Journal of the American Pharmacists Association 57 (2017) 630–634

Contents lists available at ScienceDirect

Journal of the American Pharmacists Association

journal homepage: www.japha.org

ADVANCES IN PHARMACY PRACTICE

A technology-supported collaboration between a health plan and a community pharmacy to improve blood pressure control

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ARTICLE INFO

Article history:
Received 12 December 2016
Accepted 30 May 2017

ABSTRACT

Objectives: To assess the impact of a health plan and community pharmacy partnership to improve blood pressure control.
Setting: A midwestern health plan and a regional community pharmacy chain.
Practice innovation: Health plan members with a hypertension diagnosis and attributed to the pharmacy chain based on prescription claims were invited to participate. Interested patients enrolled in the program at their pharmacies and were assigned a "smart card" for use with a blood pressure kiosk in the pharmacy. When the card was used at the kiosk, individual patient readings were linked directly to their electronic pharmacy record and an online patient portal. Pharmacists intervened with patients and prescribers as necessary to address adherence issues and adjust therapy as needed.
Evaluation: Before and after blood pressure readings were assessed to determine the impact of patient self-monitoring and pharmacist intervention for patients with 1) uncontrolled blood pressure at first reading and 2) multiple readings throughout the pilot period.
Results: Fifty-six of 276 eligible patients (20%) were enrolled in the program. Fourteen patients qualified for before and after assessments, having uncontrolled blood pressure on initial reading and multiple readings throughout the pilot. These patients demonstrated a mean reduction in systolic blood pressure of 12 mm Hg and diastolic blood pressure of 8 mm Hg. Nine of 16 eligible pharmacy locations enrolled patients at their sites. Challenges faced in the initiative included gaining adequate pharmacist and patient engagement.
Conclusion: The pilot demonstrated promising early results in a model that has potential to improve blood pressure monitoring and management in a community pharmacy setting.

Hypertension has been recognized as a critical public health concern; approximately 30% of the population has been diagnosed with hypertension and only one-half of those patients have met clinical goals.[1] Community pharmacists, because of their clinical expertise and accessibility, have been recommended as one resource to address this concern.[2] Recent meta-analyses have demonstrated success in pharmacists affecting blood pressure control,[3] particularly community pharmacists.[4] The evidence is so significant that there has been a call to shift our focus and resources from research to implementation.[2]

Despite positive results in controlled research studies, community pharmacists do not typically have access to key data required to effectively and efficiently identify and intervene with patients not achieving their clinical goals. Asking individuals to self-report clinical data, or requesting readings from health systems or prescriber offices is cumbersome and impractical for most community pharmacists working in high-volume settings. Access to clinical data has been cited as a means to improve clinical decision making in community

Disclosure: Josh Sarkis is General Manager and Senior Vice President, Pharmasmart International; Laura Topor is Director of Payer Relations, Pharmasmart International.
Funding: Healthpartners, Astrup Drug, and Pharmasmart contributed in-kind resources to this pilot.
Previous presentation: Poster at the 2016 American Pharmacists Association Annual Meeting, Baltimore, MD; and podium presentation at the 2016 Academy of Managed Care Pharmacists Nexus Conference, National Harbor, MD.
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http://dx.doi.org/10.1016/j.japh.2017.05.013
1544-3191/

Key Points

Background:

- Community pharmacists have demonstrated positive impact on hypertension management in previous studies and demonstration projects.
- Less is known about real world implementation strategies, such as partnerships with health plans and use of technology for data sharing.

Findings:

- This pilot suggests that there is potential to achieve blood pressure reductions through coordinated efforts of health plans and community pharmacists.
- Innovative self-monitoring technology and data integration can help to streamline and scale patient care processes.
- Experiences from this pilot can guide future partnerships between health plans and community pharmacy organizations aiming to achieve common goals in population health management.

pharmacy, and insufficient access is a perceived limitation of implementing services in community pharmacy practice.[5]

Use of blood pressure monitoring kiosks is common in community pharmacies in North America and is one way to collect clinical data in the community pharmacy setting. These devices have also been suggested as a means to expand awareness, screening, and monitoring related to blood pressure. There has been controversy about the validity of these devices,[6] but selected devices have demonstrated strong clinical validity.[7,8] Furthermore, some validated kiosk devices are supported by interoperable technology that can share patient-specific data in an online network that is accessible both to the patient (through an online portal) and to the pharmacist (through their pharmacy management system). This allows the pharmacy management system to flag patients for the pharmacist during prescription processing, alerting them in real time to the patient's level of control and of the need for additional review. Use of this device has been explored as an opportunity to expand medication therapy management (MTM) services for patients with hypertension.[9]

As roles for community pharmacists have expanded, there has been a recent call to action for increased partnership between the community pharmacy and managed care sectors.[10] This is driven by the increased focus on quality in health care and by the important role that pharmacists can play in improving Medicare Star Ratings. Furthermore, it is notable that the most commonly used community pharmacy–based quality measure is currently medication adherence. Although adherence is important, there is interest in moving beyond adherence to patient outcomes. In light of these trends and opportunities, a partnership was formed between a health plan, a regional community pharmacy chain, and a health care technology company to support mutual goals in improving population health through community pharmacy engagement.

Objective

The goal of this pilot was to assess the impact of a health plan and community pharmacy partnership to improve blood pressure control in a community pharmacy setting.

Setting

This pilot was conducted from March to September 2015 at 16 locations affiliated with a regional community pharmacy chain and in partnership with a midwestern health plan.

Practice description and innovation

Two hundred seventy-six members of the health plan were identified by the health plan's medical informatics team as attributed to the community pharmacy partner (defined as filling the majority of their total medication days supply at the pharmacy) from December 2013 to November 2014, receiving medication therapy for hypertension, and with a medical claim for hypertension.

Eligible patients received a letter of invitation to participate in the program cobranded with the health plan and pharmacy logos and information. The letter informed them that they could speak with their pharmacists about enrolling. Because of low early enrollment, the list of eligible patients was shared with pharmacists so that patients could be flagged and personally invited to enroll. Interested patients were provided a free “smart card” to track their blood pressure readings and were encouraged to check their blood pressure frequently at the pharmacy location by means of the kiosks that use the smart cards. The smart card has microchip technology that tracks the patient's blood pressure readings. Because this was pursued for care improvement and not research purposes, consent was not required.

The blood pressure kiosks used in this pilot have been validated through a series of clinical studies.[7,8] The kiosks are connected through secure technology to the pharmacy management system, and the pharmacist can view the patients' most recent blood pressure readings on their screen during prescription processing. An indicator on the computer screen displays “stoplight” blood pressure levels represented by green, yellow, red, and flashing red. Pharmacist action is prompted when the average of up to the last 10 blood pressure readings is high or very high. Stoplights are based on Joint National Committee on the Prevention, Detection, Evaluation, and Treatment of High Blood Pressure 7 (JNC7)[11] guideline definitions:

- Green: normal; systolic blood pressure (SBP) 50-119 mm Hg *and* diastolic blood pressure (DBP) 30-79 mm Hg.
- Yellow: pre-hypertension; SBP 120-139 mm Hg or DBP 80-89 mm Hg.
- Red (high): stage 1 hypertension; SBP 140-159 mm Hg or DBP 90-99 mm Hg.
- Flashing red (very high)—stage 2 hypertension; SBP $\geq$160 mm Hg or DBP $\geq$100 mm Hg.

These ranges are based on JNC7 by the kiosk technology, but it is recognized that some patients warrant more aggressive or conservative control based on their clinical status and comorbidities.

In this pilot, the pharmacists intervened as appropriate based on their clinical judgment and were encouraged to reeducate patients on blood pressure control, medication use, and the importance of medication adherence. In addition, pharmacists were instructed to discuss nonpharmacologic intervention, such as restricting sodium, exercise, weight loss, restricting caffeine intake, etc. When necessary, the pharmacist would follow up with the prescriber if they thought that new or adjusted therapy was warranted. Pharmacists followed up with patients as needed and as they normally would to, for example, assess impact of changes to therapy and adherence. Patients were also encouraged to log in to the online portal to view their blood pressure readings and share readings with their provider team.

Pharmacists were already familiar with the technology as part of their normal practice but received brief refresher training on the purpose of the pilot, identifying and recruiting eligible patients, and documentation of interventions. The community pharmacists were encouraged to target plan members who were being treated for hypertension and whose blood pressure was not currently controlled (defined as SBP $\geq$140 mm Hg or DBP $\geq$90 mm Hg). The pharmacy received a fee-for-service payment for each member enrolled in the service. The health plan also covers MTM services as a benefit, and pharmacists were encouraged to use this opportunity to identify plan members in need of more comprehensive care and invite them to have an MTM appointment.

Evaluation

Enrollment, frequency of use of kiosks, and blood pressure readings were all tracked automatically by the technology vendor partner. A subset of participants were evaluated with the use of a before and after assessment because they had 1) uncontrolled blood pressure on initial reading and 2) multiple readings throughout the pilot. Pharmacists were asked to document their discussions and recommendations with patients to describe the content of these encounters. Because this project was pursued for care improvement; the Healthpartners Institutional Review Board did not require review of the evaluation and data analysis.

Results

Fifty-six of 276 eligible patients (20.7%) were enrolled in the program. Of these, 45 (80.3%) monitored their blood pressure multiple times throughout the pilot. Fourteen of these patients had uncontrolled blood pressure on the initial reading and multiple readings, qualifying them for the before and after assessment. This subset of patients demonstrated a mean reduction in systolic blood pressure of 12 mm Hg and diastolic blood pressure of 8 mm Hg (Table 1). A total of 214 blood pressure readings were collected throughout the course of the pilot, averaging 4.8 readings per patient. No participating patients were seen for comprehensive MTM services.

Nine of 16 eligible pharmacy locations enrolled patients at their sites. Participating pharmacy locations enrolled a median of 3 patients (range of 1 to 22). Pharmacists documented tasks completed during consultations, which included communicating with prescribers, educating on adherence, and adjusting therapy in partnership with prescribers. Pharmacists communicated with a prescriber whenever the issue could not be resolved with the patient.

Practice implications

Through the process of implementing this pilot, there were several lessons learned that may benefit others planning to implement a similar service or partnership. In this discussion, we explore perceived barriers and facilitators encountered for the benefit of those interested in exploring such a partnership on a larger scale.

Patient recruitment challenges

In evaluating the enrollment process and engagement levels, the stakeholders identified some challenges and areas for improvement. Pharmacists reported that patients were often rushed or uninterested in learning more about enrollment and program benefits. Of those who did enroll, some patients either never checked or did not repeatedly check their blood pressure. Some pharmacists also reported that the letter sent to patients was too vague and created confusion among patients. Face-to-face invitations and explanations were seen as more effective, but some barriers were identified that limited opportunities for engagement. Use of 90-day medication supplies among some eligible patients reduced opportunities for face-to-face interaction and explaining the goal of the program in more detail. The highest-volume participating pharmacy also had a drive-through window, which limited both the ease of having a face-to-face encounter and use of the blood pressure kiosk itself. Patients using the drive-through window were invited and encouraged to participate, but would need to physically enter the pharmacy; the majority of patients were not interested in doing this. Also, use of drive-through windows may limit the depth and length of patient encounters, making it more difficult to engage the patient. Similar challenges have been reported elsewhere in descriptions of community pharmacy services.[12]

Enrollment varied by pharmacy location, with 6 pharmacies enrolling more than 20% of their eligible patients and 2 enrolling more than 40%. Nine of the pharmacies had fewer than 10 eligible patients attributed to their pharmacy, and 1 location had only 2 patients attributed. Pharmacies with higher attribution rates and thus more opportunities were not necessarily those with more motivated and interested pharmacists and had structural barriers (drive-through windows), limiting opportunities for engagement.

Table 1
Before and after assessments of blood pressure control, mm Hg, mean ± SD (n = 14)

Blood pressure	Initial readings	Final readings	Mean change
Systolic	149 ± 23	137 ± 20	−12
Diastolic	90 ± 12	82 ± 11	−8

Some participating pharmacists shared that patients who declined to participate had concerns about data privacy. Some patients also reported they did not want their physicians to know what their blood pressure readings were. In addition, patients were not encouraged financially or otherwise to enroll, and entered the program only for the potential health benefit. Some patient incentive structures based on behavioral economics have shown promise in promoting patient engagement, and these may be considered in future initiatives.[13]

Finally, 1 unique challenge to this pilot was that for the purposes of maintaining a defined population, enrollment was limited to members with a hypertension diagnosis based on an earlier medical claim and attribution to the pharmacy chain based on prescription claims data from 2014. This created a usable cohort of eligible members based on past use of the pharmacy to simplify data sharing; however, pharmacists certainly missed opportunities to engage new patients or engage patients who were not captured with the use of this definition. In future programs, mechanisms to identify patients prospectively by pharmacy staff should be explored.

Pharmacist engagement challenges

Only 9 of 16 participating pharmacies enrolled at least 1 patient into the program. One potential limitation on pharmacist engagement may have been pharmacist training. Training occurred once, early in the pilot, for all pharmacists. Through the course of the pilot, however, there was staff turnover but no ongoing training. More training and program promotion among pharmacists would have increased pharmacist awareness and engagement to continue actively recruiting and engaging patients with the program. The importance of ongoing training has been highlighted as a key contributor to successful implementation of services in community pharmacy.[14]

As noted previously, the number of patients seen in the daily workflow who were eligible for the service represented a very small fraction of the total patients served. Program engagement may have been greater and more sustained if eligibility opportunities were broader and more frequent and could be more efficiently integrated into pharmacist workflow. In retrospect, the pilot may have benefited from identifying local pharmacist or staff champions at sites to encourage ongoing participation and work to adapt the intervention to the specific needs of the site based on characteristics described previously (e.g., workflow, drive-through window, prescription volume, prevalence of eligible patients, population served, etc.).

Finally, although the pharmacy organization received a fee-for-service payment for enrolling patients, the individual site pharmacists were not rewarded for participation. Careful consideration must be given to designing programs that engage and encourage front-line staff, whether incentives are financial or otherwise.

Discussion

The goal of this pilot was to assess the impact of a health plan and community pharmacy partnership on improving blood pressure control in a community pharmacy setting. Approximately one-half of the eligible pharmacy locations successfully engaged patients in the program. Although the number of patients participating (particularly the number eligible for a before and after analysis) was limited, the impact on blood pressure control appears to have been positive and consistent with larger-scale studies of pharmacist intervention in blood pressure management. An important limitation of the before and after assessment was that the patients with multiple readings may be more engaged in their own health care and therefore more likely to commit to and achieve health care goals. Therefore, there may be a selection bias in the results of this subset.

Several challenges were encountered with engaging pharmacists and patients that would need to be overcome to scale up a similar partnership as described. Patient engagement may improve with incentives, more proactive outreach, and education about data privacy issues. Ongoing pharmacist training and individualized incentives may be explored as means to increase pharmacist engagement.

Conclusion

The pilot demonstrated promising early results in a model that has potential to improve blood pressure monitoring and management in a community pharmacy setting through a partnership between a community pharmacy chain and a health plan. Opportunities to modify and expand on lessons learned from this community pharmacy–based program may be useful in future partnerships.

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