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Increasing Patient Initial Visit Compliance in an Outpatient Setting

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Increasing Patient Initial Visit Compliance in an Outpatient Setting

by

Zackery Cooper

A project submitted to the faculty of
Gardner-Webb University Hunt School of Nursing
in partial fulfillment of the requirements for the
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Date   Date

Abstract

Outpatient healthcare clinics make revenue based on patient visits and productivity is based on the number of visits seen per provider. When patients do not attend their scheduled appointments, practices lose the revenue from the visit, plus have the added cost of a potentially unproductive provider. The current practice in the project facility is to send reminder text messages through the electronic health record scheduling system. The system sends reminder texts 48 and 24 hours prior to the appointment date. The proposed change to the practice is to add telephone calls to patients the morning of their scheduled visit. The increased communication will be based on King's Theory of Goal Attainment. With this proposed change, the hypothesis is that visit compliance will increase by at least 10% during a 3-month implementation phase.

Keywords: patient visit noncompliance, text message appointment reminders, phone call visit reminders, and increasing visit compliance with messaging applications

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CHAPTER I

Introduction

The average rate of patient "no-shows" to appointments is 18.8% with the highest rates of occurrences being in specialty medical provider offices (Kheirkhah et al., 2015). Kheirkhah et al. (2015) also calculated that each missed appointment costs a provider's office $196 in 2008 terms. If this calculation is adjusted for inflation, each appointment missed costs an office $249.04 in 2021.

A patient's first visit is their most important and tends to be the longest, most in-depth visit of their tenure as a patient in an office. The initial visit consists of obtaining subjective and objective data, a thorough history and physical (HP), and a medication reconciliation. Taking all of this into account, larger blocks of time are used to schedule an initial patient visit at an outpatient provider's office. Therefore, patients who do not attend their first scheduled visits take up more staff time and cost a medical practice the most money in regards to missed appointments. When phone call reminders are used and patients are directly communicated with, 88% of patients will arrive at their appointments (Agarin et al., 2014). Other research explores the use of text message (SMS) reminders and not phone calls. There is a problem that approximately 18.8% of patients do not show up to their medical provider appointment (Kheirkhah et al., 2015), even though Agarin et al. (2014) shows that 88% of patients will arrive if called prior to the scheduled appointment when the process of calling prior to the scheduled appointment is not in place.

Significance

Kheirkhah et al. (2015) determined that missed patient appointments occur at an average rate of 18.8% and costs practices approximately $249.04 (adjusted for inflation in 2021) per missed appointment. With the report of Kheirkhah et al. (2015), approximately 1 in 5 patients do not arrive for their appointment, which can impose a large financial burden on any practice. Triemstra and Lowery (2018) found a 21.2% missed appointment average but added a single practice can miss approximately $170,100 in billing and $51,289 in reimbursement annually. Patients who miss appointments not only impose a financial burden on healthcare practices, but will receive a lower quality of care, have worse health outcomes than a like individual who does not miss scheduled appointments, create longer wait times for outpatient offices, and tend to have lower satisfaction with care (Mehra et al., 2018). Missed appointments to outpatient offices whether it be a primary care provider (PCP) or specialist tend to cause a cascade effect in the healthcare spectrum. Patients with ambulatory care sensitive conditions (ACSC) have a significantly greater risk of subsequent emergency room (ER) visits after missing an outpatient appointment (Nuti et al., 2012). Mehra et al. (2018) also found that chronic medical conditions were adversely affected by missed appointments.

**Purpose**

The purpose of this project was to decrease the rate of missed initial visit appointments in outpatient office settings. This will be accomplished by a process improvement of implementing telephone calls to the patient the morning of the initial visit. By decreasing these missed visits by 10%, medical office reimbursements will increase and productivity of the same offices will improve.

Theoretical or Conceptual Framework

This project will be based on the theoretical and conceptual framework of King's Theory of Goal Attainment. King's theory discusses interactions between nurses and patients, when communication and decision making is shared goals can be obtained (King, 1992). In this project, the overall goal is to decrease the rate of patients missing their initial visit in an outpatient setting by 10%. King (1992) lists behaviors that must occur for goals to be obtained. These behaviors include one member of the patient-nurse relationship initiating, the opposite member responding, problems are identified, both members agreeing to the goal, members exploring how to achieve the goal, and finally both persons agreeing to the means. In the proposed project the behaviors will occur as: the nurse initiates by calling the patient, the patient responds by answering the call, problems will be the patient not answering, the mutually agreed upon goal will be arriving for the scheduled appointment, means to achieve the goal could be transportation, changing appointment times, using telemedicine, both nurse and patient agree on what way the clinical visit will be achieved. When goals are achieved stress is decreased and patient satisfaction increases (King, 1992). King (1992) also claims that goal attainment will be higher in patients who participate than patients who do not. In my project, it is hypothesized that patients who answer the phone reminder (those who participate) will have higher rates of visit compliance (goal attainment) than those patients who do not answer the phone calls (those who do not participate).

Figure 1

Conceptual – Theoretical – Empirical Diagram (CTE) of King's Theory of Goal Attainment
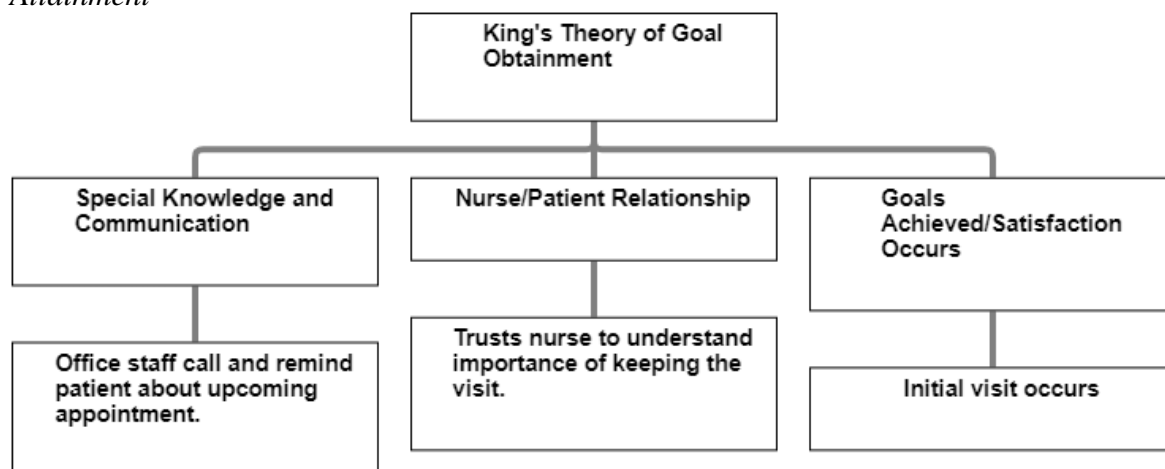
Definition of Terms

- Billing is the amount of money charged to patients and /or insurance companies.

- Reimbursements are the amounts of money received by a medical practice after adjustments and contractual rates have been determined by insurance groups.

- Inflation is caused when the value of the dollar decreases and the cost of service in dollar amount increases to account for the loss in value.

- No shows are when patients miss appointments without calling office staff to cancel or reschedule.

- Specialty offices consist of all offices not considered primary care or family medicine.

- Social determinants of health are factors affecting health that a person may be born with, locations they live in, religious beliefs they have, and/or learned behaviors.

Summary

One in every five patients tends to miss scheduled appointments. These missed appointments cost practices money, decreases productivity, and leads to poorer health outcomes for the patients. Using telephone reminders has been shown to increase visit compliance when used appropriately. The proposal was to use telephone calls the morning of scheduled appointments to have the greatest effect on patient compliance. The purpose of this project is to decrease the rate of missed initial visit appointments in outpatient office settings by implementing telephone calls the morning of the initial visit by 10%.

CHAPTER II

Literature Review

Rates of patients not arriving at their scheduled appointments tend to average around one in five patients not completing their scheduled appointment (Kheirkhah et al., 2015). Literature has shown that this is not a new problem or a problem that has been solved. The current practice in the project facility, an outpatient-based opioid treatment clinic, is to send Short Message Service (SMS) reminders 2 days prior with a confirmation option and 1 day prior if the patient does not select the confirmation option.

Currently, in the project facility, first visit compliance is approximately 49.5% and routine visit compliance is approximately 80%. The reason for the research is to improve first visit compliance from 49.5% to at least 59.5%. For this research, both Google Scholar and the University's online library were used. Keywords included patient visit noncompliance, text message appointment reminders, phone call visit reminders, and increasing visit compliance with messaging applications.

With the current facility practice, routine visits tend to trend toward the norm according to research. Initial visit compliance currently has a no-show rate of 49.5%. The time reserved for new patients in the project facility is 30-45 minutes, whereas follow-up visit time slots are for 15 minutes. Not only do no-show visits affect reimbursement, but provider productivity is affected as well. With new patient appointments holding 30-to-45-minute places in the providers' schedules, these missed appointments tend to affect the clinic the most.

Rates of Missed Appointments

Nuti et al. (2012) focused their study on diabetic patients not attending Primary Care Provider (PCP) appointments and how it relates to increased hospitalizations. The question presented is, are diabetic patients who miss their PCP appointments more prone to emergency room (ER) visits and hospital admissions than patients who do not miss their PCP appointments. Nuti et al. (2012) argues that patients who miss their appointments have poorer glycemic control which leads to more frequent hospitalizations and medical costs. The study took place in three Indiana-based hospital systems' PCP clinics, ER, and inpatient settings and used a prospective cohort method. This study included 8,787 patients followed for 6 months after their last scheduled PCP visit and lasted for 2 years. The patient groups were split into an attended group and did not attend group to follow for rates of hospitalizations. These groups were further broken down into genders, age groups, and insurance groups. Over the 2 years, 16.2% of the patients did not attend their scheduled PCP appointments, and ER visits and hospital admissions were significantly greater in patients who missed their last PCP appointment than those patients who attended their PCP visit (Nuti et al., 2012). Nuti et al. (2012) concluded that attempts to reschedule missed PCP visits are of great importance due to the significantly higher rates of ER visits and hospital admissions in patients who miss their visits. Strengths noted in this study were the sample size and longevity of the study. Weaknesses noted were, all patients lived in the Midwestern United States, and hospital admissions and ER visits outside of the hospital system where the study took place were not captured.

Kheirkhah et al. (2015) performed a retrospective cohort study for a 12-year time frame using the database Veterans Health Administration (VHA). The questions researched were how much of an economic impact does missed appointments have on a healthcare system and what factors can contribute to increased missed appointments. The argument made was, missed appointments cost healthcare systems, more specifically the VHA, large amounts of money and productivity through the year. The purpose of this study was to determine missed appointment rates, factors contributing to the missed appointments, and the costs associated with each missed appointment. An average rate of 18.8% of appointments was missed throughout the VHA at a significant rate of $p < 0.001$. The study then divided the data into days, months, and locations. It was further found that each missed appointment cost an average of $196 in 2008 currency. Strengths of this study include its sample size, a sample including patients from across the US, and the longevity of the study. Weaknesses noted in this study was it only took into account costs in the VHA and VHA care tends to be free to most patients.

Triemstra and Lowery (2018) conducted a retrospective analysis of a large pediatrics center in Grand Rapids, Michigan over 1 year and included 3,583 patients. The questions asked in this study were how much of a financial impact does missed appointments have on an academic medical center from a pediatric department and what risk factors are associated. The argument made was there will be a large financial impact related to missed appointments. This study resulted in a finding of 21.2% missed patient rates. The study further searched into days of the week, weather patterns, times of the day, and type of appointment. The only subcategory that had a significant difference was the days of the week ($p < 0.001$) (Triemstra & Lowery, 2018). Triemstra and Lowery

(2018) concluded that missed appointments create a significant financial burden to practices and affect providers' ability to improve patient care. The strengths of this study were the sample size and statistical significance found. Weaknesses included the study only researched one specialty (pediatrics) and samples were only taken from one hospital system in one area.

Samuels et al. (2015) wanted to know why patients were missing their appointments. The argument developed was pediatrics would follow the same no-show trends as other patient populations (Samuels et al., 2015). The setting was a large, urban, academic, pediatric medical center. The sample size was 386 patients of mixed ethnic backgrounds. The method used was a 26-item telephone survey including demographic questions, socioeconomic questions, and questions about barriers to making and keeping appointments. This practice found that it had a missed appointment rate of 20.4% (Samuels et al., 2015). Positive correlations were found between missed appointments and older patients, public insurance recipients, and changed PCP in the past year (Samuels et al., 2015). It was concluded that there was a significant correlation between missed well-child visits and the parent perception of their child being in excellent health (Samuels et al., 2015). A strength of this study was the large sample size. Weaknesses included a sample population of largely underserved people, in one, urban metropolitan area, and pediatric patients would rely on a caregiver to arrive at appointments.

Goffman et al. (2017) researched patients who no-show their appointments in the VHA. The VHA system no-show rates ranged from 15%-30% and it was noted that in mental health clinics the rates were as high as 60% (Goffman et al., 2017). The question presented was, if there were ways to predict patients that would not arrive at their

scheduled appointments. The argument was that if the patient no-show rates could be decreased, the VHA would be able to provide better and more efficient care (Goffman et al., 2017). The data mining portion of the study consisted of millions of patient records and the patient reminder portion of the study included 1,754 patients (Goffman et al., 2017). Each patient's appointment history was thoroughly analyzed by the researchers and placed into logistic regression models to determine predictability (Goffman et al., 2017). Patients' age and marital status affected the rate of patients missing appointments where patients missed appointment rates decreased as age went up and decreased if patients were married (Goffman et al., 2017). During the study patients were also called prior to scheduled appointment times and those who were spoken to directly on the phone had a no-show rate of 9.9% versus 53.8% of the patients who were not contacted (Goffman et al., 2017). Other factors found to increase patient visit compliance were multiple visits scheduled the same day (51% vs 13%) (Goffman et al., 2017). The study concludes that pulling in multiple factors may help predict patients who are more likely to not arrive at their scheduled appointments and provider offices can use this data to help work with patients to decrease their probability of no-showing and adding phone call reminders could decrease the amounts of no-shows. (Goffman et al., 2017). The strengths of this study were the ability to review a large set of data collected over multiple years and the data was pulled from four distinct geographical areas. Weaknesses in this article were multiple independent variables were used and multiple factors were being researched in this study.

A study was developed by Fiori et al. (2020) to determine if social determinants of health (SDH) affected missed visits. The argument developed was that patients with

unmet social needs were more likely to miss their scheduled appointments (Fiori et al., 2020). The study followed 41,637 patients in a 19-office primary care practice in New York. At baseline, the clinics had a 26.6% no-show rate and patients that had social needs had a significantly (P<0.001) higher no-show rate of 31.5% (Fiori et al., 2020). Over the 2 years of the study, it was concluded that 176,298 primary care visits were missed and cost the health system approximately $18 million (Fiori et al., 2020). This would equal $102.10 per missed visit. The strengths of this study were a 2-year time frame and finding significance at P<0.001, A weakness noted in this study was only taking place in one medical system located in New York.

Appointment Reminders

Crutchfield and Kistler (2017) performed a nationwide survey of why patients missed appointments. The argument developed was patients who received reminders of their choice, would miss fewer appointments (Crutchfield & Kistler, 2017). A discrete choice experiment was performed with 251 adults in the United States (US). In the survey, 23% of patients stated they missed an appointment in the past year (Crutchfield & Kistler, 2017). Of the population, 26% of responders stated forgetfulness and 14% stated confusion of date, time, and location (Crutchfield & Kistler, 2017). It was concluded that asking patients their preferred form of communication (SMS, email, phone call) created a much greater impact on patient visit compliance (Crutchfield & Kistler, 2017). The strengths of this study are having a sampling that included patients from across the US and findings matched previous research. Weaknesses are the results were not able to be tested (i.e., if sending reminders by patient preference actually increased visit compliance) and the demographics of the sample size were 84% White.

Perron et al. (2010) completed a randomized controlled trial (RCT) on 2,123 patients at an urban health center. The question of this study was what is the most successful way of sending patient reminders. The argument presented is that if patients receive escalating reminders for their appointments, visit compliance will increase (Perron et al., 2010). The rate of missed appointments in this study was 22% (Perron et al., 2010). The 2,123 patients were placed into random groups with random number generation software. The intervention group received reminders, while the control group did not. The study used an escalating reminder system beginning 48 hours prior to the scheduled appointments. The steps were a phone call for three tries, an SMS would be sent if the patient did not answer the phone calls, if no confirmation from a phone call or SMS, a postcard reminder would be sent. The intervention group had a significant drop of 3.6% with a $p < 0.005$ (Perron et al., 2010). It was concluded that reminders systems can increase patient visit compliance (Perron et al., 2010). The strengths of this study were it is an RCT and it consisted of a large sample. The weakness noted in this study is the trial only lasted for 2 months and the study only took place at one clinic in one city.

Schwebel and Larimer (2018) performed a systemic literature review of 162 articles relating to the use of SMS reminders. The purpose of this review was to determine if reminders actually affect healthcare outcomes (Schwebel & Larimer, 2018). The argument proposed was SMS reminders tend to remain an effective method of communication but should continue to be evaluated (Schwebel & Larimer, 2018). The articles in the review were all peer-reviewed articles and were broken down by multiple factors; types of reminders, timing of reminders, whether the SMS was an appointment or a medication reminder, and treatment compliance reminders. Of the studies, 68% of the

articles contained RCTs (Schwebel & Larimer, 2018). In the systemic review, it was found that 86% of the studies were solely focused on the use of SMS to reduce appointment no-shows in patients and 86% of those studies showed positive correlations between SMS reminders and lower rates of missed appointments (Schwebel & Larimer, 2018). It is concluded that SMS reminders are an effective way to communicate patient reminders and have an effect on visit compliance (Schwebel & Larimer, 2018). Strengths noted in this review are that systemic reviews are able to compile large amounts of research which leads to large samples sizes and the ability to compare studies from across the world, 86% of the articles reviewed contained RCTs, and a large number of studies were reviewed. The weakness noted in this would be that it is a systemic review and not itself an RCT.

Arora et al. (2014) performed an RCT to capture data on SMS use for patients being discharged from emergency services needing follow-up appointments. The authors created this study to answer the question of if SMS reminders were sent, will patient follow-up appointments have higher visit compliance? The argument put forth was patients who receive follow-up SMS reminders after their ER visits will have higher visit compliance for appointments made by the ER staff. The study was conducted in the University of Southern California Medical Center located in Los Angeles, California over a 3-month period. The study included 374 patients with mobile phone capabilities with the patients randomly sorted into an intervention and control group. The intervention group would receive an SMS message 7, 3, and 1 day prior to their follow-up appointments. The study found a significant difference ($p = 0.045$) between the intervention and control groups with 10.5% appointments were attended in the

intervention group (Arora et al., 2014). Arora et al. (2014) concluded that SMS reminders improved attendance of follow-up appointments. A strength noted in this study is it is an RCT. Weaknesses noted were the study only took place in one ER in Los Angeles and only lasted 3 months.

Branson et al. (2013) performed a quasi-experimental pilot study. Historically patients attended their appointments at a rate of 49%. The question of this study was will SMS reminders improve patient visit compliance? The argument presented by the authors is that visit compliance will increase after SMS reminders are implemented in a practice. The study contained 24 patients from a mental health clinic in New York City who received SMS reminders with the date and time of their upcoming appointments over a 3-month span. The patient no-show rates were compared during and after the SMS implementation to the before. After implementing SMS reminders, rates increased to 65% attendance which was a significant difference at a $p < 0.05$ (Branson et al., 2013). It was concluded that SMS reminders do lead to an increase in visit compliance (decrease patient no-shows) (Branson et al., 2013). The strengths of this study were its quasi-experimental design and real-time application of the variables. The weaknesses included the demographics only included adolescents, ethnic minorities who attend a singular clinic in New York, and the sample was only 24 patients.

Mugo et al. (2016) performed an RCT to test if SMS messages and phone reminders decreased patient no-show rates. The argument presented was by implementing SMS and phone reminders, patient visit compliance would increase. The population involved were patients attending Human Immunodeficiency Virus (HIV) clinics in Kenya. Patients were split into two groups to perform an RCT. The control

group received reminder cards while the experimental group received SMS reminders and/or phone call reminders if the patient had a cell phone or in-person reminders if they did not have a cell phone. The control group had an attendance rate of 41% as opposed to the experimental group which had an attendance rate of 59% (Mugo et al., 2016). This was found to be significantly different at a 95% confidence interval (Mugo et al., 2016). It was concluded that SMS and phone reminders do increase patient visit compliance (Mugo et al., 2016). Strengths of this study include it being an RCT and significant findings at $P<0.05$. The weakness noted in this study included only being conducted on HIV patients in Kenya.

Foley and O'Neill (2009) designed a quasi-experimental study to determine if SMS messages would decrease patient no-show visits. The argument presented was that by sending SMS reminders 24 hours prior to the appointment, patient visit compliance would increase (Foley & O'Neill, 2009). The study was conducted at a pediatric dental office in Edinburgh, Scotland. The control group in this experiment was based on historical data of 279 patients in 2006 and the experimental group was based on 433 patients in 2007 where SMS reminders were implemented (Foley & O'Neill, 2009). Historically the practice had an approximate no-show rate of 23.9% (Foley & O'Neill, 2009). During the study, after the SMS practice was implemented, patient no-show rates were shown to have decreased to 10.4% which is a significant decline with a $p =0.008$ (Foley & O'Neill, 2009). It was concluded that SMS reminders sent the day before an appointment worked in increasing patient visit compliance (Foley & O'Neill, 2009). The strengths of this study were the quasi-experimental design and significant findings. Weaknesses noted were the sample size including pediatric dental patients from one city.

Taylor et al. (2012) conducted a single-blind RCT to determine if SMS can reduce patient no-show rates. The argument was that SMS reminders would reduce the rates of patient nonattendance (Taylor et al., 2012). The patient population consisted of 679 outpatient physical therapy patients. The SMS message sent to the experimental group stated day, time, location, and to call only to cancel and the control group received no reminder. At the conclusion of the study, the no-shows in the control group were 16% versus the experimental group with a no-show rate of 11% (Taylor et al., 2012). This is a significant difference at a 95% confidence level (Taylor et al., 2012). It was concluded that patients who do not receive reminders are 1.61 times more likely to miss scheduled appointments than those who received text reminders (Taylor et al., 2012). The strengths of this study were it is an RCT, significant findings at $P<0.05$, and it contained a large number of patients. Weaknesses are noted to be that it only took into account patients in a single physical therapy practice.

Bracken et al. (2019) proposed the question, do phone calls work better than SMS to increase patient compliance. The argument presented was that results from patients who received phone call reminders would not be significantly different than patients who received their reminders per SMS (Bracken et al., 2019). The sample consisted of 709 men enrolled in a diabetic evaluation program in Australia over 4 years (Bracken et al., 2019). The comparison was completed using an RCT and placing patients in an SMS group and a phone call group. Attendance rates for the SMS group were 18% and the phone call group was 23% (Bracken et al., 2019). It was concluded that there was no significant difference noted in the attendance rates because of a $P = 0.09$, however it was noted that phone calls were more expensive than SMS reminders (Bracken et al., 2019).

Strengths of this study include it being an RCT, the length of 4 years, and sample size of 709 patients. The weakness noted was the study only contained male participants.

Theoretical Framework

King's Theory of Goal Attainment (TGA) focuses on professional nurses creating relationships with patients, nurse/patient interactions, nurse/patient transactions, and attainment of mutually set goals (King, 1992). The question King (1992) was trying to answer is how do nurses interact with patients set them apart from other healthcare professionals. Her argument was that nurses interact with patients as the whole person, unlike other professionals who focus on a certain problem. The nurse-patient exchange was presented in a step-by-step method by King while creating the TGA. The interaction occurs when a patient meets with the nurse for a need or concern and the transaction occurs when the nurse provides a service or education to the patient in regards to the need or concern (King, 1992). For the interaction to lead to a transaction and finalizes in obtained goals, the relationship must be reciprocal (King, 1992).

Frey et al. (2014a) simplified King's TGA by creating a step-by-step structure. The authors were trying to determine how many different types of nursing research have benefited from the TGA by King (Frey et al., 2014a). The process of TGA is nurses and patients creating a relationship and creating interactions (Frey et al., 2014a). King's TGA begins when a relationship is created between a patient who has a need and a nurse who can solve that need (Frey et al.,2014a). The interactions then create transactions, transactions lead to goal attainment, meeting goals led to growth (Frey et al., 2014a). Hypotheses that have been developed from TGA include: accurate interactions increase mutual goal setting, satisfaction increases goal attainment, role conflict decreases

transactions, and mutual goal setting creates higher levels of goal attainment (Frey et al., 2014a). To use the TGA in the nursing process, nurses can create a goal-oriented nursing record (GONR) (Frey et al., 2014b). In conclusion, by creating GONRs, the nurse can focus on things that lead to or harm goal attainment in the nurse/patient relationship (Frey et al. 2014b).

De Leon -Demare et al. (2015) discussed using King's TGA during interactions between nurse practitioners (NP) and their patients. The study was a longitudinal observation conducted over 1 year between six patient/NP relationships across three visits. The question being asked was do NP follow King's TGA with their interactions with patients. The portion of the interactions studied were the disturbances between NPs and the patients during their conversations. De Leon-Demare et al. (2015) used the term disturbance to describe any topic discussed that was not part of relationship building (de Leon-Demare et al., 2015). The term transaction is used to explain when the nurse uses nursing knowledge and processes to assist the patient with mutual goal setting and creation of steps to reach that goal also known as care plans (King, 1992). Transactions followed 79% of the disturbances, while 65% of the conversations not leading to transactions did not contain disturbances (de Leon-Demare et al., 2015). This study focused on the nurse/patient relationship and goal achievement aspects of King's theory. The relationships created disturbances in the routine conversations that led to the achieved goal of education about the disease process (de Leon-Demare et al., 2015). The authors concluded that NPs practice the steps of King's TGA in their patient interactions (de Leon-Demare et al., 2015). The strengths of this study were its time frame and the

statistical significance found between the two groups. Weaknesses included it being an observational study and only including six pairs of nurse/patient relationships.

Abebe et al. (2020) used King's TGA to create a nurse-driven treatment for pregnant women with an opioid use disorder (OUD). The authors asked how they could improve communication and increase compliance in mothers who suffer from OUD. Mothers with OUD felt judged and stigmatized by healthcare providers so the authors introduced telehealth visits to make nurses more available to the mothers (Abebe et al., 2020). The argument presented was that by providing other means of communication between patients and nurses, more transactions would occur. By decreasing this perceived barrier, communication was increased and caused an increase in nurse-patient interactions and nurse-patient transactions, and led to increased goal attainment (Abebe et al., 2020). It was concluded that telehealth increased nurse-patient interactions and King's TGA helped promote positive relationships (Abebe et al., 2020). The strengths of this study were its exploration of new technologies and its recentness. The weakness noted in this study was no quantitative results were given.

King's TGA was used to reduce falls in elderly patients in South Korea (Park, 2021). The question asked was, if nurse-patient interactions increased and the nurses based their interactions off of King's TGA, would the rate of falls decrease? The argument developed was by utilizing King's TGA mutual goals could be set between nurses and patients to decrease falls (Park, 2021). The authors concluded that by implementing this type of communication falls were decreased and fear of falling was significantly decreased among the patient population (Park, 2021). The strengths of this

study were the use of RCT and the significant difference found. Weaknesses included the small sample size and short length of the study.

Summary

Patient no show rates have ranged from 16.2% (Nuti et al., 2012) to as high as 60% (Goffman et al., 2017) but research tends to find values around 20% i.e.18% (Kheirkhah et al., 2015), 21.1% (Triemstra & Lowery, 2018), and 20.4% (Samuels et al., 2015). In order to decrease these percentages, different methods of communication have been tested. It was found that SMS reminders seemed to perform best and were the most cost-efficient and easiest way to communicate patient reminders (Arora et al., 2014; Branson et al., 2013; Foley & O'Neill, 2009; and Taylor et al., 2012). Other experiments added phone calls with SMS reminders, but there is a risk that the patient will not answer (Bracken et al., 2019; Mugo et al., 2016; & Perron et al., 2010). King's TGA focuses on nurse-patient relationships, nurse-patient interactions and transactions, and mutually attaining goals by working together (King, 1992). By creating nurse-patient interactions with SMS reminders, the mutual goal of increased visit compliance will be obtained.

CHAPTER III

Needs Assessment

In the current practice setting, patient no show rates average 20% for recurrent appointments but average 49.5% for new patient initial visits. The recurrent visit no-show rate of 20% is in line with current research (Kheirkhah et al., 2015; Triemstra & Lowry, 2018; & Samuels et al., 2015). With most patients having telephone capabilities, it is proposed that calling new patients the morning of will increase their visit compliance and decrease the new visit no-show rates by 10%. Research has shown that phone calls can increase visit compliance (Bracken et al., 2019; Mugo et al., 2016; & Perron et al., 2010), however, it has been shown the use of short messaging service (SMS) is the most efficient way to communicate with patients (Arora et al., 2014; Branson et al., 2013; Foley & O'Neill, 2009; and Taylor et al., 2012). Current practice in the project facility is to send an SMS 48 hours prior to appointments, and if the patient does not confirm another message is sent 24 hours prior to the appointment. With this current practice in place, the hypothesis is telephone calls may be a better way to remind patients of their appointments.

Target Population

The target population of this study was patients who were attempting to create a new patient appointment and had been diagnosed with substance use disorder (SUD). These patients all lived in the Upstate of South Carolina. According to the United States Census Bureau [USCB] (2021), the target population was 79.3% White, 16.8% Black, and 3.9% other. Of the same population, 13.2% of people live at or below the poverty

line (United States Census Bureau, 2021). The clinic payor mix was 29.2% Medicaid, 15.5% Medicare, 22.1% commercial/private insurance, and 33.2% self-pay.

Target Setting

The setting of this project was a group of outpatient addiction medicine clinics located in the Upstate of South Carolina. The clinics saw approximately 300-400 patients per week. The total population of the five counties containing the clinics was 1.19 million residents (USCB, 2021). The Upstate of SC contained rural, suburban, and urban settings.

Sponsors and Stakeholders

The identified sponsors in this project were the owners of the project clinics. One owner/operator served as an overseeing physician as well as the chief executive officer (CEO) of the company, The second oversite physician was an owner/operator serving as a chief medical officer (CMO), and the final owner/operator was a doctorate prepared NP who served in the role of chief operating officer (COO). Each of the owner/operators were involved in the daily operations of the clinics and would directly be affected by increasing new patient compliance to initial visits. Each would also receive increased income due to increasing the number of visits.

Desired Outcomes

The desired outcome for the project was to increase the amount of completed initial visits from 49.5% to 59.5%. By increasing compliance by 10%, more patients will be seen, provider productivity will increase, and clinic revenue will increase. Current clinic practice allots 45-minute time slots for new patients as opposed to 15-minute time slots for recurrent patient visits. When new patients miss their appointments, providers can be left idle for 45-minutes, and theoretically, three recurrent patients could have been

fit into the one new patient appointment slot. Kheirkhah et al. (2015) found that each missed patient visit can cost a clinic $249.04. By increasing patient compliance and decreasing advance practice provider (APP) idle time, a clinic will have improved income.

SWOT Analysis

A strength, weakness, opportunity, threat (SWOT) analysis was performed prior to the study. Strength and weaknesses were based on internal components of the study, whereas opportunities and threats were based on outside factors.

The strengths of the study were the dispersion of five sites over multiple counties, the inclusion of all payor sources, and extended office availability for patients. Many other providers who provided treatment for SUD were open from 5:00 am until noon only 2 or 3 days per week. These clinics only took new patients on specific intake days and did not accept insurance.

Weaknesses noted in this study were the stigma surrounding SUD, stigma, and misinformation surrounding the treatment programs of SUD, the rural nature of SC, and lack of public transportation. Patients have stated embarrassment and fear as reasons they missed the initial visit. Patients do not want others to know of their SUD or that they were receiving treatment. Other statements have included that buprenorphine (suboxone) treatment is just exchanging an illegal drug for another addiction. Some patients have stated transportation has been a factor in arriving at the clinics from outlying rural areas and the Medicaid transit vans tend to be unreliable.

Opportunities presented were the lack of SUD specialists who accept Medicaid and the project clinic investing in varying telehealth software and modalities to assist

with patients. Both oversite physicians of the clinics are board-certified in addiction medicine. Many SUD clinics are cash only and with 13.2% of the population in the project area living at or below the poverty line, many patients cannot afford to receive help. With telemedicine, the clinic providers can perform a virtual visit for established patients if issues occur preventing an inpatient visit and the patient can come to the office to provide lab work when issues are resolved.

Threats to the project included cash clinics having different rules than the project clinic since the project clinic is enrolled as a Medicare and Medicaid provider. Some of the cash clinics may provide 30-day prescriptions to all patients, whereas the project clinic only provides 7-day prescriptions for new patients. Another threat is federally qualified health clinics (FQHC) all have SUD treatment capabilities and can offer their services at free or drastically reduced costs based on patients' income levels.

Resources

Resources needed for the project will be a dedicated phone line and time for a staff member to place phone calls. 2 minutes will be allotted per each phone call placed to account for questions and directions to the office in case patients ask. The staff members needed would be the lead medical assistant (MA) in the main office to call the new patients scheduled for each of their offices each day. Companywide there is an average of 2-3 new patient appointments scheduled each day and vary across offices. This would be a total of 4-6 minutes each day to perform the task. The front office phone can be used to place the call.

Team Members

The team members needed for this project included the project leader and the lead MA for the corporation. The lead MA has access to each office schedule and can pull each new patient information to perform the phone call and chart the note. The project lead will compile and analyze the data.

Cost-Benefit Analysis

Costs associated with this project were the time of lead MA to perform the phone calls which would be 30 minutes total each week accounting for 6-minutes of phone calls each day. A 30-minute meeting will be held at the end of each week between the lead MA and project lead. With the salary of the lead MA being $18 per hour, this would total $216 in compensation over the project period of 3 months. With the use of the front desk phone, no extra costs will be associated with the phone calls.

Per the project clinic's records, each patient visit contains an average reimbursement of $79. This was determined by the biller by dividing the total monthly income by the total amount of visits performed in the same month. Each APP receives an average salary of $50 per hour. With new patient time slots being 45-minutes, $37.50 will be spent on provider salary. When patients miss their appointments, it could potentially cost the clinic $116.50 (if the time slots are not filled by other patients).

In the 3 months before the implementation of the project hypothesis, 94 new patients were seen and 190 new patient appointments were scheduled. This is 49.5% visit compliance. Approximately $11,184 of potential revenue was lost due to the patient no shows. If this rate can be improved to 59.5% visit compliance, the clinic can make another $1,118.40 in 3 months or approximately $372.80 per month. After the costs

associated with the project, after 3 months, the clinic will gross an extra $1,010.40. Table 1.

Table 1

New Patient Visits by Month and Potential Loss of Revenue

Month	Visit Completed/ percentage	Visit Uncompleted / percentage	Total New Patient Appointments	Total potential loss of revenue
August	30 (47%)	34 (53%)	64	$3,961.00
September	36 (55%)	30 (45%)	66	$3,495.00
October	28 (47%)	32 (53)	60	$3,728.00
Total			190	$11,184.00

Conclusion

The project hypothesis was that by using phone calls the morning of a new patient appointment, visit compliance will improve by 10%. By implementing this, the practice facility will make approximately $4,473.60 in gross revenue. The project clinic has competitive rates and a small amount of competition that is accredited with CMS. The threats are SUD providers who prescribe monthly prescriptions or patients whose PCP prescribes SUD medications. The project will cost the clinic $72-$108 over the 3 months of implantation in the salary of the lead MA to begin calling all patients who have new patient appointments the morning of their scheduled visits. The MA calling patients creates another opportunity for a nurse-patient interaction. According to King's TGA, increased interactions lead to goal obtainment which would be a completed visit (King, 1992).

CHAPTER IV

Project Design

Currently, the project facility's electronic health record automatically sends a confirmation message via text messaging when the appointment is made, a text 48 hours prior, and if the patient does not confirm the 48-hour message, another message will be sent the day before the scheduled visit. The project facility is an outpatient-based opioid treatment (OBOT) clinic. Current practice has led to a no-show rate of 49.9%. By utilizing the lead medical assistant (MA) to review each location's schedule in the morning to call each initial visit scheduled, it is believed that rates will improve by 10% over 3 months.

Goals and Objectives

The goal of this project was to decrease missed initial visits by calling patients the morning of their scheduled initial visit. Each missed visit can cost the project practice $116.50. According to Bracken et al. (2019), Mugo et al. (2016), and Perron et al. (2010) phone calls can be utilized to increase patient visit compliance.

The objective of the project was to increase the initial visit compliance from a baseline of 49.5% to 59.5% in a 3-month time period. The goal will be achieved by calling each patient scheduled as a "new patient" the morning of the scheduled appointment. If the goal is achieved, revenue will increase, and advance practice provider (APP) productivity will increase. The estimated time that this will take is 20-30 extra minutes each week and a total of 240-360 minutes over the project period.

Plan and Material Development

Current clinical practice in the project clinics is to text reminders for
appointments 48 hours and 24 hours in advance. Research by Arora et al. (2014),
Branson et al. (2013), Foley & O'Neill (2009), and Taylor et al. (2012) all show that
short messaging service (SMS) is the best practice for patient's reminders. However, the
project clinic still had a patient no-show rate for initial visits of 49.5%. Bracken et al.
(2019), Mugo et al. (2016), and Perron et al. (2010) showed that phone calls can also
increase visit compliance in patients. Therefore, the proposed project plan is to add phone
call appointment reminders, expecting visit compliance to increase.

Each morning the lead medical assistant (MA) will pull each clinic's calendar and
retrieve contact information from each patient who is scheduled for an initial evaluation
for that day. The MA will then call each patient with the message "Hello this is the clinic
reminding you of your appointment at (time). Do you still plan on coming in today?" If
the MA speaks to the patient, the appointment will be confirmed in the electronic health
record (EHR) or canceled. If the MA does not speak to the patient, another call will be
placed 1 hour later. If the patient is unable to be contacted, a text message containing the
same message will be sent to the patient (Appendix A). The project lead will review them
each Friday afternoon to compile information on how many initial appointments were
completed and how many were still missed. The data will be logged into a table
(Appendix B) and at the end of the trial, the data from October-January will be compared
with data from July 1, 2021, to September 30, 2021, to determine statistical significance.

Timeline

The project will begin with 3 months of data analysis of current practice. The

project facility's owners will be approached and permission will be obtained to perform

the project. During the months of data analysis, a literature review will be completed to

determine best practices and which best practices can be beneficial to the project. Also,

during the first 3 months the project facility's policies, protocols, and current practice

will be reviewed and compared to the available literature. At the end of the 3 months

changes to project facility protocols will be presented to clinic leaders with supporting

research. The lead MA will be trained in the new procedure and verbiage to begin the

active stage of the project. A new facility procedure will be implemented at the end of the

3-month analysis period. Each week of project implementation the project lead and lead

MA will meet to discuss the new procedure and phone calls. The project lead also will

collect data from the facility EHR. The project will be completed after 3 months of

implementation.

Budget

Salary and extra time spent on the lead MA will be the largest expense of this

project. The lead MA salary is $18 per hour. The project clinic averaged 11 new patient

visits scheduled each week, and it can be further broken down to approximately two new

patient visits scheduled per operational day (Monday–Friday). Each morning 6 minutes

was factored in to complete the phone calls for the calls to the new patients. At the end of

each week, a 30-minute follow-up session with the project lead and lead MA will occur.

Prior to the implementation of the project, there will also be a 30 min training session

between the project lead and lead MA. With all things factored in, the costs associated

with the project will be approximately $279 over the 15 weeks. Table 2.

Table 2

Budget Breakdown

Activity	Time Allotted	Cost per Week	Total
Training	30 min	$9	$9
Calls	30 min weekly	$9	$135
Weekly Meetings	30 min weekly	$9	$135
		Grand Total	$279

Evaluation Plan

The objective of the project was to improve initial visit compliance by 10%.

Throughout the project, completed visits and uncompleted visits will be measured. The

amounts of each visit will be compiled at the end of each week.

The facility's EHR categorizes visit types when visits are created. During the

evaluation, visit types are narrowed to those marked as a new patient. Each new patient

visit was then counted and entered into the category of completed or uncompleted. Each

category will be totaled and compared to the total amount of new patient visits scheduled

and converted into percentages. The percentage of completed new patient visits will be

compared to the starting baseline of 49.5%. This number was obtained from a

retrospective analysis of project clinic data for the 3 months prior to the proposed project

implementation. The post-intervention analysis will be performed for 3 months to create

similar data sets. The post-intervention percentage of completed visits will be compared to the preintervention percentage of completed visits.

Summary

This project was designed to increase patient visit compliance of new patients in an outpatient provider practice. The practice at a new patient completed a visit rate of 49.5% prior to the project. The project will use the lead MA to call each patient scheduled under new patient visit each day to remind the patient of their appointment and answer any questions that may arise (directions, what to bring, etc.). By implementing this call task, it will cost the clinic $279 in extra salary due to the extra time spent over 3 months conducting the phone calls. At the end of each week, amounts of completed and uncompleted new patient visits will be compiled. At the end of the 3-month postintervention period, the total percentage of completed new patient visits will be compared to the preintervention completion rate of 49.5% to determine if there was at least 10% improvement in initial visit compliance.

CHAPTER V

Dissemination

The purpose of this project was to increase initial visit compliance in an outpatient-based provider's office. By increasing visit compliance, the productivity of the providers will increase as well as the office revenue. The current facility completed initial visit rates were 49.5% preintervention leading to a potential loss of revenue averaging $116.15 per missed visit and $3,727 per month. For small, privately owned offices, this can be detrimental to the practice.

Dissemination Activity

The project proposal was presented to the three owners/operators of the company and they hold the titles of Chief Executive Officer (CEO), Chief Operations Officer (COO), and Chief Medical Officer (CMO). The leadership team was asked to attend a sit-down presentation of the project proposal. Each attendee was presented with a handout (Appendix C) out of the preliminary data found through a retrospective analysis of patient visit data, financial data, and the proposed actions. The first topic to be presented was an overview of current practices used in the project facility. Current practice uses the facilities electronic health record (EHR) to send reminder messages 48 and 24 hours in advance. Once the patient is 30 minutes late the medical assistant (MA) calls the patient. If the patient cannot be contacted, they are then changed to "no show". With this current model, the 45-minute time slot is almost completely lost. Without filling the missed time slots, $116.15 is lost due to provider idle time and the potential income of the visit. At the current census, within a month there is a potential total loss of $3,727.

The second part of the presentation will discuss proposed practice changes. The proposed practice change of allowing the lead MA to call all patients scheduled as new patient visits the morning of their appointment. The estimated time to perform each task would be approximately 6 minutes each morning, accounting for 3 minutes per call. The project facility averages two new patient visits per day.

Potential Limitations

Potential limitations found in this project planning phase was the inability to determine reasons for missed appointments. After a patient makes an appointment and misses it, they potentially would no longer communicate with the clinic. It would have been beneficial to address any barriers faced by the patients if the barriers identified could be removed by the practice. Other potential limitations were a small population and related sample size associated with the proposed project facility.

Implications for Nursing

The project was beneficial to the nursing profession by increasing patient visit compliance and increasing the number of patients serviced. By using King's Theory of Goal Attainment and creating nurse-patient relationships, goals would easily be obtained. From a nursing administrative standpoint, the project shows how much negative impact missed visits can potentially have on practice financials and provider productivity. By increasing monthly revenue and decreasing provider idle time, the practice may have more money to reinvest into patient care.

Recommendations

Recommendations that could have furthered the study would be to collect names of patients who make multiple new patient appointments and at which time they

completed the visit. This would help address the limitation of the patients who no longer communicate with the practice after not showing up for the new patient appointment. Social determinants could also be addressed at that time to determine if any barriers needed to be addressed or there was a commonality with factors for not showing the first time a new patient appointment was made. Another factor that could have been taken into account was the method of contacting the clinic; did the potential new patient contact through the website, text line, intake number, or direct office number? The rationale for this would be to determine if the potential new patient spoke with a live person on the telephone and was the patient spoken to in real-time. The purpose of the project was to determine if speaking to someone on the telephone increased visit compliance.

Conclusion

Visit compliance can be a costly issue for healthcare practices, even costlier to those who are standalone private practices not associated with larger healthcare systems. By investing a few minutes per day to call patients, visit compliance can be increased. Best practice shows short messaging services (SMS) (also known as text messages) are the easiest and most cost-efficient us of communicating with patients. However, at the current practice facility that was already in place. Telephone calls the morning of the new visit appointment will be added to the practice facility guidelines, with the goal to increase new visit compliance by 10%. This can also create a more productive schedule for the day to account for patients who cancel, or their appointments are moved to "no show" status earlier in the day to free those time slots for more patients to be seen.

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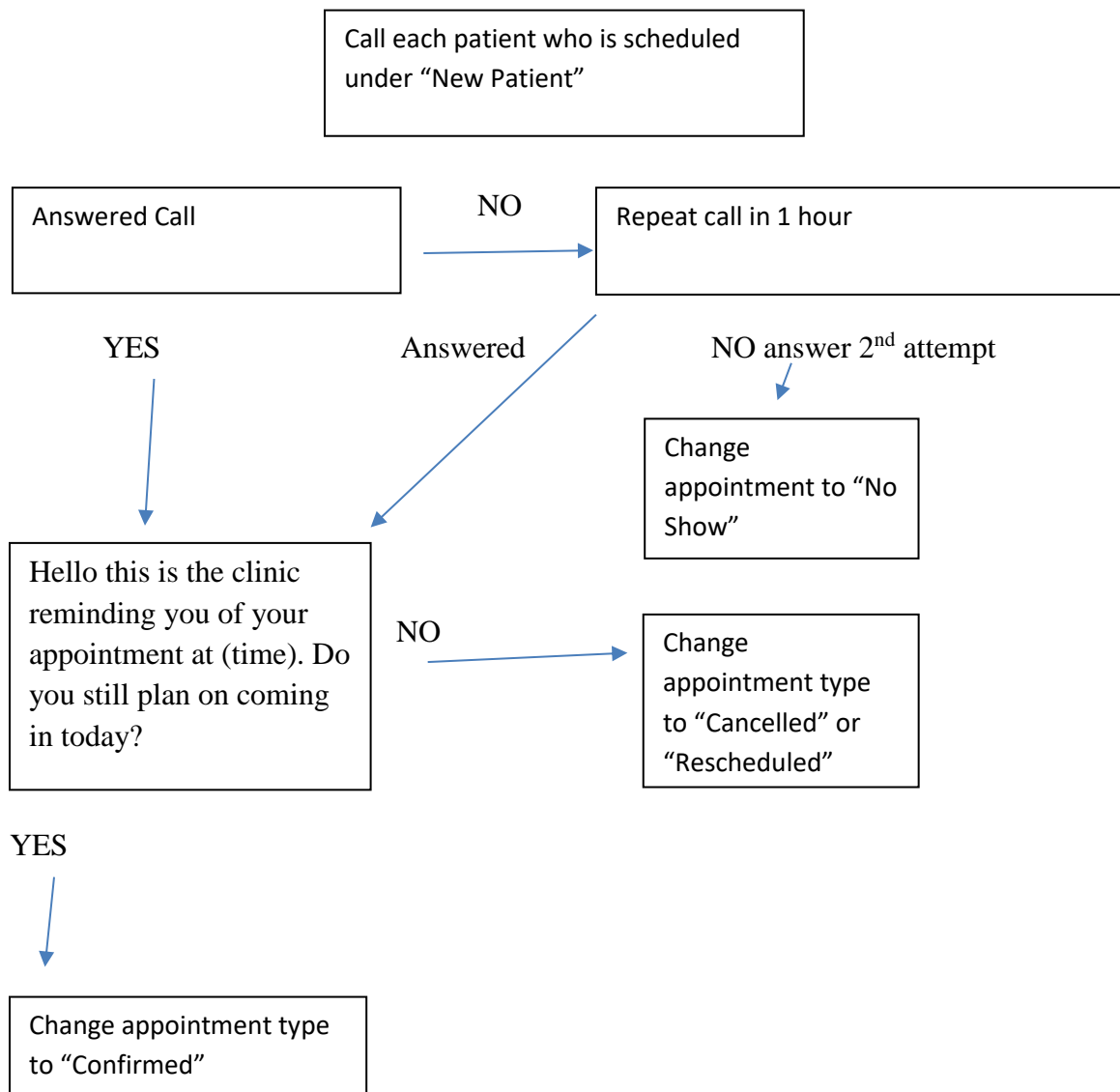
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Appendix A

Medical Assistant Training

Call each patient who is scheduled under "New Patient"

Answered Call

NO

Repeat call in 1 hour

YES

Answered

NO answer 2nd attempt

Change appointment to "No Show"

Hello this is the clinic reminding you of your appointment at (time). Do you still plan on coming in today?

NO

Change appointment type to "Cancelled" or "Rescheduled"

YES

Change appointment type to "Confirmed"

Appendix B

Initial Visit Rates with Current Practice

New Patient Visits			
Week			
Aug	No show	completed	total
08/02-08/06	9	6	15
08/09-08/13	11	3	14
08/16-08/20	5	12	17
08/23-08/27	7	5	12
08/30-08/31	2	4	6
September			
09/01-09/03	8	7	15
09/06-09/10	6	9	15
09/13-09/17	9	10	19
09/20-09/24	5	7	12
09/27-09/30	2	3	5
October			
10/1/2021	0	1	1
10/04-10/08	6	8	14
10/11-10/15	12	5	17
10/18-10/22	6	7	13
10/25-10/29	8	7	15
Total	96	94	190
Percentages	50.50%	49.50%	

Appendix C

Presentation Handout

Proposed Project

- CURRENT PRACTICE

    o Text messages sent through Kareo at 48 and 24 hours

    o Patient called after 30 minutes late

    o Marked as no show or rescheduled

- PROPOSED CHANGE

    o Call patient the morning of their scheduled appointment

    o Use scripting

    o Mark as no show if no answer or further communication from patient

- WHY

    o Each missed visit costs the clinic $116.15

    o Average rate of intake visit completion in 49.5%

    o Projected loss $3727 per month

- WHAT IT WILL COST THE PRACTICE

    o Extra time from the Medical Assistant/Scheduler

    o Estimated 1 hour of her time each week and a 1 time 30-minute training

    o An extra $279 over a 3-month period.