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Enhancing availability of services to control hypertension through a team-based care approach that includes pharmacists

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Disclosure

The author declares no relevant conflicts of interest or financial relationships.

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Abstract

Background: Primary care physician (PCP) shortages are expected to increase. The Michigan Medicine Hypertension Pharmacists' Program uses a team-based care (TBC) approach to redistribute some patient care responsibilities from PCPs to pharmacists for patients with diagnosed hypertension.

Objective: This evaluation analyzed whether the Michigan Medicine Hypertension Pharmacists' Program increased the availability of hypertension management services and described facilitators that addressed barriers to program sustainability and replicability.

Methods: We conducted a retrospective observational study that used a mixed methods approach. We examined the availability of hypertension management services using the number of pharmacists' referrals of patients to other services and the number of PCP appointments. We analyzed qualitative interviews with program staff and site-level quantitative data to examine the program's impact on the availability of services, the impact of TBC that engaged pharmacists, and program barriers and facilitators.

Results: Patients who visited a pharmacist had fewer PCP visits over 3- and 6-month periods compared to a matched comparison group that did not see a pharmacist and were 1.35 times more likely to receive a referral to a specialist within a 3-month period. Support from leaders and physicians, shared electronic health record access, and financial backing emerged as leading factors for program sustainability and replicability.

Conclusion: Adding pharmacists to the care team reduced the number of PCP appointments per patient while increasing the availability of hypertension management services; this may in turn improve PCPs' availability. Similar models may be sustainable and replicable by relying on organizational buy-in, accessible infrastructure, and financing.

Background

Over 116 million adults in the United States have high blood pressure (BP), or hypertension, and most (92 million) do not yet have their hypertension under control.[1,2] Among those with hypertension who are recommended medication treatment, many may need to work with their health care professionals to start medications (34.1 million) or have their medications adjusted (33.6 million) to achieve hypertension control.[1,2] Progress toward improved hypertension treatment and control for U.S. adults stalled with minimal change between 2007 to 2010 and 2017 to 2020.[3] Improvements to the U.S. health care delivery system to increase access to services may ensure patients reach their clinical goals to control chronic conditions.

The availability of health care services is an important dimension of access, as defined by Penchansky and Thomas, to consider in light of an existing and growing need for services to manage chronic conditions.[4] The health care system is burdened with existing

and anticipated physician shortages which may make it challenging for patients to schedule timely appointments. The Association of American Medical Colleges predicts a shortage of 17,800–48,000 primary care physicians (PCPs) by 2034.[5] If historically medically underserved populations, who utilize primary care at lower rates due to sociodemographic, economic, and geographic barriers, were to have the same health care use patterns as those with fewer obstacles, this care demand would increase overall.[5]

The American College of Cardiology identifies team-based care (TBC) as a way to improve care coordination, focus on quality of care, and expand services.[6] TBC models use a multidisciplinary team approach that includes the patient, a primary care clinician (e.g., physician, physician assistant, nurse practitioner), and other health care team members to share responsibilities including medication management, follow-up, adherence, and self-management support.[7] TBC models, in which patient care responsibilities are delegated to a pharmacist by the primary care clinician, may increase total outpatient appointments and decrease the number of the primary care clinician's appointments. TBC models aim to pair patients with the right experts at the frequency needed to achieve and maintain hypertension control. This may improve the primary care clinician's availability to see other patients or address other health concerns.[8]

Moreover, TBC has been identified as an effective strategy to improve hypertension control in *The Surgeon General's Call to Action to Control Hypertension*, the *Best Practices Guide for Cardiovascular Disease Prevention*, and the most recent American College of Cardiology and American Heart Association hypertension clinical practice guideline.[1,9,10] Involving pharmacists in TBC approaches is also recommended by the Community Preventive Services Task Force based on the strong evidence of effectiveness for improving hypertension control and was found to be cost-effective.[7,11] Furthermore, pharmacist patient care services have been found to improve patient health outcomes, including hypertension control and medication adherence across settings.[7,11–14]

Despite robust evidence, system-level barriers may limit broad adoption of pharmacist inclusion in TBC models. Persistent challenges to engaging pharmacists across settings include variations in scope of practice policy and limited sustainable payment models.[6,14–16] These challenges emerge due to the interplay of federal policy, state laws, and third-party payer policies, which each determine who can bill for health care services. This can limit the financial sustainability of initiatives that engage pharmacists in TBC across settings.

Objective

The Centers for Disease Control and Prevention's Division for Heart Disease and Stroke Prevention collaborated with the Michigan Medicine Hypertension Pharmacists' Program (MMHPP) to evaluate how pharmacists are incorporated into a health care team within a health system.[17] Previously reported findings from the evaluation of the program indicate that the program improved hypertension control rates at 3 and 6 months, and increased the number of days hypertension was under control within 3 and 6 months.[18] A resulting question from the previous evaluation was the degree to which participation in the MMHPP was associated with improved availability of hypertension management services.

Our objectives were to examine the impacts of the MMHPP on the availability of hypertension management services within a health system and to describe facilitators for program sustainability and replicability that address identified barriers.

Methods

Study design

This retrospective observational study applied a mixed-methods approach that combined qualitative and quantitative data. The evaluation included both process and outcome-focused evaluation questions to assess the availability of hypertension management services and to describe facilitators that address barriers to program sustainability and replicability. The results of the outcome-focused evaluation are published elsewhere.[18] We examined the availability of hypertension management services using the following outcomes: the number of PCP appointments; the number of pharmacists' referrals of patients to other health and social services; and qualitative findings from interviews with program staff. RTI was contracted by the Centers for Disease Control and Prevention to conduct the evaluation. RTI's institutional review board determined that this project was a program evaluation, not human subjects research. Therefore, institutional review board review and approval was not required.

Setting and intervention

The MMHPP began in 1999 as a pilot program at a clinic that incorporated pharmacists into teams for chronic disease management to address PCP shortages. By 2009, the program had expanded to an additional 12 clinics. The MMHPP uses a TBC model and applies the Pharmacists' Patient Care Process, a patient-centered approach, to care for patients with hypertension who are enrolled in the program.[17–20]

Michigan Medicine pharmacists are either faculty members at the University of Michigan College of Pharmacy or employees at the Pharmacy Innovations and Partnerships Department at the university. An established collaborative practice agreement with the clinics' physicians allows Michigan Medicine pharmacists to initiate, modify, and discontinue medications using protocols for patients with hypertension, type 2 diabetes, and/or hyperlipidemia.[17]

In 2016, the MMHPP expanded the location of services and improved convenience for patients by partnering with community pharmacists at Meijer (Meijer Inc., Grand Rapids, MI, USA), a regional supermarket chain that contains pharmacies.[17,20] Meijer pharmacists participating in the program have similar protocols and privileges regarding disease management as pharmacists at the Michigan Medicine clinics, which includes medication review, BP assessment, patient education, and making referrals to other health care team members as needed. Meijer pharmacists can also recommend medication changes to a patient's PCP for approval; however, unlike the Michigan Medicine pharmacists, they cannot initiate, modify, or discontinue medications without an approval from the physician.

The MMHPP begins with a best practice alert within the electronic health record (EHR) system, which notifies clinic staff when a patient has an elevated BP reading and prompts

them to repeat the BP in 5 minutes. Patients with 2 consecutive elevated BP readings are eligible for referral to the program.

After the physician orders the referral, the patient is notified to schedule the appointment with a pharmacist while they are checking out after their physician visit. They are given the option to see a pharmacist at a Michigan Medicine clinic or at a participating Meijer community pharmacy. However, the referring physician may recommend a Michigan Medicine clinic pharmacist for complex cases if the patient and pharmacist have an established relationship. While collaborative practice agreements were established with the clinics' physicians, referral to the program could be ordered by prescribing clinicians including physicians, physician assistants, and nurse practitioners. After enrollment, the pharmacist assesses the patient's medical history, develops an individualized medication and lifestyle plan with the patient, makes referrals to other health care team members as needed, and monitors the patient's progress.

Patient inclusion criteria

We used the Michigan Medicine Hypertension Registry (the Registry) and Michigan Medicine EHR data to identify patients for the intervention and a comparison sample. Intervention and comparison patients were defined as those who: (1) were in the Registry during the intervention period (2017–2018), (2) had at least 1 visit with their PCP in 2017 and another in 2018 to check their BP, and (3) had an elevated BP reading while visiting with their PCP during the 2017–2018 timeframe. While intervention and comparison groups received care at Michigan Medicine, intervention patients also had at least 1 pharmacist visit during this timeframe and comparison patients did not. Comparison patients were matched 1:1 using propensity scoring based on demographic characteristics, insurance status, and clinical status (diabetes and chronic kidney disease diagnosis). Figure 1 depicts how the intervention and comparison groups were determined. The methods to derive a comparison group are described in more detail elsewhere.[18]

Data and analysis

Quantitative—We used deidentified EHR data to assess the differences in utilization of hypertension services using 2 measures: (1) number of visits with the PCP during the evaluation period; and (2) number of referrals to see additional health care team members for health and social services. The number of visits with the PCP was calculated as the number of PCP visits from baseline (the date when an elevated BP was identified by the PCP) to 3-month follow-up and from baseline to 6-month follow-up. The number of referrals to see other health care team members was created by counting the number of referrals by pharmacists to professionals not considered PCPs or pharmacists from baseline to 3-month follow-up and from baseline to 6-month follow-up. Some specialties of the referrals included cardiologists, nutritionists, and social workers. This outcome was dichotomized into 2 groups (zero referrals versus 1 or more referrals) because it was highly skewed and most patients did not have referrals to other health care team members. The number of referrals accepted by patients and resulting in completed visits was not measured.

We conducted the Wilcoxon rank-sum nonparametric test and the negative binomial regression to assess the statistical difference between the intervention and control groups in number of visits with the PCP. We then conducted a logistic regression to assess the statistical difference between the intervention and control groups in 1 or more referrals within 3-month and 6-month follow-up periods. All analyses were conducted using SAS Enterprise Guide Version 7 (SAS Institute, Cary, NC, USA).

Qualitative—The Conceptual Framework for Planning and Improving Evidence-Based Practices guided our development of evaluation questions.[21] The framework defines sustainability as "the extent to which the practice can be maintained and achieve desired outcomes over time" and transferability or replicability as "the extent to which the practice can be applied to or adapted for various contexts."[21] An interview question matrix mapped questions to 1 or more program roles (i.e., program leaders, PCPs, data quality managers, and/or partners). A 7-member study team conducted a 3-day site visit where a lead interviewer conducted tailored interviews with key program staff (n = 19), including MMHPP leadership and administrators, physicians, pharmacists, data quality managers, and partners. Additionally, study team members toured Michigan Medicine clinics and with permission, observed patient encounters at a Meijer pharmacy site. Observational data were cross-referenced with interview respondent descriptions of the patient-pharmacist encounter. Each interviewee provided consent to participate and be audio recorded during the session. Audio recordings were transcribed through a vendor, Rev (https://www.rev.com/).

Three qualitative analysts drafted a codebook for deductive coding of the interview transcripts. To establish intercoder agreement, the analysts double-coded 2 interviews using QSR NVivo 11.0 (Lumivero; Denver, CO, USA). Inconsistencies were discussed and reconciled which resulted in the addition of 2 new codes to better capture descriptions of the program's background and lessons learned. To confirm intercoder agreement following updates to the codebook, analysts double-coded 1 additional interview (n = 3; 20%). After achieving intercoder agreement at a Kappa coefficient of 0.8, the remaining interviews were single coded independently and key themes were identified.

Results

MMHPP patients (n = 2161) and the 1:1 matched comparison group were, on average, 57 years of age (SD = 12.8 intervention; SD = 12.4 comparison). More than one-half of each group were female (n = 1,152, 53% intervention; n = 1,190, 55% comparison). A majority of patients were White (n = 1,436, 67% intervention; n = 1,547, 72% comparison) and non-Hispanic (n = 1,889, 87% intervention; n = 1,944, 90% comparison). In both groups, approximately 20% were Black (n = 493 intervention; n = 393 comparison), 58% had commercial insurance, 40% had public insurance, and 36% had a diabetes diagnosis (n = 785 intervention; n = 788 comparison) (Table 1).

Availability of hypertension management services within a health system through TBC

Building upon previously reported findings that the program improved hypertension control at 3 and 6 months, our study further explored the association between pharmacist visits and PCP visits.[18] On average, patients with a pharmacist visit had fewer PCP visits than those

who did not visit a pharmacist for both 3- and 6-month periods (Table 2). These findings were statistically significant ($P < 0.001$). Those in the intervention group saw their PCP on average 0.57 times (median = 0, interquartile range [IQR] = 0, 1), while those in the comparison group saw their PCP on average 0.79 times (median = 1, IQR = 0, 1). Over a 6-month period, average PCP visits was 1.22 (median = 1, IQR = 0, 2) for intervention patients and 1.55 (median = 1, IQR = 0, 2) for comparison patients.

Within a 3-month period, 12.3% of the intervention group had at least 1 referral, compared with 9.4% of the comparison group, demonstrating the intervention patients were 1.35 (odds ratio; 95% CI: 1.11, 1.63, $P = 0.003$) times more likely to receive a referral. However, differences in the number of referrals for the 6-month period did not reach statistical significance (14.6% of intervention patients; 12.9% of comparison, $P = 0.102$).

Interviewees noted that the TBC approach allowed clinicians with diverse specialties to share patient care responsibilities within Michigan Medicine clinics, allowing PCPs the ability to focus on other health concerns and see other patients. Other noted benefits of the program included improved patient satisfaction by promoting conveniences such as shorter wait times and more location options for appointments with the pharmacist for hypertension management. Table 3 provides a summary as well as quotations from patients illustrating the impact of the MMHPP on efficiency, access, and patient satisfaction.

Facilitators that address barriers to sustainability and replicability

Several facilitators were captured in our interviews that may address potential barriers to program sustainability and replicability during qualitative analysis. These include support by leaders and physicians, shared EHR access and sufficient funding (Table 3). Interviewees noted that leaders' investment in the program can enhance buy-in to the program. A Michigan Medicine pharmacist noted,

> "...if you encounter a provider who's never worked with a clinical pharmacist, they might not understand the role... but there's so much data out there...that you can easily provide that to them and educate them on the impact of clinical pharmacists...."

Leaders' communication of the program's long-term benefits (e.g., improved patient outcomes) to clinic physicians and decision makers helped build confidence and trust.

Additionally, providing full access to EHRs to program pharmacists in clinics and in Meijer pharmacies addressed potential barriers to collaboration between team members, reinforcing the pharmacist-physician relationship. It enhanced communication around patient care plans and allowed referring physicians to see that pharmacists were reviewing their notes and following a shared set of goals. To avoid data privacy concerns, program staff onboarded Meijer pharmacists as contracted Michigan Medicine employees. One Meijer program leader stated,

> "With a contract process, you are really bounded by that you shall, the pharmacist, follow all of our policies and procedures and adhere to that when you are under our contracted time that you are providing care."

Finally, MMHPP interviewees shared that ongoing funding is a core component of sustaining a TBC program with pharmacists. During the start-up phase of the program, the University of Michigan's College of Pharmacy provided the funding for program pharmacist salaries. By 2017, pharmacists were fully embedded into the program, and the clinics covered the full cost of the embedded pharmacists. Meijer community pharmacy sites were paid through a flat rate contract to cover the Meijer pharmacists' time seeing Michigan Medicine patients. Michigan Medicine incurred all startup and ongoing costs.

To address financial sustainability, Michigan Medicine participated in care management programs offered by commercial payers to provide funding for pharmacists through their medical benefit under 2 different payment approaches: (1) fee-for-service; and (2) value-based payments. The fee-forservice path allowed pharmacists to bill as care managers. Value-based payments were received for meeting quality measures or engaging an agreed upon number of patients in care management.

Discussion

The MMHPP increases the availability of hypertension management services and continuity of care within a health system by delegating aspects of hypertension management activities from PCPs to MMHPP pharmacists. Patients enrolled in the program who were shown in a previous study to have achieved hypertension control were also demonstrated in this study to have fewer PCP visits and be more likely to receive a referral (e.g., cardiologists, nutritionists, social workers) for appropriate health and social services. The interview findings reinforce the program's impact on the availability of hypertension management services and referrals, when needed, to different health care team members to enhance continuity of care. Respondents indicated that the program improves efficiency by maximizing the use of team members' skillsets, increasing overall patient care capacity, and improving patient satisfaction. The shared responsibility of hypertension management through a TBC approach may also allow physicians to have more time to address other health conditions or issues with patients or to see additional patients. Key facilitators for program sustainability and replicability included buy-in by physicians and leaders, bidirectional communication facilitated by shared EHR access, and funding mechanisms for implementation and ongoing program costs.

By increasing the availability of hypertension management services and reducing the time physicians need to allocate to addressing hypertension management, the program may indirectly enhance access to primary care services in a health system. Increased availability of services through integration of pharmacists in TBC models in the Veterans Health Administration has been described for the management of chronic conditions for rural communities.[22] Availability of services is a dimension of access to care. Future research in this area could include a focus on other dimensions of access including accessibility, accommodation, affordability, and acceptability. Future studies on similar programs may also compare the reach of the clinic pharmacy to the community pharmacists. Programs can work to ensure access to care is enhanced equitably and that program implementation includes a focus on culturally appropriate care.

These findings add to the body of evidence that TBC can improve patients' health outcomes and enhance workflow and well-being, among care team members.[6–16] The facilitators for sustainability and replicability identified align with those previously stated as important factors for TBC.[23–25] The primary challenge to sustainability of the program was the limited options for reimbursement of pharmacist patient care services. This is a known challenge to sustainability of pharmacist patient care services.[14,16,25] While the MMHPP and associated clinics established both fee-for-service and valuebased reimbursement arrangements with some payers, payment for billable services was lower than program costs per patient. Further, the reimbursement arrangement varied by payer, which added complexity.

Health systems implementing or expanding pharmacist hypertension management programs may consider ensuring seed or start-up funding as well as a sustainable funding model for ongoing program costs. Developing a variety of arrangements with payers, including fee-for-service and value-based payments, may enhance program sustainability. Additionally, they should be aware that establishing collaborative practice agreements can be challenging because requirements differ due to variations in state laws. Understanding the state and local context including scope of practice laws, payer priorities, and patient population is important for program implementation and expansion.[26]

Other programs have used a variety of mechanisms to fund the inclusion of pharmacists in TBC for chronic disease. Compensation mechanisms to support pharmacists in federally qualified health centers providing medication therapy management (MTM) for patients with hypertension have included grants, shared budgets, clinic funding that is not allocated to specific services, and billing through payer MTM program-integrated platforms.[24] Programs in settings including federally qualified health centers and community pharmacies have funded pharmacist MTM services by partnering with not-for-profit health insurers as part of a patient-centered medical home.[27–29] Reporting from these programs has described benefits from the established culture, relationships, infrastructure, and disease management programs.[24,27–29]

This evaluation was subject to previously reported limitations.[18] The analysis was retrospective using available EHR data and patients were not randomized to the intervention. To mitigate this limitation, we implemented a modern causal inference approach to match the groups. Since the intervention group was defined by those who had at least 1 pharmacist visit, there is a potential for bias due to unmeasured characteristics, such as socioeconomic status and motivation. Additionally, this evaluation did not assess the number of referrals by pharmacists that resulted in completed visits. Furthermore, it did not directly measure the impact of the program on the number of available PCP appointments within the system. Nor did it assess the amount of time physicians were able to dedicate to other patient health concerns beyond those related to hypertension or to other patients. Finally, this evaluation did not collect qualitative data from the intervention patients.

Conclusion

Adding pharmacists to the care team enhanced availability of hypertension management services through the MMHPP, a TBC approach that applies the Pharmacists' Patient

Care Process. These findings add to the body of evidence demonstrating that including pharmacists in the care team can improve patients' health outcomes, as well as the care team's process outcomes including efficiency, team member workload, and well-being. Support from leaders and physicians, shared EHR access, and partnerships with payers that address reimbursement challenges can each improve program sustainability and replicability. Health systems and clinical sites aiming to increase capacity for hypertension management may consider implementing or expanding TBC hypertension programs that include pharmacists.

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Interview respondents were assured raw data would remain confidential.

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Key Points

Background:

- High blood pressure or hypertension is prevalent in the United States.
- There is expected to be a shortage of primary care physicians in the coming years.
- Involving pharmacists in team-based care is recommended based on strong evidence of effectiveness for improving hypertension control.

Findings:

At the Michigan Medicine Hypertension Pharmacists' Program, patients with hypertension who visited a pharmacist:

- Had fewer primary care physicians' visits over 3- and 6-month periods compared to a matched comparison group that did not see a pharmacist and were 1.35 times more likely to receive a referral to a specialist within a 3-month period.
- Leading factors for program sustainability and replicability were support from leaders and physicians, shared electronic health record access, and financial backing.

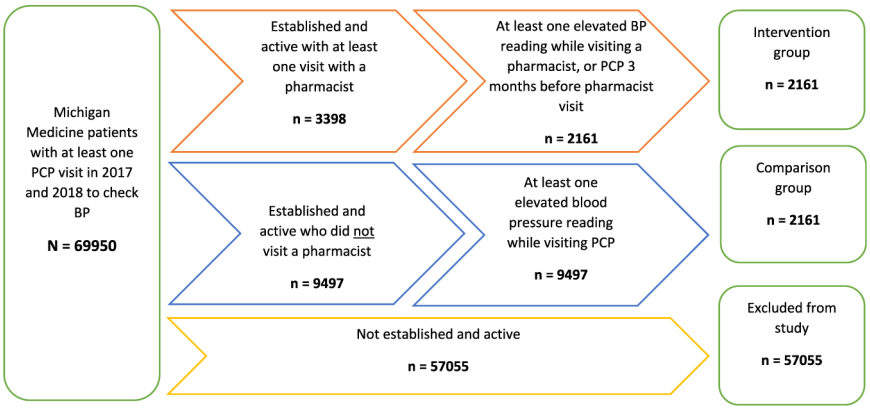

Figure 1.

Intervention and comparison group determination. Abbreviations: PCP, primary care provider, BP, blood pressure.

Table 1

Sociodemographic and disease characteristics used to match intervention and comparison patients, Michigan Medicine Hypertension Pharmacists' Program, 2017–2018

	MMHPP intervention group (n = 2161)		Matched comparison (n = 2161)	
	Mean	**SD**	**Mean**	**SD**
Age	57.3	12.8	57.3	12.4
	n	**%**	**n**	**%**
Sex				
Male	1009	46.7	971	44.9
Female	1152	53.3	1190	55.1
Race[a]				
White	1436	66.5	1547	71.6
Black	493	22.8	393	18.2
Asian	123	5.7	101	4.7
American Indian	1	0.1	7	0.3
Native Hawaiian	1	0.1	1	0.1
Other	61	2.8	50	2.3
Multiple selections	28	1.3	26	1.2
Refused or unknown	18	0.8	36	1.7
Ethnicity				
Hispanic	62	2.9	44	2.0
Non-Hispanic	1889	87.4	1944	90.0
Multiple selections[b]	52	2.4	115	5.3
Refused or unknown	158	7.3	58	2.7
Insurance				
Commercial		58.0		58.7
Medicare		10.1		9.5
Medicaid		30.6		30.7
Other		0.2		0.1
Unknown		1.0		1.0
Disease history				
Diabetes	785	36.3	788	36.5
Chronic kidney disease	374	17.3	390	18.1

Abbreviation used: MMHPP, Michigan Medicine Hypertension Pharmacists' Program.

[a]The race variable in the electronic health record included a category called "unknown." However, 1 patient had no information on race (i.e., blank, missing), and this patient was excluded from matching.

[b]Across different time points.

Table 2

Availability of hypertension management services for intervention and matched comparison patients, Michigan Medicine Hypertension Pharmacists' Program, 2017–2018

	MMHPP intervention group (n = 2161)		**Matched comparison (n = 2161)**		***P* value**
Number of visits with primary care physician	Mean	SE	Mean	SE	*a*
Baseline to 3 mo	0.57	0.02	0.79	0.02	<0.001
Baseline to 6 mo	1.22	0.03	1.55	0.03	<0.001
Patients with 1 or more referrals	***n***	***%***	***n***	***%***	*b*
Baseline to 3 mo	266	12.3	204	9.4	0.003
Baseline to 6 mo	315	14.6	278	12.9	0.102

[a] *P* values were obtained from the Wilcoxon rank-sum test.

[b] *P* values were obtained from the Wald chi-square test.

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Table 3

Qualitative findings from interviews with Michigan Medicine Hypertension Pharmacists' Program leaders, administrators, physicians, pharmacists, data quality managers, and partners

Impact of program on availability of hypertension management services within a health system	
Theme: Increased availability of care through implementation of team-based care approach	
Subthemes	Illustrative quote
Teams • Increases overall clinic efficiency • Frees up primary care provider (PCP) time to focus on more complex health issues • Helps every team member do what they are trained to do to provide the highest quality of care to patients	It does help with my efficiency with that patient because then I can look and see if they've already been seen by their pharmacist like what's goingon, then reinforce that and then move on.... Or if I'm then referring them over, I'll say you know what, you can go ahead and check your blood pressures and then I'm going to have you follow up with my pharmacist, and it allows me more time with that patient to spend on the other medical issues, because I don't have to spend as much time with that counseling and I know that they're going to have good follow-up with our pharmacy. -Michigan Medicine PCP
Patients • Patients are satisfied with team-based approach • Patients find it convenient to have visits at Meijer pharmacies • Reduces wait times for appointments • Increases access to health care	It's had a very, very positive impact. So, it has helped with our provider's access, it's helped with our providers quality of care. It's helped with patient's care. So, I have patients who come back again and say they just learned a lot from the pharmacy appointment about just how to even measure their blood pressure, or the pharmacist has more time to talk about DASH diet and other things, and they can validate their home cuff. And so, they have the bandwidth and the ability to teach the patient more and then also get them under control. -Michigan Medicine PCP
Facilitators that address barriers to sustainability and replicability	
Theme: Leaders and physicians support and buy-in	
Leaders and physicians • Is gained by a dynamic program champion or manager who can translate the program processes to different audiences; guide the initiation of the program; and devote significant time to presenting program data to clinic leadership and other providers • Is necessary in order to institutionalize the program in the clinic workflow • Clearly defined workflows can help earn physician buy-in and ensure referrals	**I Think leadership support has been critical from the start of this program...**I trained at university of Michigan and then went to ... [another institution] ... and so I had that experience of trying to build services, trying to get the physicians to understand what my role was and who to refer to me and why they should send their patients to me and trying to get them on board. I Left there I went to another position and basically repeated all of that. Did all that again. **So I tell my students when I came back to Michigan, in many ways, it felt like they rolled out the red carpet for me and they didn't**. But it was like I arrived on day one and they said, "You'll be in room C10, and here's your schedule full of patients, and here's your collaborative practice agreement signed and ready to go, and do you need anything? Go." **but it was because that's just how it is here. It's part of how care is provided.** -Michigan Medicine Pharmacist
Partners • Partnering community pharmacies and health system must have the shared vision of providing the highest quality of care to patients	**I Think if you have the end in mind, which is providing the best care for Mrs. Jones, then any step that we walk toward to that if you keep that end goal in mind, I think everyone could rally around**. Because everyone in the room agrees that is our end goal. Right? Is to provide the best care to Mrs. Jones who is sitting at the end of the tunnel. Right? **So, I think making sure conceptually we keep coming back to that and why that is important. Because I think every [one] sitting at the table could agree that is the right thing to do. Getting over policies, hurdles, is really the means to get to the other side if we all believe in that vision**. -Michigan Medicine Program leader
Theme: Shared electronic health record access for clinic and community pharmacists	
For pharmacists in clinics • Essential to program implementation • Fosters pharmacist-physician relationship • Facilitates communication between physicians and pharmacists	From my perspective, having read and write access to the EMR or electronic medical record has been a key to our success with this program. For our pharmacists to be able to see what's going on the medical side of the patient and physician relationship is absolutely a differentiator from anything else we're doing with any other partner with a health system partnership at Meijer pharmacy. -Meijer Program leader

For pharmacists in Meijer community pharmacies • Meijer pharmacists can make medication recommendations but need PCP approval; PCPs were committed to a rapid response • Access for community/external pharmacists facilitated through contracts	Having the community pharmacy pharmacies have access to our EMR was really, really helpful because otherwise if you're asking a primary care physician to deal with yet another fax or another phone call or something else, then it's not helpful for them to manage their blood pressure patients. -Michigan Medicine PCP
Impact of program on availability of hypertension management services within a health system	
Theme: Increased availability of care through implementation of team-based care approach	
Theme: Funding and financial Sustainability	
Reimbursement by public and private payers • Michigan Medicine has developed specialized mechanisms for reimbursement through Medicare and private insurers • Value-based incentive funds are important to support the program • Additional payers are needed to expand the program	**Michigan Medicine is fortunate enough that we're huge and we have leadership that recognizes the quality benefits. Like I said of our services, and the fact that we help improve quality which means that we will get paid more from insurance companies for all visits, for the care that we provide, but for smaller organizations, that financial piece is very difficult to prove.** And especially when you look at.... If you have a fee for service [model in] mind, you're not going to pay for your pharmacist that way. So, I would love to see more payers paying for our services...if you look at what we bill and what the insurance companies pay for our visits, it doesn't cover our salary. -Michigan Medicine Pharmacist
Other considerations • Seed funding may be needed for start-up; however, programs need to establish a payment model that can sustain the work • Requiring clinics to pay a portion of pharmacists' salaries helped ensure their value was recognized • Community pharmacists' time needs to be covered by employer	When we talk about sustainability and replicating this program, that financial case is a huge part, right. So billing is the obvious conversation that we have had, and we have payers that are willing to pay for this type of visit ...- our major barrier is building that within our own system. -Michigan Medicine Program leader **But when I came on board, they began paying 100% for the pharmacist's time within that space, which I think is huge. I Think that speaks to how much they value having the pharmacist embedded within their clinics**. -Michigan Medicine Pharmacist