

**Reducing No-Show Appointments in the Outpatient Rheumatology Setting: A Quality
Improvement Project**

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**Reducing No-Show Appointments in the Outpatient Rheumatology Setting: A Quality
Improvement Project**

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Abstract

Introduction: Missed appointments, or no-show appointments, can be detrimental to the patient and office alike in the outpatient setting. No-show appointments decrease patient satisfaction, increase acute episodic visits, and decrease office revenue. **Method:** This project aims to reduce no-show appointments by two percent in an outpatient rheumatology office through utilizing an existing phone call reminder system and implementing a text message reminder system. **Results:** After the implementation of the text messaging reminder system, contrary to the project's aim of decreasing no-show appointments by two percent, no-show appointments were decreased by 1.1%. **Conclusion:** The findings of this quality improvement project show that text messaging reminders do in fact decrease no-show appointment rates. Albeit this project did not reach the two-percent goal that was set, there was still a decrease in no-show appointments. Further examination of the text messaging reminder system is warranted.

Reducing No-Show Appointments in the Outpatient Rheumatology Setting: A Quality Improvement Project

No-show appointments are appointments that patients miss without cancellation or calling to reschedule. A recent study found that no-show rates in outpatient settings range between 23.1% and 33.6% (Mehra et al., 2018). This can result in decreased efficiency, lost time, and higher use of resources (Mehra et al., 2018). Currently, at a local outpatient rheumatology clinic, the no-show percentage averages 24% a month. The local outpatient rheumatology clinic utilizes a singular automated phone call reminder system for 48-hours before the scheduled appointment. Decreasing no-show appointments can directly impact patient care and office functionality for the better (Kheirkhah et al., 2016).

Patients that miss their appointments can experience possible discontinuation of care, inappropriate emergency room admissions, and longer wait times for future appointments (Marbough et al., 2020). No-show appointments are a source of avoidable inefficiencies that can impact patient health outcomes (McLean et al., 2016). Patients that miss their appointments delay their current health presentations, which can lead to complications of acute illness or chronic illness (McLean et al., 2016). Missing appointments not only can lead to complications of illness but can also induce unnecessary suffering for the patient, unnecessary emergency room visits, and high-cost hospital admissions (McLean et al., 2016). Patients who have one or more chronic illnesses and who miss appointments are at risk for premature death (McQueenie et al., 2019). According to McQueenie et al. (2019), patients with chronic physical conditions who miss two or more appointments a year have a three-fold increase in mortality compared to those who miss no appointments. Excessive no-shows for patients may also lead to the patient being discharged from the practice indefinitely.

No-show appointments affect the office's functionality by increasing wait times for patients, decreasing patient satisfaction scores, and decreasing office revenue. No-show appointments also increase the cost of care, reduce available appointments for other patients, and lead to the underutilization of office equipment and personnel (McLean et al., 2016). Decreasing no-show appointment rates can help to improve the patient-provider relationship and improve the quality of care (Dodoo et al., 2019). Revenue that is lost due to no-show appointments is significant and directly impacts the ability to improve patient care and patient access (Triemstra & Lowery, 2018). In the United States, the total cost of no-show appointments averages \$150 billion, and this translates to an average of \$200 per missed appointment for physician offices (Chung et al., 2020). With the current no-show rate averaging 24% a month in the local outpatient rheumatology office, this translates into a substantial financial impact.

Consequences of no-show appointments include but are not limited to increased wait times, increased cost of care, reduction of appointment availability, and decreased patient satisfaction (McLean et al., 2016). These consequences potentially lead to negative relationships between staff and patients, which can decrease staff satisfaction in the office environment (McLean et al., 2016). The office staff is under constant pressure to make sure that the office is running efficiently and to make sure patient and physician needs are being met. The office staff is also under stress from referring providers to manage patients who are on the referral waitlist (McLean et al., 2016). The no-show appointment slots could have been filled by waiting patients if the no-show patient had canceled their appointment appropriately and in enough time. The constant management of the scheduling can lead to staff stress, fatigue, and anxiety (McLean et al., 2016). Aims to decrease no-show appointments can potentially lead to increased staff satisfaction, but to effect change, there must be buy-in for new office procedures by office staff.

When employees are invested in and supportive of change, the more likely the change will be successful and sustained over time (Bravo & Crow, 2015).

In the local outpatient rheumatology clinic, patient no-shows present a serious concern. At present, the no-show rate averages 24% a month and results in a substantial financial impact. The no-show rate has a direct impact on the patients as well as the office staff. Patients can experience longer wait times, delayed treatment, and inappropriate hospital admissions due to not being compliant with their scheduled appointments. In addition, staff can experience dissatisfaction with their work environment and feel burdened with extra work due to no-show appointments.

Available Knowledge

Search, Appraisal, and Summary of Evidence

A literature review was conducted to investigate if initiating text messaging reminders seven days before a scheduled appointment, along with a 48-hour phone call notice, would decrease patient no-show appointments in the outpatient rheumatology care setting. To begin the research process, multiple nursing databases in the Jacksonville University Swisher Library were utilized, including but not limited to ProQuest, CINAHL, Ovid, along with Google Scholar. Key search terms and phrases used to obtain articles relevant to the topic included *missed appointments, no-show patients, no-show appointments, patient compliance, outpatient, and primary care*. The search was limited to a date range of 2015-2020; this was done to obtain the most up-to-date information on the topic. This search revealed over 100,000 articles. Limiters were then placed that included peer-reviewed articles, English language, full article availability, and references available. After limiters were set, 104 articles were available that were pertinent to the subject.

Synthesis of Evidence: Overall Strength and Quality of Evidence

Mosby's level of evidence was utilized to determine the final articles chosen for utilization in this paper. Twenty-two articles were selected for review and categorized according to Mosby's level of evidence scale (see Appendix A). The remaining articles were not chosen due to weaker levels of evidence or inappropriateness for the project.

Critical Appraisal and Summary of Evidence

No-Show Appointments

The literature agrees that most missed appointments, or no-show appointments, were related to unmet social needs. These needs include transportation, financial, health literacy, insurance status, and language barriers (Fiori et al., 2020). One research study also linked the likelihood of missing appointments with race and ethnicity, medical complexity, major mental illness, and emergency room utilization (Shimotsu et al., 2016). No-show appointments lead to decreased office functionality, increased wait times for patients, decreased patient and office satisfaction, and decreased office revenue (Triemstra & Lowery, 2018).

No-show appointments can minimize access for other patients; this, in turn, can create dissatisfaction for patients, staff, and providers alike (Marbough et al., 2020). No-show appointments can lead to underutilization of staff and resources, which can further influence negative relationships between staff and patients (McLean et al., 2016). In the outpatient rheumatology setting, the patient's median wait time to be seen from their original referral is 74 days (Widdifield et al., 2016). Pressures from referring providers and the staff's responsibility of managing the referral waiting list can increase staff anxiety, stress, and fatigue (McLean et al., 2016). Decreasing patient no-show appointments can allow staff to utilize appointments to their maximum ability and increase appointment availability for patients.

Predictive Modeling

Predictive modeling is a term used when a model is created to predict a patient's chance of no-show appointments based on specific criteria. The majority of the criteria for predictive models were patient demographics (age, sex, race), time of year, and previous no-show history (Carreras-García et al., 2020; Goffman et al., 2017). Predictive modeling can also be utilized in assisting organizations with identifying high-risk patients. If a patient is likely to miss their follow-up appointments, they are likely to miss their preventive appointments as well (Hwang et al., 2015). Utilizing predictive modeling to identify patients likely to no-show can help facilities take extra steps to reach these patients and remind them of their future appointments. However, multiple years of statistical data are required for effective predictive modeling (Hwang et al., 2015).

Intentional Overbooking

Intentional overbooking was also seen throughout the literature as a new way to combat the decrease in office productivity and decrease in office revenue due to no-show appointments (Marbough et al., 2020; Parente et al., 2018). Intentional overbooking is when patients are intentionally placed in the same appointment slots to help mitigate the lost costs due to no-shows. The research suggested that using a percentage of overbooking that was slightly less than the percentage of no-shows can mitigate the costs (Marbough et al., 2020). Parente et al. (2018) created a quasi-experimental study to evaluate overbooking; the findings concluded that adopting an overbooking method based on a well-performing predictive model can improve efficiency and service quality. Albeit overbooking comes with its share of problems ranging from all the patients showing up for their appointments simultaneously, increasing staff and physician overtime, and increasing patient wait time (Parente et al., 2018). Intentional overbooking was not

a chosen model for this quality improvement (QI) project due to physicians and practice management not having buy-in to this method.

Singular Phone Call Reminders

Automated or personal pre-appointment phone calls have been proven to reduce the no-show rates for patient appointments from 20.99% to 7.07% (Drabkin et al., 2019). Mohamed et al. (2016) utilized a phone call reminder system and three intervention cycles to decrease no-show rates from 49% to 18%. Mohamed et al. (2016) cited communicating with the patients via telephone offered the patients to either cancel the appointment indefinitely or reschedule the appointment to a later date, opening the schedule for emergent referral patients. Singular phone call reminders have a low successful contact rate of 30%-60%; this is due to the timing of the phone calls (McLean et al., 2016). Most of the telephone reminder calls are made during business hours on Monday to Friday, which is a time period that many patients may not be home (Mclean et al., 2016). Also, singular phone call reminders may not be received by the patient because the patient does not answer the phone and the phone number may be incorrect (McLean et al., 2016). The outpatient rheumatology office utilized this reminder system.

Text Messaging Reminders

The world has gone mobile; gone are the days of reaching someone on their landline. According to Pew Research Center (2019), approximately 96% of Americans owned some type of cellphone in 2019. Kazi et al. (2017) state that there are about seven billion mobile phone subscribers globally; 89% of those are in low- and middle-income countries. Short message service (SMS) better known as text messaging, is a reminder method that has been extensively researched (Schwebel & Larimer, 2018). Text messaging patients gives the practice an option to instantly and directly reach the patient and provide a reminder to save to their phones for reading

again (Lin et al., 2016; Varma et al., 2016). Texting patients also allows patients to respond to the message on their time for possible cancellation or an option for the office to call them to reschedule. Throughout the literature, the text message reminder's timing ranges from seven days before the appointment to 48-hours prior (Boksmati et al., 2016; Steiner et al., 2018; Thomas et al., 2017). Steiner et al. (2018), suggested utilizing two text message reminders, one seven days prior and one 24-hours before the appointment. Text messaging has been shown to reduce the risk of a missed appointment by 50% (Thomas et al., 2017). Text reminders were shown to decrease no-show appointments in multiple studies (Schwebel & Larimer, 2018; Thomas et al., 2017; Flueckiger et al., 2019). Flueckiger et al. (2019) utilized text messaging reminders over a five-week period for a pilot group which resulted in a 98% appointment attendance rate thereby increasing patients' antenatal care.

Phone Call with Text Reminders

Timely and frequent engagement with patients prior to their scheduled appointment has been proven to decrease no-show appointment rates (Saeed et al., 2018). Utilizing a two-method approach also effectively reduces patient no-show rates (Saeed et al., 2018). Choosing to employ a 48-hour phone call reminder along with a text reminder seven days before the scheduled appointment allows patients to either rearrange their schedule to accommodate their appointment, reschedule the appointment, or cancel the appointment in a timely manner (McLean et al., 2016; Mohamed et al., 2016). Wide cellphone coverage along with a surge in SMS services offers a way for clinics to reach patients even in rural areas. Offering a two-method approach to reaching patients allows clinics to have an alternative reminder if one of the reminders did not process through due to lack of coverage area (Kazi et al., 2019).

Recommendations for QI Intervention

Identifying methods to reduce no-show appointments is imperative to avoid decreased office functionality, increased wait times for patients, decreased patient and office satisfaction, and decreased office revenue (Triemstra & Lowery, 2018). Predictive modeling requires extensive planning and multiple years of statistical data analysis, which can lead to initial delays in rectifying no-show appointment rates. Intentional overbooking is not an effective method in reducing no-show appointments but is used rather as a method of mitigating lost revenue (Marbough et al., 2020). While Drabkin et al. (2019) indicates decreases in no-show appointments occur with the utilization of a call reminder approach alone, this method has not been effective for the local outpatient rheumatology clinic. Text message reminders have been shown to decrease no-show rates by up to 50% (Flueckiger et al., 2019; Schwebel & Larimer, 2018; Thomas et al., 2017). However, utilizing a two-method approach, such as text message and phone call reminders, acts as a failsafe process for providing appointment reminders and is shown to reduce no-show appointment rates (Kazi et al., 2019; Saeed et al., 2018). Effective efforts to decrease no-show appointments can in turn, increase patient access to care, improve utilization of staff and resources, and improve staff satisfaction (Marbough et al., 2020; McLean et al., 2016).

Fit, Feasibility, and Appropriateness of Recommendation(s)

The QI measure utilized for this project is the inclusion of a text messaging reminder system along with using the phone call reminder that is already in place. Considering the current patients at the local outpatient rheumatology office, the project developer did not want to eliminate the call reminder system due to the patient population being accustomed to this reminder. This practice was able to be implemented given the current organizational infrastructure because the current reminder system already has a text messaging option available

for a minimal fee. Additional financial resources were needed to implement the text reminder system. The literature indicates this intervention is consistent with improving patient health outcomes, improving office financial aspects, and improving staff as well as patient satisfaction. The stakeholders of the outpatient rheumatology clinic have significant buy-in for this project due to the high number of no-show appointments with subsequent losses in revenue. Stakeholders include the staff physicians, office management, and office staff. Additionally, stakeholders want to see appointment compliance due to the disease processes' chronic nature and the potential toxicity of the patients' medications.

Rationale –Conceptual and Improvement Science

Conceptual Framework

Roger's Innovation Diffusion Theory consists of the following five stages: knowledge, persuasion, decision, implementation, and confirmation (Mohammadi et al., 2018). This specific theory helps to break down the project into problem discovery, research, implementation, and confirmation of a successful project or not. Roger's theory informs plans for implementing and selecting outcome measures by stating that if the change is unsuccessful at the first trial, then the change can be tried again in the future at a better time or in a different format. A concepts and constructs map of the theory framework has been created (Appendix B).

Knowledge

In Roger's theory, the knowledge stage consists of the project developer being exposed to the problem but not knowing how to fix it. A needs assessment was completed and showed that no-show appointments in the clinic were a problem, yet a solution was not yet known. Staff satisfaction in regard to the change in procedure and in correlation with no-show appointments

was also identified in the needs assessment. Having identified a problem within the office, the project developer can then move into the persuasion stage.

Persuasion

In the persuasion stage, the project developer is seeking and researching information regarding the problem. An extensive and exhaustive literature review was conducted to identify solutions to the problems discovered during the knowledge stage. Through the persuasion stage, an extensive literature review indicated text and phone call reminders as a viable solution to decreasing no-show appointment rates. It was also discovered that no-show appointments could directly impact staff satisfaction.

Decision

The decision stage consists of the project developer creating the project and looking at its advantages and disadvantages. In the decision stage, the project was created utilizing the research from the persuasion stage. A text reminder seven days prior to the scheduled appointment along with the standard 48-hour pre-appointment phone call will be utilized. To measure staff satisfaction, a 10-question Job Satisfaction Questionnaire will be emailed out pre- and post-implementation.

Implementation

In the implementation stage, the project developer is implementing the project and evaluating whether it is valid. With Roger's theory, if it is discovered that the innovation is not working as expected, more research can be conducted in the implementation stage, thereby leading to a possible change that could be made to the project in the future. This QI project's intervention and evaluation of data findings will occur during this stage. The project will begin a week before the go-live of the text reminders with an educational session for teaching the staff

the new procedure. An email will also be sent with the Job Satisfaction Questionnaire attached after the educational session. The project will consist of an eight-week run of the text reminder system being utilized in addition to the preestablished 48-hour phone call reminders. Data will be collected every Monday to maintain ease of data review once the project is over. On the last day of the project, the post-implementation Job Satisfaction Questionnaire will be emailed out. The staff will have three days to complete the questionnaire before the questionnaire window closes.

Confirmation

In the confirmation stage, the project developer discovers if the project is helpful and whether to continue using it. During this stage, data will be reviewed, and results will be tallied. Results will be disseminated to the staff, physicians, and office management of the clinic.

Results will also be disseminated to the Jacksonville University Brooks Rehabilitation College of Healthcare Sciences and the local hospital affiliation. The possibility of pursuing dissemination of findings at a professional conference will also be considered. Project continuation in the clinic will also be determined in the confirmation stage.

QI Model

The QI model for this project will be the Plan-Do-Study-Act (PDSA) model. This model incorporates cycles of the trial intervention to learn from previous cycles and develop or tweak current cycles. Utilizing the PDSA model for this specific project will allow the project developer to see what is working and what is not working, thus giving the project developer the ability to tweak the project and run another cycle if necessary. This model also allows the participants to provide valuable feedback for the project, allowing the project developer to utilize that critical information in tweaking future cycles. The PDSA model was selected because it is

used throughout the local healthcare system that the outpatient rheumatology clinic is associated with.

Plan

In the PDSA model's planning cycle, the project developer noted and established that there was a problem in the clinic with no-show percentages increasing. The project developer began researching and conducting a literature review to analyze how to decrease the no-show percentage for the clinic. Evidence-based interventions were established through a thorough literature review. Meetings were held with office management to discuss the need for a new approach in the reminder system and decrease office no-shows. Staff satisfaction rates were also discussed with management, and a literature review was conducted. It was discovered that no-show appointments could impact staff satisfaction. A Job Satisfaction Questionnaire was researched for validity and reliability to utilize in a pre-implementation questionnaire and post-implementation questionnaire.

Do

In the do cycle of the PDSA model, the project developer will begin implementing the project. This cycle will start with completing an educational session with an information flier for the staff, a staff-wide email, the Job Satisfaction Questionnaire, and the project's go-live. Throughout the implementation phase, the project developer will be readily available to the staff for any questions or concerns regarding the project. The do phase will consist of the eight weeks of the implementation of the text reminder system. Once the project run is completed, another Job Satisfaction Questionnaire email will be sent.

Study

In the PDSA model's study cycle, the project developer will be completing the data analysis post-project run. The project developer will be studying the data to look for the project's success, determine the new no-show percentages for that time frame, and determine the percent difference in pre-implementation versus post-implementation. The pre-and post-implementation Job Satisfaction Questionnaires will also be analyzed in the study cycle.

Act

In the act cycle of the PDSA model, the project developer will be disseminating the project results. The results will be presented to the staff, physicians, and office management of the clinic. Results will also be disseminated to the Jacksonville University Brooks Rehabilitation College of Healthcare Sciences and the local hospital affiliation. The possibility of pursuing dissemination of findings at a professional conference will also be considered.

Specific Aims

The project aimed to reduce office no-show appointments by two percent or more over eight weeks. Two percent or more was chosen based on Perron et al. (2013) research that claimed if the project concluded less than a two percent decrease in no-shows, it would not bring sufficient financial benefits to mitigate the cost of the new reminder system. Due to insurance payouts and the increased length of time for payouts to occur, real-time financial benefits were unable to be measured for this project. Maintaining or increasing staff satisfaction is considered a lower-level goal that was measured by utilizing the Job Satisfaction Questionnaire (Appendix C). Permission to use this questionnaire was granted by the author (Appendix D).

Context

The local outpatient rheumatology office is located in a major metropolitan city in Florida and is associated with a local hospital. The patient population for this clinic is

approximately 4500 patients who are adults 18 years and older. Conditions seen at this clinic most frequently include but are not limited to rheumatoid arthritis, psoriatic arthritis, ankylosing spondylitis, and osteoporosis. The practice is staffed with five physicians, one physician assistant, one office manager, seven front office staff, four medical assistants, and three registered nurses. The local outpatient rheumatology office is under the umbrella of the local hospital primary care network. The local hospital affiliation is a registered and accredited Magnet institution. Currently, the local outpatient rheumatology office utilizes a care process and protocol related to no-show appointments, including a first offense letter reminding the patient of the 24-hour cancellation policy with the \$30 fee waived. Second offenses and beyond, the patient is sent the reminder letter along with an invoice for the \$30 no-show fee for an established patient and a \$50 fee for a new patient. The hospital system's mission is "to continue the healing ministry of Christ by providing accessible, quality healthcare at a reasonable cost in an atmosphere that fosters respect and compassion" (Baptist Health, 2020). The strategic plan that the hospital system utilizes is the values system: community, advocacy, respect, excellence, and stewardship.

The strengths and opportunities that influenced the success of the change in the healthcare setting is that the appointment reminder system was already in place at the practice. Prior to implementation of the text reminder system, the practice only utilized the phone call reminder system, which called patients 48 hours before their scheduled appointment and left an automated reminder for them. This reminder system placed one phone call to the patients 48 hours prior to their scheduled appointment. When the patients answered, the automated reminder told them of their appointment date and time. The automated reminder also stated the facility and office that the patient had their appointment at. Once the reminder had finished, it gave the

patient the opportunity to press one to confirm and two to cancel. The next day in the office, it is the office staff's responsibility to generate the report from the ClientTell system. This report lists if a patient has canceled or confirmed their appointment. If an appointment has been marked as canceled, the office staff is responsible for going into the scheduling software and manually canceling that appointment. This system had an optional add-on for the text reminder as well. This text add-on made the initiative run more smoothly and cost-efficiently since the technology was already available for an additional fee.

The initiative had minimal impact on the front office staff's workflow because they already received the daily reports for the canceled appointments from the previous reminder call system. The text reminder cancellation report list had the exact same protocol and print out as the reminder call. Front office staff was asked to utilize new dialogue when speaking with patients to verify their correct contact information. This dialogue was presented at an educational session during normal business hours. The dialogue consisted of asking patients to verify that their current contact information, phone number, address, and email were correct, along with verifying if they had a mobile contact number. The current no-show policy was kept the same for the initiative. Front office staff adopted the new dialogue and incorporated it into their daily interactions with patients.

Support for Project

This QI project had the support of the office manager and staff physicians. Utilization of the electronic health record (EHR), the current call reminder system ClientTell, and staff utilization during regular business hours minimized cost occurrences. An educational session regarding the project was conducted in the office during normal business hours and an interoffice

email was sent with the reminder of go-live. The Job Satisfaction Questionnaire was also sent in email format utilizing a Qualtrics link.

ClientTell charged 0.129 cents per automated phone call reminder. The outpatient rheumatology clinic sent approximately 1000-2200 automatic phone call reminders per month with average costs between \$129- \$283.80 a month. The price increased to 0.179 cents per patient to add the text messaging reminder. This increased the monthly cost to \$179-\$393.80, for a total clinic overhead increase of \$50-\$110 a month. Consideration of the average monthly no-show rate of 24% must be made to justify the increased overhead cost of the text reminder system. Due to real-time financials not being available because of delays in insurance payouts, a literature search was conducted to estimate the financial impact of a no-show appointment. In the United States, the total cost of no-show appointments averages \$150 billion, and this translates to an average of \$200 per missed appointment for physician offices (Chung et al., 2020). If a text reminder is proven to decrease the current no-show rate by even two percent, this translates into an increase in office revenue which can potentially negate the increase in office overhead.

Intervention Description

After receiving permission from Jacksonville University's institutional review board (IRB) and the facility's IRB for the project to go-live, the project developer met with the office manager to review the project details and set a date for an educational session with the office staff. The educational session for the front office staff was held and during which time staff received a flier (Appendix E) that included the new dialogue for corresponding with patients. The educational session was held during normal business hours and lasted approximately 30 minutes. During the session, the project developer reviewed the details of the project, the specific aims of the project, and the impact on staff. The project developer allowed time for questions and

concerns from the staff to be addressed at the end of the session. Staff responded to the session positively and voiced no questions or concerns. Following the educational session, a follow-up email (Appendix F) was sent to the office staff that included the reminder of the project initiation and key project points, along with the Job Satisfaction Questionnaire via Qualtrics.

The Job Satisfaction Questionnaire consisted of 10 questions broken down into three categories. These categories included teamwork, leadership, empowerment, and participation, as well as training and individual development. Permission to utilize this questionnaire was obtained from the author. The Job Satisfaction Questionnaire was studied and found to be a reliable and valid tool in assessing job satisfaction in health care workers (Ahmad et al., 2020). The questionnaire was distributed pre-implementation and post-implementation. Before the employee clicks the questionnaire link, a caveat was highlighted stating that the employee is not required as part of their job to complete the questionnaire. The questionnaire is entirely anonymous, voluntary, and did not affect the staff's position. The Job Satisfaction Questionnaire was distributed one week prior to implementation and on the last day of the project. No demographics or identifying information was obtained from staff, and they were given three days to complete the questionnaire before the questionnaire window closed. This allowed the project developer to have a timeline of when to collect results.

The project ran over eight weeks, Flueckiger et al. (2019) conducted a study that showed positive results after a five-week run utilizing a text appointment reminder system. The current ClientTell reminder system sent the text reminders seven days before the patients' scheduled appointment. The text messages included the following information: office name, office location, appointment date and time, patient first name, office number for cancellation or reschedule, and an option to reply stop to be opted out (Appendix G). The standard 48-hour prior phone call

reminder remained in place throughout the entirety of the project. Choosing to utilize a text reminder system is a more cost-efficient way to reach patients to remind them of their scheduled appointments (Saeed et al., 2018). The ClientTell system utilized the current EHR to obtain the scheduled appointments and patient information. The text messaging reminder and phone call reminder was conducted in an automated fashion per the ClientTell system. Front office staff checked the canceled appointment list generated through ClientTell and canceled the appointments manually as per their usual job duties.

Data was collected weekly during the eight-week cycle on Mondays and compared to the eight-weeks pre-implementation. Data was collected weekly for ease of results review at the end of the eight-week cycle. The data was collected and analyzed to gain insight into possible future projects or changes. The last data collection along with the last Job Satisfaction Questionnaire, occurred at the conclusion of the eight-week implementation period. Staff had three days to complete the last questionnaire, and then all data was sent to the statistician for data analysis.

Timeline of Project Phases

The project's planning phase occurred between August 2020 and July 2021. The planning phase involved researching and conducting a literature review to analyze how to decrease the no-show percentage for the clinic, establishing evidence-based interventions, and holding office management meetings to discuss the no-show rate and evidence-based interventions to reduce the rate. The planning phase also includes exploring staff satisfaction and the correlation to no-show rates, discussing this with management, and conducting a literature review to establish evidence-based interventions. A Job Satisfaction Questionnaire was researched for validity and reliability to utilize in a pre-implementation questionnaire and post-implementation questionnaire.

The do phase of the project occurred between August 2021 and October 2021. An educational session with the staff as well as initiating the text messaging reminders occurred during the first week of project implementation. Staff were provided with a flier and explanation of the new text messaging reminders approach and given the opportunity to ask any questions and voice any concerns. A follow-up email was sent to office staff which contained the Qualtrics link for the initial Job Satisfaction Questionnaire. Text messaging reminders continued to be sent out for eight consecutive weeks. No-show appointment rates were collected weekly on Mondays and were compared to the eight weeks prior to the addition of SMS reminders. The final Job Satisfaction Questionnaire was emailed to staff with the option to complete via a Qualtrics link.

The study phase of the project was conducted once all data had been collected. The data was sent to the statistician three days after the project conclusion for data analysis. No-show appointment rates for pre- and post-implementation were compared with a goal of decreasing this rate by two percent. Initial and final Job Satisfaction Questionnaires were also analyzed to determine if staff satisfaction had been improved by the QI intervention.

The act phase of the project was conducted once data analysis had been completed and also consisted of disseminating the results of the project. The project results were presented to the staff, physicians, and office management of the outpatient rheumatology clinic. Results were also disseminated to the Jacksonville University Brooks Rehabilitation College of Healthcare Sciences and the professional practice department of the hospital affiliate. The possibility of sharing findings at a professional conference are still being considered. A condensed timeline has been provided (Appendix H).

Study of Intervention

Assessing the intervention's impact began with capturing the no-show appointment percentages for the eight weeks before the implementation. Once this data was captured, it was then compared to the implementation data. A decrease in no-shows of at least two percent was the goal for this QI project based on the research conducted by Perron et al. (2013). The lower-level goal of maintaining or increasing staff satisfaction was also analyzed utilizing the pre-and post-implementation staff satisfaction questionnaire.

Measures

This project's measures included the eight weeks before implementation and the eight weeks of implementing the phone call and text reminder system. The EHR was also utilized to generate reports for data collection of no-show appointment rates for the eight-weeks pre- and eight-weeks post-implementation. Data collection for the no-show appointment rate were conducted every Monday during the implementation period to help with results calculations at the end of the project phase. The weekly number of no-show appointments were collected and entered into the data collection sheet (Appendix I). The project developer was the only person collecting data to ensure internal consistency. For the educational session, the project developer was the only person providing information to ensure interrater reliability.

The Job Satisfaction Questionnaire was conducted pre-implementation and post-implementation. This questionnaire had been deemed a valid and reliable tool to investigate staff satisfaction. The questionnaire consisted of 10 questions that measure satisfaction in three different areas of the workplace environment. These areas include teamwork, leadership, empowerment, and participation, as well as training and individual development. Data collection from the questionnaire was conducted through Qualtrics. All responses from the questionnaire remained anonymous.

Financial considerations for this project included the increased cost of text messaging reminders. Fliers printed for the educational session were absorbed by the clinics operating budget per the office manager, as well as absorbing the additional costs associated with the application of text messaging reminders. Attendance of the educational session occurred during normal business hours. Pre- and post-implementation Job Satisfaction Questionnaires were issued via email through the Qualtrics link, maintaining no cost and allowing confidentiality. The Qualtrics link was only valid for three days, and that allowed the project facilitator a cutoff date to collect the data from the questionnaires. The project facilitators' voluntary time and effort in the planning, implementation, and data collection for the project were necessary for degree completion.

Analysis

A pre-and post-implementation analysis of the no-show rate was completed. Due to this QI project's nature, there was no control group as all patients at the outpatient rheumatology clinic meet the inclusion criteria (new and established patients with scheduled appointments). The no-show rate was calculated utilizing the number of no-show appointments for the eight weeks before implementation and the eight weeks after the start of the implementation. The data can be arranged in a two-by-two table.

The null hypothesis is that the percentage of no-show appointments pre- is equal to the percentage of no-show appointments post-implementation. Statistical analysis was done utilizing two type analyses, one compared the averages across the eight-weeks pre- and post-implementation with a t-test and one compared the overall proportions percent no-shows for the two periods utilizing a chi-squared test. This was conducted to determine if the no-show

appointment percentage post-implementation was less than the no-show appointment percentage pre-implementation. The significance level was set at 0.05% with a 95% confidence interval.

Additionally, analysis of the Job Satisfaction Questionnaire should be completed utilizing a chi-squared test. The null hypothesis for staff satisfaction is the average score pre-implementation is equal to the average score post-implementation. Confidence intervals will be set at 95% for pre- and post-implementation scores.

Ethical Considerations

The project developer and the outpatient rheumatology clinic uphold patient confidentiality and patient safety to the highest degree. Before implementing the project, IRB approval was sought from Jacksonville University along with the hospital systems' Nursing Scientific Review Committee. Data management, security, privacy, and confidentiality of paper and electronic resources followed current Health Insurance Portability and Accountability Act guidelines and practice policies. No patient identifying information was collected and stored. No-show appointment reports were printed utilizing the current EHR system, and this report does not print patient identifying information. The weekly numbers of no-show appointments were collected and entered into the data collection sheet. This sheet was digitally formatted and stored on a secure password-protected computer. A data collection sheet for the Job Satisfaction Questionnaire was also created, digitally formatted, and stored on a secure password-protected computer (Appendix J and K).

Completion of the pre-and post-implementation Job Satisfaction Questionnaire was anonymous, contained no identifying information, and was optional. Instructions for this questionnaire indicated that completing this questionnaire implied informed consent. To further ensure that the data the project developer collected was anonymous, the project developer

manually reconfigured the settings in the survey to anonymize the response. This setting prevents Qualtrics from collecting, by default, data such as IP addresses and emails. The project lead has no supervisory role in the clinic; therefore, coercion to consent for the data to be utilized for this project is not a factor. Before the staff completed the satisfaction questionnaire, a caveat was highlighted in the email that stated that the employee is not required as part of their job to complete the questionnaire, the questionnaire is entirely anonymous as well as voluntary, and that in no way will completing this questionnaire affect their position.

Results

The aim of this project was to decrease the no-show appointment percentage by two percent or more over an eight-week time period utilizing text messaging reminders. A text messaging reminder sent seven days prior to a patient's scheduled appointment along with the standard 48-hour prior reminder call was utilized for this project. Pre-implementation no-show data was collected for the eight weeks prior to go-live, and data was then collected for the eight weeks following go-live.

The data that was collected and analyzed was the no-show appointments across the eight-week pre- and post-implementation as well as the appointments that patients did arrive at. In the eight weeks pre-implementation, there were 410 no-show appointments total. There were 3300 appointments that patients did arrive for. In the eight weeks post-implementation, there were 382 no-show appointments total. There were 3454 appointments that patients did arrive for. This data was configured and tabulated with N representing the total number of appointments over the eight weeks pre- and post-implementation. A contingency table was created to show the data (See Table 1).

Table 1

Contingency Table

Freq: Frequency

Contingency Table

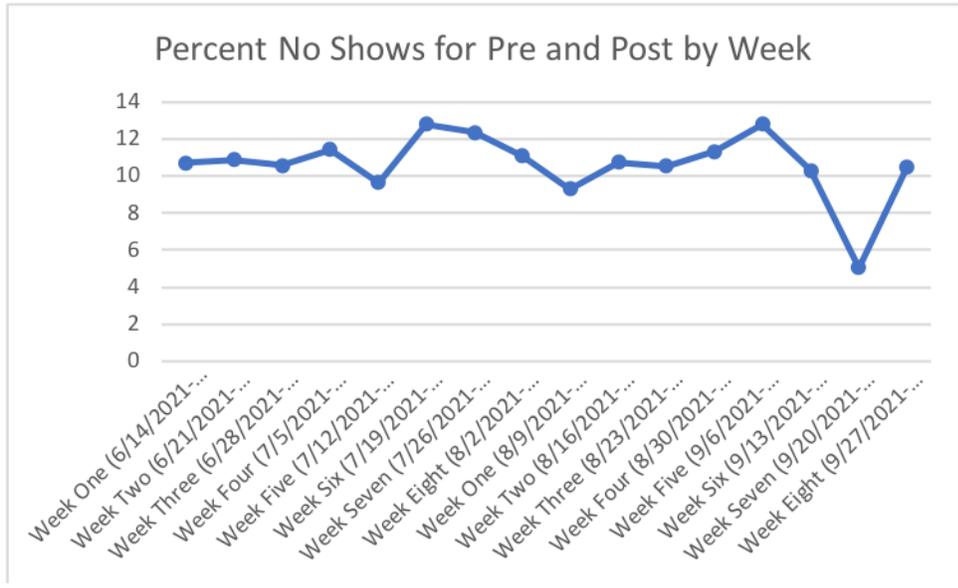
Time By No-Show/Show

Count	No-Show	Show	Total
post	382	3454	3836
Total %	5.06	45.77	50.83
Col %	48.23	51.14	
Row %	9.96	90.04	
pre	410	3300	3710
Total %	5.43	43.73	49.17
Col %	51.77	48.86	
Row %	11.05	88.95	
Total	792	6754	7546
Total %	10.50	89.50	

N	DF	-LogLike	RSquare (U)
7546	1	1.1989082	0.0005

Figure 1

Percentage of No-Shows for Pre and Post by Week



No-Show Appointments

The no-show appointment data was measured utilizing two types of analyses. First, the data averages were compared across the eight-week time periods utilizing a t-test. The average percent no-shows decreased from 11.2% to 10.1% for the two eight-week time periods.

However, the p-value of 0.22 for the two independent samples t-test is greater than 0.05, so one cannot conclude that the averages are different (See Table 2).

Table 2

t-Test: Two-Sample Assuming Equal Variances

	<i>PctNoShowPre</i>	<i>PctNoShowPost</i>
Mean	11.19820032	10.08202956
Variance	1.027200186	5.099566581
Observations	8	8
Pooled Variance	3.063383384	
Hypothesized Mean Difference	0	
df	14	
t Stat	1.275439788	
P(T<=t) one-tail	0.111455927	
t Critical one-tail	1.761310136	
P(T<=t) two-tail	0.222911854	
t Critical two-tail	2.144786688	

Secondly, the data was analyzed by comparing the overall proportions percent of the no-shows for the two periods. The overall proportion percent of no-shows for pre = $410/(410+3300) = 11.05\%$ and post is $382/(382+3454) = 9.96\%$. Chi-squared test p-value = 0.1215, so one cannot reject the equal rates hypothesis (See Table 3).

Table 3

Chi-Squared Test

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	2.398	0.1215
Pearson	2.398	0.1215

For the t-test and chi-squared test alike, a 1.1% decrease in no-show appointments was shown. This, unfortunately, means that the project goal of decreasing no-show appointments by two percent was not met. Speculation on why the goal was not met could include the shift to more virtual visits versus in-person office visits being utilized due to the 2019 novel coronavirus pandemic. Virtual visits give patients access to their healthcare provider at their fingertips and allow patients to have their visits with their providers from anywhere.

Job Satisfaction Questionnaire

The lower-level goal of this project was to measure staff satisfaction pre- and post-implementation of the text messaging reminders to calculate if satisfaction was maintained, increased, or decreased. Staff was sent a Qualtrics questionnaire email link before the go-live of the text messaging reminder and at the end of the eight weeks of post-implementation. Staff members were given three days to complete the questionnaire. The employee was not required as part of their job to complete the questionnaire. The questionnaire was entirely anonymous and voluntary. In no way would completing this questionnaire affect their position.

Due to the nature of the questionnaire and the voluntary status, the results could not be calculated using a valid testable measure. In addition, due to the pre- and post-implementation questionnaires not being linked to each employee and more post-implementation results versus pre-implementation results, only a mean, median, and mode calculation could be completed (See Table 4).

Table 4

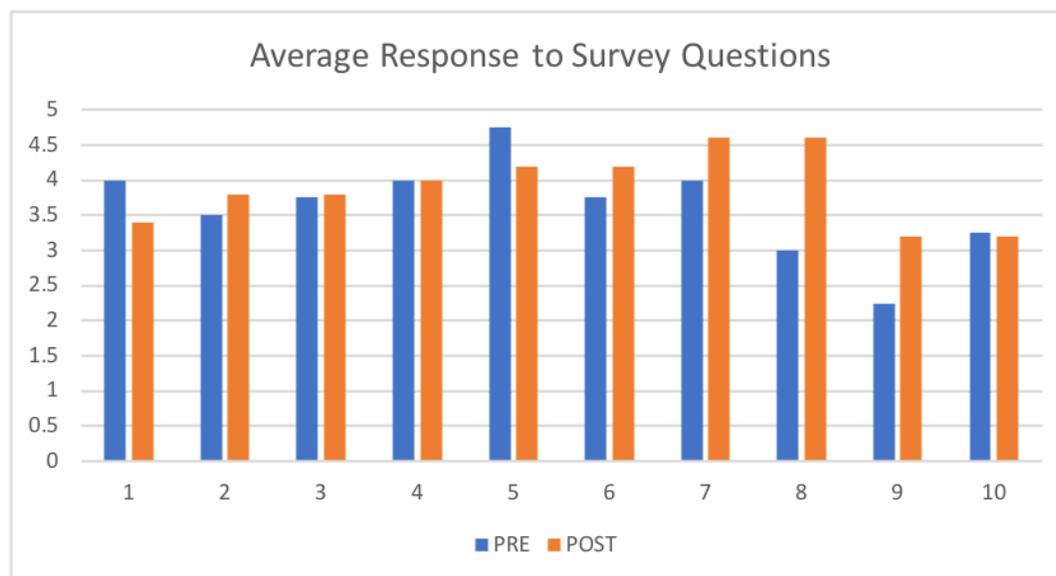
Pre and Post Implementation Job Satisfaction Results

		Teamwork	It is easy to	I feel part o	I receive as	Empowerm	The missio	I feel I've co	My job ma	Training an	Training offered by the organization helps me to be effective and efficient in my job		
	Question	1	2	3	4	5	6	7	8	9	10	Means	All Data
PRE	mean	4	3.5	3.75	4	4.75	3.75	4	3	2.25	3.25	3.625	3.625
	median	4	4	4	4	5	4	4	3.5	2.5	3.5	3.55	4
	min	3	2	3	3	4	3	4	1	1	2	3.3	1
	max	5	4	4	5	5	4	4	4	3	4	4.1	5
POST	mean	3.4	3.8	3.8	4	4.2	4.2	4.6	4.6	3.2	3.2	3.893333	3.897959
	median	4	4	4	4	4	4	5	5	4	3	3.8	4
	min	2	3	3	3	4	3	3	4	1	2	3.5	1
	max	4	4	5	5	5	5	5	5	5	5	4.4	5

In the post-implementation questionnaire, one participant did not answer question four of the questionnaire. This also skews the results of the mean, median, and mode analysis. There were four completed questionnaires pre-implementation and five completed questionnaires post-implementation. A bar graph was configured to show the pre-and post-implementation questionnaire average response to survey questions (See Table 5).

Table 5

Job Satisfaction Questionnaire Bar Graph



Unintended Consequences

During the implementation phase of this project, due to the 2019 novel coronavirus, the insurance companies allowed for virtual visits to be paid at the in-person office rate. This opened up an opportunity for all patients to be seen virtually by their provider. It is unknown whether or

not this led to a decrease in no-show appointments. Though with the original no-show percentage being calculated at 24% and the percentage in the pre-implementation being 11.05%, this is a serendipitous finding that may also be attributed to the influx of virtual visits.

Summary

The main key finding for this QI project was the 1.1% decrease in the no-show appointment percentages over an eight-week time period. Although it did not meet the goal of the two percent decrease, it still showed movement in the right direction. This could be utilized in future planning for project improvement or to develop a new future project for the local outpatient rheumatology clinic.

Another key finding came from the staff satisfaction questionnaire. Though the results are not valid by testing standards, staff satisfaction showed as maintained throughout the intervention period. Therefore, a linked anonymous questionnaire could be created and redistributed for future purposes to gain a valid and testable staff satisfaction measurement.

The strengths of this project lie in the use of Roger's Innovation Diffusion Theory. Utilizing this conceptual framework helped to manage the project through a stage process. In Roger's theory, the knowledge stage consisted of the project developer being exposed to the problem but not knowing how to fix it. With the completion of a needs assessment, the no-show appointments were identified as problematic in this stage. This led to the next stage of Roger's theory.

In the persuasion stage, the project developer sought and researched information regarding the problem. Through the persuasion stage, an extensive literature review indicated text and phone call reminders as a viable solution to decreasing no-show appointment rates. It was also discovered that no-show appointments could directly impact staff satisfaction.

The decision stage consisted of the project developer creating the project and looking at its advantages and disadvantages. In the decision stage, the project was created utilizing the research from the persuasion stage. A text reminder seven days prior to the scheduled appointment along with the standard 48-hour pre-appointment phone call was utilized. A valid and reliable 10-question Job Satisfaction Questionnaire was discovered to measure staff satisfaction, and permissions were granted from the questionnaire author to be used for this project.

In the implementation stage, the project developer implemented the project and evaluated its validity. With Roger's theory, if it was discovered that the innovation was not working as expected, more research could be conducted in the implementation stage, thereby leading to a possible change that could be made to the project in the future. The QI project's intervention occurred during this stage. The project began before the go-live of the text reminders with an educational session for teaching the staff the new procedure. An email was also sent with the Job Satisfaction Questionnaire attached after the educational session. The project consisted of an eight-week run of the text reminder system being utilized in addition to the preestablished 48-hour phone call reminders. Data was collected every Monday to maintain ease of data review once the project was over. On the last day of the project, the post-implementation Job Satisfaction Questionnaire was emailed out. The staff had three days to complete the questionnaire before the questionnaire window closed.

In the confirmation stage, the project developer discovered if the project was helpful and determined whether to continue using it. During this stage, data was reviewed, and the results were tallied. Dissemination of results also occurred during the confirmation stage along with consideration of project continuation within the local outpatient rheumatology clinic.

Interpretation

The purpose of this doctoral QI project was to pilot the utilization of a text appointment reminder along with the current 48-hour prior reminder call for the local outpatient rheumatology clinic. This was done to decrease no-show appointment rates within the clinic. Through a thorough literature review, text messaging and phone call reminders were shown to decrease no-show appointments. Furthermore, choosing to employ a 48-hour phone call reminder along with a text reminder seven days before the scheduled appointment allows patients to either rearrange their schedule to accommodate their appointment, reschedule the appointment, or cancel the appointment in a timely manner (McLean et al., 2016; Mohamed et al., 2016). In addition, offering a two-method approach to reaching patients allows clinics to have an alternative reminder if one of the reminders did not process through due to lack of coverage area (Kazi et al., 2019).

The project lead utilized the PDSA model to guide the project, along with Roger's Innovation Diffusion Theory as the conceptual framework, to assist the change in practice involving the new text messaging reminder system. Implementation of this text messaging reminder system was preceded by a staff education session and new staff dialogue to utilize when interacting with patients. The goal of the project was to decrease no-show appointments by two percent utilizing a new text messaging reminder and the current 48-hour prior reminder call. Though this was not accomplished, no-show appointments were decreased over the eight-week intervention period.

Project Impact

The local outpatient rheumatology clinic experienced a one percent decrease in no-show appointments over the eight-week project run. Though it was not the goal of two percent, it was still a decrease nonetheless. This decrease can be translated into a slight increase in patient

compliance, which can then be correlated to an increase in quality patient outcomes. This decrease can also be translated into an increase in office revenue.

As for systems impact, this project had minimal impact on office flow and system management because the current ClientTell reminder provider already had a text messaging reminder option. This made the project run more smoothly due to only having to call and have this option turned on for a small additional fee per text message. The current office flow remained the same as the text reminder cancellation list printed the same as the phone call reminder cancellation list.

Anticipated and Observed Outcomes

The QI project was anticipated to lower the no-show rate by two percent or more for the local outpatient rheumatology clinic. Over the eight-week intervention time, the no-show rate was decreased by 1.1%. This could have been influenced by the contextual factor of the 2019 coronavirus pandemic and the increased use of virtual visits versus in-person office visits. A future longer intervention time may show a higher percentage of a decrease in no-show appointments. In addition, as of October 2021, more insurance companies are starting to pull back on paying for virtual visits; this could positively or even negatively influence future no-show appointment percentages.

Limitations

The most influential and impactful limitation of this project was the 2019 novel coronavirus pandemic. This pandemic caused in-person visits within the outpatient rheumatology clinic to change to more virtual visits once insurance companies approved virtual visits to be paid at the same rate as in-person visits. The original noted no-show rate of 24% was based on numbers calculated prior to the insurance companies allowing virtual visits. It was also based on

a time period when the 2019 novel coronavirus pandemic was new, and patients were understandably apprehensive about leaving their homes. Therefore, this created a higher no-show percentage rate. This fact could be noted as an imprecision in the project design.

The pandemic also created a change within the outpatient rheumatology clinic and the staffing. Due to the pandemic, the clinic suffered a staffing shortage with staff leaving for different jobs, mainly work from home jobs. The clinic also dealt with staffing shortages due to staff contracting the 2019 novel coronavirus and needing to quarantine for multiple days at a time. This led to larger workloads for the remaining staff, longer working hours, and increased overtime. This factor could have potentially led to decreased staff satisfaction. The office manager made efforts to minimize and mitigate the burden on the remaining staff by bringing in flex team staff, sending out encouraging emails, and providing lunch for the staff.

Conclusions

The findings of this quality improvement project show that text messaging reminders do, in fact, decrease no-show appointment rates. Albeit this project did not reach the two-percent goal that was set, there was still a decrease in no-show appointments. The decrease in no-show appointments due to the new text reminder system can be significant and useful to other clinics experiencing a high no-show rate. Additionally, this new reminder system can be put to use in other clinics that do not currently utilize a text reminder system.

Sustainability

Roger's Innovation Diffusion Theory was the conceptual model used for this project. The final stage of the theory is the confirmation stage (as cited by Mohammadi et al., 2018). In the confirmation stage, the project is being confirmed as a successful project or not. Roger's theory informs plans for implementing and selecting outcome measures by stating that if the change is

unsuccessful at the first trial, then the change can be tried again in the future at a better time or in a different format. The new text reminder system should become the new normal by developing a sustainability plan. This QI project focused on sustainability by reiterating the importance of patients keeping their scheduled appointments. This was done by focusing on patient satisfaction and how missed appointments can lead to increased acute episodic visits and decreased office revenue.

With the continued physician and office management support, this project has a high potential for being sustainable. This project is sustainable in the current outpatient rheumatology clinic because it utilizes the current reminder system for a small additional fee. It does not put any additional burden on the staff, and it has shown that it can decrease no-show appointments. Decreasing the no-show appointment rate can lead to better patient outcomes and increased office revenue. This project can eventually spread to the in-office infusion center and be utilized for their appointment reminder system.

Implications for Practice

The findings of this project provided a basis for future quality improvement to continue to focus on patient well-being and patient outcomes. The project suggested that utilizing a new text reminder system influenced the no-show rates within the outpatient rheumatology clinic. This QI project was limited to an eight-week intervention period which could have had an effect on the data collected. The intervention period taking place during a pandemic especially had an impact on the data collected. Collecting data for one-year post-implementation may show a larger impact of the text reminder system as the world changes to acclimate to the 2019 novel coronavirus.

Lessons Learned and Suggested Next Steps

The project lead will meet with the office manager to assess if there is interest in keeping the text reminder system in place. Additionally, the dialogue created for this project for the staff to ascertain the patients' correct contact information could be kept and changed into a policy for communicating with patients. This dialogue could also be used for training new staff members that are hired in the future.

Future steps that could be initiated include a patient survey that the outpatient rheumatology clinic could send out to patients to inquire why patients miss their appointments. This survey could give the clinic more detailed and patient-focused information, leading to future projects to further decrease the no-show appointment rate. As for staff satisfaction, a more detailed questionnaire could be created and sent out. This could help management to determine what areas need to be focused on to increase staff satisfaction.

Dissemination Plan

The project dissemination plan includes a presentation to the project's stakeholders, including the staff, physicians, and office management of the clinic. Results will also be disseminated to the Jacksonville University Brooks Rehabilitation College of Healthcare Sciences and the local hospital affiliation. The project and the results will be presented utilizing a PowerPoint presentation and a discussion of the findings. The project lead will highlight the decrease in no-show appointments as evidenced by the data collected pre- and post-implementation of the text messaging reminder system. The project lead will also discuss the staff satisfaction questionnaire results and include the limitations of those findings.

The possibility of pursuing the dissemination of findings at a professional conference will also be considered. In addition, plans to submit project findings to a peer-reviewed journal that focuses on quality improvement in the outpatient setting are ongoing. Journals under

consideration include *The Journal of Ambulatory Care Management*, *Journal of Preventative Medicine*, and *Journal of Healthcare Communications*.

Project Funding

Project funding was provided through the outpatient rheumatology clinics overhead operating budget. This funding included the increased cost of text message reminders as well as the fliers printed for the educational session. Attendance of the educational session occurred during normal business hours. Pre- and post-implementation Job Satisfaction Questionnaires were issued via email through the Qualtrics link, maintaining no cost. The project leads voluntary time and effort in the planning, implementation, and data collection for the project were necessary for degree completion.

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Appendix A

Mosby's Level of Evidence and Synthesized Articles

Level of Evidence	Description	No-Show Articles
I	Systematic Review or Meta-analysis of all relevant RCTs	5
II	Experimental design/Randomized Control Trials	6
III	Quasi-experimental design	2
IV	Case-Controlled, cohort studies, longitudinal studies	1
V	Correlation studies	6
VI	Descriptive including surveys, cross-sectional design, developmental design, and qualitative studies	2
VII	Authority opinion or expert committee reports	0

Appendix B

A Model of Reducing No- Show Appointments Utilizing Roger's Diffusion Theory

Knowledge	Persuasion	Decision	Implementation	Confirmation
No-show appointments at 24%	Literature review and research of solutions	Project creation-text message reminders	Project implementation	Project results analysis. Decide to continue with a new reminder system or reevaluate.

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graph LR; K[Knowledge] --> P[Persuasion]; P --> D[Decision]; D --> I[Implementation]; I --> C[Confirmation]
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Appendix C

Job Satisfaction Questionnaire

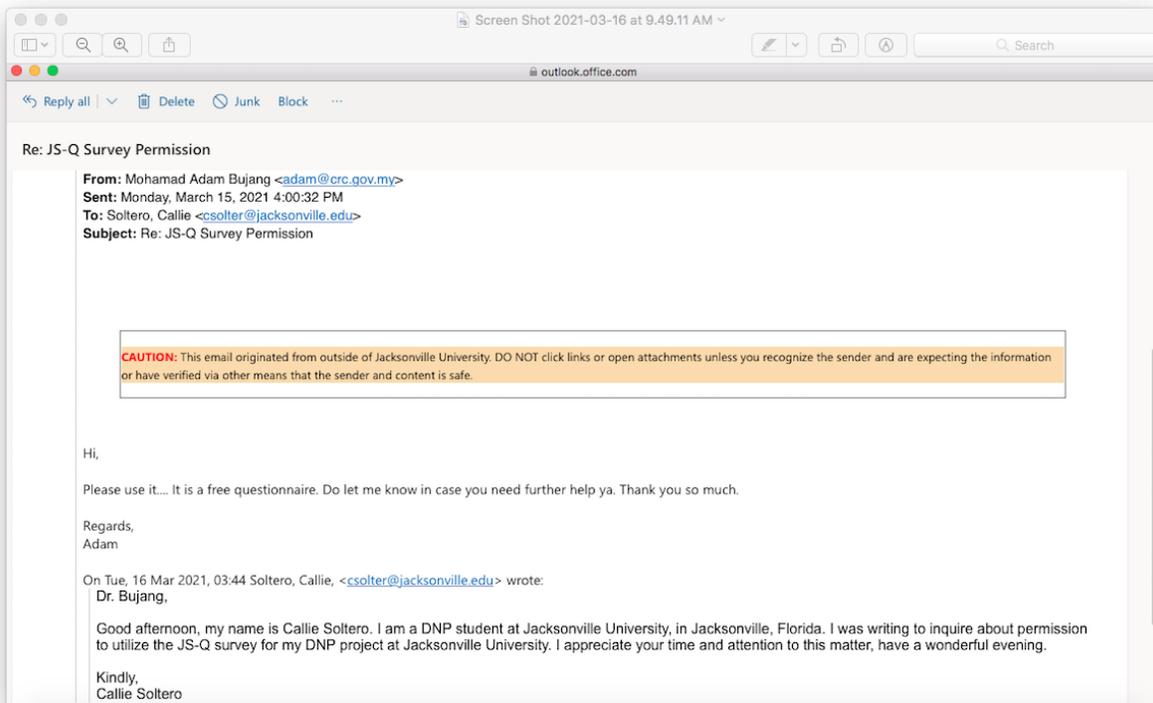
Please read each statement carefully and determine the degree to which you agree with these statements below. Kindly consider your organization as you respond to each statement. Please mark only one answer for each statement.

Teamwork	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
1. My co-workers are committed to doing quality work.	1	2	3	4	5
2. It is easy to get along with my colleagues	1	2	3	4	5
3. I feel part of a team in working towards shared goals.	1	2	3	4	5
4. I receive assistance from co-workers when necessary.	1	2	3	4	5
Empowerment and Participation	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
1. I understand the vision of my organization.	1	2	3	4	5
2. The mission and purpose of my organization make me feel that my job is important.	1	2	3	4	5
3. I feel I've contributed to the organization's plan and mission.	1	2	3	4	5
4. My job makes good use of my skills and abilities.	1	2	3	4	5

Training and Individual Development	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
1. My initial training provided by the office for the new text appointment reminder was sufficient.	1	2	3	4	5
2. Training offered by the organization helps me to be effective and efficient in my job.	1	2	3	4	5

Appendix D

Permission Email from Dr. Bujang to Utilize Job Satisfaction Questionnaire



Appendix E

Educational Flier

Join us for a brief educational session!!

A new text reminder system is coming soon.

Your voice matters!

Ensuring current patient contact information is critical.

New dialogue to talk to patients with every patient interaction. "Can you please verify your current telephone number? Do you have a mobile phone number? Current email address? Current address? Thank you so much!"

Educational Session

June 30, 2021

12:00-1:00pm

Employee Breakroom

Come learn about our new reminder system rolling out in ONE week!!

Any questions or concerns, please reach out to Callie Soltero, BSN, RN in infusion therapy.

***Please keep this flyer to remind yourself of the new dialogue when speaking with patients.**

Thank you!

Appendix F

Qualtrics Email

Good afternoon,

This is a friendly reminder that in one week our new text messaging reminder system will go live.

Key reminders:

1. Go live happens one week from today.
2. Patients will be receiving a text message reminder seven days prior to their scheduled appointment.
3. Patients will also receive their standard 48-hour prior phone call reminder.
4. This will be an eight-week implementation project.
5. Attached you will find your staff satisfaction survey link.

I enjoyed the opportunity to have our education session today. I hope you all were able to take away some important information from it. Please remember to refer to your fliers when speaking with patients to obtain their updated and current contact information. We want to ensure each of our patients has the current and correct information in their charts for communication purposes. If you have any questions or concerns at any time, please feel free to reach out to me. I can be reached by telephone, text, or email. Thank you again for your cooperation and attention to this project. I appreciate you all and the hard work you put in on a daily basis. Teamwork makes the dream work!

Kindly,
Callie Soltero, BSN, RN
904-316-5864
callie.soltero@bmc.com

Dear Sir/Madame:

You are invited to complete an online survey as part of a research project conducted by Callie Soltero, Student, and Dr. Erica Kines, faculty mentor at Jacksonville University. The research project is called Reducing No-Show Appointments in the Outpatient Rheumatology Clinic. The purpose of the study is to reduce no-show appointments in the outpatient rheumatology clinic as well as monitoring staff satisfaction with the reduction of no-show appointments. Completing the online survey may take up to 10-15 minutes. We will not be collecting identifiable information. If you are interested in participating, please click on the survey link below to access the survey and the consent statement.

If you have any questions about this research, please contact csolter@jacksonville.edu.

To read the informed consent and complete the survey, please click here: https://jacksonvilleu.az1.qualtrics.com/jfe/form/SV_9RlgDXV0PV5pjiS

This research has been approved by the Jacksonville University Institutional Review Board, JU IRB 2021-065

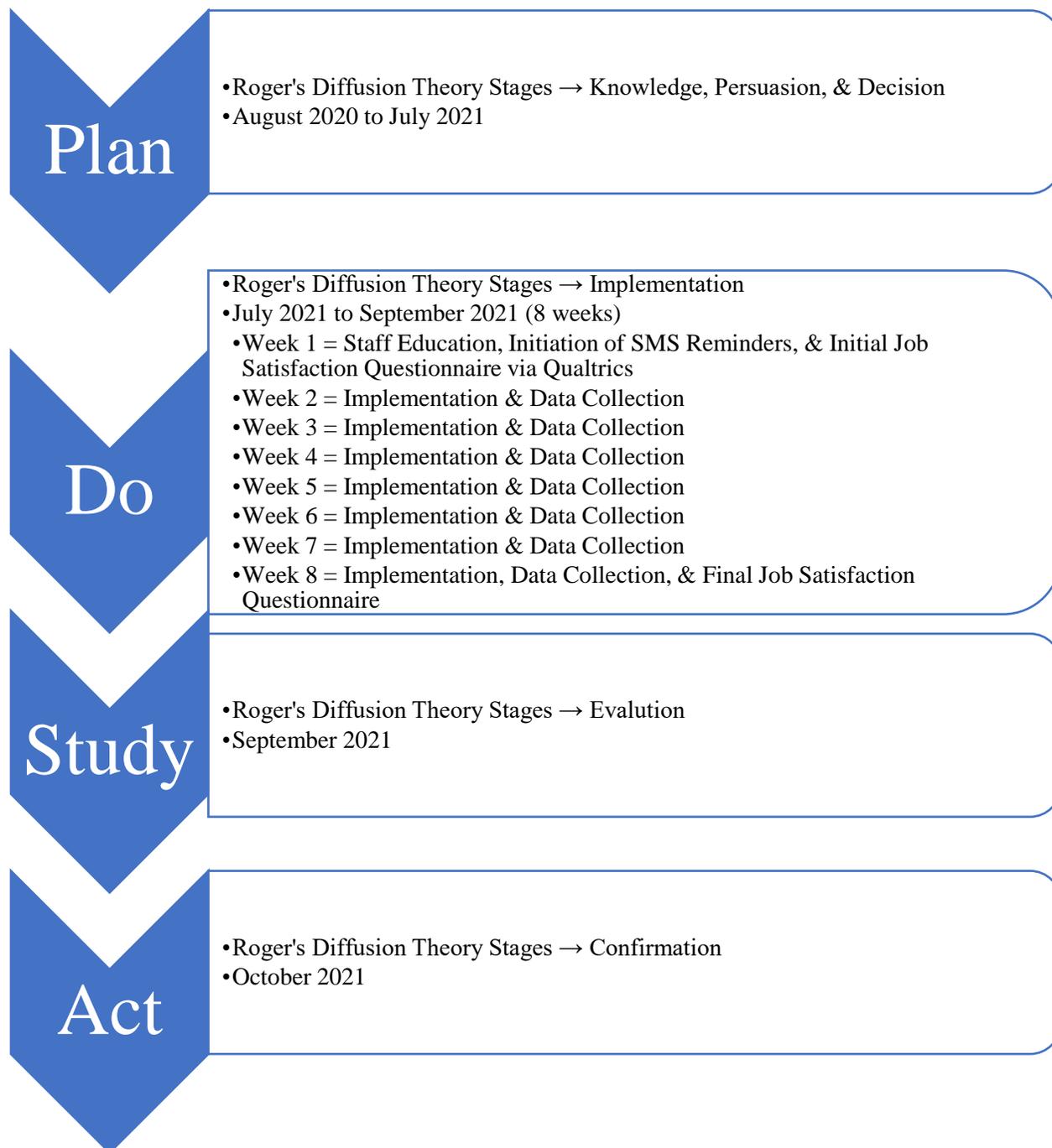
Appendix G

Text Reminder Overview Example

Outpatient Rheumatology Clinic
Downtown Office
Appt:
Thursday, April 1, for Callie at 2:00PM
Call 904-396-8656 if you cannot keep this appt.
Reply STOP to block

Appendix H

QI Project Timeline



Appendix I

Data Collection Sheet

No-Show Data Collection Sheet

Pre-Implementation No-Show Appointments		Patients Arrived for Appointments		Implementation No- Show Appointments		Patients Arrived for Appointments
Week One (6/14/2021-6/18/2021)	55	458		Week One (8/9/2021- 8/13/2021)	42	409
Week Two (6/21/2021- 6/25/2021)	59	482		Week Two (8/16/2021- 8/20/2021)	51	423
Week Three (6/28/2021- 7/2/2021)	56	473		Week Three (8/23/2021- 8/27/2021)	48	407
Week Four (7/5/2021- 7/9/2021)	38	294		Week Four (8/30/2021- 9/3/2021)	52	407
Week Five (7/12/2021- 7/16/2021)	54	506		Week Five (9/6/2021-9/10/2021)	51	347
Week Six (7/19/2021- 7/23/2021)	41	279		Week Six (9/13/2021- 9/17/2021)	55	479
Week Seven (7/26/2021- 7/30/2021)	53	375		Week Seven (9/20/2021- 9/24/2021)	27	506
Week Eight (8/2/2021- 8/6/2021)	54	433		Week Eight (9/27/2021-10/1/2021)	56	476

