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Implementation of a Parental Notification System for the Improvement of Well-Child Care Delivery

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IMPLEMENTATION OF A PARENTAL NOTIFICATION SYSTEM FOR THE

IMPROVEMENT OF WELL-CHILD CARE DELIVERY

by

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Table of Contents

LIST OF TABLES.....5

ABSTRACT.....6

INTRODUCTION7

STATEMENT OF THE PROBLEM7

 Background and Significance7

ASSESSMENT10

 Readiness for Change11

PROJECT IDENTIFICATION.....13

 Purpose.....13

 Objectives.....13

 Anticipated Outcomes.....13

SUMMARY AND STRENGTH OF THE EVIDENCE14

METHODS15

 Project Intervention.....15

 Barriers and Facilitators17

 Ethical Considerations.....17

RESULTS17

DISCUSSION.....23

 Limitations25

 Recommendations.....25

Table of Contents—Continued

DISCUSSION—Continued

Implications for Practice	26
REFERENCES	28
APPENDICES	32

List of Tables

1. Fisher's Exact: Relationship Between Follow-Up Notification and Delivery of Well-Child Visits19
2. Parental Questionnaire Inquiry20
3. Fisher's Exact: Relationship Between Notification Received and Delivery of Well-Child Visits22
4. Fisher's Exact: Relationship Between Notification Type Received and Delivery of Well-Child Visits22

Abstract

This quality improvement project aimed to improve routine well-child exam rates in accordance with the American Academy of Pediatrics and Texas Health Steps recommendations through the implementation of a parental notification system. Missed well-child appointments impact health care by disturbing continuity of care and complicating preventive care services. Implementation of the parental notification system during June 2017 to August 2017 consisted of 100 patients from birth to 18 years of age for scheduled well-child visits in a pediatric clinic with a large Hispanic and Medicaid population. Interventions consisted of staff training, reminder phone calls 24 to 48 hours prior to the appointment, distribution of appointment reminder cards, follow-up on missed appointments, and a parental caregiver questionnaire. Overall, 88% received an appointment reminder with 65% having spoken directly to a staff member and 23% receiving a voicemail. The well-child completed rate was at 64% with a well-child no-show rate of 21%, a cancellation rate of 9%, a reschedule rate of 6% and a recall rate of 62%. The parental notification system was found to not have an effect on scheduled well-child delivery ($p = .243$), however well-child visits were more likely to be completed when a parent spoke directly to a clinical staff member versus voicemail ($p = .004$). The increase in the well-child cancellation and reschedule rates provided the clinic with opportunities to schedule additional appointments. Parents found the reminders to be helpful, would like to continue receiving them, and recommend them.

Keywords: notification, reminder calls, well child care, preventive care

Well-child care visits are recommended by the American Academy of Pediatrics ([AAP] 2017a) to serve the needs of children. The AAP has established a schedule of routine well-child visits to address comprehensive and timely preventive care services. Well-child visits provide opportunities to assess growth and developmental milestones, are utilized as a source to administer vaccinations to decrease occurrences of vaccine-preventable diseases, and serve to offer educational guidance of future development. Multiple well-child visits are recommended from birth to 30 months of age and then yearly from 3 to 21 years of age (Bright Futures, 2017a). Missed well-child visits have far-reaching implications as they can contribute to suboptimal health outcomes

Statement of the Problem

Missed appointments overall are a significant problem within the healthcare industry (Guzek, Gentry, & Golomb, 2015; Samuels et al., 2015). The problem is widespread, occurring in the U.S. and abroad (Samuels et al., 2015). Research indicates 4 out of 10 children do not receive their yearly well-child exam with well-child no-show rates estimated to fall between 23%-64% (Goedken et al., 2013; Jones et al., 2015). Missed well-child appointments complicate preventive care services and are in direct conflict to the recommendations of the AAP. Missed well-child visits contribute to missed vaccinations, missed detection of growth and developmental issues, and missed educational opportunities.

Background and Significance

Well-child visits provide the opportunity for surveillance of growth and developmental progress. Monitoring growth patterns is an essential component of a well-child visit, and it is the single most cost-effective, non-invasive, rapid way of detecting developmental abnormalities (Foote, 2014). Growth is a sensitive indicator of a child's health as it can detect a childhood

disease before symptoms present themselves (Foote, 2014). Abnormal growth patterns correlate with chronic conditions, metabolic, endocrine, and genetic disorders, as well as underlying pathological conditions, malnutrition, and psychosocial deprivation (Foote, 2014).

Currently, 12-16% of children have some form of developmental delay (Guevara et al., 2013). Developmental delays occur when a child has not reached a certain developmental milestone within an expected time range (Guevara et al., 2013). Such delays arise from medical or genetic conditions, can lead to social and emotional problems, and educational difficulties (Guevara et al., 2013). Developmental screenings in the U.S. are primarily delivered through well-child care, in light of this; many children do not receive the recommended well-child visits resulting in delay in diagnosis of certain developmental conditions (Daniels & Mandell, 2013).

Well child visits serve the opportunity to assess for behavioral health issues with the use of validated screening tools. Current rates indicate 12-27% of children and adolescents who receive primary care services have behavior and/or emotional concerns (Burt, Garbacz, Kupzyk, Frerichs, & Gathje, 2014). The early recognition of behavioral health issues enables timely treatment with the potential of healthy outcomes. Burt et al. (2014) indicates that up to 50% of adult psychopathology can be prevented when caught early and treated in childhood.

Missed well child visits account for missed opportunities for vaccinations. The AAP recommends multiple childhood and adolescent vaccinations with the majority concentrated within the first 2 years of life. Those who miss a well-child appointment and routine vaccinations find it difficult to catch up once they fall behind (Robison, 2013). A U.S. study found missed vaccination opportunities accounted for 64.5% of under vaccinated children up to the age of 2 years (Robison, 2013). Adolescent vaccinations also fall behind. The meningococcal vaccine rate

lags below the Healthy People 2020 goal of 80% coverage with current data indicating 73.8% of adolescents 13 to 15 years of age received at least one dose (Office of Disease Prevention and Health Prevention, 2017).

A well-child visit serves as the prime opportunity to provide anticipatory guidance. Anticipatory guidance is a preventive strategy shared to promote healthy development by providing information as what to expect as a child progresses in age (Burt et al., 2014). Adolescents pose a unique concern. Well-child visits are a perfect time to engage in confronting high-risk behaviors, education, and counseling needs during this delicate age (Goedken et al., 2013). Parents unaware of the need for well-child visits can unintentionally delay preventive care services (Goedken et al., 2013).

The ultimate goal of well child care is to promote health and prevent illness or injury (Hammig & Jozkowski, 2015). Lack of preventive care is correlated with an increase in hospitalizations and emergency room visits, (Goedken et al., 2013; Holl et al., 2012; Jones et al., 2015; Samuels et al., 2015). Children who miss their well child exams may suffer from poor growth and development, fall behind on vaccination schedules, and suffer consequences of unmet psychosocial and educational needs (Holl et al., 2012).

Assessment

The organization where this project was conducted is a Nurse Practitioner (NP) owned and operated pediatric clinic in an urban area, serving a population of 7320 children and adolescents from birth to 18 years of age with 13.9% at 0-12 months, 24.4% at 13 months to 4 years, 34.1% at 5-9 years, and 27.4% at 10-18 years (Sanchez, 2016). The majority of patients are of Hispanic origin at 85% with 11% of African American origin, 3% percent are Caucasian, and 1% is other (Sanchez, 2016). Seventy-six percent of the population is Spanish speaking. The

majority of patients are covered by Medicaid at 71% followed by the Children's Health Insurance Project (CHIP) at 26%, and private insurance and self-pay at 3% (E. Sanchez, personal communication, September 27, 2017).

The clinic operates on Mondays from 9am to 6pm, Tuesday through Friday from 9am to 5pm, and Saturdays from 9am to 1pm. The clinic services an average 64 patients a day. The slowest day served 30 patients and the busiest day served 114 patients. The average scheduled patients-per day is 26. The clinic provides services for well-child visits, acute care, minor emergencies, school and sport physical exams, vaccinations, and counseling services. The operation consists of 1 full time NP, 1 part-time NP, 3 part-time medical doctors (MDs), 1 part-time mental health counselor, 1 full-time office manager, and 6 full-time medical assistants (MAs). The entire clinic staff with the exception of one provider is bilingual, speaking English and Spanish.

The clinic follows Texas Health Steps (THSteps) program, formerly known as the Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) for patient care guidance. THSteps is a program under Texas Medicaid providing federally mandated health coverage to children from birth to 20 years of age that come from families with little or no money for medical and dental preventive care services (Texas Health and Human Services, 2017a.). The THSteps program provides free health care services to children who otherwise would not have the financial resources to access (Texas Health and Human Services, 2017b). THSteps provides a schedule, known as a periodicity table, detailing specific exam components for screening and assessment at each well-child visit (see Appendix A). The THSteps periodicity table was adopted through the recommendations of the AAP (Jones et al., 2015)

Assessment of the organization found to have an average well-child completion rate of 64%, a well-child no-show rate of 28%, a well-child cancellation rate of 6%, and a well-child reschedule rate 2% over a 2-month period between January and February of 2017 (see Appendix B). A factor found to contribute to no-show well-child visits was lack of a notification system. Through observation, staff interviews, and review of charts, parents were found not to receive appointment reminders for their children by phone call or mail (see Appendix B). Further assessment revealed no-show well child patients have no follow-up as their charts are filed away without review, documentation, or attempt to make contact.

The duty of patient notifications falls solely on the front desk which is staffed by one medical assistant with the roles and responsibilities of check-in, check-out, insurance verification, answering incoming phone calls, and processing faxes and copies. Various staff members assist when needed and available. The workload does not allow ample time for reminder phone calls, follow up, or regularly scheduling appointments at checkout.

The need for intervention revolves around the importance of delivering timely preventive care services during well child visits to align with guidelines from THSteps, the AAP, and the Healthy People 2020 goal of increasing the proportion of people who receive appropriate evidence based clinical preventive services (HealthyPeople.gov, 2014). The absence of a reminder system fails to inform a caregiver of their child's upcoming appointment and/or missed well-child visit.

The office functions off a paper-based system and does not utilize an electronic health record system. All scheduling and documentation is reported on paper. Scheduling and documentation of missed visits are recorded on a scheduling form separated by provider, attached to a clipboard, and kept at the front desk. Scheduling forms are kept for a minimum of 3

months and then disposed of, eliminating any record of booked, missed, canceled, or rescheduled appointments for individual patients. The lack of well-child no-show documentation in a patient's chart can make it difficult for the provider to realize children may need a well-child exam when they present for a sick visit.

Readiness for Change

Review of the clinical assessment revealed organizational processes for appointment notifications and follow up was not being followed. The lead practice provider and staff were made aware of the implications for missed well-child visits and lack of follow-up. The importance of reminding patients and their caregivers of upcoming appointments was relayed. Agreement was unanimous by the staff and lead provider to implement a notification system for well child visits to align with timely preventive care services as recommended through THSteps and the AAP.

Staff feedback reported caregiver request for appointment reminders, indicating a need for notification. The practice views a notification system as potentially beneficial and would like to utilize an effective and efficient process to administer reminders. Initial administrative resistance was noted with limited access to the staff, patients, and billing office. Regardless, administration was willing to invest a nominal amount, the necessary supplies, and hire additional personnel to help implement the QI initiative.

The organization's readiness for change was determined by the Practice Improvement Capacity Rating Scale, developed by the Robert Wood Johnson Foundation, with discussion amongst staff and providers to establish the organization's readiness to undergo a QI initiative (Robert Wood Johnson Foundation, 2014) (see Appendix C). Through discussion, 15 questions of various criteria from commitment, resources, priorities, and communication were covered. A

score dependent on the outcomes of the questions was calculated. The major criteria for a “must pass” were all met by the practice. Staff and provider input in addition to the rating scale indicate the practice is ready for change.

Project Identification

Purpose

The purpose of this quality improvement project is to improve routine well child exam rates in accordance with AAP recommendations via the implementation of a parental appointment reminder system. The recommendations of the AAP covers timely, periodic well-child visits for comprehensive health screenings, vaccinations, and anticipatory guidance on age appropriate, developmental milestones (Jones et al., 2015). For the purpose of this project, parents are defined as the guardian of the child responsible for their care.

Objectives

The objectives to improve patient care are to:

1. Implement an appointment reminder system for well child exam visits.
2. By Aug 2017, well child visit rates will increase by 10%
3. By Aug 2017, the number of no-show appointments for well-child visits will decrease by 10%.

Anticipated Outcomes

By meeting the objectives, there will be an increase in completed well child appointments and a decrease in no-show appointments for well child visits. Staff will conduct reminders pre-appointment and post no-show. The clinic will align with THSteps guidelines under AAP recommendations and aim to meet Healthy People 2020’s goal.

Summary and Strength of the Evidence

Appraisal of the literature was conducted from several studies to research factors leading to no-shows. Reminder methods at decreasing no-show visits were explored. Inquiry into multiple resources was performed with indication that appointment reminders pose potential benefits. Overall, missed outpatient appointments are known to be a long-standing issue in the health care industry with rates currently falling between 23% and 34% annually (Crutchfield & Kistler, 2017). In addition, evidence suggests low-income children are at higher risk for poor growth and development when well child visits are delayed or missed entirely (Holl et al., 2012).

Research indicates leading factors accounting for missed well child visits are low income and being a recipient of public insurance. A convenience sample of 386 English and non-English speaking caregivers from a correlational study were surveyed and indicated the majority of missed well-child visits to no-shows were seen among public insurance carriers with the highest percentage detailing forgetfulness at 27%, transportation issues at 20%, and problems taking off work at 14% (Samuels et al., 2015). A systematic review and meta-analysis by Robotham et al. (2016) listed forgetfulness as the leading factor of missed appointments worldwide. A correlational study, one aimed on factors affecting receipt of well-child visits of uninsured guardians, found in a national sample of 4,650 children, people of low income and public insurance were most likely to miss visits (Goedken et al., 2014).

Efforts to improve delivery of well-child visits revolve around effective notification systems by phone, mail, or both. Studies indicate reminder notifications in the form of telephone reminders were preferred and found to be cost effective in reducing high no-show rates. A study by Crutchfield and Kistler (2017), found their participants preferred one reminder notification by either phone call, email, or text message 2 weeks or less following their appointment. In a study

by Shah et al. (2016), a 22% reduction was noted in no-shows when a reminder call was employed 7 days prior to a scheduled appointment for those at high risk of a no-show. In a study by Szilagyi et al. (2012), a 4% to 9% rate increase was seen among immunization and preventive care services with the use of telephone and mailed reminders to publicly insured patients.

A systemic review and meta-analysis of 26 research articles from various countries including four from the United States, reviewed the impact of text-based electronic notifications and found voice and text notifications were both equally effective by yielding a 74% attendance rate with voice notifications in favor over text messaging by a risk difference of 8% (Robotham et al., 2016). Overall, those who received notification were 23% more likely to make their appointment over those who did not receive a notification with voice notifications appearing to be more effective at improving attendance (Robotham et al., 2016).

Reminder notifications can be a helpful component as a source of motivation to follow up after missed appointments. An experimental study utilizing telephone follow-up in elderly patients who missed their scheduled appointments found a significant increase in attendance from 60% to 90% (Hirimuthugoda, Wathundura, Edirimanna, Vithanage, & de Silva, 2013). In summary, intervention in the form of notification by voice or mail is supported by the literature to improve clinic attendance rates.

Methods

Project Intervention

The project employed five interventions that took place within a private pediatric clinic in an urban area of central San Antonio. The population consisted of children from birth to 18 years of age with scheduled well child appointments. The interventions involved staff education, an appointment reminder system, a follow-up system, and a parental questionnaire.

The first intervention covered staff education for a thorough understanding of the process. The staff was provided with an overview of a systematic process of reminder notifications for upcoming and missed well child visits. A notification and follow-up instruction manual was made available and consisted of an appointment reminder and no-show flow chart (see Appendix D), a scheduling form with a notification key (see Appendix E), and an appointment reminder script (see Appendix F), and a reminder letter (see Appendix G).

The second intervention covered the initial parental reminder with phone calls for all scheduled well child visits from the clinics scheduling forms. The reminders were conducted 24 to 48 hours in advance of the appointment. Phone calls were made from the clinic's main phone line. The notification method was documented on the clinic's scheduling form.

The third intervention involved providing caregivers and patients with an appointment reminder card for their next recommended well child appointment immediately following the well child visit. This method served as an additional reminder of well child visits.

The fourth intervention covered follow-up of missed well child appointments. At the end of the clinic day, the no-show charts were placed in a designated area of the front desk in a letter wire desk tray tagged with the no-show date. One follow up phone call was attempted on the first no-show. Documentation indicating the no-show with the follow up attempt was written on a problem list, kept within the left side of the chart. In the case a non-working number, a reminder letter was mailed. In the case of a second no-show, follow-up was accomplished by a mailed reminder letter, and documentation was made on the problem list within the chart.

The fifth intervention was the administration of parental questionnaires to determine patient satisfaction with the intervention and sustainability. Questions asked related to parental demographics, patient insurance type, transportation method, patient history of missed

appointments, reasons for missed appointments, history of screening calls, phone use, phone messaging capability, how the current visit reminder was received, notification preference, and whether the appointment reminder was helpful and preferred (see Appendix H).

Barriers and Facilitators

Organizational barriers and facilitators were identified to complicate and help advance the QI project. The barriers to the project were inadequate staffing, high patient volume, time constraints, lack of an EHR system, disconnected patient phones line, and incorrect patient contact phone numbers. Facilitators were staff motivation, staff experienced with notification systems, administrative backing, and clinic funding.

Ethical Considerations

For this project, the ethical consideration to account for was the patient's right to privacy. Safeguards must be in place to protect the patient's identity and be in compliance with the Health Insurance Portability and Accountability Act. The clinic has the obligation to protect the privacy of its patients. With this in mind, it is imperative to have a system in place to inform patients and their caregivers of the notification methods employed by the practice with an option to restrict use. Secondly, the practice was careful not to divulge any patient health information in its notification processes.

Results

Staff education was conducted prior to implementation of the notification system. Any questions or concerns were directed to the principal investigator. The appointment reminder system for well-child visits was implemented and maintained from June 2017 to August 2017.

Phone calls were conducted 24 to 48 hours in advance of scheduled well-child visits. A convenience sample of 100 children and adolescents from birth to 18 years of age for scheduled

well-child exams was taken from the clinic's daily scheduling forms. Post-intervention data suggests 88% received a call, 5% did not receive call, and 7% were unknown to have received a call. Of the 88% who received a call, 65% spoke to a staff member and 23% received a voicemail.

Fifty well-child appointment cards were provided within the first 2 weeks of implementation (R. Garza, personal communication, September 13, 2017). Tracking of appointment reminder cards ceased after the first 2 weeks because the duties of the front desk did not allow sufficient time for tracking and the staff reported the majority of parents declined the cards over preference to call for an appointment. In addition, communication between the provider and front desk was not well-established to relay the next recommended appointment.

Follow-up was conducted on scheduled well-child no-shows by a phone call or mailed letter. Of the 21 well-child no-shows, 4 (19%) were new patients and 17 (81%) were established. Thirteen (61.9%) received follow-up, 4 (19%) did not receive follow-up, and 4 (19%) were unknown to receive follow-up. Of the 13 who received follow-up, 12 (92%) received a call and 1 (8%) received a letter. Overall, 7 (33%) of patients who received a reminder completed their well-child exam. A Fisher's Exact Test was utilized with IBM® SPSS® to determine the relationship between receiving follow-up and completion of a well-child visit. There was no significant association between follow-up notification and delivery of well-child care visits ($p = .08$) (one-tailed) (table 1).

Table 1

Fisher's Exact: Relationship Between Follow-Up Notification and Delivery of Well-Child

Visits

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.662 ^a	1	0.056		
Continuity Correction ^b	1.776	1	0.183		
Likelihood Ratio	5.09	1	0.024		
Fisher's Exact Test				0.103	0.088
Linear-by-Linear Association	3.446	1	0.063		
N of Valid Cases	17				

^a 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.65.

^b Computed only for a 2x2 table.

To determine the need and sustainability of the parental notification system, 100 self-administered questionnaires were distributed of which 46 were completed by parents of patients for scheduled well-child exams. The parental questionnaire contained inquiries for caregiver demographics, transportation method, phone utilization, missed past appointment history, reminder received, and notification preference (table 2).

The well-child completed visit rate remained the same at 64% with a decrease in the well-child no-show rate of 21%. Well-child cancellations and reschedules fell at 9% and 6% respectively. The Fisher's Exact Test was conducted to determine the association between reminder calls and the type of reminder received on well-child visits. Results suggest there is no significant association between parental notification calls and the delivery of well-child care visits ($p = .243$) (one-tailed) (table 3). However, there was a significant association between the notification type received and whether or not the patient was seen for a well-child visit ($p = .004$) (two-tailed) (table 4).

Table 2

Parental Questionnaire Inquiry (n = 46)

Inquiry	Frequency	Percent
Caregiver Ethnicity		
Hispanic or Latino	44	95.7
Not Hispanic or Latino	1	2.2
Not Answered	1	2.2
Caregiver Race		
White	31	67.4
Black or African American	1	2.2
Not answered	14	30.4
Caregiver Age		
18-24 years	9	19.6
25-34 years	25	54.3
35-44 years	7	15.2
55-64 years	1	2.2
Not answered	4	8.7
Insurance Type		
Medicaid	44	95.7
Chip	2	4.3
Primary Language		
English	32	69.6
Spanish	13	28.3
Other	1	2.2
Transportation Method		
Own Vehicle	37	80.4
Public transportation	4	8.7
Friend/relative	5	10.9
Phone Utilization		
Cell phone	46	100
Land line	0	0
No phone	0	0
History of Missed Appointments		
No	26	56.5
Yes	18	39.1
Not answered	2	4.3
Reason for Missed Appointments		
Forgot	8	17.4
Lack of transportation	4	8.7
Work/scheduling conflicts	8	17.4

Thinking appointment wasn't needed	1	2.2
Caregiver illness	2	4.3
Conflict with school	2	4.3
Insurance issues	3	6.5
Other	0	
Screen Calls		
No	24	52.2
Yes	18	39.1
Not answered	4	8.7
Message Capability		
Text message	11	23.9
Text and voicemail	34	73.9
Not answered	1	2.2
Reminder Received		
Spoke with employee staff directly	24	52.2
Voicemail	3	6.5
Appointment card	4	8.7
No reminder received	14	30.4
Not answered	1	2.2
Appointment Reminder Helpful		
No	2	4.3
Yes	32	69.6
Not answered	12	26.1
Continue Receiving Reminders		
Yes	42	91.3
Not answered	4	8
Notification Preference		
Call/voicemail	30	65.2
Text message	27	58.7
Appointment card	3	6.5
Mailed letter	3	6.5
Notification Recommended		
No	1	2.2
Yes	45	97.8

Table 3

*Fisher's Exact: Relationship Between Notification Received and Delivery of Well-Child**Visits*

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.553 ^a	1	0.213		
Continuity Correction ^b	0.417	1	0.518		
Likelihood Ratio	1.335	1	0.248		
Fisher's Exact Test				0.243	0.243
Linear-by-Linear Association	1.534	1	0.216		
N of Valid Cases	79				

^a 2 cells (50.0%) have expected count less than 5. The minimum expected count is .96.

Table 4

*Fisher's Exact: Relationship Between Notification Type Received and Delivery of Well-**Child Visits*

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	10.360 ^a	1	0.001		
Continuity Correction ^b	8.477	1	0.004		
Likelihood Ratio	9.564	1	0.002		
Fisher's Exact Test				0.004	0.002
Linear-by-Linear Association	10.222	1	0.001		
N of Valid Cases	75				

^a 1 cells (25.0%) have expected count less than 5. The minimum expected count is 4.76.

^b Computed only for a 2x2 table

Discussion

The parental notification system was successfully implemented in a private pediatric clinic with a large Hispanic and Medicaid population. Daily reminder phone calls for scheduled well-child appointments and follow-up attempts for well-child no-show visits were consistently adhered to by the front desk on a daily basis. Documentation of notification attempts on the scheduling forms and charts was reinforced periodically. Regardless of the reinforcement, documentation for appointment reminders on 7 patients and no-show follow-up attempts on 4 patients was missing.

The lack of documentation made it difficult to determine if parents received a notification and whether notification affected their delivery of well-child visits. Additionally there was no follow-up on new well-child appointments. Patients who were not established in the clinic received a reminder for scheduled appointments but did not receive follow-up for no-shows. The failure of follow-up for non-established patients was due to a non-existent chart.

Appointment reminder cards proved to be difficult to implement due to the lack of patient interest, lack of communication from the provider to the front desk, and busy nature of the clinic. Due to the short time frame of the QI project, two months was not sufficient enough time to determine the effectiveness of appointment reminder cards. Recommendation from the AAP for well-child visits is within 2 weeks and 2 months after birth. Parental feedback indicated that only 5% preferred an appointment card as a reminder method.

Respondents from the parental questionnaire indicated the need for the notification system. The main reasons listed for their children missing past appointments were due to forgetfulness, work and scheduling conflicts, and lack of transportation. With the help of the reminders parents are given the opportunity to cancel or reschedule when needed needed. All

respondents reported using cell phones over land lines indicating a greater reliability to answering a call. In addition, the reminder system was well received. The majority of parents at 69.6% indicated the appointment reminders were helpful and 97% recommend them.

Changes observed through the QI project were the increase in reminders received, decline of well-child no-shows, increase in well-child no-show documentation, and increases in well-child cancellations and reschedules. Overall, 88% of the sample received well-child appointment reminders and 61.9% of well-child no-shows received follow-up. Documentation of the well-child no-show in a patient's chart serves as an aid to the provider to reinforce the importance of well-child exams to parents. The well-child no-show rate declined by 7% with an increase in cancellations to 9% and reschedules to 6%. The increases in cancellations and reschedules provided the opportunity for additional scheduling.

The post intervention well-child completion rate remained the same as the pre intervention rate of 64%. This finding can be attributable to the different times of year data was collected. Pre-intervention data was calculated in January through February of 2017 while school was in session, post-intervention data was collected June through August of 2017 during summer break. The school year is variable, because of this, it is possible the different times of year could of affected a parent and child's availability to attend clinical appointments.

Notifications were found to be especially significant when a parent spoke directly to a clinical staff member. This finding indicated parents were more likely to bring their children to their well-child visit if they spoke with an individual over receiving a voicemail. While no significance was found between receiving a notification and completing a well-child visit, the decrease in no-shows and increase in cancellations and reschedules indicate notification did have an impact. In addition, seven clinical days were reported to not have a single well-child no-show.

This is a major finding since the clinic reported no-shows are typically more frequent in the summer time.

The findings of the QI project were found to be comparable to other studies. Results from the parental questionnaire support Samuels et al. (2015) in that the most common reasons for missed well-child visits are due to forgetfulness, transportation issues, and taking off work. In addition, notifications reduce no-show rates, with voice notifications proving to be more effective than other methods as Robotham et al. (2016) indicates.

Limitations

Limitations of the project included the time of year, time frame, sample size, and an electronic notification method. Pre and post-intervention data were analyzed at two different times of the year. Children and parent's schedules differed from winter and summer. The time frame for the QI project was conducted over two months and the sample size was relatively small. More time and a larger sample size would most likely have produced stronger results. The inability to implement text messaging as another method of notification served as a limitation because results from text messaging could not be compared to. Furthermore, the results of this project may not be generalizable to the greater population since this took place in a small privately owned clinic with a large Hispanic and Medicaid population.

Recommendations

Recommendations include expanding notification efforts and documentation for all scheduled visits and no-shows. To better track new and established patients, it is recommended to implement an electronic scheduling system that can be accessed by all staff members. Phone calls should continue on a daily basis to help remind parents of their child's appointment. To ensure a greater likelihood of receiving notification, a second attempt should be made for those

who do not receive their first notification due to busy signals or no answers. Clear communication between the provider and front desk should be implemented to ensure patients leave with a scheduled well-child visit. Appointment cards should be offered to all parents and provided to those who want them. The continuation of follow-up on no-shows is an important component in the notification process. In the event a parent cannot be notified by phone on follow-up, mailed letters should continue. Continued documentation in patient charts provides a reference for no-show and notification history enabling the staff and providers the opportunity to reinforce the importance of making well-child visits.

Implications for Practice

Short-term results for the QI project suggest the parental notification system positively impacted well-child care delivery. Without an EMR and limited resources, a simple notification system reminding parents of their child's upcoming well-child appointment was implemented. The findings indicate the incidence of well-child no-shows decreased while cancellations and rescheduling increased. Rescheduling ultimately provided the opportunity for future notification attempts by retaining patients on the clinic schedule. The data from the project supports person to person contact for successful delivery of well-child care visits versus a messaging system.

Overall, notifications and follow-up measures helped alert parents of their children's appointments, increasing timely and continuous well-child care delivery for preventive care services. The notification and documentation measures have influenced new practice policies within the clinic. The clinic employs daily notifications with documentation on scheduling forms and within patient charts for greater efficiency.

The policy is easy and straightforward enough to be implemented in any clinic without the use of EMR or online scheduling system with limited financial resources.

Overview of such a policy can be provided by a doctoral-prepared NP who serves as a leader in the health care industry. Such leadership can ensure the notification policies are adhered to and modified as needed. For greater clinic productivity and patient care outcomes, the NP can assess and produce additional measures that have the potential for providing continuous and timely delivery of care for all scheduled visits to include well-child care exams.

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Appendix A
 The Texas Health Steps Medical Checkup Periodicity Schedule for infants, children, and adolescents (birth through 20 years of age)

E03-14572 February 1, 2017

AGE	Months		Years	
	DC to 5 days	2 weeks	10	9
Newborn	History			
	Nutritional Screening			
	Review of Milestones			
	ASQ, ASQ:SE, or PEDS			
	M-CHAT or M-CHAT-R/F™			
	Mental Health: Psychosocial/ Behavioral Health Screening			
	TB Questionnaire with Skin Test if Risk Identified			
	Unclothed Physical Examination			
	Critical Congenital Heart Defect Screening			
	Length			
	Height			
	Weight			
	BMI			
	Fronto-Occipital Circumference			
	Blood Pressure			
	Visual Acuity			
	Subjective Vision			
	Newborn Hearing Test (OAE or ABR)			
	Audiometric Screening			
	Subjective Hearing			
	Dental Referral			
	Screen/Administer Immunizations According to ACIP Guidelines			
	Newborn Screening Panel			
	Blood Lead Screening			
	Anemia			
	Dyslipidemia			
	Type 2 Diabetes			
	Health Education/Anticipatory Guidance			

THSteps MEDICAL CHECKUP PERIODICITY SCHEDULE FOR BIRTH THROUGH 10 YEARS OF AGE

Appendix A (continued)
 The Texas Health Steps Medical Checkup Periodicity Schedule for infants, children, and adolescents (birth through 20 years of age)

AGE	Years	THS Steps MEDICAL CHECKUP PERIODICITY SCHEDULE FOR 11 THROUGH 20 YEARS OF AGE		
		MEASUREMENTS	VISION	HEARING
11		History		
11		Nutritional Screening		
12		Mental Health: Psychosocial/ Behavioral Health Screening		
12		PSC-17, PSC-35, Y-PSC, PHQ-9, or CRAFFT		
12		TB Questionnaire with Skin Test if Risk Identified		
12		Unclothed Physical Examination		
12		Height		
12		Weight		
12		BMI		
12		Blood Pressure		
12		Visual Acuity		
12		Subjective Vision		
12		Audiometric Screening		
12		Subjective Hearing		
12		Dental Referral		
12		Screen/Administer Immunizations According to ACIP Guidelines		
12		Dyslipidemia		
12		Type 2 Diabetes		
12		STD		
12		HIV		
12		Health Education/Anticipatory Guidance		

LEGEND OF SYMBOLS

- Mandatory at this age.
- If a component is not completed at the required age, it is mandatory for the provider to complete at the first opportunity if age-appropriate.
- When symbols appear at the same age for developmental, mental health, vision, or hearing screening, perform the most appropriate-level screen.
- Risk-based.

EO3-14572 February 1, 2017



Appendix B
No-Show Well Child Rate from January to February 2017

Scheduled Well-Child Visit Pre-Intervention Data from January to February 2017						
	Completed Visits	-	Cancellations	Reschedules	Appointment Reminder Notifications	No-Show Follow-up
Rate	64%	28%	6%	2%	0	0

Appendix C
Practice Improvement Capacity Rating Scale
Guide to Scoring for the Practice Improvement Capacity Rating Scale

1. Score each practice based in each of the criteria

- Red = 0 points
- Yellow= 5 points
- Green = 10 points

2. Each criterion is weighted 1: lowest importance 2: moderate importance 3: most important

**Criteria with a weighting of 3 is a must-pass area. Practices need to be at the green level on all of these criteria to have a final score in the green.

3. Scoring—Multiply the number of points earned for each criterion (0 v. 5 v. 10 points) by the corresponding weight assigned to that criterion, then sum up the individual scores for each criterion into a total score—for example, let’s say the model included only the first two criteria listed in the table below:

- 1st criterion: practice is “yellow”—score for this criteria = 5 points x weight of 3 = 15 points
- 2nd criterion: practice is “green”—score for this criteria = 10 points x weight of 3 = 30 points
- Total score (assuming there were only two criteria in model) = 45 points—the total possible score = 60 points if the practice had scored “green” on both: (10 points x weight of 3) + (10 points x weight of 3)

4. Final Scoring

- Red—Practice is not ready for quality improvement (QI) work.
- Yellow—Practice has limited capacity for QI work at this time but might be ready in the future if improvements are made in the must-pass criteria.
- Green—Practice is ready and capable for immediate QI work.

Date: _____ Practice: _____ Interviewee: _____ Position: _____

Appendix C (continued)
 Practice Improvement Capacity Rating Scale
 Guide to Scoring for the Practice Improvement Capacity Rating Scale

Question	Weight	Criteria	Scripted Questions	Red (0 points)	Yellow (5 points)	Green (10 points)	Score	Comment
1	3	Commitment: Senior Leadership: QI Champion/ sponsor <i>Senior leadership: person or group that has responsibility for designation of time, finances, and resources</i> (Physician, RN, office manager)	Can you tell me about the commitment that senior leadership (the administration/ the practice) has made to the project? <ul style="list-style-type: none"> Do you have a designated leader? Is there a team that meets regularly? In terms of time, finances, resources? 	No designated leader for quality improvement or if designated, not actively engaged.	Leader designated for quality improvement work—however quality improvement team non-existent, or if exists, not meeting regularly to review project status/data.	Leader designated for quality improvement work and quality improvement team meets regularly to review project status/data and discuss improvement opportunities.		
2	3	Commitment: Financial Resources	IF NOT ANSWERED ABOVE: How do the leader and the QI team fit in QI work with their other responsibilities in the practice? <ul style="list-style-type: none"> Are they paid for working on a QI project or is it volunteer work? 	No time budgeted for QI activities. No specific funding to support QI activities.	Insufficient amount of FTE allocated for QI activities and/or limited/small amount of funding for QI activities.	Sufficient amount of dedicated FTE and funding allocated to QI activities.		
3	3	Level of Physician Leader Support	Do you have a physician leader who supports this effort? (Physician leader is one whom the other clinicians and staff look up to and identify as a leader.) <ul style="list-style-type: none"> What is the relationship between this person and the QI team? 	Physician leader has not been engaged in discussions regarding QI initiatives or has not yet confirmed their formal support.	Physician leader has confirmed their formal support of QI initiatives, but there are no regular meetings or interactions to discuss/review progress.	Physician leader demonstrates behaviors consistent with actively supporting QI efforts—this includes convening regular meetings with QI team leaders to review progress and help address issues/challenges.		
4	3	Level of Practice Administrator Support	Does your practice administrator or office manager support this effort? <ul style="list-style-type: none"> How do they demonstrate this to the staff? (How does the staff know they support it?) Do they meet with the QI team? How do/will they help the QI team with this effort? 	Practice administrator has not been engaged in discussions regarding QI initiatives or has not yet confirmed formal support.	Practice administrator has confirmed formal support of QI initiatives, but there are no regular meetings or interactions to discuss/review progress.	Practice administrator demonstrates behaviors consistent with actively supporting QI efforts—this includes convening regular meetings with QI team leaders to review progress and help address issues/challenges.		
5	3	Competing Priorities	Are there any changes that have occurred/are going to occur that may have an effect on this project? Are there any other projects the practice will be working on while this QI project is going on? <ul style="list-style-type: none"> How do you see them affecting this QI project? Do they overlap in terms of goals or data collection? 	Currently converting to an EMR OR Significant staff turnover/changes OR # of QI projects competing for time of staff and resources OR Change in leadership expected or imminent OR Merger or acquisition anticipated in near future.	Modest competing priorities, such as end phase of EMR conversion OR Other QI projects, but winding down soon OR Relatively stable staff and leadership structure.	No significant competing priorities OR Significant issues/challenges impacting execution of QI activities AND Stable staff and leadership structure.		
6	2	Communication	<ul style="list-style-type: none"> Does the rest of the staff know about this effort? How have you kept the staff up to date with the progress of other projects in the past? How are you communicating the work being done by the QI team to the rest of the practice? 	Project not discussed at regular staff meetings, limited knowledge among practice physicians/staff, no data/information posted or distributed	Some effort devoted to sharing project information and updates with practice physicians/staff	Project information and updates discussed with practice physicians and staff at regular practice meetings, data/information shared, input/feedback recruited. Data posted in visible place.		
7	2	Access/Use of QI Infrastructure/Resources Available in the Community	Does your practice participate in any community improvement efforts? Any EMR sponsored or trade industry sponsored improvement efforts?	No practice awareness of QI infrastructure or resources available in the community.	Some awareness of QI infrastructure and resources available, but not yet accessing/using.	Practice is accessing/using QI infrastructure/resources available in the community.		

Appendix C (continued)
Practice Improvement Capacity Rating Scale
Guide to Scoring for the Practice Improvement Capacity Rating Scale

8	2	Prior Experience Executing QI Projects	<p>Tell me about the improvement work your practice has done in the past</p> <ul style="list-style-type: none"> What kind of experiences do the members of the QI team bring to the effort? Do you keep a record of what you have tried and how it went? How do you decide if what you try/ change is working? (You are looking for answers that indicate they use data to drive improvement.) 	No identifiable improvement interventions pursued to date.	Improvement interventions pursued; but no formal QI method used (Model For Improvement, Lean, Six Sigma, etc.)	Previous improvement interventions pursued using formal QI method.		
9	2	QI team designated with appropriate representation	Who is/will be on your QI team? Why?	No QI team in place OR Several team members identified for QI activities, but there is a lack of balance representing the testing to be done (e.g., no RN included on team for PCMH)	Team members identified for QI activities. Balanced representation of staff based on QI activity. No patient partner on QI team.	Team members identified for QI activities. Balanced representation of staff based on QI activity. Patient/parent part of the team.		
10	2	Reliability of data	<p>How reliable do you think your reports are?</p> <ul style="list-style-type: none"> Does the information seem accurate to you? Do you compare your data to other practices or national benchmarks? Is there someone who looks over the reports for accuracy? Does the QI team review the reports? 	No designated point person reviewing data for accuracy.	Point person designated, but no defined process for monitoring accuracy/timeliness of data.	Accuracy/timeliness of data monitored and addressed. Quality leadership person/team discusses data accuracy at regular intervals and identifies/pursues improvement opportunities.		

11	2	Reliability of data collection	<p>How reliable do you think your data are?</p> <ul style="list-style-type: none"> Do you think the data you need are reliably entered into the EMR with each encounter? Is there a way to tell if they are? Does everyone follow the same process for getting info/data into the EMR? 	Data collection solely dependent on clinicians at time of encounter.	Redundancy built into data collection process. Point person designated, but no defined process for monitoring accuracy/timeliness of data entry.	Defined process for monitoring accuracy/timeliness of data entry. Quality leadership person/team discusses data collection process at regular intervals and identifies/pursues improvement opportunities.		
12	2	External Payment Incentives from Commercial/ Governmental Payors Linked to the QI Project	<p>Is the practice being paid to participate in an improvement effort other than MU?</p> <p>Are you being paid to report on or meet quality measures?</p>	Not currently.	Currently being discussed by commercial/ governmental payors, but not yet in place.	Currently in place.		
13	1	Meaningful Use	Where is your practice in terms of applying for meaningful use?	Not attested to meaningful use.	Meaningful use in design phase.	Meaningful use implemented and criteria met.		
14	1	Source of IT support	<p>What do you do when you need to add fields to collect data or run reports?</p> <ul style="list-style-type: none"> Do you do this in office? Do you need to contact someone outside the office? Does this arrangement meet your needs/the needs for the QI project and QI team? 	No internal or external IT support available to the practice.	Internal or external IT support available to the practice, but not meeting needs of QI initiatives.	Internal or external IT support to the practice is meeting the needs of QI initiatives.		

Appendix C (continued)
 Practice Improvement Capacity Rating Scale
 Guide to Scoring for the Practice Improvement Capacity Rating Scale

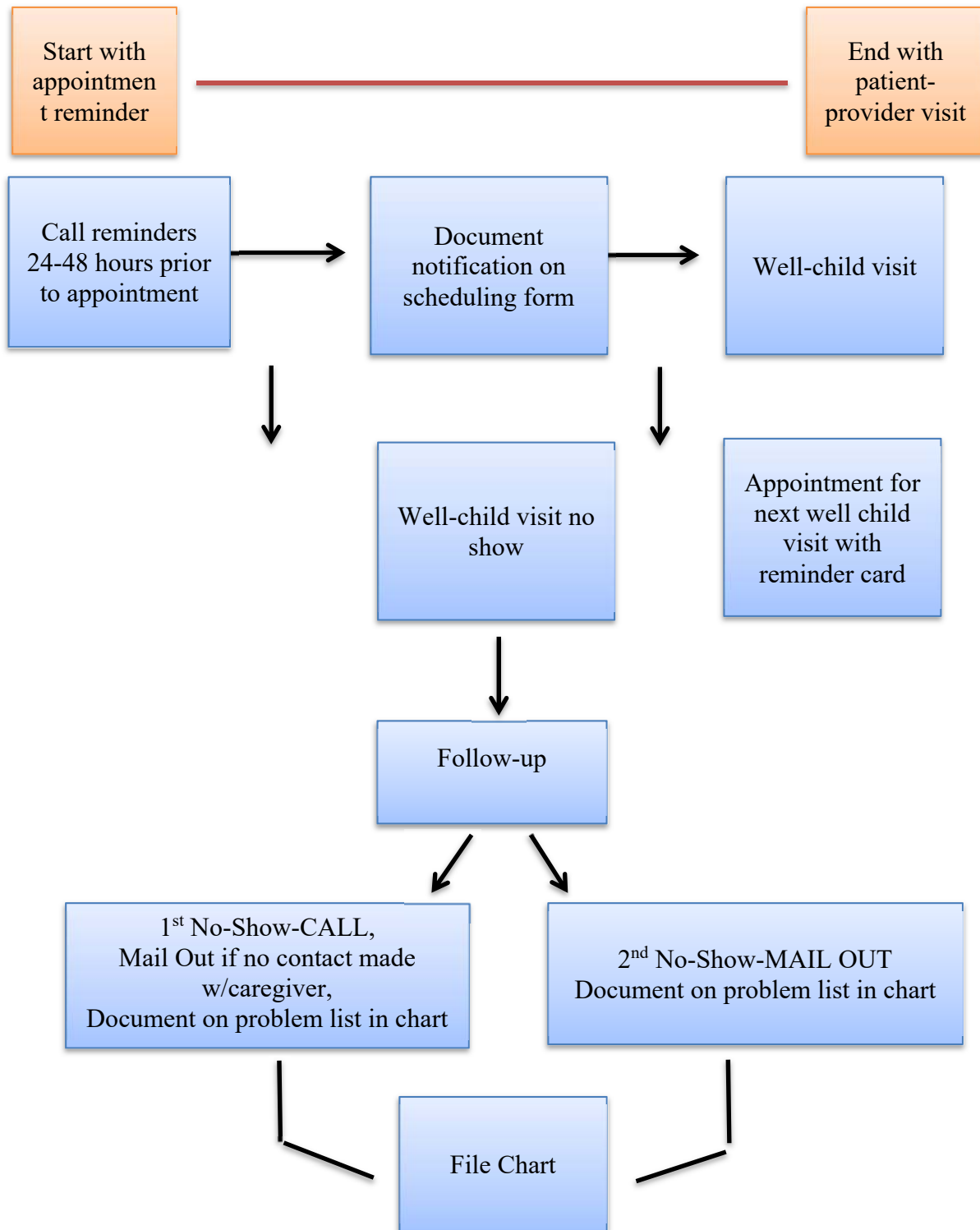
15	1	Use of EMR/Registry/Analytic Reporting Tool for Measurement/Data Reporting	What data will you be collecting for this project? How do you plan to collect the data you will need for this project? <ul style="list-style-type: none"> • Is the information currently collected in your EMR? • Can you get reports based on the data from your EMR easily? 	No EMR.	EMR in place, but data fields linked to key measures not embedded, or related data reporting capabilities (EMR, registry, or other analytic tool) not yet in place.	EMR with data fields linked to key measures embedded, and data reporting capabilities in place.			
Total Score									
Must-Pass Criteria Met							Yes / No		
Final Score—Circle level		Red: 0-99	Yellow: 100-249	Green: 250 or greater and all must-pass criteria met					

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Appendix D
Appointment Reminder and No-Show Flowchart



Appendix E
Scheduling Form with Key

9:00 Name: DOB: Phone #: Visit Type: Reminder:	11:00 Name: DOB: Phone #: Visit Type: Reminder:	2:30 Name: DOB: Phone #: Visit Type: Reminder:
9:15 Name: DOB: Phone #: Visit Type: Reminder:	11:15 Name: DOB: Phone #: Visit Type: Reminder:	2:45 Name: DOB: Phone #: Visit Type: Reminder:
9:30 Name: DOB: Phone #: Visit Type: Reminder:	Lunch	3:00 Name: DOB: Phone #: Visit Type: Reminder:
9:45 Name: DOB: Phone #: Visit Type: Reminder:	1:15 Name: DOB: Phone #: Visit Type: Reminder:	3:15 Name: DOB: Phone #: Visit Type: Reminder:
10:00 Name: DOB: Phone #: Visit Type: Reminder:	1:30 Name: DOB: Phone #: Visit Type: Reminder:	3:30 Name: DOB: Phone #: Visit Type: Reminder:
10:15 Name: DOB: Phone #: Visit Type: Reminder:	1:45 Name: DOB: Phone #: Visit Type: Reminder:	3:45 Name: DOB: Phone #: Visit Type: Reminder:
10:30 Name: DOB: Phone #: Visit Type: Reminder:	2:00 Name: DOB: Phone #: Visit Type: Reminder:	4:00 Name: DOB: Phone #: Visit Type: Reminder:
10:45 Name: DOB: Phone #: Visit Type: Reminder:	2:15 Name: DOB: Phone #: Visit Type: Reminder:	4:15 Name: DOB: Phone #: Visit Type: Reminder:

Appendix E—Continued
Scheduling Form with Key**KEY:**

1	Confirm	W	Wrong Number
2	Left Voicemail	N/A	No Answer
C	Cancel	B	Busy
R/S	Reschedule	NW	Not a Working Number

Appendix F
Appointment Reminder Script

English

For Live Person:

Hello, this is _____ with Clinica del Norte calling to remind (caregivers first, last name) of your child's appointment on (day) (date) at (time).

For Answering Machine or Voicemail:

Hello, this is _____ with Clinica del Norte calling to remind (caregivers first, last name) of your child's appointment on (day) (date) at (time). You can contact the clinic at (210) 572-1430 for questions or rescheduling needs.

Spanish

For Live Person:

Hola, soy _____ con la Clínica del Norte, llamando a recordar (caregiver's first, last name) de la cita de su hijo/hija para el (day) (date) (time).

For Answering Machine or Voicemail:

Hola, soy _____ con la Clínica del Norte, llamando a recordar (caregivers first, last name) de la cita de su hijo/hija para el (day) (date) (time). Puede ponerse en contacto con la clínica al (210) 572-1430 para preguntas o para reprogramar su cita.

Appendix G
No-Show Letter

English

(Today's Date)

Dear (Parent's Name),

We missed seeing your child for a scheduled well child appointment at _____ on _____. Please call us at _____ so we can reschedule the appointment for a date and time that will work for you.

Well child visits are important for your child's growth and development. We want to make sure you child receives their required exam and any vaccinations that may be due on a timely basis.

If you find it difficult to keep your appointments (for example: not having transportation), please call Medicaid Transportation Services at 1-877-633-8747. They may be able to provide the help you need.

We hope to hear from you soon.

Sincerely,
The Staff

Spanish

(Fecha de hoy)

Querido (Nombre de los padres)

Nos perdimos ver a su hijo para una cita de niño bien programado en _____ en _____. Por favor llámenos al _____ así que podemos reprogramar la cita para una fecha y hora que va a trabajar para usted.

Las visitas de niños bien son importantes para el crecimiento y desarrollo de su hijo. Queremos asegurarnos de que su hijo reciba su examen requerido y cualquier vacuna que pueda ser debida oportunamente.

Si le resulta difícil mantener sus citas (por ejemplo: no tener transporte), por favor llame a servicios de transporte de Medicaid al 1-877-633-8747. Es posible que puedan proporcionar la ayuda que necesita.

Esperar saber pronto de ti,

Sinceramente,
El Personal

Appendix H
Parent Questionnaire

Appointment Notification Questionnaire

Date: _____

Please review each question carefully and circle your answer.

1. Caregiver Ethnicity

- Hispanic or Latino
- Not Hispanic or Latino

Caregiver Race

- White
- Black or African American
- American Indian or Alaska Native
- Asian
- Native Hawaiian or Other Pacific Islander
- Other _____

2. Caregiver Age

- 18-24 years old
- 25-34 years old
- 35-44 years old
- 45-54 years old
- 55-64 years old
- 65-74 years old
- 75 years or older

3. Insurance Type for this visit

- Medicaid
- Chip
- Private Insurance
- Private Pay

4. What is the primary language spoken in the home?

- English
- Spanish
- Other _____

5. What method of transportation did you use to arrive at the clinic today?

- Your own vehicle
- Public Transportation
- Friend/Relative
- Other _____

6. What type of phone do you use?

Appendix H—continued
Parent Questionnaire

- Land line
 - Cell phone
 - No phone
7. Has your child missed medical appointments in the past?
- No
 - Yes
8. For what reason(s) has your child missed past medical appointments?
- Forgot
 - Lack of transportation
 - Work/scheduling conflicts
 - Thinking the appointment was not needed
 - Caregiver illness
 - Conflict with school
 - Insurance issues
 - Other _____
9. Do you screen your phone calls?
- No
 - Yes
10. How does your phone receive messages?
- Voicemail
 - Text message
 - Both
11. How did you receive a reminder for today's visit?
- Spoke with employee staff directly
 - Voicemail
 - Text message
 - Appointment card
 - Mailed letters
 - No reminder received
12. Was the appointment reminder helpful?
- No
 - Yes
13. Would you like to continue receiving appointment reminders?
- No
 - Yes
14. How do you prefer to be notified?
- Call/voicemail

Appendix H—continued
Parent Questionnaire

- Text
- Appointment cards
- Mailed letters

15. Do you recommend appointment reminders?

- No
- Yes