

Linked Pharmacist-Provider New Patient Visits in Primary Care

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Federally qualified health centers (FQHCs) provide comprehensive healthcare services to a vulnerable population by integrating primary care with a variety of other services, such as pharmacy or behavioral health.¹ Prior to implementation of this project, medical providers at Henry J. Austin Health Center (HJAHC), an FQHC in Trenton, New Jersey, were expected to see all existing patients in 15-minute intervals and new patients in 30-minute intervals. When an established patient did not present for their appointment, there was a negative impact on provider productivity and therefore lost revenue to the health center. Furthermore, when a new patient canceled or did not present for their appointment, there was a missed opportunity for the provider to conduct 2 visits with established patients in that extended 30-minute window.

Reducing no-show rates is key for improving provider productivity, and studies have documented reasons that patients do not show for outpatient appointments.²⁻⁴ Publications have outlined recommendations for improving no-show rates, such as involving patient navigators, placing reminder phone calls and letters, and using analytical tools to predict no-show appointments.⁴⁻⁷ One strategy for improving productivity that is less defined is altering the structure of the primary care team. An integrated, interdisciplinary team-based approach to managing patients in patient-centered medical homes (PCMHs) can help to relieve the burden of work, but currently, limited research addresses the appropriate infrastructure to care for this vulnerable population.⁸ Research findings show that 4.25 full-time equivalents (FTEs), such as behavioral health workers and pharmacists, per physician are appropriate for PCMHs rather than the standard practice of 2.68 FTEs per physician, and the FTEs' disciplines will vary among sites.⁸ However, needs may vary from one setting to the next depending on the patient population. Thus, new models for managing patients in PCMHs should be studied.⁸ Additionally, the importance of accessible care has been discussed in the 2007 Joint Principles for the Medical Education of Physicians as Preparation for Practice in the Patient-Centered Medical Home, and one way to improve the PCMH model is to make changes to the scheduling process.⁹⁻¹² Provider productivity could be improved by reducing the duration of new patient appointments

ABSTRACT

OBJECTIVES: To implement a project of linked pharmacist-provider new patient visits and then evaluate the impact on the productivity of the provider and pharmacist.

STUDY DESIGN: A clinical pharmacist was integrated into the workflow at 2 sites (sites A and B) of Henry J. Austin Health Center, a federally qualified health center, so that new patients were scheduled to see the pharmacist in a 15-minute encounter immediately before a 15-minute encounter with the primary care provider.

METHODS: Reports generated in the electronic health record were downloaded into Microsoft Excel for statistical analysis. Two-sample 2-tailed *t* tests assuming unequal variances were used to evaluate changes in the mean number of appointments checked in and canceled before and after the project's implementation to study provider productivity, the primary study outcome. Descriptive statistics were used to report the pharmacist's productivity.

RESULTS: Statistically significant increases in the number of checked-in new patient visits and in all visits of any type were observed at site A; however, these changes were not observed at site B.

CONCLUSIONS: The linked visits between the pharmacist and provider allowed for increased provider productivity at 1 of the sites. Based on these results and provider feedback from both sites, this project was viewed as a positive initiative. Scheduling challenges were a barrier to project success at site B.

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from 30 minutes to 15 minutes and scheduling the patient to meet with a clinical pharmacist.

Integrating clinical pharmacists into FQHCs is not considered standard practice, but it is an emerging trend due to the evidence that they can improve clinical outcomes in this setting and can successfully collaborate with physicians.^{13,14} As this is a relatively new model, limited information exists regarding how best to use clinical pharmacy services or how many clinical pharmacists are required to meet the demands of patients receiving care through a PCMH. The Veterans Health Administration (VHA) has created Patient-Aligned Care Teams (PACT), a team-based model of care through which all a patient's healthcare needs are met.¹⁵ The VHA recommends that 1 clinical pharmacy specialist is integrated into the interdisciplinary team for every 3 patient panels (VHA defines a patient panel as a group of veterans assigned to care from a provider) to improve medication management in the primary care setting.^{16,17} The principles upon which the PACT model stands are similar to those used at HJAHC to deliver high-quality primary care, and a comparable ratio of clinical pharmacists to patient panels may be considered appropriate. The purpose of this research was to evaluate a new, interdisciplinary model for managing new patients at an FQHC that could increase provider productivity without sacrificing clinical care. It is hypothesized that if the pharmacist sees a patient as part of a linked encounter, then the provider should be able to see more patients each day and therefore increase their productivity, which HJAHC defines as the mean number of patients seen by a provider per 8-hour day.

METHODS

The objective of this study was to implement a project of linked pharmacist-provider new patient visits and evaluate its impact on the productivity of the medical providers. By creating a linked meeting with a clinical pharmacist and a primary care provider rather than a provider alone, patients new to the FQHC were managed in 2 shorter, sequential appointments rather than 1 longer medical appointment. This study also aimed to describe new infrastructure, meaning roles of interdisciplinary healthcare workers, in managing patients in an FQHC. HJAHC was the primary site of institutional review board approval; this study was also approved by the Rutgers University Institutional Review Board.

Project Overview

This research project took place at 2 of the 4 HJAHC primary care sites, described herein as sites A and B. A new medical provider began working at site A in November 2016. The intervention of a pharmacist seeing new adult patients in a linked pharmacist-provider visit began on March 28, 2017. This project occurred on 1 day of the week when the provider and pharmacist were

TAKEAWAY POINTS

Primary care providers may require longer appointments to meet with new patients because of the burden of work required to collect medical and behavioral history from these patients. Scheduling linked visits for new patients to meet with a clinical pharmacist and a provider allows for shorter appointments, which buffers the impact of cancellations and increases provider productivity.

- ▶ Linking new patient appointments with the pharmacist and the provider led to increased provider productivity at 1 site of a federally qualified health center.
- ▶ This article adds to the breadth of published literature that describes clinical roles and benefits of integrating clinical pharmacists into interdisciplinary settings.

on-site at the site A location simultaneously. This project was later expanded so that the pharmacist worked with an additional medical provider at site B on Mondays, Wednesdays, and Fridays. Both providers included in this study were nurse practitioners. The nurse practitioner at the site A location practiced family medicine, and the nurse practitioner at the site B location practiced adult internal medicine. The pharmacist was a faculty member of the Ernest Mario School of Pharmacy at Rutgers, the State University of New Jersey. The pharmacist's responsibilities, commitment of time, and salary were divided equally between HJAHC and the School of Pharmacy. The clinical workflow proceeded as follows: The patient was checked in for an appointment by the registration staff, the medical assistant began the clinical encounter by recording vital signs and documenting screening questionnaires, and the clinical pharmacist then conducted a 15-minute appointment. The pharmacist collected information such as the history of present illness, medical history, and psychiatric history and also completed medication reconciliation. Brief communication occurred between pharmacist and provider via face-to-face communication or documentation in the electronic health record (EHR), which allowed the pharmacist to convey an assessment and recommended plan to the provider. The provider then conducted an examination with a 15-minute appointment, and the visit was concluded by a nurse who provided discharge paperwork and instructions. A summary of the workflow is provided in [eAppendix A](#) (eAppendices available at [ajmc.com](#)).

Data Collection

Scheduling data were collected from reports created in the EHR (athenahealth) and were then downloaded to a Microsoft Excel file by an HJAHC quality improvement associate. The primary outcomes used to study provider productivity were changes in mean number of checked-in appointments per day for new patient appointments, nonproject (established patient and new pediatric patient) appointments, and overall appointments regardless of whether the appointment was for a new or established patient. The changes in mean number of cancellations for new patient appointments, nonproject appointments, and overall appointments were used as secondary outcomes to study missed opportunities for provider productivity. Provider data were collected from November 2016

TRENDS FROM THE FIELD

TABLE 1. Provider Appointments at Site A

Appointment Type	Number of Workdays, Preproject	Daily Mean (SD), Preproject	Number of Workdays, Post Project	Daily Mean (SD), Post Project	Δ	P ^a
New patient, checked in	12	1.42 (0.67)	21	4.10 (1.41)	2.68	<.01
New patient, canceled	12	0.33 (0.49)	21	3.57 (2.25)	3.24	<.01
Nonproject patient, checked in	20	11.05 (3.25)	21	11.57 (3.36)	0.52	.62
Nonproject patient, canceled	20	4.80 (2.88)	21	6.14 (2.80)	1.34	.14
All visit types, checked in	20	11.90 (3.60)	21	15.67 (4.05)	3.77	<.01
All visit types, canceled	20	5.00 (2.87)	21	9.71 (2.92)	4.71	<.01

^aTwo-sample, 2-tailed *t* tests.

TABLE 2. Provider Appointments at Site B

Appointment Type	Number of Workdays, Preproject	Daily Mean (SD), Preproject	Number of Workdays, Post Project	Daily Mean (SD), Post Project	Δ	P ^a
New patient, checked in	46	2.89 (1.84)	54	1.83 (1.16)	-1.06	<.01
New patient, canceled	46	2.61 (2.43)	54	1.37 (1.12)	-1.24	<.01
Nonproject patient, checked in	46	11.15 (3.33)	54	12.11 (3.20)	-0.96	.15
Nonproject patient, canceled	46	7.83 (3.73)	54	7.96 (3.04)	-0.13	.84
All visit types, checked in	46	14.02 (2.98)	54	13.83 (3.28)	-0.19	.76
All visit types, canceled	46	10.43 (4.20)	54	9.43 (3.22)	-1.00	.19

^aTwo-sample, 2-tailed *t* tests.

through June 2018. Pharmacist data were collected from January through June 2018.

Data Analysis

A retrospective analysis was conducted on data pre- and post project initiation. Two-sample 2-tailed *t* tests assuming unequal variances were used in Microsoft Excel to analyze the changes in mean number of patients checked in and canceled before and after the implementation of the linked pharmacist-provider visits. Descriptive statistics were calculated using Microsoft Excel to analyze the scheduling of clinical pharmacist visits after the implementation of the linked pharmacist-provider appointments.

RESULTS

The mean number of new patients who checked in for appointments at site A increased from 1.42 to 4.10 per day ($P < .01$), and the mean

number of new patients whose appointments were canceled increased from 0.33 to 3.57 per day ($P < .01$) (Table 1). Statistically significant increases were observed in the mean number of check-ins for all visit types, with a change in the daily average from 11.90 to 15.67 per day ($P < .01$), and the mean number of cancellations for all visit types increased from 5.00 to 9.71 per day ($P < .01$) at site A (Table 1).

Statistically significant decreases were observed in the mean number of new patient appointments checked in and canceled at site B, with changes from 2.89 to 1.83 per day ($P < .01$) and 2.61 to 1.37 per day ($P < .01$), respectively (Table 2). All other check-ins and cancellations remained relatively stagnant after the implementation of the new patient project, and no other changes were statistically significant.

Throughout the course of the project, mean daily check-ins and cancellations for pharmacist appointments were greater in each category at site A compared with site B. An average of 2.38 new patients checked in each day for appointments with the pharmacist at site A, which made up 39.34% of the total checked-in visits (eAppendix B). An average of 1.42 new patients checked in each day for appointments with the pharmacist at site B, which made up 40.11% of the total checked-in visits (eAppendix B).

DISCUSSION

This project allowed for more availability on the provider's schedule, which resulted in increased mean daily check-ins for new

patient appointments and all visit type appointments at site A. It is noteworthy that increases in mean daily cancellations of new patient appointments and all visit type appointments were observed at site A, but they were offset by the benefit of increased check-ins for appointments of all visit types.

A notable limitation of this project was improper scheduling, as there were frequent instances of new patients being scheduled for the provider and the patient being omitted from the pharmacist's schedule, which is why the pharmacist was reported to have new patient visits on 31 days of a possible 54 days (eAppendix B). Scheduling problems may have resulted from the use of a third-party scheduling tool that may not have been working properly, from a lack of training for those employees who schedule appointments, or from staff intentionally overriding scheduling prompts. Site B served a transient population of patients from the Rescue Mission of Trenton, a local homeless shelter and substance use treatment facility, and their care was coordinated by an on-site nurse. Site B's

connection to the Rescue Mission might have led to reductions in mean daily check-ins and cancellations for new patient visits and relatively stagnant changes in mean daily check-ins and cancellations for all visit types. This limited project rollout, which consisted of 1 pharmacist splitting time between 2 sites of an FQHC that serve distinct populations, may contribute to a lack of generalizability when considering replication of a similar project.

Although provider satisfaction was not the focus of this project, providers did express appreciation and positive feedback for the project. Many patients new to HJAHC presented with the goal of establishing care, and this project placed the pharmacist in a position to assist providers with medication management for these new patients. Additionally, many new patients establishing care had recently arrived in New Jersey from another state or country or were establishing care after changing their former primary care provider. Frequently, these patients were prescribed complex and unclear medication regimens or faced problems related to medication formulary changes. The pharmacist was able to create assessments and plans for these patients and communicate this information to the provider, and then the pharmacist could begin medication management of chronic conditions.

CONCLUSIONS

FQHCs manage underserved patients with complex medical and behavioral conditions. To do so, providers are expected to maintain certain productivity levels, thus generating necessary revenue for the continued operation of FQHCs. Providers require a team of clinicians to meet the needs of patients served in FQHCs and to maintain productivity. Clinical pharmacists have an emerging yet undefined role for patient management in this ambulatory care setting, and the results of this project highlight the success of a program for linking the scheduling of new patients with both the pharmacist and the provider. Results from the site A location show that shortening the 30-minute appointment duration to two 15-minute pharmacist-provider linked visits allowed for increased provider productivity. ■

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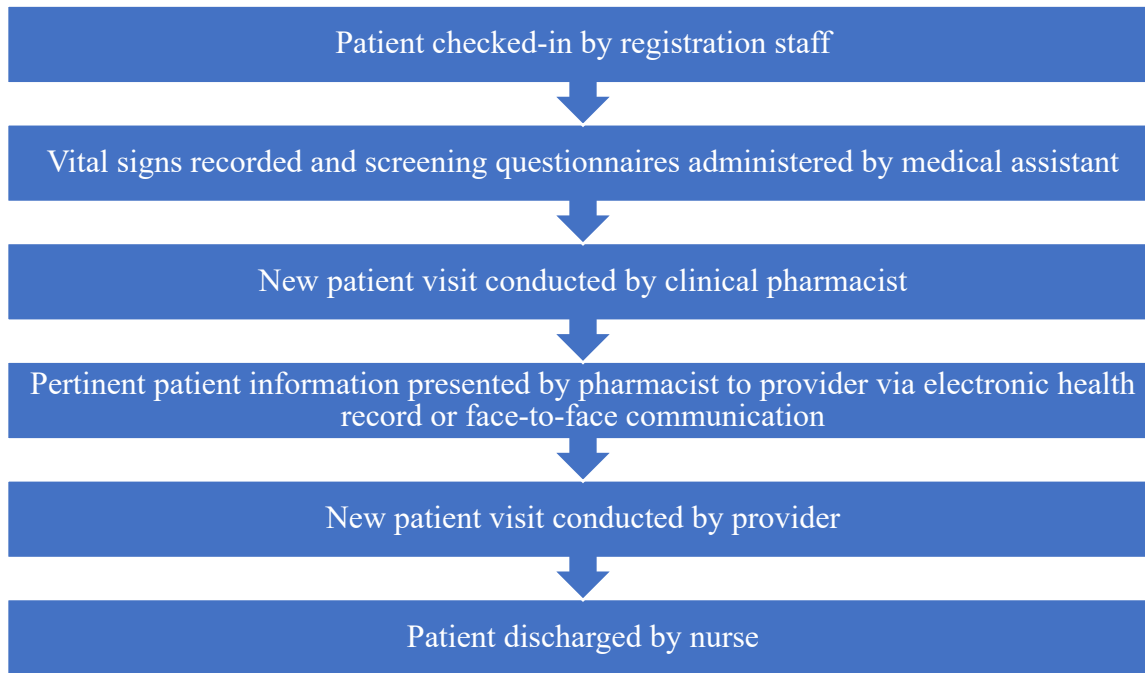
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REFERENCES

1. What is a health center? Health Resources & Services Administration website. bphc.hrsa.gov/about/what-is-a-health-center/index.html. Published November 2018. Accessed March 23, 2019.
2. Kheirkhah P, Feng Q, Travis LM, Tavakoli-Tabasi S, Sharafkhaneh A. Prevalence, predictors and economic consequences of no-shows. *BMC Health Serv Res*. 2016;16:13. doi: 10.1186/s12913-015-1243-z.
3. Moore CG, Wilson-Witherspoon P, Probst JC. Time and money: effects of no-shows at a family practice residency clinic. *Fam Med*. 2001;33(7):522-527.
4. Rosenbaum JI, Miłoszyk RJ, Hall CS, Hippe DS, Gunn ML, Bhargava P. Understanding why patients no-show: observations of 2.9 million outpatient imaging visits over 16 years. *J Am Coll Radiol*. 2018;15(7):944-950. doi: 10.1016/j.jacr.2018.03.053.
5. Mehra A, Hoogendoorn CJ, Haggerty G, et al. Reducing patient no-shows: an initiative at an integrated care teaching health center. *J Am Osteopath Assoc*. 2018;118(2):77-84. doi: 10.7556/jaoa.2018.022.
6. Mikhaeil JS, Celso E, Shanahan J, Harvey B, Sipsos B, Law MP. Attend: a two-pronged trial to eliminate no shows in diagnostic imaging at a community-based hospital. *J Med Imaging Radiat Sci*. 2019;50(1):36-42. doi: 10.1016/j.jmir.2018.10.012.
7. Mohammadi I, Wu H, Turkan A, Toscos T, Doebbeling BN. Data analytics and modeling for appointment no-show in community health centers [published online November 17, 2018]. *J Prim Care Community Health*. doi: 10.1177/2150132718811692.
8. Patel MS, Arron MJ, Sinsky TA, et al. Estimating the staffing infrastructure for a patient-centered medical home. *Am J Manag Care*. 2013;19(6):509-516.
9. American Academy of Family Physicians; American Academy of Pediatrics; American College of Physicians; American Osteopathic Association. Joint principles of the patient-centered medical home. American College of Physicians website. acponline.org/acp_policy/policies/joint_principles_pcmh_2007.pdf. Published March 2007. Accessed March 24, 2019.
10. Fields D, Leshen E, Patel K. Driving quality gains and cost savings through adoption of medical homes. *Health Aff (Millwood)*. 2010;29(5):819-826. doi: 10.1377/hlthaff.2010.0009.
11. Murray M, Davies M, Boushon B. Panel size: how many patients can one doctor manage? *Fam Pract Manag*. 2007;14(4):44-51.
12. Mehrotra A, Keehl-Markowitz L, Ayanian JZ. Implementing open-access scheduling of visits in primary care practices: a cautionary tale. *Ann Intern Med*. 2008;148(12):915-922. doi: 10.7326/0003-4819-148-12-200806170-00004.
13. Hwang AY, Gums TH, Gums JG. The benefits of physician-pharmacist collaboration. *J Fam Pract*. 2017;66(12):E1-E8.
14. Moczygemba LR, Goode JV, Gatewood SBS, et al. Integration of collaborative medication therapy management in a safety net patient-centered medical home. *J Am Pharm Assoc (2003)*. 2011;51(2):167-172. doi: 10.1331/JAPhA.2011.10191.
15. Patient-Aligned Care Teams (PACT). US Department of Veterans Affairs website. www.hsrd.research.va.gov/research_topics/pact.cfm. Accessed July 12, 2019.
16. Patient Aligned Care Team (PACT) Handbook. US Department of Veterans Affairs website. va.gov/VHAPUBLICATIONS/ViewPublication.asp?pub_ID=2977. Updated May 26, 2017. Accessed April 15, 2019.
17. Audit of management of primary care panels. US Department of Veterans Affairs website. va.gov/oig/pubs/VAOIG-15-03364-380.pdf. Published December 6, 2017. Accessed October 1, 2019.

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eAppendix A. Clinical Workflow



eAppendix B. Pharmacist Appointments

Appointment Type	Site A		Site B	
	Work Days (n)	Daily Average (n Appointments/Day)	Work Days (n)	Daily Average (n Appointments/Day)
New Patient, Checked-in	21	2.38	31	1.42
New Patient, Cancelled	21	2.48	31	0.26
Non-Project Patient, Checked-in	21	3.67	54	2.72
Non-Project Patient, Cancelled	21	2.33	54	0.61
All Visit Types, Checked-in	21	6.05	54	3.54
All Visit Types, Cancelled	21	4.67	54	0.76