The Pharmacists' Patient Care Process Approach

An Implementation Guide for Public Health Practitioners

Based on the Michigan Medicine Hypertension Pharmacists' Program

Acknowledgments

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Contents

Commonly Used Acronyms

AHA: American Heart Association

BPA: best practice alert

CDC: Centers for Disease Control and Prevention

CPA: collaborative practice agreement

DHDSP: Division for Heart Disease and Stroke Prevention

EHR: electronic health record

HEDIS: Healthcare Effectiveness Data and Information Set

NCQA: National Committee for Quality Assurance

PCP: primary care physician

PPCP: Pharmacists' Patient Care Process

SOAP: subjective, objective, assessment, and plan

Michigan Medicine Hypertension Pharmacists' Program

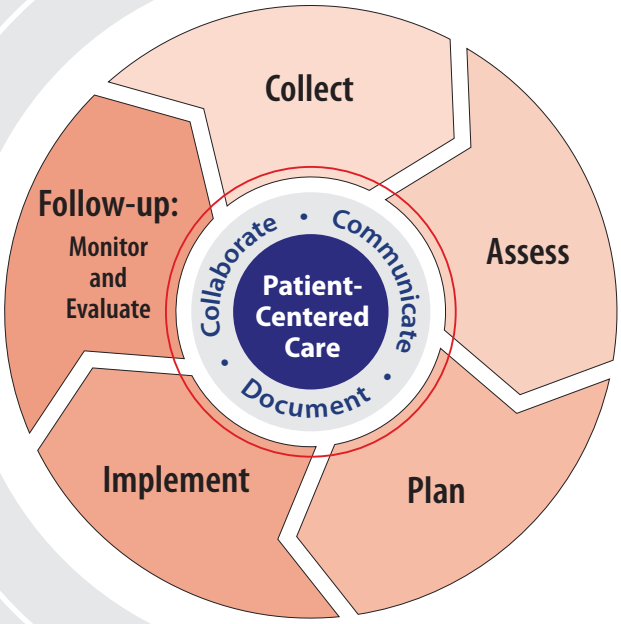


Figure 1. Pharmacists' Patient Care Process (PPCP)

Pharmacists' Patient Care Process (PPCP) Framework

1. Introduction

The goal of this implementation guide is to support public health practitioners' engagement of pharmacists in hypertension management through the Pharmacists' Patient Care Process (PPCP). In this guide, we share lessons from an evaluation of a PPCP implementation through the Michigan Medicine Hypertension Pharmacists' Program (hereafter referred to as the Michigan Medicine Program).

This document is intended for public health practitioners and health care professionals who are interested in implementing a hypertension pharmacists' program rooted in the PPCP.

The PPCP, endorsed by the Joint Commission of Pharmacy Practitioners (2014), is recommended as a standard health care approach for patients with chronic conditions, including hypertension. The PPCP uses a team-based care approach, incorporating pharmacists as part of a multidisciplinary team to improve patients' quality of care. Incorporating pharmacists in patient care is an important consideration because their involvement has been shown to improve long-term blood pressure control (Hwang, Gums, & Gums, 2017) and decrease racial and socioeconomic disparities (Anderegg et al., 2016).

Throughout this guide, we draw on examples of PPCP implementation as illustrated by the Michigan Medicine Program. This guide includes three primary sections:

» Starting a Hypertension Pharmacists' Program

» Core Elements of the Michigan Medicine Program

» Program Monitoring and Evaluation

Readers may find it helpful to consult the list of commonly used acronyms at the beginning of the guide, the glossary of key terms in **Appendix A**, and the list of references at the end of the guide.

1.1 Background

Hypertension is a major risk factor for heart disease and stroke, two of the leading causes of death in the United States (Fryar et al., 2017; Centers for Disease Control and Prevention [CDC], 2017a; CDC, 2017b; Merai et al., 2016). Based on application of the 2017 American College of Cardiology/American Heart Association (AHA) Hypertension Guideline (Whelton et al., 2018), 47% of U.S. adults have hypertension (CDC, 2021). Of adults diagnosed with hypertension, only about 1 in 4 have their blood pressure under control (<130/80 mm Hg) (CDC, 2021). Hypertension is costly, for both individuals and health systems. For example, an individual in the United States with hypertension is estimated to incur nearly $2,000 more in annual health care expenditures than someone without hypertension (Kirkland et al., 2018). The annual cost of hypertension to the United States is estimated to fall within a range of $131 billion to $198 billion (Wang, 2017; Kirkland, 2018).

Given the prevalence and health-related burden of hypertension, CDC's Division for Heart Disease and Stroke Prevention (DHDSP) used a systematic screening and assessment methodology (Leviton & Gutman, 2010) to identify promising interventions that reduce death and disability due to heart disease and stroke by improving blood pressure control. The Michigan Medicine Program was selected for a rigorous evaluation to assess its effectiveness and to identify aspects of this program that might be replicated. The Michigan Medicine Program was selected because an evaluability assessment showed they have fully implemented the PPCP, successfully expanded the program to provide services to patients in community-based locations through a partnership with Meijer Pharmacy, and demonstrated promising outcomes and the availability of program data.

1.2 Program Overview

Michigan Medicine began embedding pharmacists in primary care clinics in 1999 to provide direct care to patients with diabetes, hypertension, and hyperlipidemia. This umbrella pharmacist program, originally implemented in one primary care clinic using collaborative practice agreements (CPAs) which delineated roles and supported effective collaboration between physicians and pharmacists and was expanded over time to all 14 primary care clinics, including select specialty clinics within Michigan Medicine.

In 2016, health system leaders at Michigan Medicine reviewed Healthcare Effectiveness Data and Information Set (HEDIS) measures and determined that goals related to hypertension in adults were not being met (Vordenberg et al., 2019). In response, Michigan Medicine began implementing quality improvement strategies to improve the process for identifying, treating, and monitoring hypertension in ambulatory care clinics and community-based settings. The Michigan Medicine Program is the result of incorporating pharmacists into both ambulatory care clinics and the community settings.

Michigan Medicine Program

- A structured and standardized approach for pharmacists to work with patients to address hypertension through implementation of the PPCP.
- Originally established within Michigan Medicine ambulatory care clinics.
- The program was expanded to provide patients with access to pharmacists at community-based locations through a partnership with Meijer, a regional supermarket with retail pharmacy.

The Michigan Medicine Program have pharmacists who provide direct patient care using the PPCP (**Figure 1**) to engage them in developing and implementing strategies to manage their hypertension.

Central to the Michigan Medicine Program is a hypertension best practice alert (BPA), which prompts physicians to refer patients who have two consecutive elevated blood pressure readings during a clinic visit to see a pharmacist. The hypertension BPA is currently implemented in 8 Michigan Medicine primary care clinics and selected specialty clinics.

The program initially included only services provided by pharmacists within Michigan Medicine ambulatory care clinics and was expanded based on growing evidence that many patients find community-based pharmacists more accessible and these pharmacists can improve patient outcomes (Vordenberg et al., 2019; CDC, 2012; Cranor, Bunting, & Christensen, 2003). In 2016, Michigan Medicine began partnering with Meijer, a regional supermarket with retail pharmacy.

Best Practice Alert

- At Michigan Medicine, if a medical assistant records an elevated blood pressure reading in a patient's electronic health record (EHR), the medical assistant receives an alert to repeat measurement by taking a second blood pressure reading 5 minutes later.
- If the second reading is also elevated, the physician can refer the patient to follow-up with a pharmacist by signing a referral order.

The partnership started with two Meijer (i.e., community-based) pharmacy locations and then expanded to a third in 2018 and fourth in 2020. Meijer community-based pharmacists have become contracted employees of Michigan Medicine.

1.3 Why Consider the Pharmacists' Patient Care Process (PPCP)?

CDC's evaluation of the Michigan Medicine Program included an examination of patients' EHR data and discussions with program staff. CDC identified the following clinical and health system benefits that resulted from implementing the PPCP:

» **More Michigan Medicine Program patients, across clinic or community settings, achieved blood pressure control.** Patients who participated in the program were more likely to achieve blood pressure control within 3 and 6 months of starting the program than those who did not participate.[1]

Participants

BP control at baseline	BP control at 3 months	BP control at 6 months
0%	**66.3%**	**69.1%**

Non-participants

BP control at baseline	BP control at 3 months	BP control at 6 months
0%	**42.4%**	**56.5%**

» **More patients maintained their blood pressure control.** Participating patients maintained blood pressure control for more days within 3 months of starting the program than patients who did not participate.

» **More revenue through quality incentives.** Improvements in blood pressure control provided the Michigan Medicine Program an opportunity to generate revenue through quality incentive programs that offer higher insurance reimbursement for meeting certain high blood pressure quality benchmarks.

» **Improved hypertension medication management**. Patients in the program received better medication management as evidenced by more frequent adjustments to their hypertension medications than those not in the program.

» **Increased primary care physician (PCP) availability to see patients.** Delegation of hypertension patient care responsibilities from physicians to pharmacists frees up physician time. Patients who participated in the program had significantly fewer visits with their PCP, thus allowing more time for those PCPs to see other patients.

More information about the Michigan Medicine–Meijer partnership is provided in Section 3.3.

1 Note that the reported values are not reflective of blood pressure control rates for all of Michigan Medicine. Instead, participants and non-participants were selected because their blood pressure was not under control, thus 0% were under control at baseline.

Potential Program Benefits

- More patients achieving and maintaining hypertension control
- Increased achievement of quality benchmarks
- Improved medication management among patients with hypertension
- Increased PCP availability to see patients

2. Starting a Hypertension Pharmacists' Program

Factors that facilitate effective program start-up include securing leadership support, fostering physician buy-in, and establishing pharmacist privileges necessary to provide effective patient care.

- **Secure Health System Leadership Support.** As described under the "Leadership Support" core element (**Section 3**), securing support from health system leadership is essential for starting a successful hypertension pharmacists' program. Ensure that key leaders understand the value of the program, are willing to advocate for it, and can provide financial support. Such leaders are well positioned to launch the program.
- **Foster Referring Physician Buy-In.** As described under the "Infrastructure and Capacity" core element (**Section 3**), hypertension pharmacists' program success depends on engaging physicians who will refer patients to the program. Ensure that referring physicians understand the program's benefits and are confident that pharmacists will add value to patient care. In turn, physicians are more likely to support program implementation.
- **Provide Pharmacist Access to Patient's EHRs.** As described under the "Infrastructure and Capacity" core element (**Section 3**), establishing a means for pharmacists to access patient's EHRs can be very helpful. Access to patient's EHRs allows pharmacists to prepare for and document encounters with their patients, ensures strong communication of patient care plans with other health care providers, and facilitates delivery of high-quality patient care.

In considering these facilitators and the program's core elements described in **Section 3**, readers are encouraged to think about the unique characteristics, needs, and assets of their particular organizational setting.

These considerations can inform appropriate tailoring of the program to best fit within the specific organizational context.

3. Core Elements of the Michigan Medicine Program

The Michigan Medicine Program is guided by core elements that are not mutually exclusive but highlight important features of the program. The five core elements:

1. PPCP implementation model
2. Infrastructure and capacity
3. Partnership with community pharmacies
4. Leadership support
5. Sustainability planning

3.1 Core Element: Implementation Model

The PPCP model promotes a patient-centered, consistent approach to care delivery and can be applied to managing patients' hypertension in any pharmacy practice setting (CDC, 2016).

As noted in **Figure 1**, the PPCP includes five steps: (1) collect necessary information about the patient to understand their medical history and clinical status, (2) assess the information collected and analyze the clinical effects of the patient's current therapy to identify problems and achieve optimal care, (3) develop an individualized patient-centered care plan, (4) implement the care plan in collaboration with other health care professionals and the patient, and (5) monitor and evaluate the effectiveness of the care plan and modify it as needed (Joint Commission of Pharmacy Practitioners, 2014). This model represents an effective approach for identifying and working with patients to manage hypertension.

Michigan Medicine's Implementation of the PPCP

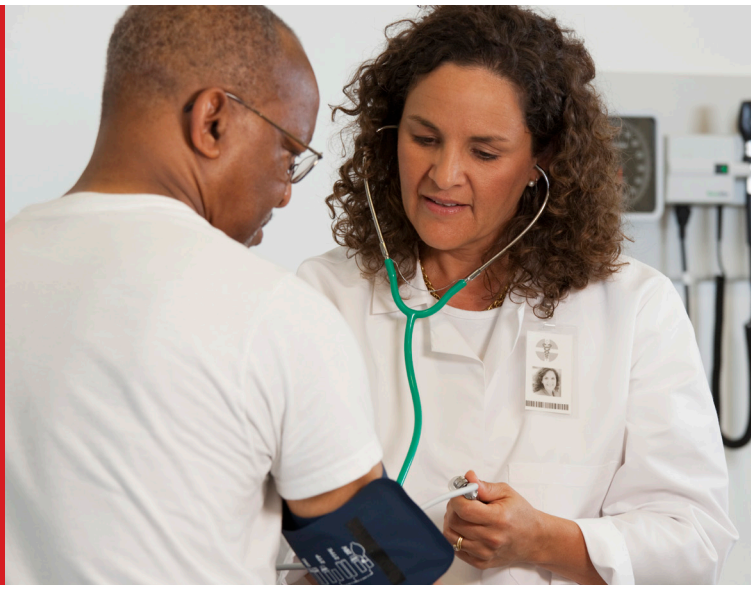
Michigan Medicine based the implementation of their hypertension pharmacy program on the PPCP. Patients with two consecutive elevated blood pressure readings are referred by their PCP for follow-up care with a pharmacist. For patients referred to the program during a clinic visit, scheduling of the pharmacist appointment occurs at the conclusion of their visit. Each subsequent phase of the program is described below.

Collect. After a patient is scheduled to meet with the pharmacist but before a meeting occurs, the ambulatory care clinic- or community-based pharmacist reviews the patient's EHRs for current diagnoses, medication allergies, medical history, current medications and medication history, current symptoms, lifestyle factors, and risk factors for cardiovascular disease.

Assess. After collecting and reviewing the information, the pharmacist meets with the patient, assess their status, and fill in any information gaps. During this appointment, the pharmacist captures missing patient information, including degree of medication adherence, medication side effects, cost-related concerns about medications, blood pressure goals, health perceptions, and priorities. The pharmacist then assesses the patient's current medication therapy plan to ensure its appropriateness, effectiveness, safety, and adherence in the context of their clinical laboratory results, current lifestyle, and health goals.

PPCP Model Aims

- Reduce barriers to care by making health care more accessible
- Improve care through a consistent, team-based approach
- Improve patient engagement through patient-centered care
- Address comorbidities through tailored lifestyle recommendations



Plan and Implement. The ambulatory care clinic or community-based pharmacist develops an individualized medication and lifestyle plan for the patient based on the collected data and their assessment. The pharmacist implements the plan and works with other health care providers and the patient during follow-up visits to consider modifications as needed. Plans may include lifestyle modification recommendations; medication therapy management; and the coordination of referrals to other specialists, such as clinic dietitians, social workers, and behavioral health specialists.

Follow Up: Monitor and Evaluate. The ambulatory care clinic or community-based pharmacist monitors patient medication appropriateness, effectiveness, safety, adherence, lifestyle, and health goals and suggests changes when appropriate. Ongoing monitoring may occur through in-person patient visits.

Potential evaluation topics include the following:

» **Ongoing Program Cost Estimates.**
Michigan Medicine reported that the majority of ongoing monthly costs of providing pharmacists' program services to address all chronic diseases were allocated to staffing, primarily covering time for 5.2 full-time equivalent (FTE) of pharmacists across 14 primary care clinics and a smaller proportion covering clinical program director and administrative staff time. A small proportion of spending was attributed to indirect costs. The program cost estimates reflect the additional resources needed to operate the Michigan Medicine Program within an existing health care system.

» **Ambulatory Care Clinic-Based Pharmacist Services.**
The majority of the ambulatory care pharmacist time was spent providing services to new and returning patients (80%) with smaller portions (20%) spent on coordinating with other health care professionals, conducting chart reviews, and handling other administrative activities. The labor costs for the ambulatory care pharmacists were spread across 14 primary care clinics for managing chronic diseases, including hypertension. On average each month, pharmacists at these 14 clinics had 401 in-person visits and 517 follow-up phone consultations with patients as part of the program.

» **Community-Based Pharmacist Coverage and Services.**
The costs covered by the contracts between Michigan Medicine and Meijer community-based pharmacies provided a flat rate that covered pharmacists' time to provide program services across four pharmacies. On average each month, Meijer pharmacists had 80 in-person visits, at their community pharmacy locations, with patients as part of the program.

3.2 Core Element: Infrastructure and Capacity

Elements of infrastructure and capacity that support effective hypertension pharmacists' program implementation include a staffing plan, official agreements that support effective team-based care, and designated equipment and facilities. A clear staffing structure can ensure that the team has the collective capacity to develop, manage, and implement the program. Program implementation is supported by a team-based approach in which PCPs, pharmacists, and specialists (if needed) work together to provide appropriate and timely support to patients with hypertension. CPAs serve to clarify patient care roles and functions and support effective collaboration between physicians and pharmacists. Finally, ensuring the availability of designated equipment and facilities for pharmacists is important for meeting with patients and supporting them in managing their hypertension through implementation of the PPCP.

Michigan Medicine's Infrastructure and Capacity

Staffing Structure. The staffing structure for the hypertension pharmacists' program includes a core management team, data quality staff, and clinical staff. **Table 1** provides a description of the roles and responsibilities for each staffing category.

Table 1. Michigan Medicine Staffing Categories and Descriptions

Staffing Category	Description
Core Management Staff	• Comprise staff with clinical and administrative expertise who understand the nuances of the program and are committed to its success. • Include three key roles: program director, program manager, and ambulatory care clinic manager. – As noted in **Section 3.4**, the program director drives the program, providing the vision for implementation, serving as a champion, and taking on primary responsibility for fostering buy-in from leadership and others with a strategic interest in the program to support implementation and sustainability. – The program manager coordinates the day-to-day implementation, fosters communication among program leadership and staff, and provides data-based feedback to clinics to encourage performance improvements. – The ambulatory care clinic manager helps program leadership understand the operations within a clinic and informs how the hypertension pharmacists' program is incorporated into a clinic's existing practices.
Data Quality Staff	• Comprise staff who have access to and expertise with clinical and other data. • Ensure the underlying program data are accurate and available. • Support the program manager in providing ongoing performance feedback to participating clinics (e.g., reports of percentages of patients in a clinic following the recommended workflow).
Clinical Staff	• Comprise physicians (and their teams) and pharmacists at both ambulatory care clinics and community pharmacy locations. • Pharmacists at both ambulatory care clinics and community pharmacy locations and referring physicians collaborate to provide timely and effective patient-centered care; this collaboration represents the foundation for the success of the hypertension pharmacists' program. • Physicians remain primarily responsible for a patient's care, and when it is determined to be beneficial, they may refer eligible patients for follow-up care with a pharmacist. In turn, physicians use the EHRs to review ambulatory care clinical pharmacists' medication changes and to approve community pharmacist recommendations for medication changes.

» **Staff Effort to Start the Michigan Medicine Program.**
The Michigan Medicine primary care clinic–based hypertension pharmacists' program was primarily launched by a single clinical pharmacist who served as program director, advocate, and administrator during the start-up phase. Level of effort for this role was about 60%, or 0.60 full-time equivalent.

Support for a Team-Based Approach

Consistent with the PPCP model, Michigan Medicine adopted a team-based approach that involved PCPs and pharmacists (both ambulatory care and community-based) jointly providing patient services. Not only does a team-based approach foster better communication and coordination of care, it has also been shown to encourage active engagement of patients in their own care (Proia et al., 2014). Furthermore, delegation of certain patient care respon-

Ambulatory Care Clinic Start-Up Investment Reflects

- 12 months to plan and implement the program.
- Effort to launch two to four participating clinic sites.
- Dedicated time from staff already employed at existing clinics.

sibilities from physicians to other qualified providers such as pharmacists can help address the projected shortage of PCPs and can free up physician time to address other priorities (U.S. Department of Health and Human Services, 2013).

Collaborative Practice Agreements. It is essential to establish a formal understanding between physicians and pharmacists with respect to patient care management privileges. CPAs between Michigan Medicine ambulatory care pharmacists and clinic providers allow pharmacists to provide disease and medication management services to patients outside of traditional provider-based clinic visits. These pharmacists can then initiate, modify, and discontinue medication therapies using predefined protocols for patients with hypertension, type 2 diabetes, and/or hyperlipidemia. Physicians sign off on the medication changes that ambulatory care pharmacists make, but the changes can be implemented before that sign-off occurs. Michigan Medicine hired Meijer pharmacists as contractors. Under this arrangement, a Michigan Medicine physician reviewed and was required to sign off on each medication change prior to implementation.

Designated Equipment and Facilities. Michigan Medicine leadership noted the importance of having the equipment and facilities necessary to provide adequate hypertension management care to patients. Specifically, they emphasized the importance of having a private area in which to maintain calibrated blood pressure monitoring equipment and underscored the importance of a robust EHR system and information technology support.

It is important to keep in mind that CPA policies that define the scope of practicing pharmacists vary by state (CDC, 2013).

» **Ambulatory Care Clinic Equipment and Facilities Costs.** Before implementing the hypertension pharmacists' program, Michigan Medicine had infrastructure, such as facilities, equipment, and an EHR system, already in place as part of their normal clinic operations. Health systems or other entities hoping to establish a hypertension pharmacists' program that do not have existing infrastructure or equipment will need to estimate and plan for covering costs related to these components.

Additional CPA Resources

Additional CDC resources to support and guide the use of CPAs:

» Pharmacy: Collaborative Practice Agreements to Enable Collaborative Drug Therapy Management

» Advancing Team-Based Care Through Collaborative Practice Agreements

3.3 Core Element: Partnership with Community Pharmacies

Forming partnerships with community-based pharmacies can extend hypertension care services in locations that are convenient for patients. Once a potential community partner is identified, collaboration with organization leadership to clarify and document roles and responsibilities will help solidify understanding and engagement. Collaboration might be achieved through meetings between health system, program, and community pharmacy leadership to inform the content for documentation, including contracts and CPAs (see **Section 3.2**).

Implementation Insight

When feasible, have designated space and reserved blood pressure monitoring equipment to ensure that pharmacists have the privacy and resources needed to effectively engage with patients and implement the PPCP.

» **Implementing a Community-Based Pharmacy Partnership.** Efforts and costs to implement a Michigan Medicine partnership with community-based Meijer pharmacies were primarily attributed to Michigan Medicine program staff labor (i.e., administrative oversight, project coordination, and pharmacist training provided by health system staff). No infrastructure costs were reported for launching the community-based program component, because Meijer had infrastructure, such as facilities and telephones, in place already. Furthermore, Meijer pharmacists were given access to the existing Michigan Medicine EHR system to help facilitate their contributions to patient management and effective collaboration with referring physicians. Health systems and community pharmacies without these infrastructure components in place may incur additional start-up costs.

Additional factors that can facilitate successful engagement of community-based pharmacies through a hypertension pharmacists' program include providing training and ongoing support for participating pharmacists and ensuring EHR access.

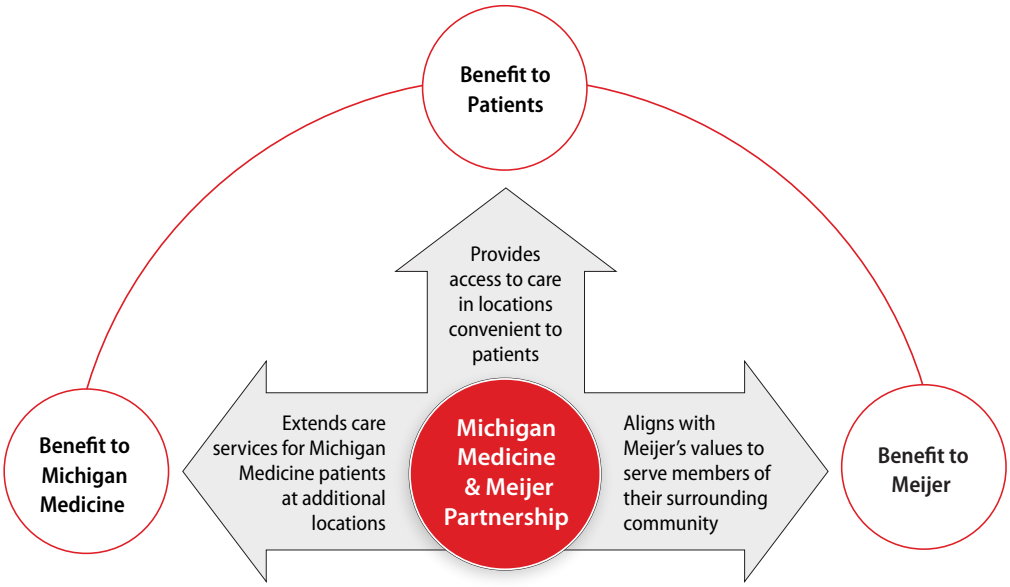
» **Training and Ongoing Support.** This factor is necessary to fully integrate community-based pharmacists into a hypertension pharmacists' program and to standardize care across the program. Training can ensure that community-based pharmacists have a thorough understanding of the program, which, in turn, can foster greater trust between pharmacists and referring physicians and, ultimately, support high-quality patient care.

» **Access to Patient's EHRs.** For community-based pharmacists, this factor is essential to fully integrating them into a hypertension pharmacists' program. Access to EHRs allows community-based pharmacists to view patient information and use communication tools they need to participate seamlessly as members of the provider team.

Michigan Medicine's Partnership with Community-Based Pharmacies

Michigan Medicine began partnering with Meijer to extend services in community-based locations. Patients referred to the program during a clinic visit are given the option to see a pharmacist in a Michigan Medicine clinic or at a Meijer community-based pharmacy. The intended benefits of the partnership for patients, Meijer, and Michigan Medicine are noted in **Figure 2**. Also, a checklist of considerations for partnering with a community-based pharmacy, based on Michigan Medicine's approach, is provided in **Appendix B.**

Figure 2. Benefits of the Michigan Medicine and Meijer Partnership



The partnership with Meijer was officially established through a contract that allows Meijer community-based pharmacy sites to be paid a single flat rate that covers all of their pharmacists' time to see patients as part of the hypertension pharmacists' program. Additionally, Meijer pharmacists as a group have a CPA with Michigan Medicine providers. The agreement allows Meijer pharmacists to recommend medication changes for the patients they see. However, unlike participating pharmacists based in a Michigan Medicine clinic, physicians must approve Meijer pharmacists' recommended medication changes before they are implemented. The typical time frame for physician approval is within 24.

Training and Ongoing Support for Community-Based Pharmacists

Once the contract with Meijer was established, Michigan Medicine provided targeted training and ongoing support for community-based pharmacists to ensure that they were effectively integrated into the program. Michigan Medicine designated a seasoned ambulatory care pharmacist within the program as the point person to work with the Meijer community-based pharmacists to train them:

» Understand the ambulatory care approach;

» Navigate the EHR system;

» Effectively communicate with referring providers through patient notes;

» Understand and comply with system policies and procedures; and

» Hone other skills needed to maximize their contribution to team-based care of patients with hypertension.

The trainer developed tailored materials to support the integration of Meijer community-based pharmacists into the Michigan Medicine system, including a clinical protocol compliance competency worksheet and a SOAP[2] note competency assessment. Thorough training helped ensure a standard program workflow across ambulatory care and community-based pharmacists, create positive interactions, and build trust between referring physicians and community-based pharmacists. Additional ongoing support and supervision are provided through bimonthly video conferences between community-based pharmacists and a team of two Michigan Medicine physicians affiliated with the hypertension pharmacists' program. During these video conferences, Meijer pharmacists can bring cases for discussion, and the team will review and provide feedback to the pharmacists to help support quality program delivery.

Establishing Access to Patient's EHRs for External Pharmacists

Program leadership identified pharmacists' access to EHRs as essential to effective implementation. Even though Michigan Medicine had negotiated and established EHR access for ambulatory care pharmacists, additional effort was necessary to acquire this access for Meijer community-based pharmacists.

[2] This acronym stands for "subjective, objective, assessment, and plan." This is a standard charting plan used in clinical settings based on the medical model of practice. It includes recording a patient's condition and status.

Initially, program leaders had to address concerns within Michigan Medicine before issuing EHR access privileges to providers outside the health care system. Communication with system leaders led to the solution of onboarding Meijer community-based pharmacists as Michigan Medicine contracted employees.

As contracted employees, Meijer community-based pharmacists were given EHR privileges that allowed them to access patient records, communicate directly with referring physicians, and recommend medication changes for the patients they saw. They were provided with Michigan Medicine laptop computers that allowed secure access to EHRs, which, in turn, allowed them to acquire the information needed to serve patients fully and collaborate effectively as members of the health care team. Giving Meijer community-based pharmacists employee status ensured that they would be accountable for complying with all health system policies and procedures.

Program leaders noted that approval for Meijer pharmacists to be hired as contracted employees with EHR privileges paved the way for implementing the community-based pharmacy component of the program.

3.4 Core Element: Leadership Support

Acquiring leadership support at multiple levels of a health system can encourage adoption of the hypertension pharmacists' program and ensure that the program remains a priority. Levels of leadership to consider engaging may include executive, clinical, and day-to-day operational. Leaders at each of these levels help ensure that the program is supported, implemented, and sustained.

Michigan Medicine Engagement of Leadership

The Michigan Medicine Program director met with Michigan Medicine executive leadership, referring physicians, and clinic administrators, and staff to garner support for the program. The director met with representatives at each of these levels to share how the program was affecting quality and patient outcomes. The director's role in pursuing these connections, advocating for the program, and framing the potential benefits in ways that were compelling to each level of leadership was noted as an essential facilitator in obtaining support.

The Importance of Institutional Knowledge

The Michigan Medicine Program director's institutional knowledge, understanding of quality improvement processes, and grasp of the potential importance of the program to leaders at different levels within the health system were critical to establishing and sustaining leadership support.

For example, in approaching different leaders, the program director understood that:

» Executive Michigan Medicine leaders need to see how the program can support the health system in achieving quality benchmarks to encourage their support for initial financial investment in the program and promotion of clinical staff buy-in;

» Clinical staff in both ambulatory care clinic and community settings need to see the potential benefits to patients (e.g., improved patient outcomes) and feel confident that patient information will be protected in order for them to support the program through patient referrals; and

» Operational staff need to see how and why the program is integrated into clinical processes so that they can support effective implementation.

Establishing partnerships with community-based pharmacies requires engagement of community-based pharmacy leadership to develop a shared understanding of roles and responsibilities.

Sustaining the PPCP Approach

Those interested in implementing a PPCP-based hypertension pharmacists' program can work with payers and health care providers to explore and discuss available payment models that can sustain the program.

3.5 Core Element: Sustainability Planning

Planning for sustainability early can support longevity of the hypertension pharmacists' program. Identifying factors that will promote sustainability and incorporating them into implementation are important steps. Furthermore, conveying these factors (and efforts to support them) to anyone who provides support to the program can help them see the viability of a hypertension pharmacists' program and the value of continued investment.

Sustainability at Michigan Medicine

Michigan Medicine Program leadership identified the factors in **Table 2** as important to facilitating hypertension pharmacists' program sustainability.

Table 2. Factors Supporting Sustainability of the Michigan Medicine Program

Sustainability Factor	Description
Dedicated Staff (See Section 3.2, Table 1)	• Engage clinical and community staff and others responsible for program management and implementation in the program's planning. • Support community pharmacy engagement in patient care management through CPAs and contracts. • Foster strong communication and program buy-in among members of the healthcare team through regular data-driven feedback.
Designated Clinical Space and Equipment (See Section 3.2, Designated Equipment and Facilities)	• Allocate private clinical space and designate equipment (e.g., blood pressure monitors) to support quality engagement with patients in clinic and community-based settings. If these resources are not already available, incorporate them into program cost planning, because they are necessary for sustaining the program.
Shared Pharmacist–Physician EHR Access (See Section 3.2, Collaborative Practice Agreements)	• Secure EHR access for pharmacists to support communication with other practitioners in both clinic and community settings (including referring PCPs) and to facilitate delivery of high-quality patient care.
Ongoing Funding (See Section 3.2, Infrastructure and Capacity)	• Establish CPAs to enable privileges for Michigan Medicine pharmacists. These agreements can tie pharmacist services into the Blue Cross Blue Shield of Michigan (BCBSM) reimbursement model, which recognizes pharmacists as care managers. • Require partner clinics (in both ambulatory care clinic and community-based settings) to pay a portion of a pharmacist's salary to facilitate full engagement in the program.
Leadership Support (See Section 3.4, Leadership Support)	• Seek leadership support in both clinic and community-based settings by sharing program information with leaders, including updates on the services that pharmacists are providing in clinics and how these services affect patient outcomes, achievement of quality benchmarks, and other factors that might facilitate buy-in.

Find more resources to guide implementation and support sustainability in **Appendix C.**

Monitoring and Evaluation Resources

See the following CDC website for resources that may support effective program monitoring and evaluation.

Evaluation Guides & Toolkits

4. Program Monitoring and Evaluation

Program monitoring and evaluation provide three primary benefits:

» Enabling measurement of progress toward program goals;

» Identifying opportunities for program improvement; and

» Demonstrating program effectiveness.

In this section, we include a brief overview of core concepts and issues to consider when evaluating a hypertension pharmacists program.

Program evaluation requires a systematic approach that can support program improvement and accountability. The CDC Framework for Program Evaluation in Public Health provides a structured approach to program evaluation (CDC, 1999; https://www.cdc.gov/eval/framework/). The framework comprises a series of steps that outline the essential elements of effective program evaluation.

Engage Others

Early in the evaluation planning process, engage those with strategic interest in the program to identify appropriate evaluation questions and define the most meaningful program- and patient-level outcomes to assess the program's impact. Their early involvement may increase support for the evaluation as it is implemented and to act on evaluation findings. In addition to the core implementation team (i.e., program director and management staff), consider engaging clinical staff (e.g., pharmacists, physicians), health system leadership, patients, and other people and organizations invested in the program, the evaluation's results, and how those results might be used.

Describe the Program

Start by gaining a thorough understanding of the program, its costs, and how program activities are intended to link to outcomes of interest. Then develop a logic model that depicts key components of the program, how those components relate to one another, and how they relate to the intended outputs and outcomes. The Michigan Medicine Program Logic Model is included in **Appendix D**.

Logic Model Resources

Visit the CDC Program Performance and Evaluation Office website for logic model resources.

Focus the Evaluation

Using the program logic model, as well as other pertinent information gathered about the program, develop evaluation questions and then an overall evaluation design. Select evaluation questions that align well with program objectives. Evaluation questions might focus on program processes, outcomes, and/or costs. Process evaluation questions can support understanding of how a program is being implemented. Outcome evaluation questions can help explore a program's effects on specific outcomes. Cost or economic evaluation questions help identify, measure, and assess the costs of starting and implementing a program. Evaluators need to assess the types of data required to address each evaluation question in a way that those with a strategic interest in the program will find compelling. **Table 3** provides the overarching evaluation questions and corresponding data sources used to guide the evaluation of the Michigan Medicine Program.

Table 3. Sample Evaluation Questions and Corresponding Data Sources

Process/Implementation	Interviews	EHR Data	Cost Data
• What are the key factors that affect implementation of the program?	◆		
• What is needed to support sustainability of the program?	◆		◆
• To what extent is the program transferable and replicable?	◆		
Outcomes/Effectiveness			
• What is the reach of the program?	◆	◆	
• To what extent does the program improve patient outcomes?	◆	◆	
• To what extent does the program improve organizational outcomes?	◆	◆	
Cost			
• What are the costs and savings associated with implementing the program?			◆

Gather Credible Evidence

Gathering evidence that will be seen as credible requires planning. Identify the indicators, methods, and sources of information that will be used to address each of the proposed evaluation questions. Specify an approach for collecting the data (e.g., conducting primary data collection, relying on already available data, such as patients' EHRs) and for analyzing the information (e.g., pre-post, control vs. comparison).

Data collection for the Michigan Medicine Program evaluation included a review of quantitative data (EHRs and cost) and qualitative data (e.g., transcripts of interviews).

Justify Conclusions

Regardless of whether an evaluation is conducted to show program effectiveness, help improve the program, or demonstrate accountability, analysis and interpretation of findings is an important step. Once analysis is complete, it is important not only to interpret the evaluation data to determine the extent to which the program was effective at achieving outcomes of interest but also to describe any contextual factors that might have influenced the findings and to describe any data limitations. It is important to engage those with a strategic interest in the program during this process, because they can help review the data, provide additional context, and identify potential uses of the findings. CDC engaged key contacts from the Michigan Medicine Program in the development of the evaluation data collection, analysis approaches, and understanding the full context of the findings.

Ensure Use and Share Lessons Learned

The ways in which evaluation results will be used and disseminated can be considered before the evaluation period ends. Program data can be used to address evaluation questions and also be shared in real time with the program team to inform immediate program improvements. For example, Michigan Medicine Program's leadership team monitors BPA data and provides regular feedback to clinic teams to ensure the BPA system has the intended effect on referrals to the program.

Sharing lessons learned is a key step in evaluating a program because it can help inform the field and build the evidence for using a particular strategy. When disseminating findings, consider multiple communication channels, such as evaluation reports, executive summaries, fact sheets/briefs, newsletter articles, formal and informal presentations, and journal publications. Finally, and perhaps most importantly, use the evaluation findings to identify ways to further improve the hypertension pharmacists' program.

The Michigan Medicine Program team has disseminated program evaluation findings through internal and external communication channels, including peer-reviewed publications (e.g., Vordenberg et al., 2019).

Pharmacy Resources

Additional CDC resources to support integration of pharmacists into clinical care:

Pharmacy Resources

5. Conclusion

5.1 Overall Strengths of the Michigan Medicine Program

The Michigan Medicine Program has shown promise in providing patient-centered care, improving blood pressure management among program participants, and supporting the health system in achieving quality benchmarks. Core elements of the program are implementation of the PPCP model, infrastructure and capacity, partnership with community pharmacies, leadership support, and sustainability planning. Incorporating all five of these core elements has supported Michigan Medicine in providing high-quality, patient-centered care to patients with hypertension. Some strengths of this program include how it:

- Promotes patient-centered care based on the PPCP, an evidence-based approach that incorporates pharmacists as part of a multidisciplinary team to improve quality of care;
- Demonstrates early and effective engagement of health system leadership to support adoption, implementation, and sustainability;
- Includes use of official agreements (CPAs for ambulatory care pharmacists and contracts for community-based pharmacists) to establish necessary privileges (e.g., access to EHRs) and support effective collaboration between pharmacists and physicians; and
- Engages community-based pharmacy partners to expand program accessibility and convenience for patients.

Readers are encouraged to consider the context of their organizational setting and adapt this program as appropriate.

5.2 Key Recommendations for Program Implementation and Maintenance

This evaluation resulted in the following key recommendations for implementing the PPCP based on the Michigan Medicine Program and similar approaches:

- Consider an approach with a standardized scope of services that includes all five steps of the PPCP as described in "Using the Pharmacists' Patient Care Process to Manage High Blood Pressure" (CDC, 2016).
- Ensure that the team includes a program director with applied institutional knowledge, understanding of quality improvement processes, ability to leverage relationships, and willingness to be persistent in championing the program.
- In addition to a strong program director, ensure that the team includes program administration staff (e.g., managers), data quality staff to monitor implementation, and clinical staff (e.g., pharmacists, referring PCPs).
- Engage health system leaders at the executive, clinical, and operational levels by demonstrating the value of the program in ways that are relevant and compelling to their roles and responsibilities.
- Develop tools (e.g., BPAs) to support physician referrals to the program and a plan for delivering timely, data-driven feedback (i.e., referral activity) regarding their implementation of these tools.
- Foster ongoing leadership buy-in by providing updates on the services that pharmacists are providing in clinics, how these services affect patient outcomes, and how they support achievement of quality benchmarks.
- Identify and address barriers to acquiring EHR access for pharmacists early on to support delivery of high-quality patient care and facilitate effective communication and collaboration between pharmacists and physicians.
- Allocate private clinical space that supports proper blood pressure measurement and designate equipment (e.g., blood pressure monitors).
- Use formal agreements (e.g., CPAs, contracts) to establish a clear understanding of roles and responsibilities for physicians and pharmacists with respect to patient care management privileges.
- Provide ongoing training and support for community-based pharmacists to support their understanding of and integration into the larger program.
- When considering this model, assess program costs (e.g., staffing, infrastructure) and compare these with potential options for reimbursement. Identify and continually explore opportunities to support expansion of reimbursement (e.g., onboarding of additional payers) and requirements for obtaining quality incentives to support program sustainability.

In addition to the above recommendations for program implementation and maintenance, the following are barriers and potential solutions identified through the Michigan Medicine Program evaluation that may also be helpful for planning purposes.

Michigan Medicine Program Barriers and Solutions

Gaining physician buy-in to the program

- **Communicate program benefits (e.g., quality of care, patient access) to physicians**
- **Share data to demonstrate to physicians that the model is improving clinic efficiency**

"...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...."

—Michigan Medicine Pharmacist

Obtaining physician referrals to the program

- **Automate physician reminders through the best practice alert (BPA)**
- **Hold face-to-face meetings to remind physicians about program benefits**

"Another barrier is just [referrals] getting lost in the shuffle of all the other things we have to do. So just bringing it up to the forefront repeatedly...."

—Michigan Medicine PCP

Providing Meijer pharmacists access to patient's EHRs

- **Educate leadership about how access will support quality of patient care**
- **Ensure that approvals in accordance with governance procedures are obtained**

"Coming to them with this totally new idea just took a lot of conversation and making sure we had the proper checks and balances with our external pharmacists...."

—Michigan Medicine Program Leader

Patient confusion about the location of appointments when referred to Meijer

- **Use postcards/text messages to explain appointment location**
- **Encourage patients to use their patient portal to access appointment**

"We created postcards to give to patients, and we also built in that they can use their portal to cancel and reschedule appointments."

—Michigan Medicine Program Leader

Patient concern about Meijer access to EHRs

- **Explain that access to patient's EHRs supports high-quality care**
- **Explain that access enables communication among entire team of providers**

"We communicated well at the outset [to patients] that the pharmacist is going to be in their record, and that that's what makes the program strong."

—Michigan Medicine PCP

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For more information, please contact:

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Web: www.cdc.gov
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Appendix A. Glossary

Note: This glossary consists of terminology and definitions as used in this guide. Program implementers may consider using other terms that work for their key audiences.

Key Term	Definition
Best Practice Alerts (BPAs)	A BPA is an alert in the EHR system that automatically notifies clinic staff when a patient has an elevated blood pressure reading.
Electronic Health Records (EHRs)/Electronic Medical Records (EMRs)	EHRs or EMRs are digital versions of patients' paper charts that provide real-time patient records.
Evaluation	Evaluation is defined by CDC as a systematic approach to collecting, analyzing, and using data to determine the effectiveness and efficiency of programs and to inform continuous program improvement.
Logic Model	A logic model is a planning tool that clarifies and graphically displays a program's or evaluation's planned goals, activities, and short- and long-term outcomes or impacts. Logic models help summarize key program elements, provide a rationale for program activities, and clarify intended outcomes. They can be used to communicate and/or interpret outcomes.
National Committee for Quality Assurance (NCQA) Healthcare Effectiveness Data and Information Set (HEDIS[3])	HEDIS, a tool created by NCQA, measures performance on dimensions of health care service and delivery. Health care plans across the United States report on a number of HEDIS measures, which include 80 measures across five domains of care to facilitate the comparison of performance among health care plans. Michigan Medicine Program leadership considered NCQA HEDIS blood pressure measures when developing their program.
Pharmacists' Patient Care Process (PPCP)	The PPCP is recommended as a standard health care approach for patients with chronic conditions, including hypertension. As noted in **Figure 1**, the PPCP includes five steps: (1) collect necessary information about the patient to understand their medical history and clinical status, (2) assess the information collected and analyze the patient's therapy to identify problems and achieve optimal care, (3) develop an individualized patient-centered care plan, (4) implement the care plan in collaboration with other healthcare professionals and the patient, and (5) monitor and evaluate the effectiveness of the care plan and modify it as needed (Joint Commission of Pharmacy Practitioners, 2014).

[3] https://www.ncqa.org/hedis/measures/controlling-high-blood-pressure/

Appendix A. Glossary of Key Terms continued

Key Term	Definition
Quality Benchmark	Quality benchmarks allow continual measuring and comparing of performance metrics within a healthcare organization and across health care organizations. For example, because better care can improve health outcomes and reduce costs, the Medicare Shared Savings Program rewards participating organizations for meeting quality performance benchmarks. These quality performance benchmarks are established by the Centers for Medicare & Medicaid Services and are valid for 2 years.
Qualitative Data	Qualitative data are usually in the notes or transcripts and answer questions that are descriptive (explain why or how); common qualitative analytical methods include participant observation and content, thematic, and pattern analysis.
Quantitative Data	Quantitative data are numerical in nature and answer questions that are quantifiable (specify how much or to what extent); commonly used quantitative analytical methods include descriptive statistics, one- and two-tailed t tests, correlations, cross-tabulations, and multiple regression or other advanced statistical models.
Team-Based Care	A team-based care model is based on a multidisciplinary team comprising the patient, the patient's PCP, and other professionals such as nurses, pharmacists, dietitians, social workers, and medical assistants, who coordinate comprehensive disease management plans.

Appendix B. Michigan Medicine Checklist for Partnering with Community-Based Pharmacies

Community Pharmacy BP Clinic Implementation

I. Contract
   a. Draft contract and send to internal legal department for approval
   b. Send draft contract to community pharmacy for review and edits
   c. Once finalized for both parties, contract is signed and executed

II. Collaborative practice agreement (CPA)
   a. Draft CPA for community pharmacist scope of practice
   b. Obtain appropriate governance approvals
   c. Circulate CPA for medical director/staff signature(s)

III. Compliance
   a. Gather documentation for each community pharmacist
      i. HIPAA training
      ii. License review (monthly)
      iii. Curriculum vitae/resume
      iv. Fraud waste and abuse training
      v. Office of Inspector General exclusion search
   b. MySAM exclusion review
   c. Other institutional requirements

IV. Electronic health record system build
   a. Create scheduling template for clinic hours at each community clinic location
   b. Add new pharmacist providers to EHR access
   c. Provide HIPAA-compliant laptops for community clinics to use for patient visit documentation and physician outreach

V. Clinic resources
    a. Blood pressure machine (3 reading average)
    b. HIPAA-compliant laptop
    c. Manual BP cuffs (multiple size cuffs)
    d. Patient reference materials

VI. Training
    a. Clinical hypertension module
        i. Case studies and protocol
    b. Hypertension and telephone encounter workflows
    c. Hypertension note template
    d. Mock appointments and review

VII. Competency
    a. Complete all required training
    b. Score 100% on clinical protocol and SOAP note competency exams
    c. Establish bimonthly meetings with community blood pressure program medical director(s) to review patient cases

VIII. Referring clinic training and go-live
    a. Train clerical and clinical staff at community blood pressure referring clinics on how to identify appropriate patients, how to schedule at community clinic, and what to expect for documentation and follow-up

IX. Patient and physician surveys
    a. Community pharmacists provide private space for new and returning visit patients to complete patient satisfaction surveys to be placed in locked box and picked up by medical center staff
    b. Distribute electronic physician satisfaction surveys to evaluate awareness and satisfaction of community blood pressure pharmacists

Appendix C. Resources

This appendix includes a selection of links to resources that may be helpful in developing, implementing, and evaluating a hypertension pharmacists' program model.

General Resources	
Best Practices	• This resource provides scientific evidence behind eight strategies for managing hypertension and lowering cholesterol levels. https://www.cdc.gov/dhdsp/pubs/guides/best-practices/index.htm • This resource provides the 2019 American College of Cardiology/American Heart Association guidelines for the primary prevention of cardiovascular disease. https://www.acc.org/latest-in-cardiology/ten-points-to-remember/2019/03/07/16/00/2019-acc-aha-guideline-on-primary-prevention-gl-prevention • This resource provides blood pressure screening recommendations from the U.S. Preventive Services Task Force. https://www.aafp.org/afp/2016/0215/p300.html
Community–Clinical Linkages	• This resource provides a framework for creating linkages between community pharmacists and physicians. https://www.cdc.gov/dhdsp/pubs/docs/ccl-pharmacy-guide.pdf
Collaborative Practice Agreement (CPA)	• The two resources below provide an introduction to CPAs. The first item is a course accredited by the Accreditation Council for Pharmacy Education, and the second item is a brief webinar. – Course: http://elearning.pharmacist.com/products/5399/pharmacist-collaborative-practice-agreements-who-what-why-and-how – Webinar: https://naspa.us/introduction-collaborative-practice-agreements-brief-webinar/ • The course and webinar offer an overview of the impact of CPAs and considerations for implementation. CPAs are used to support team-based care through collaboration between physicians and pharmacists. Through CPAs, pharmacists are granted privileges to provide disease and medication management services to patients outside of traditional provider-based clinic visits. https://www.cdc.gov/dhdsp/pubs/docs/Best_Practice_Guide_CDTM_508.pdf
Evaluability Assessment	• This resource was created by CDC and provides tools and resources needed to conduct evaluability assessments. https://www.cdc.gov/eval/tools/evaluability_assessments/index.html
Evaluation Resources	• CDC's Division for Heart Disease and Stroke Prevention (DHDSP) has developed evaluation tools and resources to assist state health departments, tribal organizations, communities, and partners in their programmatic and evaluation efforts. Although many of the tools and resources were developed primarily for use by DHDSP-funded programs, they may also be of interest to entities not funded by DHDSP or entities working in other chronic disease areas. https://www.cdc.gov/dhdsp/evaluation_resources/guides/index.htm

Appendix C. Resources continued

General Resources

Evidence-Based Practices	• This manuscript describes a conceptual framework for planning and improving evidence-based practices. The framework is an intersection of public health impact and quality of evidence to look at a continuum of evidence-based practices—from emerging, to promising, to leading, to best practices. https://www.cdc.gov/pcd/issues/2013/13_0186.htm • This resource was created through the Million Hearts initiative and provides a list of process improvements developed for ambulatory clinical settings to improve hypertension control. https://millionhearts.hhs.gov/files/HTN_Change_Package.pdf • This resource was also created through the Million Hearts initiative and compiles evidence-based strategies for clinicians to aid in efforts to improve hypertension control. https://millionhearts.hhs.gov/files/MH_HTN_Clinician_Guide.pdf
Pharmacists and Health Information Technology	• This website provides general information about pharmacists' use of health information technology. http://www.pharmacyhit.org/
Pharmacists' Patient Care Process (PPCP)	• The PPCP is used to prevent and manage hypertension through team-based care. This resource offers guidance, tools, and examples for how pharmacists can help improve patient outcomes associated with hypertension. https://www.cdc.gov/dhdsp/pubs/docs/pharmacist-resource-guide.pdf
Pharmacy-Based Medication Adherence Interventions	• This website provides DHDSP resources to help communities and health systems implement pharmacy-based interventions to improve medication adherence for cardiovascular disease prevention. https://www.thecommunityguide.org/findings/cardiovascular-disease-tailored-pharmacy-based-interventions-improve-medication-adherence?deliveryName=USCDCCG_25-DM18589
Professional Organizations	• This website provides general information about the American Society of Health-System Pharmacists. This professional organization represents pharmacists serving as patient care providers in acute and ambulatory settings. https://www.ashp.org/
Team-Based Care	• This resource is designed to advance team-based care by integrating community pharmacists alongside prescribers, supported through formalized relationships through CPAs. https://www.cdc.gov/dhdsp/pubs/docs/CPA-Team-Based-Care.pdf

Appendix D. Michigan Medicine Program Logic Model