

CLINICAL PRACTICE

Open access scheduling: Improving access to rural healthcare

Shakira Lynn, Barbara J. Edlund *, Bonnie P. Dumas

Medical University of South Carolina College of Nursing, Charleston, SC, USA

Received: January 18, 2016

Accepted: April 18, 2016

Online Published: May 9, 2016

DOI: 10.5430/jnep.v6n9p67

URL: <http://dx.doi.org/10.5430/jnep.v6n9p67>

ABSTRACT

Background and Purpose: Open access scheduling is a model that allows patients to choose appointments at their convenience in an effort to provide timely access to healthcare. Healthcare providers typically have overbooked schedules that make it difficult to provide access to primary care appointments for patients in need without long wait times. The purpose of this quality improvement project was to implement open access scheduling at a federally-qualified health center to evaluate the number of missed patient appointments and the amount of time it takes to receive an appointment.

Method: Patient appointments (N = 1,333) were analyzed via the Allscripts™ electronic computer system. During project implementation, staff utilized a written protocol for open access that had been tested at a satellite office with successful results. Patients were placed in appointment slots daily as they were available.

Conclusion: The highest no-show rate prior to implementation was 42%, which improved after open access to 27%. Average third next available appointment trended downward post-implementation from 8.9 days three-months pre-intervention to 4.3 days three-months post-implementation. This scheduling model was successful in decreasing no-show rates by allowing patients to be seen in a timely manner and can be utilized in primary care to improve access to healthcare.

Key Words: Open access, Primary care, Appointment scheduling, Patient appointments

1. INTRODUCTION

Accessing quality healthcare care can be difficult in any area, but it is especially challenging in rural areas due to the shortage of healthcare providers and adequate resources such as employment, insurance, and transportation. According to the United States Department of Health and Human Services,^[1] 62 million Americans currently reside in rural areas across the United States and approximately 20% of the rural population is uninsured. Patients in rural areas are at a disadvantage because many are unable to afford routine visits at a primary care provider's office. To address the needs of medically underserved areas, Section 330 of the Public Health Service Act developed federally-qualified health cen-

ters to provide healthcare for uninsured and underinsured patient populations.^[2] The federally qualified health center where this quality improvement project was implemented is located in the upstate area of a southeastern state and was opened in 2012 to serve as the primary care medical home for disadvantaged and uninsured residents. The providers at this clinic had overly booked schedules, making it difficult to provide access to primary care appointments for everyone in need without long wait times. An Allscripts™^[3] computer practice management review of appointments for November 2014 indicated that patients frequently missed routine appointments when the wait time for an appointment was over three to four weeks. The implementation of an open

*Correspondence: Barbara J. Edlund, PhD, ANP, BC; Email: edlundb@muscd.edu; Address: Medical University of South Carolina, College of Nursing, 99 Johnathan Lucas Street, MSC 160, Charleston, SC 29425-1600, USA.

access scheduling model allows patients to choose same-day appointments at their convenience.

1.1 Background and significance

A number of pertinent reviews and research studies have addressed open access scheduling and the effects of this model on improving patient care. DuMontier, Rindfleisch, Pruszyński, and Frey^[4] implemented a multi-method intervention to reduce no-shows in an urban clinic. Cameron, Sadler and Lawson^[5] contends that no-show rates are calculated by noting the appointments that patients either did not arrive in the office or canceled with less than one half day of notice. During the implementation process this primary care clinic modified their schedule templates to accommodate open access^[4] and an analysis of 384,561 appointments showed that the rate of no-show appointments decreased from 33.3% to 17.7% after open access implementation. This study suggested that a multi-method approach, which included interviews with patients, double-booking appointments and implementing open access, was successful in improving no-show rates for appointments. There are several other research studies supporting the use of open access scheduling to improve access to healthcare.

In their study of same-day appointments, Cameron, Sadler, and Lawson^[5] used the third next available appointment as a measure of the amount of time between a patient's request for an appointment and the third next available appointment for a routine visit. The third next available appointment is a more accurate assessment of next available appointment due to cancellations and other unpredictable events according to the Institute for Healthcare Improvement.^[6] Cameron and colleagues^[5] implemented a six-month trial of open access scheduling starting in October 2008 and found a significant decrease in third next available appointment from 13.7 days to 3.6 days ($p < .001$). Additionally, monthly no-show rates decreased from 3.33% to 1.89% ($p < .001$).^[5] Another evaluation of open access scheduling by Mehrota, Keehl-Markowitz, and Ayanlan^[7] reviewed the implementation of open access scheduling at six primary care practices from 2003-2006. Mehrota and colleagues^[7] used Loess Smoothing technique in Statistical Analysis System to chart trends in third next available appointment. After four months of open access scheduling, practices decreased the mean wait time for third next available appointment from twenty-one days to eight days.^[7]

1.2 Purpose of the project

The purpose of this project was to implement open access scheduling at this site with the intended improvement of decreased patient no-show rates and decreased third next

available appointment time in an effort to improve patient care. The clinical question was, "Will the implementation of same-day appointments decrease the frequency of missed appointments and third next available appointment time within three months?"

2. METHODS

2.1 Setting and target population

This quality improvement project was implemented in a federally qualified health center in the southeastern United States. The target population was adult clinic patients 18 years of age and older and the project involved implementing open access scheduling for these patients in order to assess the effectiveness of this system change at the clinic. An analysis of patient appointments was performed for those patients who were seen at this clinic during the implementation period.

2.2 Interventions

The goal of open access scheduling implementation is to have more available appointments each day, essentially making it easier for patients to be seen as soon as possible by their provider. The administrative and nursing staff at the clinic were educated during a staff meeting about open access implementation in March 2015. In order to start implementing this project, an analysis was performed of current data such as no-show rates for appointments and third next available appointment using AllscriptsTM.^[3] The front staff at the clinic completed a daily report from Feb 2, 2015 until March 22, 2015 to track the number of requests daily for appointments, providing an assessment of predicted demands for appointments. During this time period, the average number of appointment requests was ten per day. In an effort to reduce backlog, the clinic increased the number of daily appointment slots and standardized all appointments to fifteen-minute increments. There was no distinction between routine and urgent care slots in an effort to simplify appointment types. The schedule was updated to include twenty-nine daily appointment slots with 65% of those appointments being available for same day and the remaining slots for physical exams and selected routine follow-up. A written protocol for implementing open access scheduling was developed specifically for this project and adopted from the company's open access scheduling policy used at a satellite pediatric office. During this phase of implementation, the schedule was not 100% open access in an effort to evaluate effectiveness during this period and find the best scheduling matrix for this clinic.

After analyzing pre-intervention data, educating staff members, reducing backlog of patients, and simplifying appoint-

ment slots, the clinic developed a handout to educate patients on how appointments are scheduled. Patients were informed that if they need to be seen for an acute sick visit they can begin calling the office starting at 8:00 a.m. on the day they need to be seen. Patients were educated via a handout that was distributed starting April 1, 2015 and continuing through open access implementation. The administrative front office staff was given open access instructions with prompts and a flow sheet to guide them through the process of scheduling patients. Patients were placed in appointment slots for that day, as they were available. The overall goal was to have the patient seen on the same day, but routine appointments were scheduled within two-to-five days depending on demand. Patients were able to request medication refills via phone as previously done in the office with all medication refills being addressed by the provider within 48 hours. In an effort to restructure follow-up scheduling as proposed by Mehrota, Keehl-Markowitz and Ayanlan,^[7] patients were asked to call and schedule their follow-up appointment within a time frame advised by the provider. For example, if a patient was seen for chronic hypertension and diabetes management and the provider decided the next visit should be in three months, the patient received a card at checkout indicating the week they needed to call back to schedule the follow up appointment. Patient reminders were placed in the AllscriptsTM^[3] creating a task for the front office staff to call the patient if they have not requested an appointment within the suggested timeframe.

A proposed contingency plan was created in an effort to prepare for unpredictable events during implementation. A proposed contingency plan for this clinic involved staff members assisting other staff with tasks in an effort to support the provider during the clinical day. For example, administrative staff assisted the nurses with records requests, referrals, and clinical paperwork. The company provided replacement personnel when a primary provider was out on temporary leave or vacation. Since it is standard practice for the company to send a floating provider during absences, there was not any significant budgetary impact on the clinic for this replacement. In an effort to cover the clinic in the case of unplanned absences for emergencies or sickness, the clinic utilized providers from the float pool to work. Monthly meetings were held with the staff in order to evaluate the implementation process. Staff members were allowed to express their thoughts and give input on proposed changes during these meetings.

On May 1, 2015 the clinic implemented open access scheduling and during the implementation process front office staff placed patients in appointment slots as available on the day the patient requested an appointment. If no appointment slot

was available, patients were given the next available opening within five days. If scheduling staff were unable to find an available appointment within five days they consulted with the provider to determine whether the patient could be added to existing schedules. There was a registered nurse assigned to triage phone calls and determine, with the advice of the available provider, if those patients requiring immediate care should come in on the same day, regardless of appointment availability. In an effort to maximize appointment slots, all medications were reconciled by the nursing staff and verified by the provider during the visit. Alternate methods of care delivery including nurse visits for labs, immunizations, and blood pressure checks helped with patient care delivery. The established online portal service allowed patients the ability to request prescription refills, communicate with their providers, receive secure messages and retrieve limited test results. Scheduling of essential referrals and procedures were completed before the patient was discharged from the office.

A staff meeting was held two weeks after implementation as each provider noticed an increased number of no-show appointments despite the new scheduling model. Providers and administrative staff discovered in a staff meeting that the front office staff had not been placing reminder calls to patients before their appointments, which was a standard of practice prior to implementation. This action likely caused some patients to no-show for their appointments since they had not received reminder calls. After reviewing AllscriptsTM,^[3] results showed that front office staff members were overriding same day appointment slots and placing patients in those slots more than five days ahead of time, which may have affected appointment availability. Another change in practice demand and availability occurred when a provider left the practice a few weeks after open access implementation that caused an increase in appointment demand. The physician that resigned moved to a different practice and was replaced by a temporary locum physician. The new physician provided care for patients who were previously seeing the physician that left the practice. This provider's schedule remained open for appointment slots, however these appointments were not included in the appointment analysis for this project since the change occurred after open access implementation in June 2015. Open access scheduling was implemented during the months of May to July 2015 with post-implementation data collected for six weeks after project implementation.

2.3 Data collection

Pre-intervention data on the number of patients who had missed appointments at this clinic were collected from monthly chart reviews using AllscriptsTM,^[3] Third next

available appointment was calculated in number of days using Allscripts™ because it is a more accurate assessment of next available appointment due to cancellations and other unpredictable events.^[6] Post intervention data was collected for six weeks after open-access implementation using Allscripts™^[3] computer system to monitor no-show rate percentages of third next available appointment in number of days.

All data was collected via the double password protected Allscripts™^[3] computer system for appointment analysis. This process was exempt from institutional review board because of the Health Insurance Portability and Accountability Act 45CFR46.101 (b) 2, 45 CFR 46 102 (f) and 45CFR164 (a)-(c), since the data excluded patient identifiers such as name, sex, race or medical record number. The project data was stored on the double password secure laptop provided by the clinic and only accessible by the authorized user while assessing information for project implementation.

2.4 Data analysis

A comparison of pre- and post-intervention no-show rate percentages was completed using Microsoft Excel™ statistical analysis. The third next available appointment was analyzed in the same manner by comparing pre- and post-intervention number of days to appointment to determine if there was an improvement in the amount of time it takes a patient to receive an appointment.

2.5 Measurements and calculations

Measurement outcomes included calculating the rate of no-show appointments as well as third next available appointment time. No show rates were calculated using Allscripts™^[3] appointment analysis during the implementation period. This system provided no show rate percentages by evaluating the number of patients who actually arrived for their appointment divided by the number of scheduled appointments daily. In addition, there are several instruments for calculating third next available appointment. According to Cameron, Sadler and Lawson,^[5] third next available appointment is an accurate method to calculate the amount of time until an appointment is available by counting the number of days between a patient’s request and the third available appointment. This method is used because research shows that the first and second available appointments may be available due to chance, last minute cancellations or other unpredictable events.^[6] Third next available appointment provides a more accurate assessment of available appointment and in accordance with standardized methods this calculation was used to analyze third next available appointment for this project.

3. RESULTS

There were 1,333 patient appointments accessed via the Allscripts™^[3] computer practice management during the months of May-July, 2015. During the seven month, pre-intervention period of no-shows, the highest no-show percentage was 42% in December 2014. In April 2015, immediately prior to implementation, the no-show rate dropped to 28% (see Figure 1). After implementing open access scheduling, no-show percentages were lowest in July 2015 at 27%. These findings suggest that open access scheduling was effective in decreasing no-show rates in this primary care clinic. Another measure of success during this project implementation was the average third next available appointment. Average third next available appointment trended downward post-implementation of open access scheduling from 8.9 days three-months pre-intervention to 4.3 days three-months post-implementation (see Figure 2). The findings from this project suggest that open access scheduling allows patients to be seen at a time that is convenient for them in an effort to improve patients’ access to care. Additionally, utilizing open access scheduling decreases the amount of time for patients to receive primary care appointments.

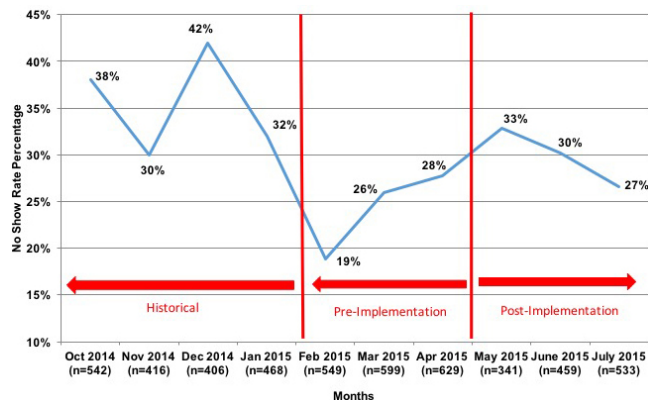


Figure 1. No show percentages pre and post implementation

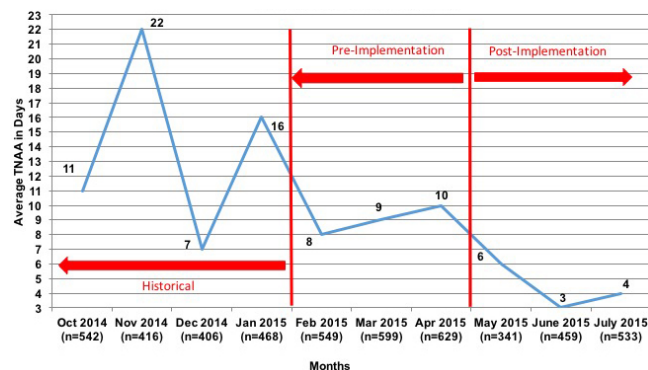


Figure 2. Average third next available appointment (TMAA) in days pre and post implementation

There were limitations to this project that would need evaluation during future implementation phases. The first limitation was that, prior to implementation, the practice hadn't worked through previously booked appointments. Patients were scheduled in February 2015 for routine appointments set in May or June 2015. These pre-scheduled appointments affected availability during the implementation period. By increasing scheduling capacity, providers are able to see previously scheduled patients as well as same day appointments in an effort to work through the backlog of patient appointments. Also, during the implementation period the office front staff stopped making reminder telephone calls to patients for their appointments, which may have affected the number of patients that did not show up for their appointments. In June 2015, after reviewing Allscripts™^[3] system results showed that front office staff were overriding same day appointment slots and placing patients in those slots for routine appointments daily. These actions also affected appointment availability by reducing the number of same day appointments available. The practice's scheduling model now relies on a two-to-five day appointment window. Ideally, a patient should receive an appointment during this time, but if there are no available slots, schedulers notify the provider immediately so that patients can be accommodated. Adopting these changes and adhering to reminder calls will improve future efforts at open access scheduling at this practice.

4. DISCUSSION AND CONCLUSION

Open access scheduling is beneficial for patients because it provides care to patients when they need it. Practices utilizing this scheduling model are able to meet the demands of their patients in a timely manner. Overall, open access decreases long wait times for appointments and promotes quality healthcare. Similar to findings by DuMontier, Rindfleisch, Pruszynski and Frey,^[4] this quality improvement project also found a decrease in no-show rates while implementing open access scheduling. In addition, as discovered by Cameron, Sadler and Lawson,^[5] open access implementation significantly reduced the time to third next available appointment.

This project differed from the above-mentioned studies due to the fact that there was no time set aside to work through the backlog of patient appointments prior to implementation. In addition, the staffing change during implementation of this project led to some increased costs while the clinic employed temporary locums physicians until permanent staffing changes were made. Implementing open access scheduling over several series of change cycles may prove the most effective method for changing a scheduling process. In addition, double-booking appointments as suggested by Dumontier and colleagues^[4] also could be an effective method of controlling no-show rates for appointments.

There are several implications for other practices deciding to utilize open access as a scheduling model to improve accessibility in their practice. Future projects may need to explore how to predict demand so that there is an adequate number of appointment slots open daily to meet external demand. In addition, identifying high demand periods of the year may be a helpful indicator of when to increase or decrease open availability. While it is difficult to predict changes in staffing providers, clinics interested in implementing this scheduling model should include proposed budgets for hiring temporary locums providers or clinical staff. Alternate methods of care delivery including nurse visits, promotion of self care, and telephone triage protocols may be helpful in reducing demand and allow providers to communicate effectively with patients. Adopting an effective care delivery model also will help clarify role responsibilities within the practice. Open access scheduling not only meets demands of the growing healthcare industry, but it also allows patients to be active participants in their care delivery.

ACKNOWLEDGEMENTS

We would like to thank the staff, providers and administration at the clinic where we implemented this quality improvement project. Special thanks to Daniel Foley, Gwen Green and Kimberly Pittman for assisting with manuscript editing.

CONFLICTS OF INTEREST DISCLOSURE

The authors declare that there is no conflict of interest.

REFERENCES

- [1] United States Department of Health and Human Services. 2014. Office of Rural Health Policy. Retrieved September 6, 2014. Available from: <http://www.hrsa.gov/about/organization/bureau/orhp/>
- [2] United States Department of Health and Human Services. 2014. Federally-qualified health centers. Retrieved September 6, 2014. Available from: <http://www.hrsa.gov/opa/eligibilityandregistration/healthcenters/fqhc/>
- [3] Allscripts™ Computer Practice Management. 2015. Retrieved March 1, 2015. Available from: <http://www.allscripts.com/products-services>
- [4] DuMontier C, Rindfleisch K, Pruszynski J, *et al.* A multi-method intervention to reduce no-shows in an urban residency clinic. *Family Medicine*. 2013; 45(9): 634-641.
- [5] Cameron S, Sadler L, Lawson B. Adoption of open-access scheduling

- in an academic family practice. *Canadian Family Medicine*. 2010; 56(1): 906-911.
- [6] Institute for Healthcare Improvement. 2014. Third next available appointment. Retrieved October 27, 2014. Available from: <http://www.ihi.org/resources/Pages/Measures/ThirdNextAvailableAppointment.aspx>
- [7] Mehrota A, Keehl-Markowitz L, Ayanlan J. Implementing open-access scheduling of visits in primary care practices: A cautionary tale. *Annals of Internal Medicine*. 2008; 148: 915-922. <http://dx.doi.org/10.7326/0003-4819-148-12-200806170-00004>