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# Improving Blood Pressure Control With Strategic Workflows

Setting a goal, identifying the right patients, and implementing team care can help bring hypertension under control.

**T**he Centers for Disease Control and Prevention (CDC) reports that only about 52 percent of the 70 million U.S. adults with high blood pressure have their condition under control. It costs an estimated \$46 billion each year to address issues related to hypertension such as health care services, medications, and missed work. Seven to eight out of every 10 people have their first heart attack or stroke or develop congestive heart failure because of uncontrolled blood pressure.<sup>1</sup> It is clear that blood pressure control is essential to preventing multiple medical conditions from occurring or worsening. This article discusses how our office of 11 employed physicians, working within an integrated health system, implemented strategic workflows to improve blood pressure control among our 2,800 patients with hypertension.

## Getting started

Scripps Health, the integrated health system in San Diego that my site is part of, participates in the “Measure Up/Pressure Down” campaign, a three-year effort created by the American Medical Group Foundation to reduce high blood pressure.<sup>2</sup> As part of the campaign, a coalition of

local primary care leaders, cardiologists, and nephrologists – including participants from Scripps – reviewed guidelines from the Seventh and Eighth Reports of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC 7 and JNC 8)<sup>3,4</sup> and formulated a recommended blood pressure control treatment algorithm and an accompanying list of medications to help manage patients with hypertension. (See “Adult hypertension treatment algorithm” and “Selected generic antihypertensive medications” on pages 24 and 25; both are available for download from the online version of this article: <http://www.aafp.org/fpm/2016/0500/p23.html>.)

To be included in the initiative, patients had to meet the following criteria:

- Be 18 to 85 years old,
- Have hypertension,
- Have visited their primary care physician for treatment of hypertension at least twice in the last 18 months,
- Not have “white coat syndrome” (reactive hypertension), severe orthostatic hypotension, or end-stage renal disease.

We decided patients participating in the initiative could have their blood pressure readings recorded in the

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outpatient setting or at home. Literature supports patients monitoring their own blood pressure at home, and the American Heart Association recommends wider use of the method.<sup>5</sup> Measurements taken by patients at home are often lower than readings taken in the office and can be better predictors of cardiovascular risk. Home readings eliminate the “white coat” effect, are more reproducible than office readings, and correlate better with measures of target organ damage. The National

Institute for Health Care Excellence also supports the method and considers home readings of 150/95 or higher as the equivalent of Stage 2 hypertension in the outpatient setting.<sup>6</sup>

Based on their blood pressure (BP) readings, the patients were then risk-stratified as follows:

- High risk: BP  $\geq$  150/95,
- Medium risk: BP  $\geq$  140/90 but  $<$  150/95,
- Low risk: BP  $>$  120/80 but  $<$  140/90.

Acknowledging that hypertension guidelines that take into account age or risk factors would

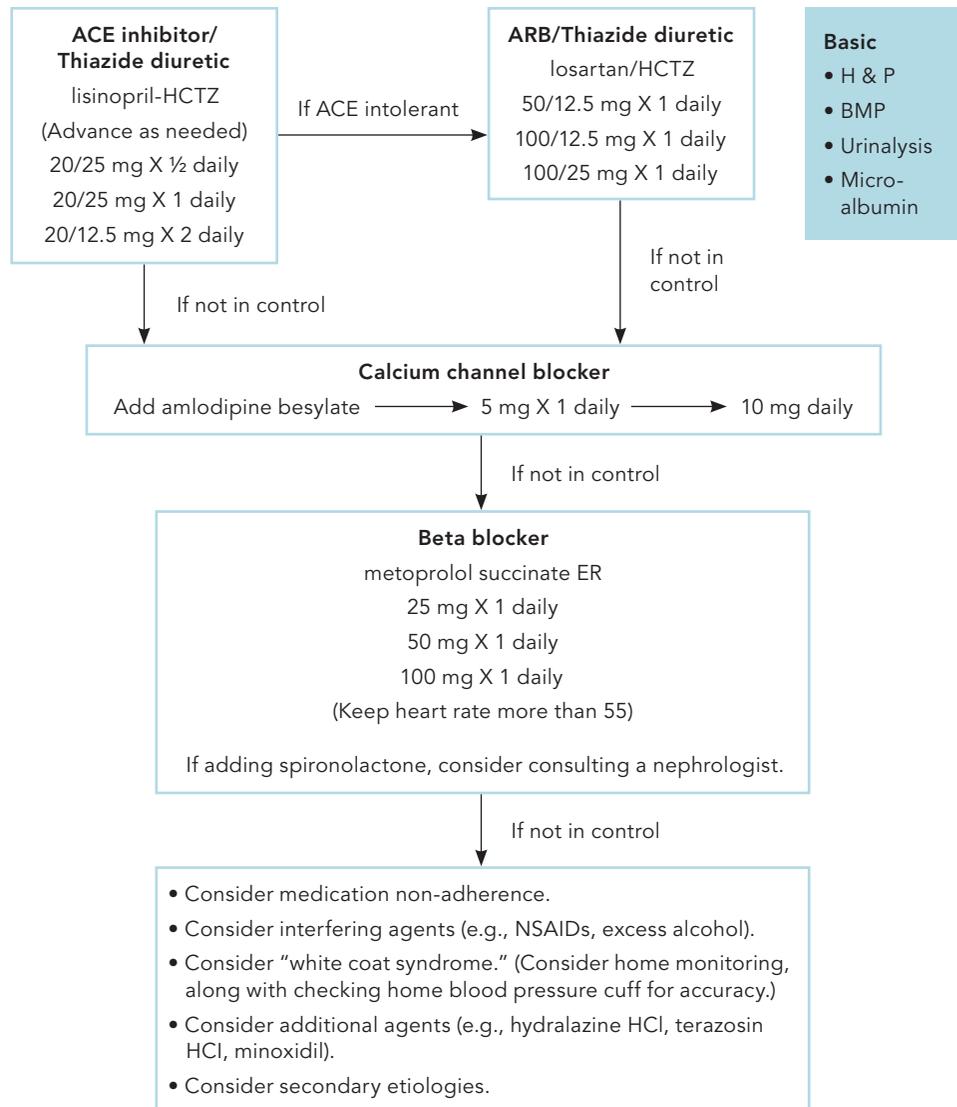
■ The initiative centered on a treatment algorithm and workflow for controlling hypertension.

■ Outreach, risk stratification, and blood pressure monitoring in the office and at home were key elements of the program.

■ The practice chose a single blood pressure target of 140/90.

## ADULT HYPERTENSION TREATMENT ALGORITHM

Medication up-titrations are recommended at no greater than 30-day intervals (for most patients) until control is achieved. Consider follow-up labs when up-titrating or adding lisinopril, hydrochlorothiazide, or losartan.



## SELECTED GENERIC ANTIHYPERTENSIVE MEDICATIONS

Drug class	Generic name (brand name)	Usual dosage range
Thiazide-type diuretics	chlorthalidone	12.5 – 25 mg daily
	hydrochlorothiazide (HCTZ)	25 – 50 mg daily
Thiazide combinations	lisinopril-HCTZ	10/12.5; 20/12.5; 20/25 mg daily
	spironolactone-HCTZ	25/25 mg daily
ACE inhibitors (ACEIs)	lisinopril	10 – 40 mg daily
	captopril	12.5 – 50 mg twice daily
Long-acting dihydropyridine calcium channel blockers	amlodipine besylate	2.5 – 10 mg daily
	felodipine	2.5 – 10 mg daily
	nifedipine ER	30-90 mg daily
Beta-blockers (BB)	atenolol	25 – 100 mg daily
	carvedilol	3.125 – 25 mg twice daily
	metoprolol tartrate	25 – 100 mg twice daily
	metoprolol succinate	25 – 200 mg daily
Aldosterone receptor blocker	spironolactone	12.5 – 25 mg daily
Potassium-sparing diuretics	amiloride hydrochloride or amiloride-HCTZ	5 – 10 mg total, taken daily or twice daily
Angiotensin II receptor blockers (ARB)	losartan potassium	25 – 100 mg daily
Direct vasodilators	hydralazine hydrochloride	10-50 mg four times daily
	minoxidil	2.5 mg daily – 20 mg twice daily
Alpha blockers	terazosin hydrochloride	1 – 20 mg daily
	doxazosin mesylate	1 – 16 mg daily
	prazosin hydrochloride	1 – 10 mg twice daily
Alpha-2 agonists	clonidine hydrochloride	0.1 – 0.4 mg twice daily

Lifestyle changes are recommended when blood pressure is greater than 119/79:

- DASH (Dietary Approaches to Stop Hypertension) diet – low in fat and high in fruit, vegetables, and low-fat dairy products,
- Sodium restriction of 2.4 grams daily or fewer,
- Weight reduction if body mass index is 25 kg/m<sup>2</sup> or higher,
- Exercise of at least 30 minutes four times per week,
- Limits on daily alcohol intake – no more than one drink for women or two drinks for men,
- Smoking cessation and counseling on the health risks of smoking and the benefits of quitting.

recommend other targets, we set a single target for hypertension control of  $\leq 140/90$ . We felt it was important to set one target that would apply to and improve the health of the majority of our patient population. The target we chose is also the quality measure benchmark for the Medicare Shared Savings Program.

### Strategies and workflows

We began formulating and implementing a strategy to help high- and medium-risk

patients improve their blood pressure control, as defined by the initiative. The CDC recommends forming teams made up of the patient, the primary care physician, and other health care providers, giving each member of the team specific roles and responsibilities to keep them engaged. We took a similar team-based approach centered on three main functions:

- **Identification.** A staff member used the electronic health record (EHR) to identify patients who fit the initiative criteria of being high- or medium-risk. She created a “hyper-

tension summary report” that included each patient’s last recorded blood pressure reading, last office visit, and next scheduled appointment, and sent the report to the physicians and our physician leader monthly. For high-risk patients who did not have a scheduled appointment within 30 days, she also sent a task to the patient’s physician to consider getting one scheduled. One-third of an existing employee’s time was allocated to this task; she was a member of our quality committee, so she brought special skills and interest to the work.

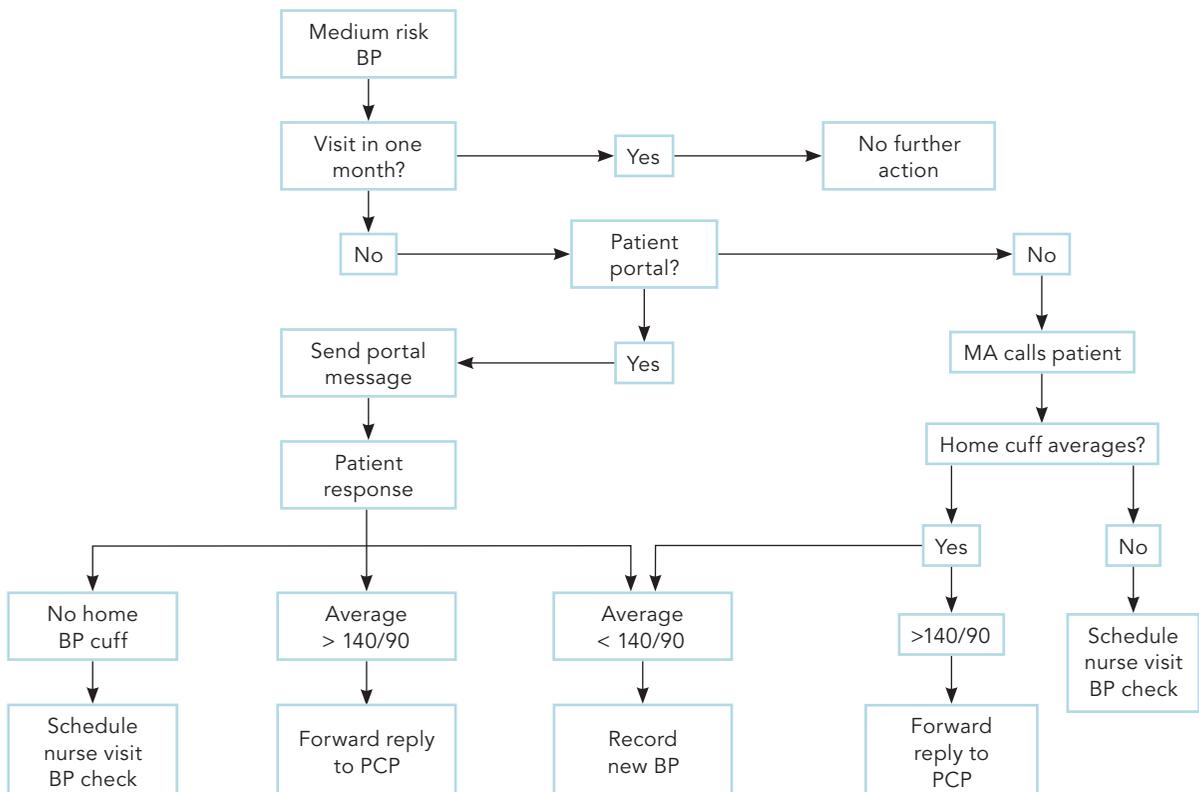
• **Contact.** The physician leader reviewed the hypertension summary report and, working with our operations director, asked office staff to contact the medium-risk patients either by phone or with the online patient portal using specified workflows. (See “Workflow for medium-risk blood pressure control monitoring.”) The physician leader also worked with physicians and staff to ensure that high-risk patients were being scheduled for re-evaluation appointments.

• **Coordinated care.** When high-risk patients came in for their visits, staff checked their blood pressure, rechecked elevated blood pressures, and recorded new blood pressures in the EHR. We standardized the procedure for measuring blood pressure and provided training so that all staff members would get comparable results. (See “How to take blood pressures correctly,” page 27.) With the new data, physicians followed the treatment algorithm and recommended follow-up visits as appropriate.

Medium-risk patients scheduled a copay-waived follow-up visit with a nurse to re-evaluate their blood pressure. Based on the results, the physician could modify treatment if needed by communicating with patients through the portal and/or re-evaluating the blood pressure at a subsequent visit.

Physicians also asked all patients to perform home blood pressure monitoring and gave them handouts to use for logging their blood pressures. When scheduling follow-up visits for hypertension, staff encouraged

## WORKFLOW FOR MEDIUM-RISK BLOOD PRESSURE CONTROL MONITORING



## This process helped update our patient panel and make sure patients had appropriate follow-up.

patients to bring their blood pressure logs to their appointments. Physicians could also check on the home blood pressure readings when communicating with patients through secure messaging between visits. If patients were not signed up or they declined portal access, MA staff would contact the patient.

In fact, our team discovered that the most critical component for success was encouraging the patient to engage with us, whether the contact was through a follow-up visit with the physician or a nurse or through the patient portal between visits.

The physician leader was responsible for sending monthly or as-needed updates to everyone involved. They reported progress and provided updated data and reminders of methods to help maintain project focus. Physician leadership was key because there were potential challenges with the initiative from the start. Physicians recognized the importance of improving their patients' blood pressure control but felt overloaded with other responsibilities. They were asked to review a voluminous amount of data, which resulted in apathy. We addressed this by asking them to focus on treatment and let others handle the contact.

Staff buy-in was also important because they performed all of the outreach. It was important not to overload them with work that interfered with their normal responsibilities. To keep the workload manageable, we focused each month on only one or two physicians' patient panels, typically the physicians who had the lowest percentage of patients with blood pressure control. To avoid burn-out, it was necessary for everyone to view the project as a long-term effort and expect a gradual, progressive rate of improvement.

### Results

The project was rolled out in December 2014. Before the project, an average of 65 percent of our patients had blood pressures  $\leq 140/90$ , with individual physicians' patient panels

ranging from 58 percent to 74 percent. After five months, 73 percent of our patients were at goal, with panels ranging from 64 percent to 83 percent. Two physicians who were part of the project from the beginning improved their control rates by 19 and 23 percentage points by May 2015. (See "Average blood pressure control," page 28.) There was a slight dip in blood pressure control between the months of February and March 2015, which we attributed to some physicians not yet taking part in the implementation. All 11 had joined by the end of the sixth month.

We also discovered that some patients had not seen a physician for more than six months because they had missed a past appointment, cancelled and not rescheduled, or relocated to a new practice. This helped us update our patient panel and make sure patients had appropriate follow-up, not only for their blood pressure but also for any other necessary lab studies. ➤

### HOW TO TAKE BLOOD PRESSURES CORRECTLY

- Have the patient sit quietly for at least 5 minutes, which is the recommended wait period under the "Measure Up/Pressure Down" campaign,
- Select the correct cuff size for the patient,
- Have the patient sit upright in the chair with arm at heart level, legs uncrossed, and feet flat on the ground.

CUFF SIZE	CIRCUMFERENCE
Small adult	20-26 cm
Adult	25-34 cm
Large adult	32-43 cm
Adult thigh	40-55 cm

■ The practice implemented a team-based approach, giving members specific roles and responsibilities.

■ Team members identified and contacted the highest risk patients and scheduled them for visits to measure their blood pressure and implement treatment protocols.

■ Encouraging the patient to engage with the team was a key to our success.

It was necessary for everyone to view the project as a long-term effort and expect a gradual, progressive rate of improvement so as to not cause overload or burnout.

We should acknowledge that in addition to physician decisions, the active involvement of the patient in his or her own care may have contributed to the improvement in blood pressure control. For example, increased communication may have led to increased medication compliance; many patients expressed gratitude for the continuous updates from our staff either by phone or EHR portal. Nonetheless, the benefit of blood pressure improvement was evident throughout the process.

It is important to note that we had multiple primary care physicians with the appropriate complement of support staff. Small and solo practices would likely need to modify these workflows, but the underlying principles of teamwork and strong communication among everyone are essential. One possible modification is using a nurse practitioner or physician assistant to

manage “medium risk” patients and free up the primary care physician.

When undertaking a quality improvement project, we must be sensitive to the normal work expectations that are already placed on physicians and staff. Taking a gradual, controlled approach as well as constantly communicating the importance of the project was necessary. Because all those involved felt part of the process, we did not encounter any significant challenges. We support team-based care as a recommended strategy to reduce and control blood pressure. **FPM**

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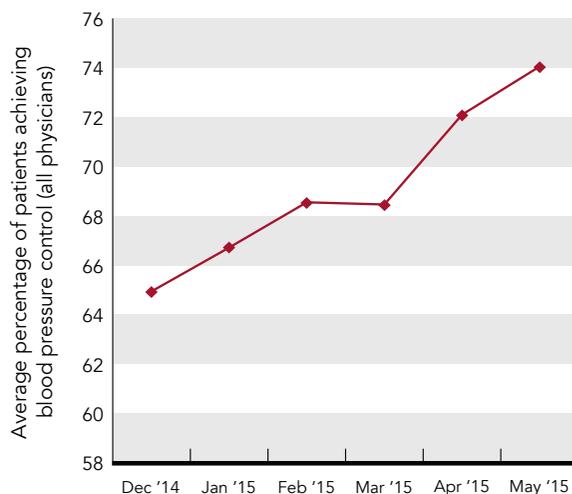
■ The percentage of patients meeting their blood pressure goal increased from 65 percent to 73 percent in the first five months of the initiative.

■ The initiative also identified patients who had not recently had an office visit.

■ Consider staff's normal work expectations when designing a quality improvement project.

### AVERAGE BLOOD PRESSURE CONTROL

From the beginning of the blood pressure control initiative in December 2014 and during the next five months, the practice saw the control rate improve dramatically.



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