282 no-shows. With fees between $79.00 and $186.00 per visit, the loss would be between $101,278.00 and $238,452.00.

Ways to Predict Potential Future No-Shows

Researchers identified several ways to predict no-shows but could not determine the most effective strategy. A longitudinal study by Kheirkhah et al. (2016) found age, gender, type of clinic, time of appointment, and the patient's health status could help predict no-shows. Marbouh et al. (2020) noted that organizations could reduce and absorb the impact of no-shows by identifying possible factors with appropriate mitigation strategies and predictive analytics tools. Ding et al. (2018) determined that using the EHR could help predict no-shows by using the data to create a refined risk model. In contrast, Samuels et al. (2015) distinguished that ethnicity, primary payer, or appointment type did not appear to have any statistically significant relationship with no-shows.

FQHCs are a valuable asset to a community and have a significant role in the health and welfare of the population they serve. As a result of the increase in no-shows, serving the underserved population has become more challenging. No-shows are a global issue that disrupt the continuity of care. In various settings, quantitative and qualitative research methods have been used to study no-shows. Even though they do not provide a standard set of reasons, proven methodologies, or possible consequences of no-shows, all concur that no-shows have a negative impact on the healthcare system.

Review of Theory

During the development of this DNP project, the health belief model (HBM) was selected as the conceptual framework. A psychometric test known as the HBM was developed by social psychologists during the 1950s. to improve public health. The authors sought to understand why people do not take preventive measures for health promotion (Orji et al., 2012).

Maintaining a healthy lifestyle requires a long-term commitment and behavioral changes for those who suffer from chronic diseases. HBMs are evidence-based approaches that can assist with behavioral changes (Schaffer et al., 2012).

In general, the HBM is a conceptual framework that can be used to assess whether individuals are likely to perform actions necessary for preventing a specific health condition. (Tarkang & Zotor, 2015). The HBM laid the foundation for this DNP project to improve patient compliance with scheduled appointments.

The plan-do-study-act (PDSA) cycle was selected as the quality improvement development tool for this DNP project since it emphasizes quality control at the management level and focuses on the cooperative learning of staff and patients rather than the success or failure of implementation. (Moen & Norman, 2010). PDSA is a systematic process designed to gain valuable information and knowledge to improve a product, process, or service. This model aims to study and build understanding from the actual results of the implemented changes. It focuses more on integrated learning than assessing the success of a particular change implementation (Moen & Norman, 2010). The PDSA, a quality improvement tool, aligns appropriately with this quality improvement DNP project to assist a local FQHC facility with decreasing the number of no-shows, thereby increasing patient outcomes.

Alignment of Theory

Health behavior models are most effective for addressing behavior problems associated with poor nutrition, inactivity, and missed physician appointments (Orji et al., 2012). The project manager intended to find and implement evidence-based interventions to reduce no-shows using HBM. The premise of the HBM, as noted by Northern (2020),

would be that the patients would want to: take action to protect, screen for, or manage an ill health condition if they believed they were at risk for a health illness with severe consequences (perceived threat). From that threat, they would want to pursue a course of action that would decrease their risk of susceptibility, such as compliance with their plan of care (perceived benefits). Then, believing the benefits outweigh the cost of action (the perceived barrier), they would make an appointment with their provider. They would be confident to continue their healthy behavior changes (perceived self-efficacy) by keeping the appointment (Individual behaviors). Other cues to action to help patients keep their appointments besides the perceived threats might be related to having family members that have a history of the perceived health illnesses (Northern, 2020).

The W. Edwards Deming Institute (2022) noted that a PDSA cycle begins with a plan. An effective strategy starts with the definition of a goal or purpose and the implementation of a plan. With the implementation of evidence-based practice interventions, the "plan" step was to reduce the number of no-shows at a local FQHC primary care facility. The plan was to learn the reasons for no-shows by the patients of the local facility so that interventions to address those reasons could be implemented in the next step. The next step is the "do" step, in which the elements of the plan are implemented (the implementation of the appointment reminder methods). In the next step, the outcome of the "study" step is monitored to determine whether the plan is working (where the number of no-shows decreased?). In addition, the "study" step is monitored to assess if there are any problems or areas for improvement. By integrating the learning generated throughout the process, the "act" step closes the cycle, leading to an adjustment of the goal, change of methods, reformulation of a theory, or expanding the

learning–improvement cycle from a small-scale experiment to a larger project (conduct the interventions on a larger scale). The four steps described above can be repeated continually as part of a cycle of continuous improvement and learning (The W. Edwards Deming Institute, 2022).

Chapter III: Method

Missed appointments, or no-shows, are defined as "patients who neither kept nor canceled their scheduled appointments" (Tuso et al., 1999, p. 68). No-shows negatively impact the patient's chronic diseases related to reductions in the continuity of care (Bedford et al., 2020). No-shows also affect the clinic's population by reducing the opportunities for other patients to get an appointment (Bedford et al., 2020). No-shows are an ongoing occurrence for primary care clinics daily across the United States at 5% to 55% (Ullah et al., 2018). This DNP project discovered why no-shows occur and implemented interventions to help patients keep their scheduled appointments.

Design of the Project

Indiana Wesleyan University's institutional review board (Appendix A) approved the DNP project application for this quality improvement project. The institutional review board deemed the project as exempt. The FQHC facility administrators provided additional approval; however, the FQHC did not require institutional review board approval for the quality improvement project.

The facility providers are two nurse practitioners, Provider A (project manager) and Provider B. During the pre-intervention phase, the FQHC staff completed standard interventions, including automated reminders on days 7 and 3 before an appointment. Support staff called patients the afternoon before the following morning appointment or the morning of an afternoon appointment as a "just in time" intervention. If patients did not come to their appointment, they were contacted within 24 hours to reschedule. As part of the standard protocol, the medical assistants typically contacted the patients who were no-shows. However, during the project, the medical assistants were instructed not to

call no-show calls for either provider. The project manager performed the no-show calls for both providers A and B and completed a no-show questionnaire on all patients 18 or older to understand the reasons for no-shows. The no-show questionnaire had nine categories: the reason for the missed visit, the type of reminder sent, whether the patient received the reminder, the type of appointment, scheduling lead-time, the provider, the patient's gender, age group, and ethnicity. While conducting the no-show questionnaire, the project manager monitored the results for trends that could be addressed during the intervention phase. In addition, a provider check-sheet tool (Appendix C) was completed to track the number of missed no-shows and calculate a percentage for each provider weekly. The provider check-sheet tool was adopted from an earlier DNP professional project that was completed by Northern, (2019). The provider check-sheet tool tracked the number of missed visits for both providers by visit type during the pre-intervention and the intervention phase.

Following completion of the pre-intervention phase, the data was transferred to an Excel spreadsheet and analyzed by a statistician. The most common reason for no-shows was "forgetfulness" on the part of the patient, as well as a lack of reminders on the part of the facility.

As part of the intervention phase, the project manager contacted the patients in the intervention group (patients seen by Provider A) with a scripted text message (Appendix D). The project manager would text the patient on the third day before their scheduled appointment. The text message included a request for the patient to confirm or cancel the appointment (bi-directional communication). On the second day before their scheduled appointment, the project manager would call with a scripted provider phone call message

(Appendix E). These interventions allowed staff enough time to contact the patient if they needed to cancel and reschedule. Furthermore, a new patient could be scheduled in the slot the previous patient had vacated. Both Appendix D and Appendix E were developed by the project manager. In regard to the prevalence of the Hispanic population, the FQHC serves several Spanish speaking only patients, therefore a Spanish version of the text and phone message was developed by the project manager with the assistance of Google Translate for use with the Hispanic patients. The control group (patients seen by Provider B) continued to receive standard reminders during the intervention phase. The reminders involved the automated reminder system and reminder phone calls by the support staff and the community health worker. The medical assistants did not participate during the pre-intervention phase or the intervention phase because the project manager contacted the no-shows and completed the questionnaires during both phases.

The project manager also provided appointment cards to the patients in the intervention group who kept their appointments during the intervention phase. Each appointment card had an “arrival time” and a “schedule time.” A 15-minute arrival time is suggested so that patients may fill out any paperwork before their scheduled appointment time without running into the appointment time and causing a delay in care for both the patient and the other patients scheduled after.

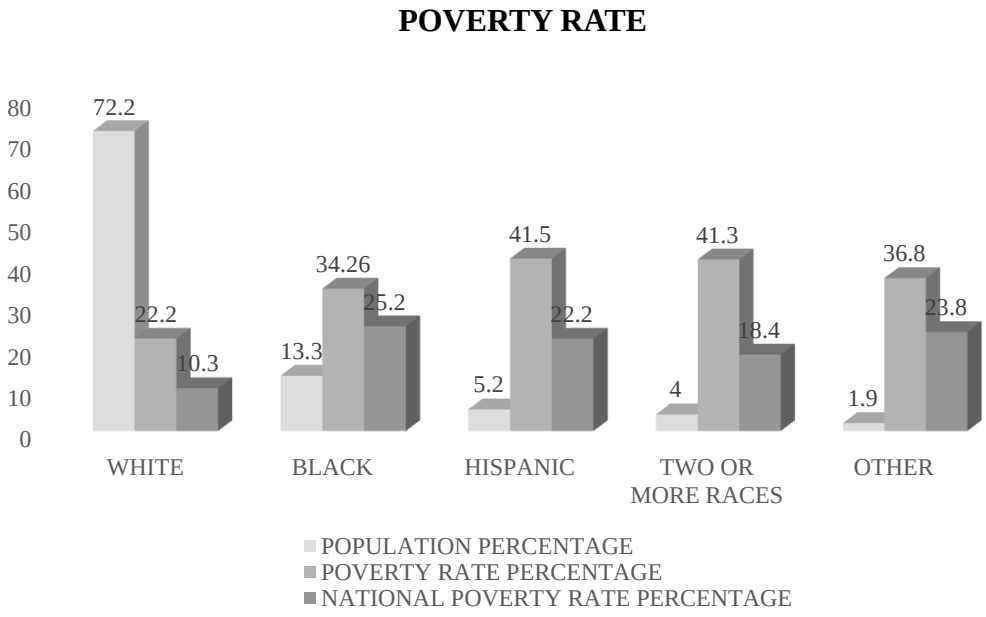
During the intervention phase, the automated system still used for the intervention group as well as the control group; however, the support staff did not make telephone reminders to the intervention group. Once the intervention phase was completed, the data from the no-show questionnaire, the provider check-sheet tool, and the patient reminder preference poll were sent to the statistician for final analysis.

Setting

The project was conducted at a local FQHC primary care center in central Indiana, where two providers provided treatment for adults ages 18 and over. The FQHC center serves many patients who are considered to be a part of the LSE population. WelfareInfo.org (2021) noted that the central Indiana location has a population of 51, 953 with a poverty rate of 23.0%. As noted in Figure 1, the Hispanic population has the highest percentage of residents living in poverty.

Figure 1

Poverty Percentage Rate by Ethnicity



(WelfareInfo.org, 2021)

The FQHC primary care clinic serves many residents and others from rural areas. In 2021, 5,910 appointments were scheduled at this facility with 1,282 no-shows. However, the number of no-shows were not being accurately documented because patients who would reschedule their appointment less than 24 hours of the appointment

would simply have that appointment moved to the new date and time and not be counted as a no-show.

Population

The population included two nurse practitioners, two medical assistants, four support staff, and one community health worker who assisted where needed The patients of both providers A and B from both the pre-intervention phase and the intervention phase were also included, During the intervention phase Provider A's patients were the intervention group and Provider B's patients were the control group.

Data Collection

During the pre-intervention phase and the intervention phase information gathered from the first 2 categories of the no-show questionnaire were obtained from the responses given by the patient. These 2 categories included the reason for the missed visit and the type of reminder, if any, that were received. The remaining categories were completed with data from the EHR. These categories included the type of reminder sent, the type of appointment, scheduling lead-time, the provider, and the patient's demographics. In the intervention phase, the patient reminder preference poll (Appendix F) was developed and used by the project manager to identify patients' preferred method of reminders.

The pre-intervention phase lasted for five weeks. During this time, no-shows for both providers were called within 24 hours of the missed appointment using the no-show questionnaire. Data were tallied each week, and the totals were documented on the provider check-sheet tool.

The intervention phase lasted for four weeks, during which the project manager used the no-show questionnaire and the provider check-sheet tool to track the no-shows.

The appointment cards were initiated for Provider's A intervention group. A statistician analyzed all data collected during this phase.

Chapter IV: Results

The primary objective of this DNP project was to decrease the number of no-shows by determining the efficiency of the existing reminder system and whether evidenced-based interventions would reduce no-shows. The selected interventions were text messages and personal phone calls from the provider. An appointment card containing the appointment date and times was also provided as a reminder to the patients. Data on patients who did not keep or cancelled less than 24 hours before the appointment were collected for both groups using the no-show questionnaire and the provider check-sheet tool.

No-shows were decreased in the intervention group with the implementation of texting and personal phone call interventions. The standard reminder protocol was used with the control group and the no-show rate increased.

This DNP project provided insight regarding interventions for the FQHC facility patients. Texting and phone calls were found to be instrumental in decreasing the number of no-shows. Both methods have been used in several studies with mixed results. Liew et al. (2009) did not note much difference between texting and phone calls in their results, whereas Teo et al. (2017), Cohen and Bennett (2015), and Smyth et al. (2018) found personal phone calls to be of benefit. In addition, Teo et al. liked a two-way reminder because it gave the patient a chance to respond. This project implemented texting as a bi-directional or two-way communication, requesting a response from the patient to confirm or cancel the appointment. In the patient reminder preference poll conducted during the intervention phase, 65% of the patients preferred a text message over a live phone call; however, the other 35% preferred a live phone call from the provider rather than an

automated phone reminder.

At the end of the intervention phase, it was noted that the number of no-shows documented by the project manager did not match the number of no-shows recorded by the facility. Even though the policy of the local FQHC defined no-shows as patients who failed to attend a scheduled appointment or did not cancel more than 24 hours before their appointment, the support staff would move the appointment to a future date. This action was not marked as a cancellation, which would have labeled it a no-show, by the facility's policy, meaning the actual number of no-shows recorded by the support staff was underreported. Moreover, when the appointments were moved, only a few new appointments were scheduled in the vacated time slot, creating wasteful downtime for providers and staff.

The DNP project was conducted in three phases. Data were collected in the pre-intervention and intervention phases from no-show questionnaires and the EHR. At the end of each week, the number of patients and no-shows was manually extracted from the provider's schedule and entered into the provider check-sheet tool. Following the pre-intervention phase, data were analyzed to determine what predictors contributed to patients not keeping their appointments. Many reasons were noted as to why patients did not keep their appointment (Table 1). For those who did not receive reminders or only received reminders just before the appointment, forgetfulness was the most significant cause of no-shows.

Table 1

No-show Questionnaire Comment Section: Pre-Intervention

Pre-Intervention Phase	Frequency	Percentage
Phone not in service	6	4.58%
Called 3 hours before, patient canceled	6	4.58%
Called 2 hours before, patient canceled	4	3.05%
Called 1 hour before, patient canceled	3	2.29%
Called less than 1 hour before, patient canceled	2	1.53%
Bad phone number	2	1.53%
Voicemail not set up	2	1.53%
Auto call	11	8.40%
Called 1 hour before - patient had to work	1	0.76%
Called 2 hours before - patient had no ride	1	0.76%
Called just before the appointment, patient did not answer; no voicemail left	1	0.76%
Denies voicemail	1	0.76%
Got voicemail just before the appointment	1	0.76%
In schedule as in-person, but patient scheduled as zoom	1	0.76%
Called 1 hour before - left voicemail	2	1.53%
Called the morning of and left a voicemail	11	8.40%
Left voicemail 2 hours before the appointment, but not able to come	1	0.76%
Left voicemail less than 1 hour before	4	3.05%
Marked confirm - the last contact documented was two weeks prior	1	0.76%
No answer - unable to leave a voicemail	1	0.76%
Phone keeps ringing busy	1	0.76%
Phone not taking calls	1	0.76%
The patient did not have a personal phone, and the mother forgot to take the phone to patient	1	0.76%
The patient did not listen to the voicemail	1	0.76%
The patient had the wrong day marked down had 7/27, not 7/26	1	0.76%
The patient is looking for another provider	1	0.76%
The patient states, “got better.”	1	0.76%
The chart states the phone is not working, but the project manager was able to reach the patient for the No-Show questionnaire	1	0.76%
Talked to the morning of	10	7.63%
Left voicemail 1.5 hours before; the patient did not get in time	1	0.76%
Called 2 hours before, unable to leave a voicemail	1	0.76%
Called 3 hours before and left a voicemail	2	1.53%
Called 3 hours before being unable to leave a voicemail	1	0.76%
Left a voicemail the day before	1	0.76%
Minor motor vehicle accident on the way to the appointment	1	0.76%
The office called the wrong phone number for the appointment	1	0.76%
No reminders documented	43	32.82%

Other data acquired during the pre-intervention phase was the number of no-shows compared to the total number of patient visits for each provider (Tables 2 & 3). From this data, the project manager was able to develop several interventions to decrease the number of no-shows that were implemented during the intervention phase.

Table 2

No Show by Visit Type for Provider A: Pre-Intervention

Provider A	Week 1	Week 2	Week 3	Week 4	Week 5	Total
Well visit	3	1	4	0	4	12
Gynecology	0	0	0	0	1	1
Follow-up / Med check	5	3	14	0	24	46
Acute care	0	0	0	0	1	1
New patient	2	1	3	0	5	11
Telephone / Zoom	1	5	2	0	2	10
Weekly total no-shows/total visits	11/66	10/54	23/75	0/0	37/81	81/276
Percentage	16.67%	18.52%	30.67%	0.00%	45.68%	29.35%

Table 3

No Show by Visit Types for Provider B: Pre-Intervention

Provider B	Week 1	Week 2	Week 3	Week 4	Week 5	Total
Well visit	0	1	2	4	0	7
Gynecology	0	0	3	0	1	4
Follow-up / Med check	0	3	6	5	6	20
Acute care	0	1	1	2	3	7
New patient	0	0	0	8	3	11
Telephone / Zoom	0	0	1	0	0	1
Weekly total no-shows / total visits	0/0	5/46	13/63	19/76	13/61	50/246
Percentage	0.00%	10.87%	20.63%	25.00%	21.31%	20.33%

Another area analyzed was the lead-time between the patient scheduling the appointment and the appointment date (Table 4).

Table 4

No-Show Appointment Lead-Time: Pre-Intervention

Length of time	Frequency	Percentage
Less than 1 Week	35	26.72%
1 – 3 Weeks	68	51.91%
4 – 6 Weeks	18	13.74%
Greater than 6 Weeks	10	7.63%

Gender, age group, and ethnicity were also evaluated for frequencies to identify any potential predictors. The age group 31-50 had almost double the number of no-shows when compared to the age group 18-30; however, the 31-50 group was a much larger group. In comparison, the percentage of the 18-30 group had was larger (Table 5).

Table 5

No-Show by Age Group: Pre-Intervention

Age Group	Kept	No Show	Total	Percentage
18-30	54	29	83	34.94%
31-50	176	63	239	26.36%
51-65	128	33	161	20.50%
66 Plus	33	6	39	15.38%

Analysis by gender and ethnic groups revealed that men and patients of Hispanic ethnicity had a higher percent of not keeping their appointments or rescheduling within 24 hours of their scheduled appointment (Tables 6 and 7). Male gender and Hispanic

ethnicity could be predictors of potential future no-shows.

Table 6

No-Show by Gender: Pre-Intervention

Gender	Kept	No Show	Total	Percentage
Male	165	62	227	27.31%
Female	226	68	294	23.13%
Other	0	1	1	100.00%

Table 7

No-Show by Ethnicity: Pre-Intervention

Ethnicity	Kept	No Show	Total	Percentage
Caucasian	248	66	314	21.02%
African American	102	27	129	20.93%
Hispanic	39	17	56	30.36%
Other	2	0	2	0.00%
Unknown	0	21	21	100.00%

Once the data was collected in the pre-intervention phase and analyzed, the interventions addressed the standard reminder system. This system consisted of an automated reminder and the support staff call. The project manager determined that a text with a scripted message, a personal phone call from the provider with a scripted message,

and an appointment card would be the best project interventions. The appointment card was listed as a standard protocol, but the practice was not enforced during the past three years.

The intervention phase started with the project manager implementing the chosen interventions. The patients were texted with the scripted message 3 days before the appointment and called with the scripted message 2 days before the appointment (Table 5). The project manager could not text seven of the 222 patients due to the phone numbers provided not being able to receive a text message. For 4 weeks, phone calls were made to 216 of the 222 patients. Five of the remaining six numbers were not in service, and the other was a wrong phone number.

In the intervention phase, the "text and left voicemail" and the "text and talked to" categories were interventions made by the project manager. Both groups used the "auto phone call," and the "no reminder" category. During the intervention phase, the automated system was still in service for both providers. The "no reminder" category represented the patients who claimed they did not get a reminder of any type during the intervention phase. In addition, one patient in the intervention group did not receive a reminder because they were added to the schedule less than 24 hours before their appointment. The other two categories, "left a voicemail" and "talked to," were part of the facility's standard protocols that were done for the control group during the intervention phase. The "no contact" category represented the patients the project manager could not reach to gather further information (Table 8).

Table 8

No-Shows and Kept Appointments by Reminder Type: Intervention

Intervention	Kept	No-Show	Total	Percentage
Auto phone call	7	43	50	86.00%
Text and voicemail	112	14	126	11.11%
Text and talked to	70	24	94	25.53%
Left voicemail	33	5	38	13.16%
Talked to	13	0	13	0.00%
No reminder	90	11	101	10.89%
No contact	0	6	6	100.00%
Total	325	103	428	24.07%

The project manager continued to call the no-shows within 24 hours of the missed appointment employing the no-show questionnaire for both groups noting there continued to be a high number of patients who stated they forgot. Thirteen (25.0%) of the 52 no-shows who “forgot” were in the intervention group. The other 51 no-shows had various reasons for not keeping their appointments (Table 9).

Table 9

No-show Questionnaire Comment Section: Intervention

Intervention Phase	Frequency	Percentage
Phone Not in Service/Bad Number	3	2.91%
Was Busy and Forgot	1	0.97%
Canceled Morning Of	9	7.76%
Just Forgot	15	14.56%
Confirmed Via' C' Then Morning of Canceled	1	0.97%
Canceled 30 Minutes Before Via Text	1	0.97%
Unable To Do Zoom!	1	0.97%
Canceled Less Than 24 Hours	21	20.38%
Added Day Before-No Contact Made	2	1.94%
Called Into Work	1	0.97%
No Reminder; Just Forgot	16	15.53%
Auto System Left Voicemail	16	15.53%
Transportation Issues	2	1.94%
Confirmed Then Had to Go to School for Child	1	0.97%
Just Did Not Want to Come	1	0.97%
Had Other Appointment	1	0.97%
Deceased	1	0.97%
No Answer to the Phone	1	0.97%
Did Not Want Appointment.	1	0.97%
No Answer to the Phone, But Responded to Text with a "C"	1	0.97%
Wrong Phone Number	1	0.97%
# Not Working	1	0.97%
Unable To Come, Less Than 24 Hours' Notice to Cancel	1	0.97%
In Jail	1	0.97%
Auto Confirmed	1	0.97%
Support Staff Left Voice Mail	3	2.91%

After the intervention phase, the data collected from the EHR, and the no-show questionnaires were analyzed for any changes in the frequency of no-shows with the interventions. The no-show frequency for patients in the intervention group was 17.12%, and the no-show frequency for the control group was 31.55% (Tables 10 and 11).

Table 10

No Show by Visit Type for Provider A: Intervention

Provider A	Week 1	Week 2	Week 3	Week 4	Total
Well visit	0	1	0	1	2
Gynecology	0	1	0	0	1
Follow-up/med check	8	7	2	5	22
Acute care	2	0	0	0	2
New patient	3	1	1	3	8
Telephone/Zoom	0	0	1	2	3
Weekly total no-shows/ total visits	13/53	10/63	4/50	11/56	38/222
Percentage	24.52%	15.87%	8.00%	19.64%	17.12%

Table 11

No-Show by Visit Type for Provider B: Intervention

Provider B	Week 1	Week 2	Week 3	Week 4	Total
Well visit	4	3	2	3	12
Gynecology	0	0	0	0	0
Follow-up/med check	8	12	9	9	36
Acute care	1	0	0	0	1
New patient	3	1	3	1	8
Telephone/Zoom	2	1	1	2	6
Weekly total no-shows/ Total visits	18/54	17/55	15/40	15/57	65/206
Percentage	33.33%	30.90%	37.50%	26.32%	31.55%

Studies by Huang and Bach (2016) and Marbouh et al. (2020) indicated that the longer the lead-time (the time between the patient scheduling the appointment and the date of the appointment), the greater the chances of patients not keeping the appointment. However, this project did not show that a longer lead-time contributed to a higher number of no-shows (Table 12).

Table 12

No-Show Appointment Lead-Time: Intervention

Length of time	Intervention Group	Percent	Control Group	Percentage
Less than 1 week	19	18.45%	28	27.18%
1-3 weeks	14	13.59%	30	29.13%
4-6 weeks	4	3.88%	3	2.91%
Greater than six weeks	1	0.97%	4	3.88%

The gender, age group, and ethnicity were analyzed from data collected in the intervention phase to see if there were any notable changes. The gender group with the highest percentage of no-shows changed from men to women by a narrow margin. The ethnic group with the highest percentage no-shows changed from the Hispanic group to the African American group. The age group with the higest percentage of no-shows changed from the 18-30 group to the 66 plus group. Therefore, this DNP project did not find any significant demographic predictors (Tables 13, 14, and 15).

Table 13

No-Show by Age Group: Intervention

Age Group	Kept	No Show	Total	Percentage
18-30	131	40	171	23.39%
31-50	109	35	144	24.31%
51-65	29	5	34	14.71%
66 plus	56	23	79	29.11%

Table 14

No-Show by Gender: Intervention

Gender	Kept	No Show	Total	Percentage
Male	148	45	193	23.32%
Female	177	57	234	24.36%
Other	0	1	1	100.00%

Table 15

No-Show by Ethnicity: Intervention

Ethnicity	Kept	No Show	Total	Percentage
Caucasian	207	51	258	19.77%
African American	50	20	70	28.57%
Hispanic	50	8	58	13.79%
Other	7	1	8	12.50%
Unknown	12	22	34	64.71%

Discussion

This DNP project was designed to improve the reminder system by implementing a minimum of two consistently used interventions. Data were analyzed using logistic regression. The response variable was whether the patients kept their appointments or were no-shows. An independent variable was included for whether the patient was in the intervention or control group. A phenomenon specific to logistic regression, known as a quasi-complete separation, occurred because one category of an independent variable perfectly predicted the outcome. This phenomenon results in artificially significant *p*-

values and inconsistent results. The issue was circumvented by running a Firth logistic regression. Based on a *p*-value of 0.0002, there is strong evidence to suggest a significant relationship between the interventions conducted by the project manager for Provider A's group and the odds of keeping an appointment.

Table 16

Firth Logistic Regression Results

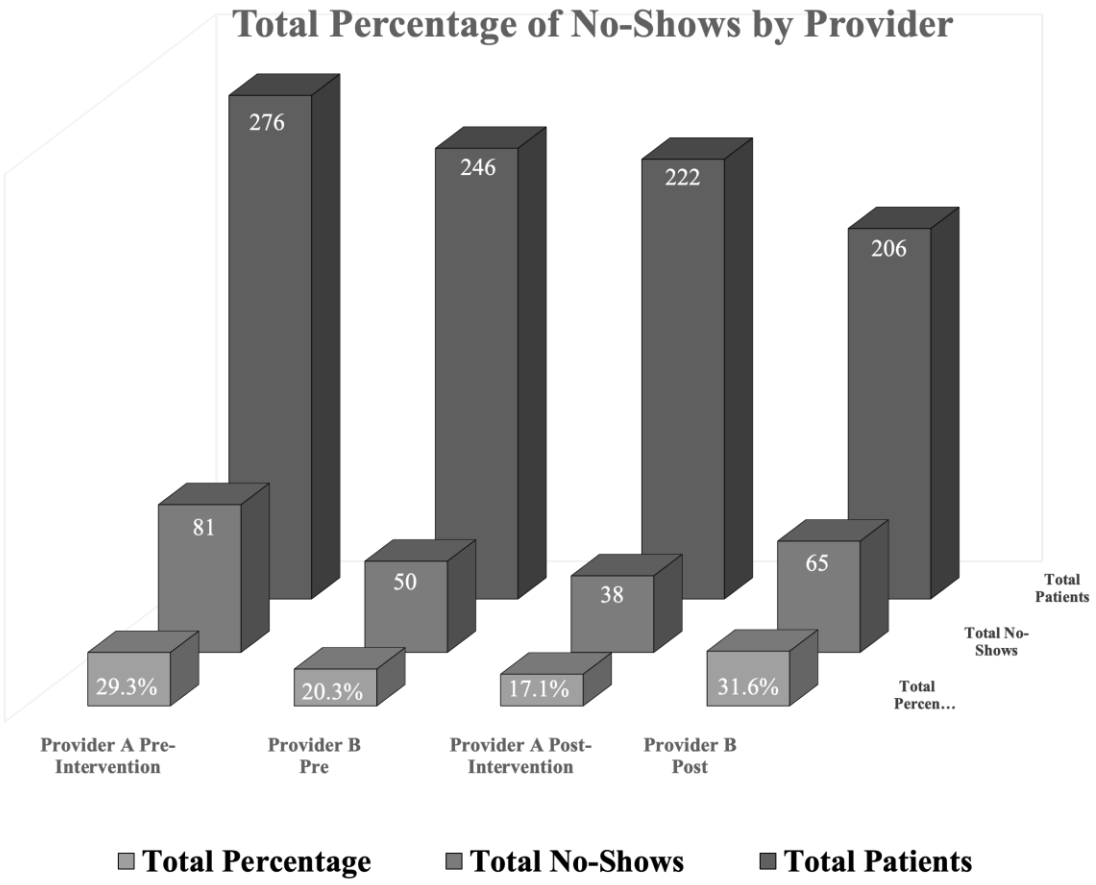
Variable	*p*-value
Intervention group	0.0002
Age group	0.47
Gender	0.46
Appointment type	0.95

Furthermore, the project manager found while polling patients that 120 of the 184 kept appointments, and 25 of the 38 no-shows preferred the texting method at an average of 65%. They commented that they liked being able to contact the facility about whether they were planning on keeping their scheduled appointment or needing to be rescheduled without having to try to get through the current telephone system.

Each provider's total no-shows were documented and analyzed during the pre-intervention and intervention phases. Provider A had a decrease in no-shows with consistent texting and calling the patients at preset times. Conversely, Provider B had an increase in no-shows during the intervention phase (Figure 2).

Figure 2

Total Percentage of No-Shows by Provider



Implications for Practice

This quality improvement DNP project decreased the no-shows for Provider A's intervention group due to the revised processes. Provider B only used the standard protocol and was therefore used as the control group. During the intervention phase, the number of no-shows increased for the control group and decreased for the intervention group. The implemented interventions increased financial benefits for the FQHC clinic and improved patient outcomes related to no interruptions of medication, and changes in

the patient's status were addressed promptly.

The local FQHC facility stakeholders will initiate a study of no-shows on a company-wide basis. The information from this DNP project will serve as a pilot for the more extensive study. For their study, employees could verify the success of consistent reminders in the form of texting as a two-way communication tool, a personal phone call from the staff, and appointment cards with an arrival time 15 minutes before the scheduled visit time.

Limitations

The project limitations were related to a need for more stakeholder participation. Other limitations were due to the short time the project was conducted, the small sample group of only one provider's patients in the intervention group, and the need for more time to evaluate the usefulness of appointment cards.

Recommendations

It is recommended that this project be used as a pilot study for the FQHC facility and other clinics experiencing higher-than-expected no-shows. The FQHC clinic should use text and phone call interventions in the call reminder policy and ensure the support staff follows protocol. Published research and the results from this project demonstrated the need for separate phone lines for patients to call and cancel their appointments (Marbouh et al., 2020). Patients shared that they could not reach the facility by phone or obtain a response from the clinic staff before the appointment. Additionally, support staff should verify and update patient contact information in the EHR at every visit to ensure patients can be contacted with appointment reminders.

In closing, this quality improvement DNP project did find that "forgetting" was

the number one response (68.7 %) of the no-shows in the pre-intervention phase and (48.5%) of no-shows in the intervention phase. However, the FQHC facility's standard reminder system also played a significant part in many of the no-shows. The existing reminder system consisted of an automated system that would send reminders on day seven and day three before the appointment and the support staff calling the afternoon before or the morning of the appointment. The project manager developed tools to assess the reasons for the no-shows and other data that directed the project interventions. Although lead-time and demographic data were collected and analyzed, the data was not relevant to the number of no-shows for this project. Furthermore, even though the appointment card reminder was implemented during the intervention phase for the intervention group, there was not enough time to fully evaluate the possibility of benefits. However, this project found that text messaging with a bi-directional capability and a personal phone call reminder from the provider decreased the number of no-shows in the intervention group. The total number of no-shows was decreased by 12.2% in the intervention group, which surpassed the projected 3%.

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Appendices

Appendix A

Institutional Review Board Approval

Institutional Review Board
4201 South Washington Street
Marion, IN 46953
Tel: 765-677-2090
Fax: 765-677-6647

Notice of Exemption

Improving Missed Appointments or No-Shows in a Federally Qualified Health Center

Title of Research Topic

Cynthia Branson, Rhonda Oldham

Investigator(s)

1735.22

IRB ID Number

The IWU Institutional Review Board (IRB) has reviewed your proposal and has determined that your proposal is exempt from further review by the IRB because the proposed project does not constitute human subjects research. Federal regulations that establish the authority of the IRB provide a specific definition of human subjects research which defines the scope of IRB authority. Your project falls outside the federal definition of human subjects research and is therefore not subject to IRB review.

Please note that this exemption regards only the oversight of human subjects research by the IRB. The IRB has not reviewed any other aspects of the research project and makes no judgement on the merits of the project or its methodologies. All research executed at IWU must conform to all applicable state and federal laws and regulations and to all applicable IWU policies.

Comments

 Ph.D.

Chair, Institutional Review Board

May 31, 2022

Date

Appendix B

No Show Questionnaire

No-Show Questionnaire														
I notice that you did not keep your scheduled appointment, could you please tell me why?														
	Identifier	Lack of transportationn (1); Other (2)	Forgot (1); Unkonwn (2)	Charted Reminder: Automated phone call (1) Text message (2) LVM (3) TT (4) None (5)	Pt. States: NO reminder received (1) Reminder re	Appt. Type: Well visit(1) Pap Smear(2) Follow-up(3) Acute care(4) New Pt.(5)Tele(6)	Length of time between scheduling appoint &appoint date <1 week (1) 1-3 weeks (2) 4-6 ~~weeks (3) >6 weeks (4)~~	Provider A (1) Provider B (2)	Gender: Male (1) Female (2) Other (3)	Age Group: 18-30 (1) 31-50 (2) 51-65 (3) 66 or older (4)	Ethnicity: Caucasian (1) African American (2) Hispanic (3) Unknown (4) Other (5)	Comments
Date/Time	Patients													
	1													
	2													
	3													
	4													
	5													
	6													
	7													
	8													
	9													
	10													

Appendix B Charting Key

1. Column A: Identifier is just numerical progression (i.e., patient 1, 2, 3, etc.)
2. Column B: Whether the no-show was due to lack of transportation or other reason.
3. Column C: Whether the no-show was due to Forgetting or unknown.
4. Column D: Charted Reminder: Auto call (1); Text message (2); Left voice mail (3); TT-Talked to (4); None (5)
5. Column E: Patient. States: No reminder received (1); Reminder received (2)
6. Column F: Appointment Type: Well visit (1); Pap Smear/GYN (2); Follow-up (3); Acute care (4) New patient (5); Telehealth (6)
7. Column G: Lengthy of time between scheduling and appointment date: Less than 1 week (1); 1 to 3 weeks (2); 4 to 6 weeks (3); Greater than six weeks (4)
8. Column H: Provider A (1); Provider B (2)
9. Column I: Gender = Male (1), Female (2), Other (3)
10. Column J: Age group = 18-30 (1), 31-50 (2), 51-65 (3), 66 + (4)
11. Column K: Ethnicity group = Caucasian (1), African American (2), Hispanic (3), Other (4)

Appendix C

Provider Check-Sheet Tool

Provider:	Week 1	Week 2	Week 3	Week 4	Week 5
1. Well visit					
2. Gynecology					
3. Follow-up/ Med Check					
4. Acute Care					
5. New patient					
6. Telephone or Zoom					
Weekly Total missed visits/Total visits.					
Percentage					

(Northern, 2019)

Appendix D

Provider Text Message

Hello, this is _____, your nurse practitioner, and I am reminding you about your appointment on _____ at ___o'clock. Please arrive 15 minutes earlier, and please text back with a 'C' to confirm or an 'N' to cancel. Thank you.

For the Spanish Population

Hola, soy X, su enfermera practicante, y le recuerdo su cita el Y a las Z en punto. Llegue 15 minutos antes y envíe un mensaje de texto con una "C" para confirmar o una "N" para cancelar. Gracias

Appendix E

Provider Phone Call Message

Hi, this is _____, your provider. I see that we have an appointment scheduled for _____ at ___o'clock. a.m.___ p.m.___. I look forward to seeing you, and if you have any questions or concerns, write them down, and we will review them during the appointment.

For the Spanish Population

Hola, soy X, su proveedor. Veo que tenemos una cita programada para mañana a las _____ am pm. Espero verlo, y si tiene alguna pregunta o inquietud, escríbala y la revisaremos durante la cita.

Appendix F

Patient Reminder Preference Poll

Which type of reminder worked best for you?

1. Automated phone call reminder_____
2. Text message reminder_____
3. Personal phone call from provider_____