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Patient-Centered Hypertension Management: Two Team-Based Models



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Achieving better hypertension control for patients requires thinking outside of typical clinic visits.

Hypertension is a major cause of health problems in the U.S. It affects 47% of adults (116 million people),¹ was a primary or contributing factor in 670,000 deaths in 2020,² and accounts for more than \$1.3 billion in medical costs annually.³

Ideal hypertension management includes checking a patient's blood pressure (BP) in the office or ensuring the patient is correctly using a validated BP monitor at home, consistently recognizing when BP is above goal, discussing an adjusted treatment plan with the patient, following up to monitor the effect of any intervention, and continuing with frequent follow-up care until the patient achieves BP control consistent with national guidelines.⁴

Despite this clear treatment path, improving rates of hypertension control has proven challenging. Barriers include suboptimal clinic workflows, limited staffing, multiple competing patient concerns, and limited appointment availability.

Focusing only on the individual dynamics of the physician-patient encounter has limited potential for improving outcomes in this area. Instead, improved hypertension control requires taking a team-based and patient-centered approach and developing workflows outside of typical clinic visits. There is not a one-size-fits-all solution, as it depends on staffing challenges and clinic resources, but we present two different models that have improved hypertension control at two of our primary care sites.

TWO MODELS

We piloted the two models of hypertension management in primary care within an academic medical center in an urban, historically underserved environment. Site 1 offered a BP clinic led by a nurse practitioner (NP), and Site 2 offered protocol-driven registered nurse (RN) visits focused on hypertension within the general clinic workflow.

At both sites, patients have not always been able to get timely follow-up appointments with their primary care clinician due to lack of appointment availability, cost of copays, and lack of transportation. The COVID-19 pandemic also kept patients out of the office, further reducing hypertension control rates. Control rates at Site 1 fell from 50% pre-pandemic to 40% one year post-pandemic. Control rates at Site 2 fell from 55% to 48%, respectively. Against this backdrop, we launched our pilots.

NP-led BP clinic. Site 1 has 29 clinicians and 30 residents — many of whom have irregular schedules — serving about 21,500 patients. This office already had a practice culture that included using NPs to lead population health initiatives, so developing an NP-led BP clinic was a natural fit for this site.

The BP clinic originally dedicated one NP one half-day per week solely to hypertension-focused, billable visits. Clinicians could schedule patients directly into the BP clinic or refer them to the clinic using an EHR-based referral order that signaled to scheduling staff to contact the patient and make a BP clinic appointment. The referral order allowed clinicians to indicate the purpose of the visit (e.g., evaluation and titration of hypertension regimen, getting

patients a validated BP monitor, hypertension-related education/counseling, or enrolling patients in a self-measured BP monitoring program).

Patients were eligible for the BP clinic if they had elevated BP readings, were on four or fewer BP medications, needed their BP rechecked after a titration of their regimen, or needed hypertension-related counseling including self-monitoring, lifestyle, or adherence support. Referring clinicians told patients that BP clinic visits were to focus only on hypertension. Standard established patient visits at the BP clinic were originally scheduled for 20 minutes, but given the limited scope of these visits, we were able to reduce that to 15 minutes, which improved access. These focused visits were designed to support deeper, more substantive conversations with patients about medication management, adherence, lifestyle changes, and home monitoring. This allowed for medication titration to happen more reliably when appropriate. Patients were given the option of virtual appointments if they had a validated BP monitor at home. Medical assistants assigned to the BP clinic were retrained on best practices for checking BPs and encouraged to recheck if BPs were elevated on intake.

Patients monitoring their BP at home could log their numbers in flowsheets in the EHR. Site 1 used grant money to purchase a set of BP cuffs to loan to patients whose insurance did not cover them. Patients could receive a loaner BP monitor at their BP clinic visit or via a registered nurse visit that included calibration of the monitor. After visiting the BP clinic, many patients chose to continue self-monitoring with ongoing communication with the

KEY POINTS

- Despite clear protocols and effective treatments, hypertension remains challenging to control for many patients.
- Using members of the health care team to perform frequent, brief follow-up visits can improve hypertension control without adding significant costs.
- Telehealth and home blood pressure monitoring can further help, especially for patients who may struggle to get to the clinic for in-person visits.

NP. This was especially useful when time, cost, and transportation barriers did not easily allow for extra clinic visits. As the BP clinic model evolved, Site 1 further engaged RNs to support patient education about lifestyle changes and home BP assessment technique.

Site 1's model included screening for social determinants of health. When NPs identified patients with social needs, they were referred to a social work team, nutri-

There is not a one-size-fits-all solution, as it depends on staffing challenges and clinic resources.

tionist, behavioral health team, or tobacco cessation clinic. Patients at risk for food insecurity were provided food vouchers through the American Heart Association.

Most BP clinic visits met the criteria for CPT codes 99213 or 99214, which made them financially comparable to other visits, or even more productive based on their short duration. After nine months, Site 1 added a second half-day to the BP clinic per week to meet patient demand and maintain timely access. Over 12 months, Site 1 provided 465 visits to 322 patients in the BP clinic. The hypertension control rate in this group improved from 15% to 58%, surpassing the overall practice control rate of 53%. Additionally, the BP clinic served as a resource to quickly evaluate antihypertensive side effects or management of home BP monitor readings.

Protocol-driven RN visits. Site 2, which has 13 clinicians and 22 residents serving 9,200 patients, did not have the staffing capacity to create an NP-led BP clinic. The additional copayments associated with that model also would have been a barrier to care for their patients. Therefore, Site 2 chose instead to offer nonbillable visits with an RN, who briefly sees patients in-person and reports back to clinicians to make treatment changes.

Site 2 patients were scheduled for RN visits either directly by the clinician after a regular office visit at which hypertension was uncontrolled, by reaching out

to patients lost to follow up (e.g., no documented BP assessment in more than 12 months), or by referral after a primary care clinician noticed that a patient had an elevated BP reading at a specialist visit. RN visits were scheduled for 10 minutes and interspersed during the morning while the RN continued their usual responsibilities. The RN followed a protocol that included accurately measuring the patient's BP, reviewing their current medications, and routing that information back to the primary care clinician. The primary care clinician would then review, titrate medications, and decide whether the patient should come back for usual follow up or an additional follow up RN visit within three weeks. The clinician then routed that information back to the RN, who called patients the same afternoon to relay the plan. Patients engaged in RN visits were seen every 2-3 weeks until their BP was controlled and then sent back for their usual follow-up visits with their clinician.

Over the pilot period, Site 2 provided 30 RN visits to 21 patients. All of these patients previously had a BP above 140/90. After four months, 86% of them achieved hypertension control.

Site 2 later expanded this model to include a clinical pharmacist. The visits were structured similarly, with a correctly measured BP and a review of medications and adherence patterns. But the clinical pharmacist could also make management recommendations and draft orders, which were then sent to the clinician to review and sign. The clinical pharmacist was available for 20-minute visits two days per week and also offered diabetic medication titration and medication reconciliation. Similar to the RN visits, the pharmacist visits were not billed. They were financially supported through the 340B drug pricing program at the affiliated hospital's pharmacy.⁵

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LESSONS LEARNED

Both models leveraged the strengths of team-based care and demonstrated meaningful impacts in rates of hypertension control.⁶ Both models also uncovered some challenges that other practices can learn from.

Accurate BP measurement. Correct BP measurement technique is crucial. At both sites, about half of all initially elevated

BP readings were normal when the RNs or NPs rechecked them 5-10 minutes later using best practices. One of the advantages of both models was that focusing on the single issue of hypertension ensured BP checks were correctly and consistently repeated when readings were initially high, because there were no other patient problems competing for time or attention.

Increased access. Both sites identified poor access to appointments as a key limiting factor in successful hypertension management. As mentioned, Site 1 was able to increase access during the pilot by scheduling appointments into shorter slots. This created 3-4 additional hypertension management appointments per half-day session. Site 2 found that one RN seeing three patients in a half day for brief hypertension management visits did not hamper the RN's ability to complete other job responsibilities. Thus, both programs created more patient access for hypertension management.

Fee-for-service payments vs. value-based contracts. Depending on a practice's insurance mix and percentage of value-based contracts, one of our models may make more sense than the other.

Traditional fee-for-service payment is more conducive to the Site 1 model because the NP hypertension management visits are billable. Site 1 was able to utilize an NP's time for these sessions without losing revenue. In fact, it was a slight gain because the shorter, focused visits allowed the NP to see more patients than in a typical half-day session.

Practices with more value-based contracts, however, may find Site 2's model of utilizing RNs or pharmacists to provide this care without direct billing of services to be a better use of resources. It can help improve hypertension control metrics (important in value-based contracts) while preserving clinician time for more complex issues.

Team-based care. Both models required the health care team to work well together. At Site 1, NPs independently made management decisions during visits for patients with uncontrolled hypertension. This required primary care clinicians to make sure patients understood that the BP clinic visits would focus solely on hypertension and to express confidence in the NP to help

ease any reluctance patients might have to accept the NP's recommendations for medication titrations and changes. At Site 2, primary care clinicians made the clinical decisions, but they worked closely with RN and pharmacy staff who provided BP monitoring, counseling, and follow-up communications. Both models fostered a clinic culture where patients come to understand that multiple health care professionals, led by a primary care clinician, work as a team to handle their medical needs.

Home monitoring. Both models incorporated home BP monitoring and data, but this proved troublesome at times. Some patients faced challenges with insurance not covering BP monitors, which required us to secure grant funds for loaners. We also found it is not always easy to obtain a sufficient supply of BP monitors with appropriate cuff sizes to loan out. Many market-based monitors do not include cuffs large enough to obtain accurate BP readings for patients with obesity. Both models required either an RN or NP to instruct patients on proper use of the home BP monitor to get accurate readings. We encouraged patients to enter their data into the EHR's patient portal for additional review, but this proved burdensome and technically challenging for some.

A holistic approach to hypertension management includes addressing social determinants of health.

Social determinants of health. A holistic approach to hypertension management includes addressing social determinants of health such as food insecurity, financial stress, and transportation barriers. Both of our models relied on patient engagement, often requiring in-person assessments. These models may, therefore, struggle to meet the needs of patients with limited transportation or other challenges that prevent them from coming into the office. Telemedicine and home BP monitoring can help, but this population also may have more trouble accessing telemedicine due to lack of broadband internet or compatible devices. ➤

LOW-RESOURCE, HIGH-YIELD INTERVENTIONS

Despite excellent available treatments, hypertension management is complicated and control rates remain low in many practices, with significant room for improvement. Interventions often require more resources, and not all offices have the same resources available. Each practice will need to balance supporting the needs of patients who have hypertension with all the other competing demands of the full scope of acute and chronic care. However, the two models presented here represent low-resource, high-yield interventions to close hypertension care gaps.

Unlike many quality metrics, such as those related to cancer screening, controlling hypertension is not a one-and-done intervention. It requires ongoing support and adjustment of treatment regimens. Models that seek to improve hypertension control must be dynamic and adapt to patient values and staffing capacity. Interventions must be ongoing and embedded into routine office operations so that at any given time practices can place patients with uncontrolled hypertension into an intervention that will bring their hypertension quickly under control. We plan further study to more

deeply understand the interventions that brought about the results of our two models, and we hope other practices can adapt and incorporate them to similar success. **FPM**

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