

Preappointment Surveys and Reminder Calls to Improve Show Rate

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Patients not attending their scheduled appointments (no-shows) are a common challenge in medical care. No-shows can needlessly prolong wait lists and can negatively affect clinical productivity, revenues, physician-patient relationships, patient satisfaction, and public health outcomes.^{1,2} When patients show up for their appointments, wait lists are shorter, access to care is improved, and providers can better utilize their clinical time producing billable hours.³

To address the concern of no-shows, previous research has focused on contacting families before appointments via letter, phone call, or short message service (SMS) text reminders, which have demonstrated increased show rates.⁴⁻⁶ Investigators have conducted several systematic reviews of studies focused on using reminder systems to improve show rate. It is unclear whether SMS text reminders are more effective than phone calls. An older study showed that automated SMS text reminders were less effective than manual phone call reminders.⁷ More recent systematic reviews and meta-analyses have determined that phone call and SMS reminders are equally effective in reducing no-shows.⁸⁻¹⁰ However, both reminder strategies have limitations. One systematic review found that any type of cellular phone-based reminder could fail because reminders may not be received due to inaccurate patient contact information, timing of calls, patients not having a telephone, or clinics not leaving a voicemail due to confidentiality policies.⁹ Other potential barriers to phone call and SMS reminders include families having their phone temporarily disconnected or frequently changing numbers, poor phone service and reception, not answering unrecognized numbers, and having a full voicemail inbox. Consistent with barriers related to access, results of a recent study showed that only 68% of the included patients had SMS access and that patients without access were significantly older.¹¹

There is limited information on the utilization of more contemporary forms of appointment reminders such as email. One such study demonstrated utility of email reminders in improving show rates,¹² whereas another found that after an initial improvement in patient attendance, this was not sustained.¹³ Given the continued challenge of maximizing clinical utilization with patient attendance

ABSTRACT

OBJECTIVES: To assess the impact of preappointment surveys and reminder phone calls on show rate and time spent in new patient appointments at a multidisciplinary pediatric chronic pain clinic.

STUDY DESIGN: We examined show rates and appointment length during the 1-year period before and 1-year period after a preappointment survey and phone reminders were implemented. Fisher exact test was used for categorical variables and Student's *t* test with equal variances was used for continuous variables.

METHODS: The setting was a multidisciplinary pediatric chronic pain management clinic in Florida. Participants were 362 patients scheduled for an initial pain clinic evaluation 1 year prior to and after the implementation of a preappointment survey on August 19, 2019. Our main outcome measures were show rate and appointment length.

RESULTS: Patients who completed a preappointment survey were significantly more likely to attend their clinic appointment than noncompleters (97.2% vs 36.2%) and spent significantly less time in their appointment.

CONCLUSIONS: With new patients, preappointment surveys can improve clinic show rate and decrease time spent in initial appointments. Clinics may consider policies targeting completion of preappointment surveys to assist with show rate, but they must consider their patients' barriers to completing surveys so access to care is not limited.

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and the ever-changing landscape of technology, research is needed to examine new strategies to address the problem of no-shows.

Investigators have created and examined models based on overbooking that rely on expected no-shows. This approach has been found effective at alleviating the impact of no-shows on clinics' efficiencies and reducing physicians' idle time.^{14,15} Although this strategy can be beneficial in some settings, it may not be a plausible strategy for clinics with lengthy evaluations, in which overbooking can lead to significantly longer patient wait times or an inability to see all scheduled patients.

One potential strategy that can be borrowed from social psychology is the foot-in-the-door technique. This technique was originally described as "once a person has been induced to comply with a small request, they are more likely to comply with a larger demand."¹⁶ This technique has been found to show a significant impact in sales,¹⁷ health fundraising,¹⁸ increased safety compliance,¹⁹ scheduling cancer screenings,²⁰ and smoking cessation.²¹ Congruent with the foot-in-the-door technique, it can be posited that requiring patients to complete a task before their appointment may increase the chance they will comply with a larger demand: showing to their appointment. One such task that can require investment from the patient and be clinically beneficial is the completion of a preappointment survey to learn more about patients' medical history or other relevant information.

Study Aims

The current study aims to assess the impact of preappointment strategies on show rate and time spent in new patient appointments. It was posited that completing a preappointment survey would represent compliance with a small request, therefore increasing the likelihood of compliance with the larger demand of attending the initial appointment. Completion of this preappointment survey would also reduce appointment time by providing clinically relevant information such as patient history before the appointment, thus requiring less time spent obtaining background information and resulting in a more targeted assessment. Consistent with previous literature on improving show rates, we gave each patient a reminder phone call in the survey implementation period. By understanding factors influencing show rates, we may be able to implement new policies to improve show rates, identify future patients who may need more support to attend sessions, and increase efficient use of clinical time by providers.

We identified 3 hypotheses: (1) Implementation of a preappointment survey and phone reminders will improve clinic show rate; (2) Participants who completed preappointment surveys will have a higher show rate than those who did not complete the survey; and (3) Participants who completed a preappointment survey will spend less time in their clinic appointments than those who did not complete the survey.

TAKEAWAY POINTS

- ▶ For new patients, preappointment surveys can improve clinic show rate and decrease time spent in initial appointments.
- ▶ Clinics may consider policies targeting completion of preappointment surveys to assist with show rate, but they must consider their patients' barriers to completing surveys so access to care is not limited.
- ▶ Proper staffing, including clinical nurse coordinators, may assist in scheduling, providing patient reminders, and facilitating distribution/collection of preappointment surveys.

METHODS

Setting

This project took place in the context of a multidisciplinary pediatric chronic pain management clinic within a children's hospital located in the Southeastern United States. This clinic typically sees 3 to 5 new patients per week and blocks 2 hours for each new patient. The usual wait for a new patient to be seen during this project and the prior year ranged between 2 and 5 months. During initial evaluation, a multidisciplinary team of an anesthesiologist, physiatrist, physical therapist, and psychologist conduct a comprehensive evaluation of a patient's pain history, psychosocial functioning, and limitations in their daily life functions. The team also provides individualized education and treatment recommendations during this initial evaluation. Ethical approval for this research was obtained from Johns Hopkins All Children's Hospital on April 16, 2020 (IRB00248018).

Participants

Participants were all new patients with intake evaluations scheduled with a multidisciplinary pediatric chronic pain management clinic 1 year prior to and after the implementation of a preappointment survey on August 19, 2019. Participants who were non-English speaking were excluded from this study because the preappointment survey was presented only in English. Participants who did not have an email address on file and could not be sent a preappointment survey were also excluded (n = 4).

Measures

Show rate. Show rate was defined as the percentage of patients who attended their scheduled appointments. Patients who missed their appointments were counted as a no-show.

Appointment length. Appointment length was calculated by retrospectively reviewing clinical notes from the pain clinic that provided the exact number of minutes each patient was seen by providers. As part of standard of care in this clinic, providers document the clock time when a patient enters and leaves the room with the treatment team within the multidisciplinary clinic note. Time spent in triage and check-out were not included in this calculation.

Preappointment survey. The preappointment survey consisted of approximately 40 questions and included both open-ended

TABLE 1. Demographic Characteristics Overall and by Appointment Attendance

Variable	Total (N = 362)	Appointment attendance		P
		No-show (n = 92)	Show (n = 270)	
Age in years, mean (SD)	14.71 (3.19)	14.8 (3.4)	14.68 (3.13)	.569
Sex, n (%)				
Female	280 (77.56)	66 (72.53)	214 (79.26)	.193
Male	81 (22.44)	25 (27.47)	56 (20.74)	
Race (%)				
White	251 (69.34)	57 (61.96)	194 (71.85)	.079
Black	37 (10.22)	14 (15.22)	23 (8.52)	
Hispanic or Latino	66 (18.23)	17 (18.48)	49 (18.15)	
Asian/AIAN/PI	8 (2.21)	4 (4.35)	4 (1.48)	

AIAN, American Indian or Alaska Native; PI, Pacific Islander.

TABLE 2. Show Rate and Demographic Differences Between Pre- and Post Survey Implementation

Covariate	Presurvey (n = 198)	Post survey (n = 164)	P
Age in years, mean (SD)	14.74 (3.26)	14.66 (3.12)	.709
Sex, n (%)			
Female	154 (77.78)	126 (77.3)	>.999
Male	44 (22.22)	37 (22.7)	
Race, n (%)			
White	137 (69.19)	114 (69.51)	.600
Black	17 (8.59)	20 (12.2)	
Hispanic or Latino	39 (19.7)	27 (16.46)	
Asian/AIAN/PI	5 (2.53)	3 (1.83)	
Appointment attendance, n (%)			
No show	52 (26.26)	40 (24.39)	.717
Show	146 (73.74)	124 (75.61)	

AIAN, American Indian or Alaska Native; PI, Pacific Islander.

and closed-ended question prompts created for this pain clinic’s assessment needs. Data from the survey platform showed that survey completion took a mean of 29 minutes (range, 7-71 minutes) for participants to complete. Questions addressed pain history and description of pain symptoms, medical history, functioning in school and daily life, and measures to assess mood, pain catastrophizing, and functional disability.

Procedures

Participants scheduled in the year before implementation did not receive phone call reminders or surveys. After implementation, all patients received a preappointment survey administered through an email link on the Qualtrics survey platform. This email was sent to the email address associated with the patient’s file, and families were asked to complete the survey jointly as it contained both caregiver- and patient-specific questions. This survey could be completed via

smartphone or computer. A clinic nurse coordinator emailed each patient the preappointment survey approximately 1 week before their appointment. The clinic nurse coordinator also provided a reminder phone call to all scheduled patients approximately 3 days prior to their appointment to remind them about the appointment and completion of the preappointment survey.

Data Analysis

Demographic variables were described overall and according to appointment attendance using mean and SD for age and counts and percentages for sex and race. Appointment attendance and appointment length were compared between presurvey and postsurvey periods and between participants who completed the survey and participants who did not complete the survey during the postsurvey period. Fisher exact test was used for categorical variables, and Student’s *t* test with equal variances was used for continuous variables (confirmed based on assessment of variable distribution). Statistical tests were 2-sided with a significance level of 0.05. Statistical analyses were conducted using SAS version 9.4 (SAS Institute).

RESULTS

A total of 362 patients met the inclusion criteria. **Table 1** shows the distribution of patient characteristics overall and according to appointment attendance. All appointments were attended by both patients and caregivers. Mean (SD) age of patients was 14.7 (3.2) years, 77.6% were female, and 69.3% were White. Caregiver demographics were not captured in this study. The overall show rate was 74.6% (270/362). Age, sex, and race distributions according to attendance were not statistically significant; however, higher percentages of patients who attended their appointment compared with those who did not were female (79.3% vs 72.5%, respectively) and White (71.9% vs 62.0%, respectively).

Table 2 compares the demographic and appointment attendance between patients in the pre-survey implementation period (n = 198; 55%) and patients in the post-survey implementation period (n = 164; 45%). Distribution of patient demographics did not significantly differ pre- and post survey implementation. Show rate during the postimplementation period was 75.6% (124/164) compared with 73.7% (146/198) during the preimplementation period, but this difference was not statistically significant (P = .72). Among participants who attended their appointment, the mean appointment length was 87.3 minutes (SE = 2.5) during the preimplementation period compared with 82.9 minutes (SE = 2.14) in the postimplementation period (t = 1.34; P = .18).

When analysis was restricted to participants in the postimplementation period, the show rate was 97.2% (103/106) in participants who completed the survey compared with 36.2% (21/58) in participants who did not complete the survey (P < .0001) (**Table 3**). We did not observe any statistically significant differences in age, sex, and race by survey completion, although a higher percentage of patients who

completed the survey were female (80.2% vs 71.9%). Among those who attended their appointment, the mean appointment length was 92.8 minutes (SE=6.0) in participants who did not complete the survey compared with 80.9 minutes (SE=2.2) in participants who completed the survey, representing a statistically significant difference of 11.9 minutes (SE=5.7; $t=2.11$; $P=.04$).

DISCUSSION

Inconsistent with the first hypothesis, implementation of a preappointment survey and reminder phone call did not improve clinic show rate when comparing the postimplementation period with the preimplementation period. One explanation for the lack of significant overall change in show rate between pre- and post implementation is that the postimplementation period included both those who completed and did not complete their preappointment survey. When comparing preimplementation show rate with the show rate of those who completed preappointment surveys in the postimplementation phase, the survey completion group demonstrated an almost 24% higher show rate.

Unique to the current study, the preappointment survey was used to leverage participant compliance in attending their appointment by first investing time and effort into completing the survey request. This framework is consistent with the foot-in-the-door technique, in which completion of a smaller task has been found to improve compliance with larger demands within a variety of domains.¹⁷⁻²¹ Data support the second hypothesis in that there was a significantly higher show rate in participants who completed the preappointment surveys (97.2%) than those who did not complete them (36.2%). This difference is striking, considering that all participants received reminder phone calls. Given the significantly higher show rate when participants completed preappointment surveys, clinics may consider the use of such surveys or implementing policies to require surveys be completed for patients to be seen or scheduled in clinic.

Consistent with hypothesis 3, when participants completed the preappointment survey, clinic appointment times were significantly shorter than for those who did not complete the survey. A plausible explanation for this shortened appointment time is that providers may glean information from the preappointment survey and then ask more targeted questions or require fewer questions when assessing patients during their appointment. Although these surveys have the potential to save time and lead to an informed and tailored assessment, repeating all the questions from the preappointment survey during the appointment could lead to longer evaluations. Repeating questions could also lead to disenchantment from families who may feel the clinic questions are redundant or that they wasted time completing the survey if the same questions were going to be asked in clinic. Depending on the clinic setting, a shortened appointment length may lead to positive outcomes including an increased number of patient encounters, additional time for clinicians to care for other patients, and reduced patient wait time.

TABLE 3. Show Rate and Demographic Differences According to Survey Completion

Covariate	Survey incomplete (n=58)	Survey complete (n=106)	P
Age in years, mean (SD)	14.68 (3.17)	14.65 (3.1)	.941
Sex, n (%)			
Female	41 (71.93)	85 (80.19)	.245
Male	16 (28.07)	21 (19.81)	
Race, n (%)			
White	39 (67.24)	75 (70.75)	.670
Black	8 (13.79)	12 (11.32)	
Hispanic or Latino	9 (15.52)	18 (16.98)	
Asian/AIAN/PI	2 (3.45)	1 (0.94)	
Appointment attendance, n (%)			
No show	37 (63.79)	3 (2.83)	<.001***
Show	21 (36.21)	103 (97.17)	

AIAN, American Indian or Alaska Native; PI, Pacific Islander.

*** $P < .001$.

Limitations and Future Directions

The current study assessed show rates and appointment length for families seen in a multidisciplinary pediatric pain clinic. It is unclear whether the utilization of preappointment surveys in other settings (eg, private practice, other clinical disciplines) would also be associated with higher show rates to clinic appointments. Additionally, the research team was unable to assess demographic data on caregivers, who are often responsible for transporting youth to their appointment and assist in preappointment survey completion. Examination of preappointment surveys in other settings and with adult populations may also provide further insights into show rate patterns. A major drawback to the implementation of a preappointment survey is lack of resources. Clinics may lack the equipment or providers necessary to implement this type of survey. In the current study, a clinic nurse coordinator was responsible for obtaining patient contact information, placing reminder phone calls, and sending out and tracking preappointment surveys. The importance of a dedicated staff member such as a clinic nurse coordinator to take on these tasks should be highlighted, given the significant amount of time and effort that these tasks require. The utilization of a nurse would limit the amount of time that physicians would have to divert from direct patient care. Another limitation of this study is that it enrolled only English-speaking families and did not allow us to evaluate the behaviors of non-English-speaking families.

Providers should be mindful of surveys' length and overreliance on the survey for obtaining clinical information. A lengthy survey may be inappropriate in contexts such as emergency settings or burdensome for families when attending frequent follow-up sessions. Additionally, each patient carries a unique background that may require patient-specific evaluation to cover their entire medical history during sessions. Full reliance on the

preappointment survey's assessment may preclude providers from gleaning such information.

Another consideration is that many organizations promote goals such as patient satisfaction, maximizing the number of patients seen, and improving access to care. The results from this study suggest that, overall, more patients would show if the completion of a preappointment survey was required by clinic policy. Although such a policy may be beneficial for clinic utilization, physicians must consider patient barriers and equity in health care. Families may be unable to complete online surveys due to language barriers, email access, internet connection, or problems with the survey platform. Additionally, some patients who attended their appointment reported that they refused the survey due to concerns of privacy when using an online questionnaire and distrust of the word "research" used in our consent form. To prevent unintentionally limiting access to care, clinics should consider these potential barriers when developing protocols or policies related to patient completion of preappointment surveys and be flexible for families who may have such barriers.

CONCLUSIONS

Findings from this study demonstrate that the use of a preappointment survey is associated with higher show rates in an interdisciplinary clinic, and they provide guidance for achieving more efficient and effective methods of obtaining new patient information. Implementation of similar strategies at medical and behavioral health clinics may help to increase show rates, ultimately increasing care delivered to the community and improving provider productivity. ■

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