Primary Care Diabetes Program Incorporates Community Pharmacists To Improve Patient Outcomes

Drew San Juan, PharmD; Rachel Stafford, PharmD; Kaitlin Bates, PharmD; Brooke Kordsmeier, PharmD; Tiffany Diemer, PharmD

Abstract

Objectives: To develop and utilize a referral program to determine the impact of community pharmacy-based interventions using a primary care referral-based program on hemoglobin A1c.

Setting: Pharmacies of a national supermarket chain and a primary care clinic of a regional health system.

Practice description: The national supermarket chain has 27 pharmacies in Arkansas. The regional health system is comprised of primary care, specialty clinics, urgent care, hospitals, home health, rehabilitation and surgery centers. This study took place at a primary care clinic and designated pharmacies within 50 miles of the clinic.

Practice innovation: This study demonstrates a collaboration between a clinic and a community pharmacy chain. Through a referral program, a clinic-based pharmacist conducted comprehensive diabetes assessments and sent them to respective pharmacies. The community-based pharmacists utilized these assessments to follow up and assess their patient's progress and address any barriers to HbA1c control.

Evaluation: Intervention impact was measured by performing clinic chart reviews prior to intervention and 3 months after intervention to compare HbA1c of 1) patients participating in the community-based intervention program and 2) patients not participating in the community-based intervention program. Both groups were still receiving pharmacy service in the clinic. Descriptive statistics and a two-sample t-test were used for primary analysis.

Results: In the beginning, 41 mutual, uncontrolled patients were identified. Of those, 20 patients were enrolled and 11 of them received the intervention. Only 8 underwent pre-post HbA1c analysis at the end of the study. Both comparison groups had an average decrease in HbA1c with the intervention group showing a trend for greater reduction.

Conclusion: Intervention benefit is apparent in this novel approach to managing diabetes. Future studies may find success in simplifying the intervention. Once improved communication is in place between pharmacies and clinics, this process can be sustainable and scalable.

Final Report

Background

With the implementation of the Quality Payment Program (QPP) created through the Medicare Access and CHIP Reauthorization Act of 2015 (MACRA), the health care landscape is transitioning to a value-based payment model. The Centers for Medicare & Medicaid (CMS) Innovation Center is leveraging several payment models such as capitated payments and shared savings to promote the QPP implementation to incentivize providers to participate in Advanced Alternative Payment Models.[1] Several innovation models center around practice transformation and promote population health approaches, the use of risk stratification, team-based services, and other care delivery requirements. The shift to value-based payment models has created a unique opportunity for pharmacists to improve the value and quality of primary care provided.

A national supermarket chain has an established relationship with a large health system. The relationship between the chain and health system developed in 2016 after a prior resident's research project identified clinic staff's perception of community pharmacist integration in the clinic.[2] Resulting from this research, a community pharmacist has been integrated into the primary care clinic to work with physicians and help manage patients' uncontrolled diabetes to improve quality measures surrounding diabetes.[3] This clinic-based pharmacist conducts interviews with patients during their routine clinic visits to assess disease control, provides disease state and medication education, and makes drug therapy recommendations to the primary care physicians. The clinic-based pharmacist also conducts follow-up phone calls between clinic routine visits to further assess progress towards goal. Although progress has been seen in most patients, some patients are still not at goal and remain uncontrolled. Many times, this is a result of the difficulty in contacting some patients via phone in between routine visits.

History of this Project

Community pharmacists are more accessible compared to healthcare professionals in the primary care setting. One pilot study showed that high-risk patients visit their community pharmacy 35 times per year compared to visiting their primary care office an average of 4 times per year.[4] Our hypothesis is that a collaboration with community-based pharmacists and the clinic-based pharmacist may have a further positive impact on patient clinical outcomes, thereby improving quality metrics for which the clinic is held accountable.

A previous study, conducted at both sites, determined the feasibility of such a collaboration. This study determined the type of clinical services that community-based pharmacists could provide; tools to provide these services; and potential barriers.[5] These barriers included time constraints, improper intervention alerts, and patient disinterest. Based on the learnings from this feasibility study, the research team planned to develop a referral program to allow for streamlined processes, standardized documentation, and patient self-enrollment.

Community pharmacists have already been integrated into primary care clinics, but this study attempts to expand the patient's care team through a collaboration between a clinic and a community pharmacy chain. However, due to a lack of research and experience in this area, little is known about how to procedurally incorporate community-based pharmacists, or the impact it

has on enhancing the quality of patient care. One study showed that using community pharmacists to complete disease management and comprehensive medication reviews of a nearby patient-centered medical home improved disease control.[6] In another study, a community pharmacy served as site for hypertension follow up appointments and was shown to improve blood pressure control at 3 months.[7] Despite their positive outcomes, neither study incorporates these interventions into the daily workflow of the community-based pharmacist.

To address this gap in the literature, further research is needed to determine the effectiveness of community-based pharmacist interventions on clinical outcomes. The relationship between a national supermarket chain and regional health system, the impact of the clinic-based pharmacist, and the feasibility of a community-based intervention have already been established. This study further extends the continuity of care by designing and testing a new collaboration between community pharmacies and primary care clinics.

Objectives

The primary objective of this project was to develop and utilize a referral program to determine the impact of community pharmacy-based interventions using a primary care referral-based program on hemoglobin A1c.

Practice description

The national supermarket chain has over 2300 pharmacies nationwide, with 27 located in Arkansas. These pharmacies offer a wide variety of health and wellness services such as medication therapy management, immunizations, point of care and biometric health screenings, travel consults, and chronic disease state management including diabetes coaching programs and self-management education. The regional health system started in Arkansas and is comprised of primary care, specialty clinics, urgent care, hospitals, home health, rehabilitation and surgery centers. This study took place at a primary care clinic and designated pharmacies within a 50 mile radius of the clinic. Both organizations are fully committed to promoting healthier communities. As a part of a value-based care program, the clinic is eligible for increased reimbursement if specific measures are met.

Practice innovation

Intervention Tools
An enrollment guide (Appendix 1) was created for the clinic-based pharmacist. This tool provided assistance in obtaining pertinent information from the patient upon enrollment and a template for creating the care plan. A process guide was created for the community-based pharmacist. This included a stepwise method to conducting the intervention and documenting the interaction. An informational statement on the program and a glucose log were also created for patients upon request.

Training
All involved personnel at designated sites received on-site training. 22 community-based pharmacists received approximately 15 minutes of one-on-one training; which included

identifying enrolled patients from the prescription software, conducting the interventions, and properly documenting the interactions. Pharmacy technicians were also trained on how to identify enrolled patients at checkout and how to transition the interaction to the pharmacists. Pharmacists were provided with a process guide and an example of a quality intervention with documentation for reference. Participating stores also received feedback and additional coaching throughout the study.

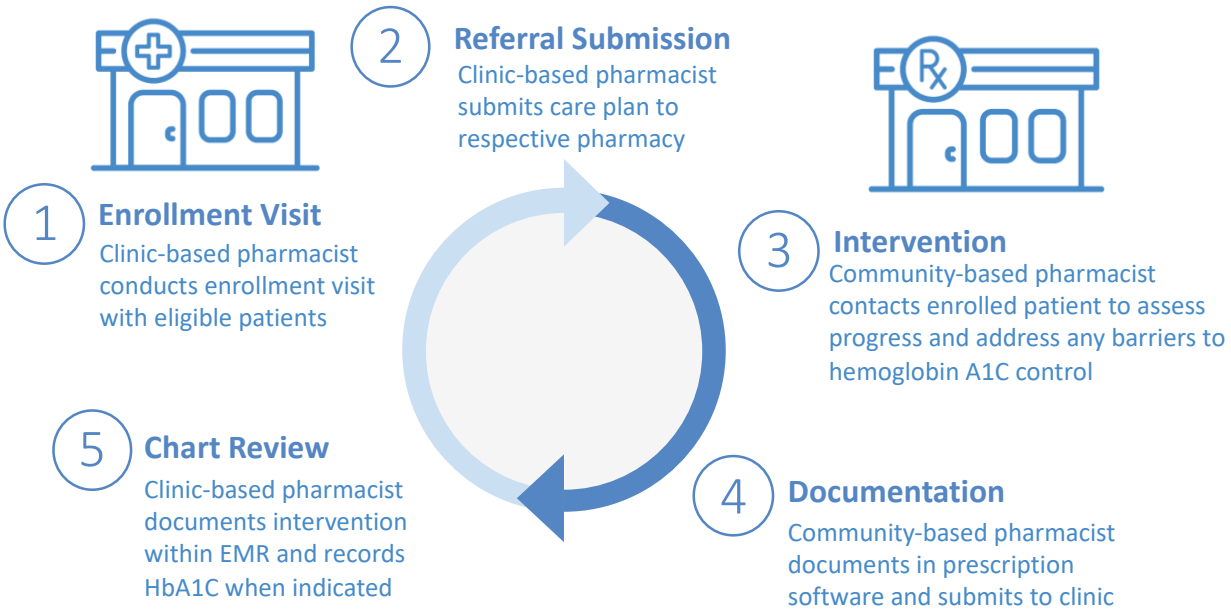
Enrollment

The clinic-based pharmacist conducts routine follow up visits with patients to manage their diabetes control. On average, these usually occur on a monthly basis entailing a comprehensive assessment of the patient's adherence, glucose monitoring, and diet/exercise. The pharmacist would explain the program during an eligible patient's routine follow up visit. Patients who did not have a routine visit scheduled were contacted for an appointment or enrolled over the phone. The purpose of the visit was to establish a current assessment of the patient's diabetes management, create a care plan for the community-based pharmacist to utilize, and ensure the patient is receptive to the follow up program. The pharmacist then submitted the patient's care plan, appropriate demographics, and lab values to the respective pharmacies via a secured spreadsheet.

Intervention

These pharmacies use a prescription software that prompts pharmacists to address various types of clinical interventions. This software was populated with the care plans of pertinent information obtained from the patient's initial enrollment visit at the clinic and it served as an indication to the pharmacy that the patient was enrolled into the follow-up program. After receiving this referral from the clinic, the community-based pharmacists contacted the enrolled patients on a monthly basis. The intervention was a 5 to 10 minute conversation either by phone or face-to-face when the patient came by the pharmacy. The pharmacist would utilize the prepopulated care plan to follow up on progress, address barriers, and make recommendations as needed. Immediate action or follow up appointments with the clinic could be made at the discretion of the pharmacist. Upon completion, the community-based pharmacists created a follow up for the next intervention and documented their findings into the prescription software where it was sent back to the clinic via a secured spreadsheet. The standardized documentation was uploaded onto the patient's chart and substituted a routine follow up visit. An overview of the intervention process can be seen in Figure 1.

Figure 1. Intervention Process



Evaluation

Patient Identification
Eligible study participants were determined by performing chart reviews on a running list of uncontrolled patients who receive pharmacist care in the clinic. This process identified mutual, uncontrolled diabetic patients who have an HbA1c greater than 8% and who also fill their prescriptions with the pharmacy chain. Patients were excluded if they fill at a pharmacy outside of the 50 mile radius.

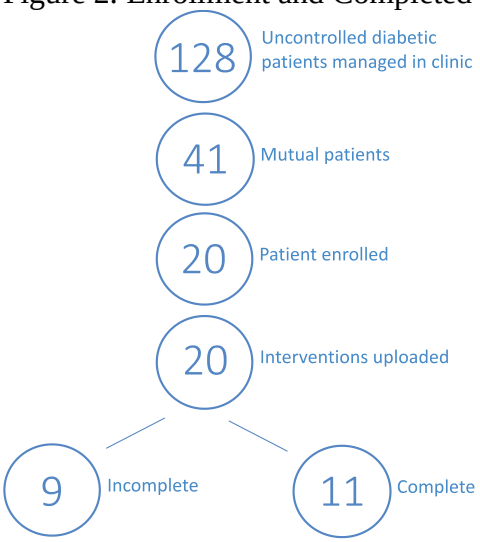
Comparison Groups
The intervention group included patients participating in the program with an HbA1c value recorded after the intervention. A matched cohort control group of non-mutual patients were selected on a 3:1 ratio by creating a propensity score based on age, race, and gender. Both groups were still receiving regular pharmacy care at the clinic.

Measurement
Results were measured through chart reviews prior to the intervention as well as 3 months after the intervention to compare HbA1c of the two comparison groups. Because the matched cohort did not have an intervention, HbA1c values within the study timeframe were used. The two cohorts were compared using descriptive statistics and a two-sample t-test. An alpha of 0.05 or lower was deemed significant for all statistical analyses.

Results

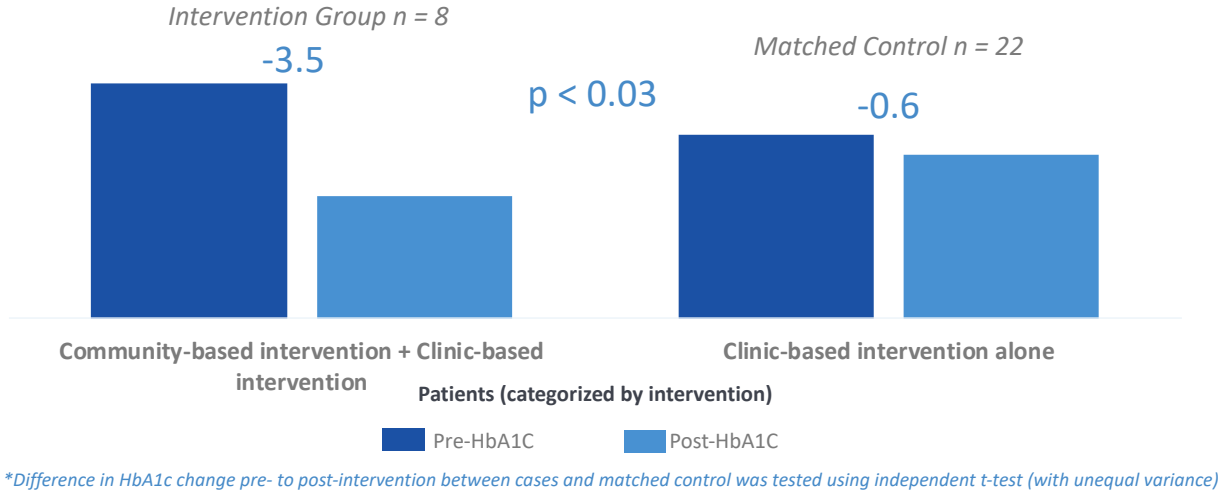
At the beginning of the study, 128 patients at the clinic were identified to be under pharmacist care for their uncontrolled diabetes (Figure 2).

Figure 2. Enrollment and Completed Interventions



Of those patients, 41 were identified as mutual patients with the pharmacy chain. 20 mutual patients were enrolled into the follow up program and 11 received the intervention from a community-based pharmacist. Only 8 patients had a post-intervention HbA1c value recorded at the end of the study. 22 non-mutual patients were identified for the matched cohort based on their propensity score. The intervention group showed a greater average decrease in HbA1c compared to the matched cohort (3.5% vs 0.6%, $P < 0.03$, Figure 3).

Figure 3. Patient's Average Change in HbA1c%



Difference in HbA1c change pre- to post-intervention between cases and matched control was tested using independent t-test (with unequal variance)

Practice Implications

Although challenges to the intervention process were present in both settings, it was expected because this is a novel approach to managing diabetes. A direct link to patients in the clinic was already established through the incorporation of a community pharmacist. This study has extended that link through the collaboration between a clinic-based pharmacist and community-

based pharmacists. The community pharmacists added another level of accountability and were more accessible.

The most apparent limitation of this study was the small sample size. This was due to the limited patient population of a single clinic and pharmacy chain; however, the project timeframe was arguably the most attributing factor. At the beginning of the study, the majority of time was spent developing the program and determining logistics. Additionally, Covid-19 created barriers in both settings that also hindered patient enrollment and data collection. Given the small sample size, it is difficult to determine a statistically significant difference between the matched pairs.

The clinic-based pharmacist attempted to contact all eligible patients at least twice for enrollment. Approximately half of the eligible patients were successfully contacted, and the other half were unable to be reached or missed at their routine appointment due to pharmacist scheduling. Of the 20 uploaded interventions, 9 remained incomplete due to various barriers such as a limited number of trained pharmacists, low priority status on the interventions, or the patient was unable to be reached. 3 patients who had received an intervention were still pending a follow up appointment for their post-intervention HbA1c at the end of data collection.

Despite the limitations, there was improvement in both populations with the intervention group showing a trend for greater reduction. Community pharmacists noted that most enrolled patients were expecting this intervention when they came by the pharmacy. While it is apparent that this intervention is beneficial to the patient, it is difficult to assess the return on investment. The communication process in place between the clinic and pharmacies is meticulous and time consuming. This project may not be sustainable outside of a residency project until more efficient communication technology is in place. Although interventions were only 5-10 minutes, it takes additional time for documentation and it is difficult to allot that much time in today's current state of workflow.

Future studies may benefit from determining the minimum amount of information needed for a quality intervention. Simply an HbA1c can be utilized to address clinical interventions that are already in place including, but not limited to: adherence check-ins, converting to 90 day supply, refill synchronization, or auto-refill. Once the technology or improved communication is in place, this blueprint can be sustainable and scalable. This process could potentially be expanded to other clinics or disease states. With the process already developed, future evaluations should incorporate a third arm measuring no clinic-based pharmacist intervention to strengthen the study.

Conclusion

Ultimately, this is a novel approach to managing diabetes and the intervention benefit is apparent. Future studies may find success in simplifying the intervention to only providing HbA1c and addressing interventions that are already in place. With improved communication in place, learnings from this study can facilitate development of other innovative strategies that foster collaboration between community pharmacy and primary care.

References

1. Centers for Medicare & Medicaid Services. Innovation models. https://innovation.cms.gov/initiatives/index.html-views=models.
2. Bates KA, Stafford RA, Teeter BS, Diemer T, Thomas JL, Curran GM. Pharmacist- provided services and community pharmacist integration into a patient-centered medical home: A qualitative study of primary care clinic staff perceptions. J Am Pharm Assoc (2003). 2019;59(4S):S6-S11 e11.
3. Condron L, Stafford RA, Smith MG. Effectiveness of Community Pharmacist Integration into a Patient-Centered Medical Home on CMS Clinical Quality Measure: Hemoglobin A1C. Poster presented at: American Pharmacists Association Annual Meeting & Exposition2018; Nashville, TN.
4. Moose J, Branham A. Pharmacists as influencers of patient adherence. Pharmacy Times http://www.pharmacytimes.com/publications/directions-in-pharmacy/2014/august2014/pharmacists-as-influencers-of-patient-adherence-
5. Arziari S, Stafford RA. Defining the Role of Community Pharmacists in a Value-Based Health Care System. Poster presented at: American Pharmacists Association Annual Meeting & Exposition 2019; Seattle, WA.
6. Farris KB, Mitrzyk BM, Batra P, Peters J, Diez HL, Yoo A, McKay K, Friend K, Danko L, Waber R, Marshall VD, Choe HM. Linking the patient-centered medical home to community pharmacy viaan innovative pharmacist care model.J Am Pharm Assoc (2003).2019 Jan - Feb;59(1):70-78.e3. doi: 10.1016/j.japh.2018.09.009. Epub 2018 Nov 8.
7. Vordenberg, S. E., Lindell, V. , Sheerer, K. , Settles, A. , Fan, A. L., Serlin, D. C., Parker-Featherstone, E. , Bernstein, S. J. and Choe, H. M. (2019), Improving Hypertension Control through a Collaboration between an Academic Medical Center and a Chain Community Pharmacy. J Am Coll Clin Pharm. Accepted Author Manuscript. doi:10.1002/jac5.1158

Appendix 1

Enrollment Guide

Introduction

Clinic and pharmacy partnership
Adding another member to care team
Pharmacists will check in either by phone or in person
Any problems can be relayed to make adjustments

Verify Information

First & Last name:
DOB:
Address:
Phone:

Assessment & Goals

1. Med adherence
    - What medications are you taking for DM?
    - How are you taking drug X?
    - How often do you miss a dose/week?
    - What issues are you having with drug X?
2. Blood glucose monitoring
    - How often are you checking?
    - What are your most recent high and lows?
    - Have you had any hypo/hyperglycemic events?
3. Diet/exercise
    - What does your diet consist of?
    - How much exercise do you get on average each week?
4. Vaccinations
    - Assess vaccine history and recommend as needed

Handouts

Blood Sugar Log
Informational Statement