

Evaluation of an Initiative for Fostering Provider-Pharmacist Team Management of Hypertension in Communities

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Abstract

Objectives: 1) Conduct team building activities for provider-community pharmacist teams in small communities and 2) Determine the impact of the team approach on practitioner-reported consequences and 3) Identify obstacles to the team approach and ways to overcome them.

Methods: Eleven provider-pharmacist teams were recruited in rural/micropolitan communities in Iowa. The teams participated in team building sessions facilitated by the project leaders, to discuss the team approach. Decisions included patient identification, practitioner roles, and communications. Most pharmacists conducted blood pressure (BP) checks in the pharmacy and assessed the anti-hypertensive medications. If the BP was not at goal, the pharmacist worked with the patient and provider to make improvements. Teams followed their strategies for 3-5 months. Data were collected from pharmacy logs and on-line surveys of team members before and after the team period.

Results: Using a multi-case approach, 4 cases were classified as Worked-Well, 5 as Limited-Success, and 2 as No-Team-Care. The Worked-Well teams provided an average of 26.5 BP visits per team, while the Limited-Success teams averaged 6.8 BP visits. The Worked-Well teams established and used a system to support the team approach. The Limited-Success teams either didn't fully establish their team system, or used it sparingly. The No-Team-Care cases did not provide any team care.

Conclusions: Factors supporting success were: positive provider-pharmacist relations, established team system, commitment to team care, and patient willingness to participate. While this program had some success, potential improvements were identified: more follow-up after the team building session, additional patient materials, and guidance for practice changes.

Introduction

According to the Centers for Disease Control and Prevention, 1 in 3 Americans (67 million) have high BP. In 2009, hypertension was the main or underlying cause of 348,000 deaths and medical expenses totaling \$47.5 billion annually in the U.S. [1]. Controlling BP reduces the risk for myocardial infarction, heart failure, stroke, and other vascular health problems. In 2009-2010, 49.1% of whites while, only 31.6% of Hispanics and 43.0% of blacks with hypertension had their BP under control [2].

Previous studies show BP can be improved with physician-pharmacist collaboration [3-6]. In a review of 63 clinic studies,

the average systolic BP was reduced the most when pharmacist case management was used [7-8]. Most hypertension studies with team management have been done in clinics or hospitals. Many communities, including rural settings, lack resources for a team approach within a clinic. However, teams of practitioners from different organizations could be formed within communities. For example, a physician from a medical clinic and a community pharmacist could collaborate to manage BP [9-10]. As community pharmacists expand their roles managing chronic conditions, opportunities will arise to promote provider-community pharmacist collaboration to manage BP.

Description of the Program

The program to foster team-based management of blood pressure in the community was affiliated with the Iowa Department of Public Health's (IDPH) Heart Disease and Stroke Prevention Program. The purpose of the program was to foster provider-pharmacist teams in small communities to use a team approach to manage high blood pressure. The

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program was part of IDPH's activities for the Million Hearts initiative.

Objectives

- 1) Conduct team building activities for provider-community pharmacist teams in small communities.
- 2) Determine the impact of the team approach on practitioner-reported consequences.
- 3) Identify obstacles to the team approach and ways to overcome them.

Team Recruitment

The goal was to recruit twelve medical clinic-community pharmacy pairs. Potential practice pairs were linked at the community level. Letters were sent to pharmacies and physicians for team recruitment. The pharmacies were on a list of 72 practice sites that provide practice experiences to University of Iowa pharmacy students, and provide advanced levels of pharmacy services. The initial physicians contacted were 33 members in the Iowa Research Network (IRENE), a practice-based research network in Iowa, and were working in micropolitan or rural areas.

Practitioners who returned a fax were called to provide further information. Once a site stated its willingness to participate, it helped identify sites to form a provider-pharmacist team. These prospective sites were contacted about participating using mailings, faxes, and telephone, depending on their preference. After a provider/clinic and a pharmacist/pharmacy were recruited for a team, a team building session was scheduled.

Team Building

Each team held a face-to-face 60-minute team building session, during which the project leaders facilitated a discussion to clarify team member views of team management of hypertension, identify specific roles for team members, discuss how to target patients, and develop communication procedures to exchange information. The teams completed and shared a worksheet describing their decisions for these topics. Some of the team building sessions included one provider and one pharmacist, while other sessions included multiple providers and/or pharmacists.

A toolkit on team management of BP was used to support the provider-pharmacist teams. Both a printed version and an electronic version (e.g., PDF files) of the toolkit were given to the practitioners. Topics in the toolkit included: project leader contact information, description of the team model of BP management, evidence supporting the team approach, goals for the project, references to the current BP management guidelines (JNC7), detailed suggestions for management,

sample interventions to address uncontrolled BP, and instructions for proper measurement of BP. In addition, numerous one-page patient education materials (e.g., diet and home BP monitoring) were included.

Team Management

Each provider-pharmacist team tailored the team management of BP model to fit their practices. For example, one team had the pharmacist fax summaries of BP visits, while another had the pharmacist call on the telephone. This tailoring began at the team building session, and continued throughout the team management process. The model for team management of BP contained the following activities: patient identification/recruitment, BP visits, and team member communication.

Providers and pharmacists identified patients with newly diagnosed or uncontrolled hypertension. Some pharmacies ran a report, identifying patients with a BP medication prescribed by the participating provider(s), which was sent to the clinic to verify that provider(s) had seen them recently. Once confirmed, they had a registry of "shared BP patients," which helped focus of team management of BP activities. Other teams simply had the provider and pharmacist identify patients at clinic or pharmacy visits respectively.

Patients who participated in team management typically met with the pharmacist for a baseline assessment including BP measurement and discussion of anti-hypertensive medications. If the patient was not at goal, the pharmacist could ask about medication adherence and lifestyle issues. If it appeared the therapy was being taken as directed but not achieving the BP goal, the pharmacist would communicate with the provider or recommend the patient visit the provider. Some pharmacists recommended specific drug changes, while others relied solely on the provider to determine drug therapy adjustments.

Pharmacists scheduled follow-up visits with patients as needed. The practitioners determined the need for follow-up visits for each patient during the team management period. The pharmacists logged the BP visits to track the extent of team management of BP and for the program evaluation.

Purpose of Evaluation

The purpose of this evaluation was to evaluate a program fostering physician-pharmacist teams in small communities for managing BP and identify obstacles to the team approach and ways to overcome them. The approach was to translate a proven physician-pharmacist team management within-clinic model to the community with team members working from different organizations. The program was conducted in both

rural towns and micropolitan areas in Iowa with several types of providers.

Methods

Given the time spent recruiting and conducting team building sessions, some teams had 5 months for the team management period, while others had 3 months. Providers and pharmacists were asked to complete two surveys about team management: one baseline and one follow-up. The surveys asked about team member relations, how the team BP management occurred, the presence of any obstacles, how the members communicated, suggested improvements, and their intention to continue team management of hypertension. The team relations were measured using the Physician-Pharmacist Collaboration Index (PPCI), assessing: Trustworthiness, Role Specification, and Relationship Initiation (1=strongly disagree – 7=strongly agree) [11-13]. A second data source was BP management logs maintained by the pharmacists including: number of patients receiving team management, number of visits (initial and follow-up), number of BP readings at goal, and pharmacist actions (e.g., patient education, communication with provider). Only de-identified data were collected in the pharmacy logs.

The multi-case analyses began with combining team level information into a case report for each team. In addition to data about the team, the case report included a summary addressing three guide questions, which were used in case studies to help summarize the data [14]. Questions were: 1) How well did this team BP management work? 2) How was the BP management done for this team? and 3) What factors affected the success of this BP management team? In addition, the case reports were used in cross-case analyses based on overall case/team performance.

Results

Eleven provider-community pharmacist(s) teams participated throughout the state of Iowa (Table 1). Of these teams, six (54.5%) of the pharmacies were part of a chain, while eight (72.7%) of the clinics were part of a larger health system. The teams encompassed a total of twelve pharmacists of which eight (66.7%) were female, while seven (53.8%) of the thirteen providers were female. The pharmacists' ages ranged from 26 to 64 with an average of 41.5, while the providers were slightly older ranging from 35 to 64 with an average of 48.6.

Each team was rated on overall performance, based on two criteria: 1) extent to which they established a system to support the team management approach and 2) number of patients who participated in their team BP management. Initial judgments, made by a single judge, were assessed and

discussed by other members to reach a single rating. Four teams were categorized as Worked-Well (Cases A, B, C, D), five teams as Limited-Success (E, F, G, H, I), and two teams as No-Team-Approach (J, K).

The four Worked-Well teams were able to establish a system supporting the team management approach including: an effective process for identifying and recruiting patients, clear roles for team members, trusting relations between team members, and effective communication procedures. Having a system in place for the team management of BP, these four teams identified and recruited 6-18 patients who received 22-33 BP visits (Table 2). Unlike some of the lesser performing teams, patient factors were not obstacles to their team management approach, and the practitioners committed time to team care.

The five teams with Limited-Success either did not fully establish a system to support the team approach (Cases E, F, G) or they only recruited a few patients despite having a functional team system (Cases H, I). The teams without supportive systems did not have clear roles for team members, or lacked effective communication methods. Thus, when difficulties came up at their practices, such as identifying patients or patient decline of the team approach, they only provided minimal team management of BP.

In contrast, two of the teams in this category appeared to have established functional systems to support their team management approach. However, few (≤ 3 patients) received team management. Practitioner time (both provider and pharmacist) was a factor in both cases. In one case both team members had significant administrative responsibilities, which likely contributed to their time challenges.

Two cases (Cases J, K) were rated as No-Team-Approach because team management of BP was not provided. These practitioners had problems with some or all of the system components. In addition, no patients were recruited, though some initial efforts were made to identify patients. The members did not report good/trusting relations during the project, lacking the rapport needed to build a team. In the absence of the team support system, some patient resistance came up, and the practitioners were not able to overcome it. It is possible that these teams did not receive a sufficient team building intervention. One case did not have a face-to-face team building session with the project leaders due to miscommunication. Rather, the project leaders met separately with them and sent communications to each practitioner, which limited the focused discussions. While the pharmacist did conduct several patient visits, no coordination with the provider occurred.

The practitioners of the other case met face-to-face, but later reported confusion about their roles and a need for better communication (e.g., forms). Both roles and communication were covered during their team building session and their plans were recorded. It is unclear why this team did not develop, though both practitioners stated patients were not interested in the team approach. As a solo practitioner with a low patient volume, the provider may have preferred handling care herself.

Discussion

Overall, the project was partially effective in fostering provider-pharmacist team management of BP in smaller communities. The four successful teams established a system to support the team approach and actively provided team management of BP to the most patients. Five teams achieved limited success, either establishing a system for the team approach, but only recruiting a few patients, or establishing a low-functioning system for their team approach. Finally, two cases did not establish a team approach at all, by not developing a sufficient team support system.

Objective 1

Eleven provider-pharmacist teams were recruited, though not all effectively provided team management of high BP. The teams that did not establish a functioning system were the first three teams participating in team building. It is possible the project leaders learned to lead more effective team building sessions, though a consistent outline was followed for all sessions. While follow-up emails were sent after the team building, no further face-to-face communication was mandatory. Teams were encouraged to meet 6-8 weeks after the team building session to discuss the status of the team approach, and to identify improvements if needed.

It is likely the team building program could be improved by providing more follow-up communication, which was intentionally limited to allow teams to operate on their own. Additional support could involve more communication after the initial team building session to help identify and resolve obstacles, to push progress in team care. Practitioners may not clearly recall their specific team roles, or might have problems with communications. Some follow-up team conference calls could boost members to more firmly establish a team system. Future work should incorporate team support such as conference calls or one-on-one interactions.

Objective 2

Objective 2 was to determine impact of the team approach on practitioner-reported consequences. Across the 11 cases, a total of 62 patients received BP visits with a pharmacist.

This varied from a mean of 12.8 patients for the Worked-Well teams, 1.8 for the Limited-Success teams, and none for the No-Team-Care cases. In addition, the number of follow-up visits had a similar pattern, with averages of 13.8 for the Worked-Well teams, 5 for the Limited-Success and none for the No-Team-Care.

Some of the teams, especially the lowest performing ones, mentioned patient issues as obstacles. Previous research on patient willingness to utilize new pharmacist services has shown that if the patient expects to receive a valuable service, then he/she is more willing to try it [15-16]. So, the manner in which the service was presented to the patients could have affected their interest. For example, if the pharmacist talked about better BP control or convenience for patients, they may have been more interested than if the pharmacist talked about how it would help the pharmacist or physician. How to approach patients was discussed during the team building sessions; however, specific talking points about team management were not provided. Future efforts should include some training and materials for practitioners, especially the pharmacists, to use when presenting the team care approach to patients.

A second consequence assessed was the impact on provider-pharmacist relations. The practitioner relations were generally good across the teams, though the lowest ratings occurred with the No-Team-Care cases. Trusting professional relations are a necessary, but not sufficient, characteristic for successful teams. These practitioners generally had little opportunity for face-to-face communication; however relationships developed when practitioners were committed to the plan established during the team building session. The communications from the BP visits helped demonstrate the pharmacists' expertise, which has been identified as a determinant of trustworthiness [15-16].

For most of these participants, this team approach was something new for both partners. It appears that in most cases, especially those less successful, members were conservative in expanding the pharmacists' roles. Having the pharmacists conduct patient visits with a BP check was acceptable to most participants. However, fewer participants were comfortable with having the pharmacists recommend a change in drug therapy. It typically takes repeated communication for team members to fully develop their roles. For some of these teams, sporadic interactions between the providers and pharmacists limited their ability to develop a broader clinical role for the community pharmacists. Mechanisms for establishing new roles in teams such as these could be identified through future research.

Objective 3

Objective 3 was to identify obstacles to the team approach and ways to overcome them. Several obstacles were identified during this project: failure to establish a team support system, relatively low levels of trust in provider-pharmacist relations, broader system factors, practice workflow and time issues, and patient factors. Four cases did not establish a functional team system, suggesting a single team building session was insufficient for all teams. In addition to supplemental team building sessions, another idea is to have the team members complete action plans prior to the team building session to stimulate thinking about key issues such as identifying patients, practitioner roles, and communication processes. Such plans might better focus discussion and decision-making. Differences could be more readily identified and hopefully resolved, during the team building session.

The teams entered this project with varying levels of interprofessional relations, but all were positive enough to agree to participate. For practitioners in separate organizations to collaborate under a team approach, a certain level of trust and open communication should be present. Some of the teams had previous relations to build on, while others did not. The challenge is to establish a working relationship built through strong performance contacting each other with useful information about patients (e.g., very high BP, uncontrolled for a long time, experiencing a likely adverse reaction). By showing their value, the team members can improve their relations and team approach.

It is worth noting that the providers for two of the Worked-Well teams were nurse practitioners. Given the small numbers involved, it is unclear whether nurse practitioners are more open to collaborating with community pharmacists than are physicians. Nurse practitioners may be socialized to be collaborative throughout their training, while physicians often are expected to “captain the ship”. Or, perhaps team process factors, such as communication between the practitioners could have affected the results [17]. Further research is needed to better investigate this result.

The team members of four cases were located within the same building. Two of these were rated Worked-Well, while two were Limited-Success. Despite the potential for face-to-face meetings, the two Limited-Success cases were unable to fully establish a functioning team system. Both had recently rented space for the community pharmacy within the clinic. It is likely the staffs of the clinic and pharmacy had insufficient history to establish open and flexible relationships. So, while the provider was open to using the team approach, the other clinic staff may have been less able to accommodate the

team activities (e.g., communications). More work is needed to better determine which health systems will support a team model involving “outsiders”.

Practitioners in some of the lower performing cases reported problems with performing team care activities. In today’s healthcare environment, workloads limit practitioners’ time with patients. This makes it more difficult to find time for BP visits, read and respond to communications, and conduct other team care activities. Some organizations build in redundancy, which can support flexibility for practitioners to allocate their time. Best practices could be shared with potential teams to consider as they discuss adopting a team approach to managing chronic conditions like hypertension.

Some patient factors appeared as obstacles, such as an unwillingness to participate or confusion about their role under team care. Other problems with patient acceptance may be their perceived lack of a need for the team approach. Patients’ willingness to utilize a new pharmacy service has been related to the value they think they will receive from that service [18-19]. In addition, patients may not see BP management as an acceptable role for pharmacists, or might have privacy concerns in a community pharmacy. As mentioned previously, materials such as a script could be provided to engage patients to use a team approach in managing their BP. In addition, promotional materials could be provided, such as posters or brochures about the benefits of a team approach. For example, materials from the Team Up Pressure Down web site could be utilized [20]. Finally, a summary of this project has been incorporated into a report by ASTHO on Iowa’s Million Hearts Initiative [21].

The pharmacists were often reliant on the providers sending patients to them, limiting their role. By waiting to establish patients they limited their expansion of hypertension management.

Conclusion

This project showed that a team building program could support some practitioners in small communities to manage high blood pressure. While most of the teams had at least limited success, some changes could be made to improve the program: scheduled follow-up communications among the team members after the team building session, tools for communicating with patients, and guidance on adjusting practice sites to accommodate the team care activities. Future refinement of this team building project is encouraged.

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Table 1: DESCRIPTION OF TEAMS AND COMMUNITIES

TEAM	Community Population (a)	People >65 years old (a)	People Below Poverty (a)	Prescriber Degree	Prescriber Patients seen per Week	Pharmacy Chain	Prescriptions Dispensed per Week
A	649	26.3%	4.8%	PA	90	No	500
B	5,688	20.1%	19.5%	MD	120	Yes	1680
C	1,958	18.8%	7.8%	ARNP	110	Yes	725
D	6,124	19.3%	15.1%	MD	250	No	2000
E	27,775	16.7%	15.4%	MD	140	Yes	150
F	13,608	3.5%	4.6%	MD	75	No	1200
G	27,775	16.7%	15.4%	MD	105	Yes	100
H	1,175	23.9%	4.8%	MD	125	Yes	725
I	1,066	31.4%	7.7%	DO	70	No	1500
J	6,807	14.0%	7.6%	MD	50	Yes	1250
K (b)	2,601	26.5%	3.9%	-	-	Yes	500

(a): Information is from Census data 2011 (Census.gov).

(b): No survey returned from prescriber.

Table 2: TEAM MANAGEMENT OF BLOOD PRESSURE

Team	Initial BP Visit (a)	Follow-Up BP Visit (a)	Total BP Visits	Percent of BP Visits at Goal	Obstacles
Worked-Well					
A	9	13	22	59.10%	Time
B	18	5	23	30.40%	Lack of Patients, Interest
C	6	27	33	39.40%	-
D	18	10	28	35.70%	Lack of Patients and Time
Limited-Success					
E	1	2	3	35.70%	Lack of Patients with uncontrolled HTN
F	1	2	3	66.60%	Communication
G	3	4	7	57.10%	-
H	2	7	9	0%	Lack of Patients with uncontrolled HTN
I	2	10	12	25.00%	Time to ID Patients
No-Team Approach					
J	-	-	0	N/A	Lack of Patients and Time
K (b)	2	0	2	0%	-

(a): Blood pressure visits were done with the pharmacist.

(b): No survey returned from prescriber.

Appendix 1 Pharmacist Surveys**Blood Pressure Team Management: Pharmacist Baseline Survey**

Q1.1 The purpose of this survey is to identify the factors that influence the development of collaborative working relationships between pharmacists and physicians. Please base your answers on the relationship with the physician with whom you work the most. Think, in general, about the interactions you have had with this physician over time. Please indicate your level of agreement with each statement.

1. I intend to keep working together with this physician. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. In providing patient care, I need this physician as much as he/she needs me. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I trust this physician's drug expertise. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I spend time trying to learn how I can help this physician provide better care (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. This physician works with me to overcome any disagreements that may emerge about my role in managing drug therapy. (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Decision-making responsibilities for our patients' drug therapy are shared between this physician and myself. (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. This physician depends on me as much as I depend on him/her. (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Communication between this physician and me is two-way. (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. This physician is a credible practitioner. (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. I provide information to this physician about specific patients. (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. This physician and I negotiate to come to agreement on our activities in managing drug therapy. (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. In making decisions for our patients, both physician and pharmacist opinions are considered. (12)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. This physician and I are mutually dependent on each other in caring for patients. (13)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. My interactions with this physician are characterized by open communication by both parties. (14)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. I can count on this physician to do what he/she says. (15)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. There is cooperation between this physician and myself in managing the drug therapy of our patients. (16)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. I show an interest in helping this physician improve his/her practice. (17)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. Decision-making for our patients is coordinated between this physician and me. (18)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q1.2 In the past 6 months, please estimate the number of patients for whom you collaborated with this physician to manage hypertension:

_____ patients (1)

Your Demographic Information

Age

Q2.1 _____ years (1)

Q2.2 Gender

 Male (1) Female (2)

Q2.3 Please indicate your level of pharmacy training. (Check all that apply)

 BS Pharmacy (1) PharmD (2) Residency (3) Masters (4) Other (Please list type and field of study or certification): (5) _____

Q2.4 Please check the one item that best describes your pharmacy:

 Independent Community Pharmacy (3 or fewer stores under the same ownership) (1) Small Chain Community Pharmacy (4-10 stores under the same ownership) (2) Large Chain Community Pharmacy (more than 10 units under the same ownership) (3) Mass Merchandiser (e.g., Wal-Mart) (4) Supermarket Pharmacy (5) Other (Please describe): (6) _____

Q2.5 On average, how many prescriptions does your pharmacy dispense per week?

_____ prescriptions/week (1)

Q2.6 On average, how many prescriptions do you personally dispense per week?

_____ prescriptions/week: (1)

Q2.7 About what percentage of patients at your pharmacy have hypertension?

_____ % patients with hypertension (1)

Q end That's all! Please click the SUBMIT button to complete your survey.

End Message: Your survey answers have been recorded. Good luck with your efforts toward team management of hypertension.**Thank you for your participation in this project.**

Blood Pressure Team Management Survey: Pharmacist Follow Up

Q1.1 The purpose of this survey is to identify the factors that influence the development of collaborative working relationships between pharmacists and physicians. Please base your answers on the relationship with the physician with whom you work the most. Think, in general, about the interactions you have had with this physician over time. Please indicate your level of agreement with each statement.

1. I intend to keep working together with this physician. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. In providing patient care, I need this physician as much as he/she needs me. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I trust this physician's drug expertise. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I spend time trying to learn how I can help this physician provide better care. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. This physician works with me to overcome any disagreements that may emerge about my role in managing drug therapy. (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Decision-making responsibilities for our patients' drug therapy are shared between this physician and myself. (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. This physician depends on me as much as I depend on him/her. (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Communication between this physician and me is two-way. (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. This physician is a credible practitioner. (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. I provide information to this physician about specific patients. (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. This physician and I negotiate to come to agreement on our activities in managing drug therapy. (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. In making decisions for our patients, both physician and pharmacist opinions are considered. (12)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. This physician and I are mutually dependent on each other in caring for patients. (13)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. My interactions with this physician are characterized by open communication by both parties. (14)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. I can count on this physician to do what he/she says. (15)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. There is cooperation between this physician and myself in managing the drug therapy of our patients. (16)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. I show an interest in helping this physician improve his/her practice. (17)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. Decision-making for our patients is coordinated between this physician and me. (18)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q1.2 In the past 6 months, please estimate the number of patients for whom you collaborated with this physician to manage hypertension:

_____ patients (1)

Q2.1 Now that you have worked as part of a physician-pharmacist team to lower blood pressure, we would like to gather your impressions about the team management approach. Please answer the following questions. How would you rate the performance/functioning of the team management approach to blood pressure over the last six months?

- Poor (1)
- Fair (2)
- Good (3)
- Very Good (4)
- Excellent (5)

Q2.2 Briefly describe how patients were identified for team care. Include both pharmacy and clinic.

Briefly describe how the team management approach for blood pressure control affected the following 2 items:

Q2.2.1 How the blood pressure visits to the pharmacy were scheduled and conducted. Include both initial and follow-up visits.

Q2.2.2 How responsive the physician was to your requests and recommendations, e.g., timeliness, consideration/use of treatment recommendations and/or med changes.

Q2.3 How did you communicate to the physician? Check all that apply.

- Fax (1)
- Email (2)
- Phone (3)
- Face to Face (4)

Q2.4 How did the physician communicate to you? Check all that apply.

- Fax (1)
- Email (2)
- Phone (3)
- Face to Face (4)

Q3.1 Did your team experience any difficulties while collaborating to improve blood pressure?

- Yes (1)
- No (2)

Answer If Yes Is Selected

Q3.2 Which of the following difficulties did your team experience while collaborating to improve blood pressure? Check all that apply.

- Patients were unwilling to participate. (1)
- There were few patients with uncontrolled hypertension. (2)
- Lack of time. (3)
- Poor communication. (4)
- Other: Please type in any other difficulties that you experienced (5) _____

Answer If Count Q3.2 Is Greater Than or Equal to 1

Q3.3 These were the difficulties you identified. Please check the box for those that were resolved.

Answer If Count Q3.3 Is Greater Than or Equal to 1

Q3.4 You have indicated that these items were resolved.

Q3.5 Briefly describe how each item was resolved within the team.

Q3.6 List or briefly describe any obstacles that currently exist to continuing team management of blood pressure.

Q3.7 What were the benefits of the team management approach? Check all that apply.

- The approach helped patients control their blood pressure. (1)
- The approach means more opportunity for pharmacists. (2)
- This is a valuable platform we can continue to use for services. (3)
- The physician/clinic's staff reported that the approach benefited physician time management. (4)

- The approach helped improve/increase communication between the pharmacist and physician. (5)
- Other. (Please describe): (6) _____
- No benefits. (7)

Q3.8 Please suggest improvements to the team management approach to managing blood pressure. (Feel free to comment on team training or actual team care in your community.)

Q3.9 Do you intend to continue or expand the team management approach for managing blood pressure?

- Yes (1)
- No (2)

Q3.10 That was the final question. You may go back and review your answers, or submit your survey at this time. Thank you.

End Message: **Thank you for your participation in the team building initiative. We hope this was a positive experience and will lead to further physician-pharmacist collaboration in the future.**

Appendix 2 Sample Case Reports

Case A Worked Well

This is a rural community located in northwestern Iowa. The population has 26.3% who are 65 years of age or older, 78.3% who have a high school degree or higher, and 4.8% who are below the poverty line. The per capita income is \$19,228 (American towns.com). This community's health care system consists of one medical clinic with a PA, one hospital within 25 miles, and one pharmacy.

We enrolled one clinic that was affiliated with an integrated health system. In this clinic there is 1 provider (a physician assistant). The patient population consists of 15% Medicaid and 50% Medicare beneficiaries, wherein 50% of all clinic patients have hypertension. The provider team member was a male PA, age 50, who cares for about 90 patients per week.

The pharmacy that paired with the clinic was an independent. The pharmacy staff includes 1 pharmacist and a clerk. The prescription volume averages 500 per week, all of which are dispensed by the team member. Of these prescriptions, 84% are for Medicaid beneficiaries and 15% are for Medicare beneficiaries. At this pharmacy 75% of the patients have hypertension. The pharmacist team member was a male, age 55, with a BS in pharmacy.

Team relations from baseline to follow up changed somewhat during the team BP management period. The provider's baseline rating for trustworthiness in the pharmacist was 7 and after the follow-up survey it ended at 7, while the pharmacist's was 6.33 and ended at 6.5. The baseline rating for role specification of the provider was 6.44 and after the follow-up survey it ended at 6.56, while the pharmacist's was 4.11 and ended at 4.56. Baseline rating of relationship initiation for the provider was 6.33 and after the follow-up survey it ended at 6.33, while the pharmacist's was 6 and ended at 7. Overall the team relations were improved.

The Team planned the BP management as follows: Prescriber's Roles: Refer patients to pharmacist as needed, Other clinic patients will also be referred to pharmacy, Clinic does offer BP checks; Pharmacist's Roles: Conduct BP visits with patients, Communicate with provider as needed; Patient Identification: Pharmacist identified patients with hypertension who were willing to be monitored; Communication Strategies: Faxes sent to an electronic file and clinic staff reviews, STAT fax-send BP's of >160/90 to PA, Pharmacy will create BP check fax form with: patient, date, time and BP, Email addresses exchanged, Inform patient that collaboration is taking place; Patient Follow-up Schedule: PA re-checks patients in 1-2 weeks, then re-checks in 1 month then, if controlled every 3 months.

The total number of BP visits was 22 (9 initial, 13 F/U). The BP readings ranged from 128/58 to 156/90, with 13 of 22 (59.1%) BP readings at goal. At 8 visits the pharmacist conducted patient education and at 1 visit made a recommendation to the prescriber to change therapy.

Summary

Guide Question 1: How well did this team BP management work?

This team had good relations at the start of this project, based on years of serving as the only provider and only pharmacist in the community. This was reflected in the relatively high relationship ratings at baseline and after the team management period. The pharmacist provided 22 BP visits, with 9 of these being initial visits. Four of the 9 (44.4%) initial BP readings were at goal, while 8 of 13 (61.5%) of the follow-up BP readings were at goal. The pharmacist worked primarily with patients only (e.g., patient education) when BPs were not at goal. Overall, this BP management team worked well.

Guide Question 2: How was the BP management done for this team?

The pharmacist identified patients with hypertension at the pharmacy and then asked about getting blood pressure checked. The provider made few referrals, since his clinic was able to readily conduct BP visits. The pharmacy provided the BP readings to the patients only, unless the readings exceeded 160/90 – which were sent to the physician assistant via STAT fax.

Guide Question 3: What factors affected the success of this BP management team?

Team members knew each other professionally for years, which supported commitment to the team approach. The practitioners were able to trust each other, which allowed them to follow the team approach as they had planned.

A key challenge at this site was that there was only one pharmacist, so workload influenced ability to do BP checks. That is, when he was busy with dispensing activities, it was difficult to perform BP visits. Despite this, it appears that the pharmacy was able to establish a process for conducting the BP visits. Both team members reported that the team approach helped improve communication between them. Though little communication was recorded in the pharmacy's BP log, none of the BPs were high enough to trigger the STAT fax process that had been established during the team building session.

The provider stated a desire for an automated/easier way to enter the pharmacist-taken BP readings could be entered into the clinic's electronic records. The pharmacist readings were faxed, but then had to be manually entered into the patient's clinic record.

Patient acceptance of the team management approach was reported to be good. Some patients preferred to get their BP checked at the clinic, while others did not.

Case G Limited Success

This is a micropolitan community in central Iowa. The population has 16.7% who are 65 years of age or older, 81.4% who have a high school diploma or higher, and 15.4% who are below the poverty line. The per capita income is \$21,924 (Census.gov). This community's health care system includes 11 medical clinics which have MDs, DOs, ARNPs and/or PAs, one hospital, and ten pharmacies.

We enrolled one clinic that was affiliated with a larger organization. In this clinic there are 7 practitioners. The patient population consists of 8% Medicaid beneficiaries and 25% Medicare beneficiaries, wherein 20% of all clinic patients have hypertension. The physician team member was a male MD, age 52, who cares for about 150 patients per week.

The pharmacy that paired with the clinic was a large chain, which owns 10 or more pharmacies in the state of Iowa. The pharmacy staff included 1 pharmacy technician and 1 pharmacist. The prescription volume averages 100 per week, all of which are dispensed by the team member. Of the prescriptions, 35% are for Medicaid beneficiaries and 50% are for Medicare beneficiaries. At this pharmacy 20% of the patients have hypertension. The pharmacist team member was a female, age 26, with a PharmD.

Baseline rating for trustworthiness for the physician was 6.33 and after the follow-up survey it ended at 6.83 while the pharmacist's was 5.33 and ended at 7. The baseline rating for role specification of the physician was 4.67 and after the follow-up survey it ended at 5.56 and for the pharmacist's was 4.89 and ended at 7. Baseline rating of relationship initiation for the physician was 4.67 and after the follow-up survey it ended at 6 while the pharmacist's was 5.66 and ended at 7. Overall the team relations were improved.

The Team planned the BP management as follows: Prescriber's Roles: Refer patients to pharmacist as needed, OK to have pharmacist do BP checks, Uses Mediterranean food diet pyramid; Pharmacist's Roles: Conduct BP visits with patients, Communicate with physician as needed, Give patients wallet card, Pharmacist will get Mediterranean diet from oldways.com; Patient Identification: Physician identifies patients with new HTN diagnosis; Communication Strategies: Faxes, Pharmacist can fax BP logs to prescriber, E-prescribe comment section-uses to notify, Pharmacist can communicate with nurse, Add info to pharmacist notes in E-prescribing; Patient Follow-up Schedule: Doctor will see patient every 2 weeks if new med or dose change, Then in 3-6 months if at goal, depending on other issues

The total number of BP visits was 7 (3 Initial and 4 Follow-up). The BP readings ranged from 110/79 to 128/97, with 4 of 7 at goal. At 7 visits the pharmacist conducted patient education, while at 1 visit the pharmacist made an adherence intervention.

Summary

Guide Question 1: How well did this team BP management work?

At baseline, both the pharmacist and physician rated each other about average in all three categories, but in the end both increased their ratings of the other in all three categories. The pharmacist provided 7 BP visits, with 3 of these being initial visits. For the initial BP readings, 2 of 3 were at goal, while 2 of 4 of the follow-up BP readings were at goal. During each BP visit the pharmacist would educate the patient on BP management as well as the uses of the Mediterranean diet. The pharmacist felt that the physician was very timely in following up with faxes and accepted all recommendations. Overall, this BP management team had limited success.

Guide Question 2: How was the BP management done for this team?

The pharmacist looked up the patients seen by the physician and started the project with those 3 patients in mind. The physician also sent over other patients when they were interested, believing that it may be more comfortable for a patient to take their BP at another location besides their office. After each BP check the pharmacist would fax the information to the physician's office and educate the patient on BP management as well as the uses of the Mediterranean diet.

Guide Question 3: What factors affected the success of this BP management team?

The pharmacy was new and therefore had few patients, 3 of which were seen by this physician. So recruiting patients was challenging for this team. Though there were few patients and most had their BP controlled. The pharmacist felt that good communication was established with the physician. Both agree that more patients and more time for the project would be beneficial in the future. The pharmacist also felt that more disease management conditions could be added.

Case J No Team Approach

This is a rural community located in central Iowa. The population has 14.0% who are 65 years of age or older, 89.5% who have a high school diploma or higher and 7.6% who are below the poverty line. The per capita income is \$26,620 (Census.gov). This community's health care system includes four medical clinics which have MDs, DOs, ARNPs and/or PAs, one hospital, and two pharmacies.

We enrolled one clinic which was not affiliated with a larger organization. In this clinic there is 1 practitioner. The patient population consists of 0% Medicaid beneficiaries and 50% Medicare beneficiaries, wherein 50% of all clinic patients have hypertension. The physician team member was a female MD, age 47, who cares for about 50 patients per week in a solo practice.

The pharmacy that paired with the clinic was a large chain, which owns over 10 pharmacies in the state of Iowa. The pharmacy staff includes 3 pharmacy technicians and 2 pharmacists. The prescription volume averages 1,250 per week, 500 of which are dispensed by the team member. Of the prescriptions, about 20% are for Medicaid beneficiaries and 30% are for Medicare beneficiaries. At this pharmacy 40% of the patients have hypertension. Of the pharmacists, one is a female PharmD, age 26 and the pharmacist team member was a male PharmD, age 29.

Baseline rating for trustworthiness for the physician was 5.83 and after the follow-up survey it ended at 6, while the pharmacist's was 5.5 and ended at 6. The baseline rating for role specification of the physician was 2.67 and after the follow-up survey it ended at 3.11, while the pharmacist's was 5.56 and ended at 5.56. Baseline rating of relationship initiation for the physician was 3 and after the follow-up survey it ended at 4.33, while the pharmacist's was 5.66 and ended at 6. Overall the team relations were somewhat improved from baseline to the end of the team management period.

The Team planned the BP management as follows. Prescriber's Roles: Refer patients to pharmacist as needed, Take BP before medication change, Call the pharmacy about medication costs; Pharmacist's Roles: Conduct BP visits with patients, Communicate with physician as needed, Medication consultation, Provide medication costs to clinic when called; Patient Identification: Physician identifies patients with new HTN diagnosis, MD refers patients who need additional BP checks before making changes, Take BP at clinic and pharmacy before a medication change, Include patients who need more monitoring, Consultations between physician and pharmacist; Communication Strategies: Electronic prescription from MD to see a patient, Fax from Pharmacy, Electronic data exchange (EDI) - use to send note back to pharmacy, E-fax- also could do referral report; Patient Follow-up Schedule: follow-up for a new medication treatment in 2 weeks, wants patient to follow-up at clinic for refills.

This efforts at team's management of blood pressure resulted in no patients being cared for under the team approach. Both team members rated the performance of the team as poor. Though they did initial work to identify shared hypertension patients, subsequent work did not lead to collaboration for those patients. The provider stated that it was easier for her to manage the patient's BP herself. Similarly, the pharmacist thought having more forms available and support to establish their system would have supported information exchange about BP levels among the team members. Further, both team members reported that patients were unwilling to participate in the team approach. Lack of time for the practitioner also was identified as an obstacle by both team members. Though the team approach was not adopted here, the practitioner relations and communication improved somewhat. Neither team member reported an interest in continuing team management, which is understandable given their lack of progress.

Summary

Guide Question 1: How well did this team BP management work?

This team's relations at baseline were not rated very highly by the provider. Despite little progress on the actual team approach, the relations did improve somewhat. The team approach failed to be adopted at this site, with no patients being cared for under such an approach.

Guide Question 2: How was the BP management done for this team?

This team discussed several ways to communicate about patients' blood pressure, and at the team building session appeared to be willing to adopt the team approach. However, they were not able to establish a viable system for collaborating on their patient's BP.

Guide Question 3: What factors affected the success of this BP management team?

The team was not able to establish a system for routine communication of blood pressure readings. One part of this was that the pharmacist reported a desire for easy forms and a system to support the team approach. Similarly, the physician reported little need for adding a role for the pharmacist in managing patients' BP. So, at a basic level, despite some initial progress (e.g., identifying shared patients with hypertension), this team was not able to develop some key components necessary for the team to

successfully function: a common vision with accepted roles and ways for adequate communication. Further, the provider rated relations with the pharmacist low.

Both team members reported that they were too busy to make changes in their practices that would support a team approach. This happened despite a positive team building session, and subsequent work to identify common patients. The physician's office is a sole practitioner operation, which means resources were limited, which could have constrained flexibility to accommodate a team approach. The pharmacy was short a pharmacist for part of the team management period, which could have made it difficult to embrace changes to support the team approach.

Patient acceptance of the team management approach was reported to be low. Both team members reported that patient interest in a team approach was an obstacle. This physician reported caring for a relatively low number of patients weekly, which presumably allowed her to spend more time with each patient. Thus, it may be that she could have readily managed their BPs during clinic visits. Thus, patient may have seen little benefit from involving the pharmacist through a team approach.