

# Evaluation Findings from Michigan Medicine's Hypertension Pharmacists Program

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Division for Heart Disease and Stroke Prevention



## MODERATOR:

Welcome to today's Coffee Break presented by the Evaluation and Program Effectiveness Team in the Division for Heart Disease and Stroke Prevention at the Centers for Disease Control and Prevention. We are fortunate to have Julia Jordan as today's presenter. Julia is an Evaluator on the Evaluation and Program Effectiveness Team in the Division for Heart Disease and Stroke Prevention. My name is Allison White, and I will be acting as today's moderator. I am an ORISE Policy Research and Health Communications Fellow on the

Applied Research and Translation Team in the Division  
for Heart Disease and Stroke Prevention.

## Before we begin...

- All phones have been placed in SILENT mode.
- Any issues or questions?
  - Use Q & A box on your screen
  - Email [AREBheartinfo@cdc.gov](mailto:AREBheartinfo@cdc.gov)



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MODERATOR:

Before we begin, we have a few housekeeping items.

All participants have been muted; however, to improve audio quality, please mute your phones and microphones throughout the presentation unless prompted.

If you are having issues with audio or seeing the presentation, please message us using the chat box feature at the bottom of your screen, or send us an email at [AREBheartinfo@cdc.gov](mailto:AREBheartinfo@cdc.gov)

If you have questions during the presentation, please enter it into Q/A feature found at the bottom of your screen. The presenters will address any questions at the end of the session.

Since this is a training series on applied research and evaluation, we hope you will complete the poll at the end of the presentation and provide us with your feedback.

## Disclaimer

The information presented here is for training purposes and reflects the views of the presenters. It does not necessarily represent the official position of the Centers for Disease Control and Prevention.

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So, without further delay. Let's get started. **Julia**, the floor is yours.



Thanks, Allison. My name is Julia Jordan and I am a Health Scientist on the Evaluation and Program Effectiveness Team in the Applied Research and Evaluation Branch.

In today's presentation, I will discuss our rigorous evaluation to understand how the Michigan Medicine Hypertension Pharmacists Program implements the Pharmacists' Patient Care Process in an ambulatory and community setting. I will then describe how our findings and lessons learned can be used in your collaborations. We will then close out with Q&A and a brief poll.



To begin, I'll go over some background information related to hypertension, the Pharmacists Patient Care Process, and the program we chose to evaluate.

## Barriers to Hypertension Awareness, Treatment, & Follow-up

### Provider-Level Barriers

- Lack of consultation time and reimbursement
- Lack of space, equipment, and staff
- Locating guidance
- Reimbursement for recommended care
- Patient resistant to take more medication

### Common Barriers Reported by Patients

- Affordability may be a barrier to screening
- Availability of medication and its side effects may be a barrier to treatment adherence
- Availability may be a barrier to following up with a provider

### Other Barriers to Utilizing Care

- Transportation to appointments and medication refills
- Hours of service and absence of facilities
- Short durations of consultations
- Subgroup needs

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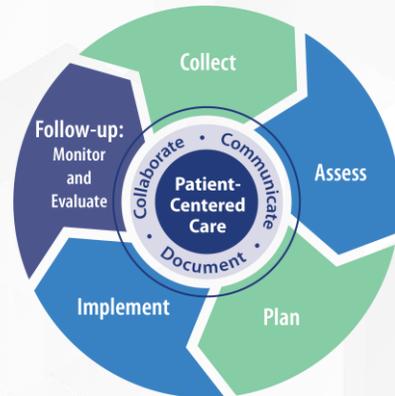
**As we all know...**hypertension is one of the leading chronic diseases in this country.

- Nearly one in two U.S. adults (108 million people) has been diagnosed with high blood pressure.
- Of those who have been diagnosed with high blood pressure, about 82% are aware of their condition
- **Health systems report common barriers to hypertension awareness, treatment, and follow-up, including:**

- A lack of consultation time may impair the ability to follow guidelines,
- Lack of space, equipment, and staff;
- Difficulties in locating guidance on delivering care;
- **Affordability; and**
  - Patient resistance to guideline adherence (e.g., patients wanting to try lifestyle modifications before starting a new medication).
- Affordability and availability were both barriers **impacting patients' treatment** adherence and ability to follow up with a provider.
- **Other barriers to utilizing care consist of:**
  - Transportation difficulties hindering patients' ability to attend their appointment and obtain medication refills,
  - Inappropriate hours for screening services that conflict with working hours,
  - Short duration of physician consultations, and
  - Lack of information targeting population subgroups such as African Americans.

## Pharmacists' Patient Care Process (PPCP)

- Uses a team-based approach to incorporate pharmacists' patient care expertise.
  - Pharmacist involvement can improve long-term blood pressure control and decrease racial and socioeconomic disparities.<sup>5-6</sup>
- Promotes a patient-centered and consistent approach to care delivery.
- Endorsed by the Joint Commission of Pharmacy Practitioners.<sup>7</sup>
- Recommended as a standard healthcare approach for patients with chronic conditions, including hypertension.

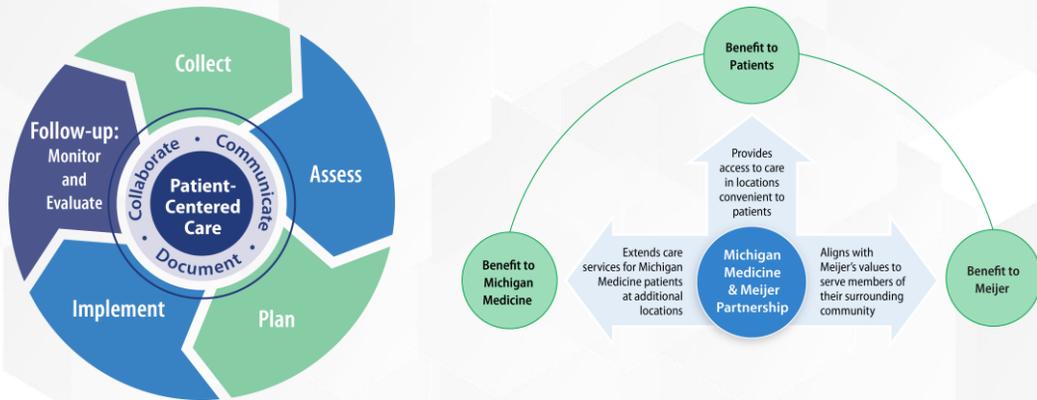


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- DHDSP is committed to understanding the barriers to hypertension awareness, treatment, and follow-up by evaluating different strategies. One method that may be used to increase access to care is the Pharmacists Patient Care Process (or PPCP).
- The PPCP uses a team-based care approach and provides a standardized process of assessment, engagement, implementation, and follow-up. This method of care delivery goes beyond a traditional patient–provider relationship, incorporating pharmacists as part of a multidisciplinary team to improve patients' quality of care.
  - **There is strong evidence that a team-based approach to address blood pressure management is effective in improving control.**
  - Pharmacist involvement has been shown to address the public health burden of high blood pressure by improving long-term blood pressure control and decreasing racial and socioeconomic disparities.

- The PPCP framework is intended to promote a patient-centered and consistent approach to care delivery and can be applied to high blood pressure management in any pharmacy practice setting.

## Michigan Medicine Hypertension Pharmacists Program



We selected the Michigan Medicine Hypertension Pharmacists Program for our evaluation. In this program, hypertensive patients are referred to pharmacists who collect patient data, assess the patient’s drug therapy for appropriateness, plan and implement an individualized medication and lifestyle plan, and monitor the effectiveness and adherence to the plan. This health system also partnered with Meijer, a supercenter chain store with a retail pharmacy to extend pharmacy services in locations that were convenient for patients.

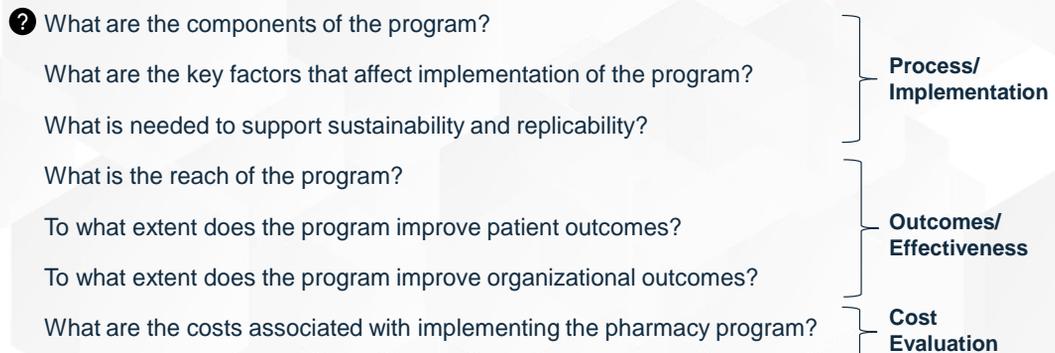
The partnership with mutually beneficial for both Michigan Medicine and Meijer.

- For Michigan Medicine, expanding the Hypertension Pharmacists Program to Meijer pharmacies allows Michigan Medicine patients to receive care at additional locations.
- For Meijer, the partnership with Michigan Medicine aligned with their values to serve members of their surrounding community.
- For patients, the partnership provided increased access to care in location that might be more convenient as opposed to traveling to a designated Michigan Medicine clinic.



Next, I'll go over our rigorous evaluation design.

## Evaluation Questions



- We developed and prioritized evaluation questions based on stakeholder evaluation priorities, a guiding evaluation framework, a review of program documents, and data availability.
- The evaluation questions are broken up into three different domains:
  - Process/Implementation – Looking at the implementation and workflow around the Michigan Medicine Hypertension Pharmacists Program.
  - Outcomes/Effectiveness – Looking at the impact of the pharmacy program
  - Cost – Looking at the costs and reimbursement associated with the program.

This was a mixed-methods evaluation that used qualitative and quantitative data. To answer our evaluation questions, data were collected through the qualitative interviews, the clinic's electronic health record (EHR), and then cost data that Michigan Medicine provided.

## Qualitative Data

- In-depth interviews with Michigan Medicine and Meijer staff conducted during an in-person site visit
- Use deductive and inductive coding to identify themes across interviews
- Findings were triangulate with quantitative findings



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For our qualitative data, we conducted in-depth interviews with Michigan Medicine and Meijer staff during an in-person site visit. This included conducting interviews with pharmacists at Meijer and Michigan Medicine, referring providers, clinic managers, and administrative leaders. We used deductive and inductive coding to identify themes across interviews. These findings were then triangulated with our quantitative findings.

## Quantitative Data

- **Data source:** Patient EHRs
  - One measurement with elevated blood pressure (>140/90)
  - At least 18 years old
- **Population:** Established & Active Patients
  - In the Michigan Medicine Hypertension Registry throughout 2017 and 2018
  - $\geq 1$  visit to Primary Care Provider (PCP) to check blood pressure in 2017 and at least one visit in 2018
  - $\geq 1$  visit with an elevated blood pressure during the 2017–2018 timeframe
- **Measures:**
  - Demographics
  - Insurance Status
  - Diabetes Status
  - Chronic Kidney Disease Status
  - Blood Pressure Measurements: Level and Date
  - Number of Hypertension Medications Prescribed
  - Visits with Healthcare Providers: Date and Type
  - Referrals: Date and Type

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- For our quantitative data, we received data from Michigan Medicine’s EHR in the form of abstracted deidentified data for patients who
  - Had at least one measurement that indicated elevated blood pressure; and
  - Were at least 18 years old at the time of the first elevated blood pressure measurement.

Our analysis used an intervention group and a comparison group to understand patient outcomes, including the percent of patients with their BP at goal, percent of patients with an increase in hypertensive medications prescribed, and the number of visits with the PCP to control blood pressure.

## Cost Data

### Start-up Costs

- Computed the total start-up costs and the amounts allocated to each start-up activity
- Costs represent program implementation in two to four pharmacies

### Ongoing Costs

- Computed the average monthly ongoing costs and how these costs are allocated across program activities
- Integrated data on the average number of patients seen each month

### Reimbursement

- Computed the average reimbursement rate for pharmacy services

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For our cost data, we gathered data directly from Michigan Medicine.

**Start-up Costs:** We computed the total start-up costs of the program and the amounts allocated to each key staff member involved in program start-up.

**Ongoing Costs:** We also computed the average monthly ongoing costs for the program and how these costs are allocated across staff members. We integrated data on the average number of patients seen each month as part of the program to give context to these costs.

**Reimbursement:** We took the reported reimbursement rates used by Michigan Medicine to bill for pharmacy services and computed the average reimbursement rate. Because we did not have claims data or information on the number of patients covered by each payer, we were not able to estimate the exact revenue received for the program.



I'll now go over our results.

## Reach of the Program

- On average, patients were about 60 years old and were evenly split between men and women.
  - Non-Hispanic (about 88%)
  - White (about 70%)
  - Black (about 20%)
- Patients had insurance about 99% of the time:
  - Covered by commercial insurance about half of the time
  - Covered by Medicaid one-third of the time
- For patients in the intervention group:
  - Roughly half had diabetes (about 47%)
  - One in five had Chronic Kidney Disease (about 22%)

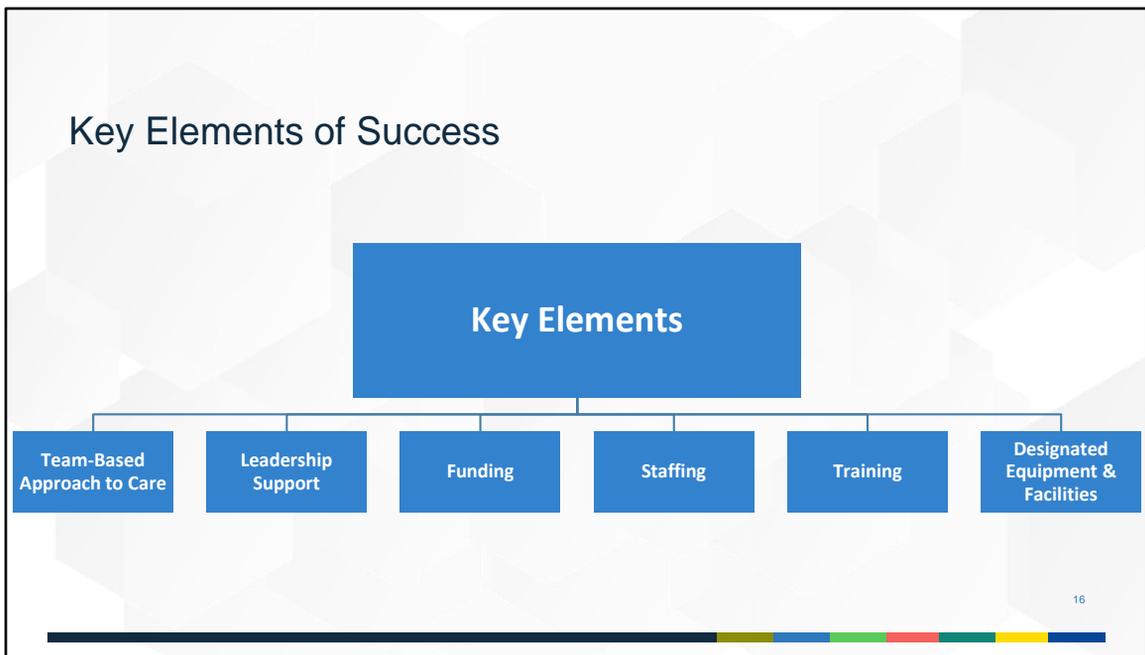


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### Program Reach

- We matched each patient in the intervention group with one patient in the comparison group, which resulted in an analysis sample of 4,322 patients equally split between the two groups.
- When examining the characteristics of the intervention group only, we found that the program reached patients who were on average about 60 years old and were evenly split between men and women.
  - The majority of those reached were non-Hispanic (about 88%) and white (about 70%); one in five patients was black (about 20%).
- Patients reached were covered by some type of insurance (about 99%) of the time during 2017 and 2018.
  - When examining the type of insurance that the patients were covered by, we found that about half of the time patients were covered by commercial insurance, and one-third of the time by Medicaid.
- Clinically, about half of the patients in the intervention group had diabetes (about 47%), and one in five had Chronic Kidney Disease (about 22%).

## Key Elements of Success



Through our qualitative data collection, we were able to understand the key elements of success of the program. Respondents confirmed the importance of staffing, leadership support, funding, and training. Additional components identified as key to program implementation included a team-based approach to patient care and the availability of needed equipment and facilities.

- A team-based approach to patient care is a fundamental component of the program and is consistent with the PPCP approach on which the program is modeled.
  - Respondents discussed the utility of the team-based approach to address the projected shortage of PCPs by spreading responsibility for patient care among a diversity of healthcare providers, including those embedded within Michigan Medicine clinics and located at Meijer community-based pharmacists.
- Additionally, support from leadership within Michigan Medicine was identified as necessary both to institutionalize the program as a standard part of clinic workflow and to ensure that the Hypertension Pharmacists Care Program remains viable in the long term.
- In terms of reimbursement for services at Michigan Medicine clinics, although

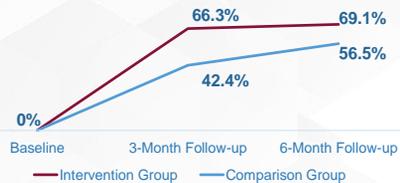
pharmacists are not billable providers in the state of Michigan through Medicare, revenue to support the program is generated by Medicare Part D reimbursement for comprehensive medication review.

- Staff involved in the delivery of the program team include the clinical pharmacists and referring physicians. The core management team at Michigan Medicine consists of staff with clinical and administrative expertise.
- Thorough training was noted as essential, both to support high-quality patient care and to build trust and create positive collaboration between pharmacists and physicians.
  - Program staff described the importance of hiring pharmacists with strong educational and training backgrounds, providing ongoing support and training to Meijer pharmacists, and working with physicians to encourage their adoption of and referrals to the program.
- Program leaders and pharmacists from Michigan Medicine and Meijer noted the importance of having the equipment and space necessary to provide hypertension management care to patients.
  - Specifically, they described the importance of having a private area in which they can implement the PPCP and maintain calibrated blood pressure monitoring equipment (e.g., BpTRU monitor).

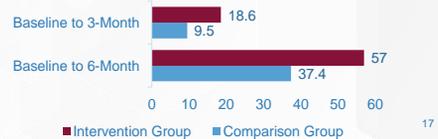
## Hypertension Outcomes

- Increased the availability of services to Michigan Medicine patients
  - Meijer Community Pharmacy locations offer convenience to patients and reduce barriers to follow-up
  - Pharmacists, as care team members, can work directly with patients on hypertension medication planning
  - When pharmacists see existing hypertensive patients, PCPs have more time to accept new patients
- Supported achievement of quality measures
  - Increased the percentage of the patient population with blood pressure under control

Change in Blood Pressure Control Rate



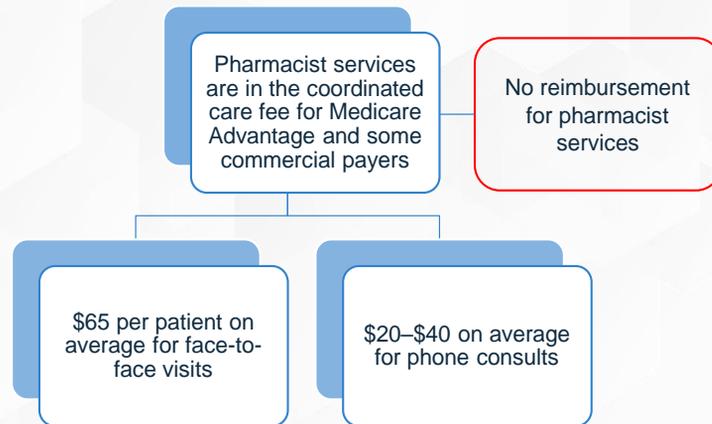
Average Number of Days that a Patient Had Blood Pressure at Goal



Our interviews with program leaders and providers revealed that the Hypertension Pharmacists Program has increased the availability of services to Michigan Medicine patients by extending care services at locations that are convenient for patients. Additionally, including pharmacists as part of the care team allows patients to work directly with pharmacists on hypertension medication plan, which frees up PCP time so that they can accept new patients by transferring existing patients to be managed by a pharmacist.

Additionally, the Hypertension Pharmacists Program has supported the achievement of quality measures. Interviewees reported an increase in the percentage of the patient population with their blood pressure under control and where this appears to coincide with the program’s implementation. The analysis of the EHR data aligns with the qualitative findings. At 3-month follow-up, 66.3% of patients in the intervention group had achieved blood pressure control, compared to 42.4% in the comparison group, which is a statistically significant difference. At 6-month follow up, patients in the intervention group were also significantly more likely to have achieved blood pressure control than those in the comparison group. Similarly, on average, patients in the intervention group had significantly more days with their blood pressure at goal than those in the comparison group.

## Reimbursement Costs



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- Reimbursement for services is an important consideration for program sustainability.
- Michigan Medicine reported that they bill for pharmacist services as part of the coordinated care fee for some of the commercial and Medicare Advantage payers. However, they do not receive reimbursement for pharmacist services provided at Meijer pharmacies, including any additional pharmacist time spent with patients to discuss treatment and adjust medications.
- Interviewees also reported that pharmacists are not billable providers in Michigan through Medicare, and private payers often follow Medicare guidelines for reimbursement. This is a significant barrier to sustaining the program because much of Michigan Medicine's patient population is insured through Medicare.



LESSONS LEARNED AND  
DISSEMINATION

## Lessons Learned

Leadership  
Support

Assess Cost and  
Reimbursement

Formalize Roles  
for Staff through  
CPAs

Shared  
Pharmacist-  
Physician EHR  
Access

Address Patient  
Concerns About  
Community  
Pharmacist Visits

Designated  
Clinical Space  
and Equipment

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Through our evaluation, we also learned a lot about how the program could be replicated in other settings.

Key lessons learned involved the need for leadership support and a strong understanding of the program costs (e.g., staffing and infrastructure) compared with the potential reimbursement options. The evaluation also highlighted the need for formalized roles through Collaborative Practice Agreements and shared pharmacist/physician EHR access. Both of these components help facilitate trust and communication between pharmacists and providers and support the implementation of team-based and patient-centered care. Additionally, it is important to address patient concerns about community pharmacy visits through education on how pharmacists support the management of high blood pressure. Finally, pharmacists need designated, private clinical space to support quality engagement with patients.

**The Pharmacists' Patient Care Practice Approach**  
**An Implementation Guide**  
 Based on the Michigan Medicine Hypertension Pharmacy Program

**Dissemination**

[HTTPS://WWW.CDC.GOV/DHDSP/EVALUATION\\_RESOURCES/GUIDES/PHARMACISTS\\_PATIENT\\_CARE.HTM](https://www.cdc.gov/dhdsp/evaluation_resources/guides/pharmacists_patient_care.htm)

**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

**Starting a Hypertension Pharmacists' Program | 6**

**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.

The Pharmacists' Patient Care Process Approach

We've developed some dissemination materials that may be helpful for others interested in this work. First, we've developed an implementation guide for the Pharmacists' Patient Care Process which is available on the CDC webpage. The guide is for public health practitioners and health care professionals interested in putting a hypertension pharmacists' program rooted in the PPCP into action. It provides guidance on the core elements of this model and how they can be implemented in other settings. The guide also provides information on monitoring and evaluating the PPCP model and how to plan for sustainability.

We've also developed a manuscript that has been accepted at the American Journal of Preventive Medicine.

Link:

[https://www.cdc.gov/dhdsp/evaluation\\_resources/guides/pharmacists\\_patient\\_care.htm](https://www.cdc.gov/dhdsp/evaluation_resources/guides/pharmacists_patient_care.htm)



## MODERATOR

This concludes today's Coffee Break presentation. At this time we will take questions from the audience, please enter your question into the Q/A feature at the bottom of your screen. As we wait for questions from the audience, I'll ask our presenters a question to help start the discussion.

Question: Given that Meijer pharmacists do not receive reimbursement for their pharmacy services, how is the relationship beneficial for Meijer?

Answer: Meijer pharmacists are contracted employees through Michigan Medicine. Through our evaluation, we found that even though they do not receive reimbursement, Michigan Medicine covers their visits through other mechanisms.