Hypertension Management
Clinical Approach

March 2019

The proactive management of hypertension (high blood pressure) reduces patients’ risks of heart disease, stroke, and other vascular diseases. Presbyterian strives for consistent and effective management of hypertension using evidence-based practices that are coordinated by multidisciplinary care teams in the primary and specialty care settings.

Essentials

- Protocols for screening, diagnosis, and treatment of hypertension are evidence-based and implemented across Presbyterian Medical Group Internal Medicine and Family Medicine (PMG) clinics.
- To facilitate disease management and enable reporting, PHS maintains a registry of patients diagnosed with hypertension.
- Our goal is sustained top decile performance in the control of hypertension.

PHS Success and Impact

In the Central Delivery System alone, more than 35,000 PHS patients are currently diagnosed with hypertension. As of January 2019, 65.16% percent of these patients (and 60.95% percent of more than 2,300 patients seen in regional clinics) are successfully managing their blood pressure.

In 2015, Presbyterian was recognized as one of 30 Hypertension Control Champions by the U.S. Department of Health and Human Services’ Million Hearts® initiative – a national project to prevent 1 million heart attacks and strokes by 2017 – for success in helping patients control high blood pressure.

What we know about Hypertension

Hypertension is the most common chronic condition in primary care. Nearly one in three American adults has high blood pressure. Fewer than half of Americans with high blood pressure have it under control, putting them at greater risk of developing heart disease or stroke, two of the leading causes of death in the U.S. Roughly one in seven U.S. deaths is related to high blood pressure.

Each year high blood pressure costs the nation about $47.5 billion annually in direct medical expenses and another $3.5 billion in lost productivity.

The American Heart Association, the American College of Cardiology, and the US Centers for Disease Control and Prevention all recommend that Americans with high blood pressure work with a healthcare provider to keep their blood pressure within a target range, through lifestyle changes and/or medication, along with regular blood pressure monitoring.
Self-Management
Hypertension can be self-managed through regular blood pressure monitoring, adhering to medications, and making any necessary lifestyle changes.

Lifestyle changes which can reduce high blood pressure include physical activity, weight loss, quality of sleep, the DASH eating plan, sodium reduction, limiting alcohol, smoking cessation, and managing stress.

Hypertension Medication
The table below lists the most common types of medication used to treat high blood pressure.

<table>
<thead>
<tr>
<th>Category</th>
<th>How these medications lower blood pressure</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACE inhibitor</td>
<td>An ACE (angiotensin converting enzyme) inhibitor prevents formation of a protein (called angiotensin II) that causes blood vessels to become narrow. This helps the blood vessels open wider, which in turn lowers blood pressure. ACE inhibitors may cause a cough.</td>
<td>captopril (Capoten), enalapril (Vasotec), fosinopril (Monopril), lisinopril (Prinivil, Zestril), quinapril (Accupril), ramipril (Altace)</td>
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<tr>
<td>ARB</td>
<td>Like an ACE inhibitor, an ARB (angiotensin receptor blocker) also acts on angiotensin II. Instead of preventing its formation, though, the ARB blocks its effects. Therefore, blood vessels can open wider, helping to lower the blood pressure.</td>
<td>candesartan (Atacand), irbesartan (Avapro), losartan (Cozaar), valsartan (Diovan)</td>
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<td>Beta blocker</td>
<td>A beta blocker reduces nerve impulses to the heart and blood vessels. This lowers the heart rate and decreases the force of the heartbeat.</td>
<td>carvedilol (Coreg), metoprolol (Toprol)</td>
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<tr>
<td>Calcium channel blocker</td>
<td>A calcium channel blocker (CCB) keeps calcium from entering the muscle cells of the heart and blood vessels. Therefore, the blood vessels open wider, and pressure goes down.</td>
<td>amlodipine (Norvasc)</td>
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<tr>
<td>Aldosterone receptor antagonist</td>
<td>An aldosterone receptor antagonist triggers the kidneys to get rid of unneeded water and sodium through urine. This lowers the volume of blood that the heart must pump, which lowers blood pressure.</td>
<td>spironolactone (Aldactone), eplerenone (Inspra)</td>
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<tr>
<td>Alpha blocker</td>
<td>An alpha blocker reduces nerve impulses to blood vessels, allowing blood to flow more easily.</td>
<td>doxazosin (Cardura), prazosin (Minipress), terazosin (Hytrin)</td>
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<tr>
<td>Diuretic</td>
<td>Most diuretics (also called “water pills”) lower blood pressure by helping the kidneys reduce the amount of sodium and water in the body. Some diuretics may cause the body to lose potassium and patients may need to take potassium supplements. Some also help the blood vessels dilate (open wider) to lower blood pressure.</td>
<td>hydrochlorothiazide (HCTZ), chlorothalidone, bumetanide (Bumex), furosemide (Lasix), metolazone (Zaroxolyn), torsemide (Demadex)</td>
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<tr>
<td>Combination drugs</td>
<td>Combination drugs can bring the benefits of two or more of the above medications, sometimes in one pill. For example, a pill may contain both a diuretic and an ACE inhibitor.</td>
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PHS’ Approach to Hypertension Management

Redesigned in October 2013 and updated several times since then, Presbyterian’s hypertension care pathway proactively identifies and treats high blood pressure of patients seen in the PMG clinics. The PMG Hypertension Management care pathway incorporates a hypertension patient registry, evidence-based protocols, enhanced use of team care, and additional tools for staying engaged with patients.

Hypertension Registry
Presbyterian maintains a registry, enabled by Epic’s Healthy Planet module, of patients diagnosed with high blood pressure. The system generates a report showing hypertensive patients within each PMG clinic who require attention. These are individuals who:

- Had a recent high blood pressure reading;
- Are overdue for a visit; or
- Are behind on any preventative screenings or vaccines related to hypertension management.

PMG Care Managers review the Healthy Planet registry to identify these gaps in care. The Care Manager then takes action on gaps in care using a nursing protocol to place orders on behalf of the PCP for any appropriate labs and/or overdue vaccines. The Care Manager also performs patient outreach to notify the patient of the orders, health coaching to support the patient’s self-management goals, and patient education as needed.

Evidence-Based Protocols
PHS has implemented evidence-based protocols for diagnosing and treating hypertension based on JNC-8 (the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure) guidelines. These protocols include how to accurately measure blood pressure, using decision support tools in the electronic health record, and scheduling regular follow up visits.

Measuring Blood Pressure
The nursing staff and medical assistants follow visit preparation guidelines for measuring and documenting blood pressure. If a patient’s blood pressure reading is high, a second reading is taken to confirm accuracy.

Epic Support Tools
Point-of-care decision support via the electronic health record aids the physician in providing care for each patient. For example, if a patient presents in the clinic and has at least two elevated blood pressure (greater than 140/90) readings, the Provider may confirm the diagnosis of hypertension, set a blood pressure goal for the patient, and use Smart Sets in Epic to prescribe medication, order labs, refer the patient to a Pharmacist Clinician (PhC) or care manager, and/or generate lifestyle modification recommendations/patient education. Moreover, within Epic the synopsis activity offers the Hypertension Profile, used to monitor hypertensive patients; it summarizes a patient’s blood pressure measurements, labs, and medications.
Regular Follow Up Visits
Patients diagnosed with hypertension are encouraged to schedule regular follow up visits. Newly diagnosed patients are scheduled for a 2-week follow-up appointment with a Care Manager. Hypertensive patients are scheduled for monthly follow-up appointments with Primary Care Physician (PCP) or PhC until their high blood pressure becomes controlled. Once his/her blood pressure is under control, the patient is scheduled for regular 6-month follow up appointments with the PCP or PhC and an annual visit with the physician (PCP). If secondary causes of uncontrolled high blood pressure are suspected, the patient may be referred to a specialist.

Team Care
Every member of the PMG patient-centered medical home care team is involved in hypertension management:

Primary Care Provider (PCP)
Leading the care team, the Provider initiates treatment for hypertension, discusses medication(s) with the patient, and monitors the treatment.

Primary Support LPN/MA
Patients are prepared for their visit by the Primary Support LPN/MA, who obtains an accurate blood pressure reading, performs medication reconciliation, queues up refills, and checks for any outstanding tests or vaccinations.

RN Care Manager
The Care Manager performs regular patient outreach to the patient, including checking to see that the patient is taking medication(s) appropriately, monitoring the patient’s progress on self-management goal(s), assessing the patient for any negative side effects, and providing ongoing patient education. Working under protocols, the nurse can queue up orders for any lab tests or vaccines that are due.

Pharmacist Clinician
In the State of New Mexico, Pharmacist Clinicians have prescriptive authority; they can independently prescribe any medication used in the scope of a primary care visit, as well as manage a spectrum of common chronic disease states, including hypertension. Based on the Provider’s diagnosis, the Pharmacist Clinician initiates orders for hypertension medication, orders and interprets laboratory tests, adjusts dosages, authorizes refills, and discontinues medications, as clinically indicated. Oftentimes, if a patient’s blood pressure is not responding to treatment, then the pharmacist will schedule more frequent visits with the patient, making medication adjustments until the patient’s blood pressure is under control.

Team Nurse
A nurse on the primary care team is available for nurse visits to re-check the patient’s blood pressure.

Patient Engagement
Patients are encouraged to check their blood pressure often. There are no copayments for nurse visits to check blood pressure, and patients can submit blood pressure self-readings electronically (via MyChart) to the care team.
Key Tools

Healthy Planet is an Epic software module that compiles patient data into a suite of reports, dashboards, and workflow tools. These population health analytics assist the care management teams in moving toward better and more coordinated care for individuals, greater health and disease prevention, and less healthcare expenditure.

Clinician Training

Care Managers learn hypertension management protocols, evidence-based guidelines, and health coaching techniques as part of the PMG nursing orientation and monthly meetings.

Patient Education and Shared Decision Making

Patient education is critical for hypertension management, because adequate control depends on how well the patient is engaged in making lifestyle changes and taking medications as prescribed. In order to engage effectively, patients need support to:

- Understand the risk. High blood pressure is a “silent killer”, and patients may be less likely to believe it is serious and needs treatment, especially when compared with conditions that cause pain or other symptoms. They need a vivid understanding of risk. Likewise, they should understand the risk factors that they have the ability to change.
- Understand the numbers. Patients need to know how to take their own blood pressure readings accurately, what the systolic and diastolic numbers mean, and what the target range is.
- Get control. Blood pressure management requires lifelong commitment. Patients can get their blood pressure in check by consistently following recommended lifestyle modifications.
- Make time to manage. Regular follow up appointments help keep the hypertension under control, by allowing the patients to ask questions and getting the care they need.

Patient Education Tools

Every patient receives a brochure introducing hypertension, with basic guidelines for self-management. In addition, the Care Managers can provide more information from the patient education tools available in Epic.

Shared Decisions

Depending on the patient’s situation, there may be two pathways to controlling high blood pressure:

1. Begin a lifestyle change and medication at the same time.
2. Begin with lifestyle change alone.

The Provider discusses with the patient whether the patient is a candidate for lifestyle change plus medication or for lifestyle change alone, based on the patient’s willingness to change and other risk factors.

Leadership

Elizabeth Garcia, RN, BSN, MBA - Director of Nursing, Primary Care Presbyterian Medical Group
Measures of Success

<table>
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<tr>
<th>Objective</th>
<th>Measure</th>
<th>Aligns with Aim</th>
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<tr>
<td>Patients who have</td>
<td>% of patients</td>
<td>Better Health</td>
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<td>high BP under control</td>
<td>o measured monthly</td>
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<td></td>
<td>o reported for all PMG patients in the CDS</td>
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<td></td>
<td>and the RDS</td>
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<tr>
<td></td>
<td>o target for CDS is 70.00% for YE 2019</td>
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</tr>
<tr>
<td></td>
<td>o target for RDS is 65% for YE 2019</td>
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<tr>
<td></td>
<td>o Comparison to HEDIS 90th percentile</td>
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The Data and Analytics Department developed a Quality dashboard (in Tableau) for several conditions including hypertension that enhance clinical leadership’s ability to monitor and act on real-time quality performance analytics at the clinic, department, and Provider level. The hypertension dashboard offers streamlined data reporting, identification of “outlier” patients, and improved adherence to protocols.

Controlling High Blood Pressure (CBP) is a HEDIS measure and is one of the priority measures for Medicare HMO & PPO, Centennial Care, Commercial Accreditation, and FEHB lines of business. Blood Pressure Control is also part of the HEDIS Comprehensive Diabetes measure bundle and is required reporting for commercial accreditation.

Future Work

Continuous Improvement

Developed as an EBCD initiative, hypertension management has a continuous improvement cycle managed by the Quality department. PHS will continue its work as a hypertension control champion by maintaining a high percentage of patients in control of their hypertension and by developing new tools for collecting and analyzing data.

Glossary

**blood pressure**

Blood pressure (BP) is typically recorded as two numbers, written as a ratio:

Systolic: The top number, which is also the higher of the two numbers, measures the pressure in the arteries when the heart beats (when the heart muscle contracts).

Diastolic: The bottom number, which is also the lower of the two numbers, measures the pressure in the arteries between heartbeats (when the heart muscle is resting between beats and refilling with blood).

“Controlled” BP is defined based on the age category and risk factors: For patients 18-85yoa, the goal is <140/90; and for patients with diabetes, the goal is <140/90.
“Gap in care” (or “care gap”) is a term used widely throughout patient health analytics to recognize a disparity between health care needs or recommended best practices and the services that have been provided. Gaps in care may be those outstanding office visits, lab tests, procedures, and pharmaceuticals that a patient needs, but have not yet received, usually because there are obstacles. A successful Population Health program gives real-time insights to both clinicians and administrators, allowing them to identify and address gaps in care within the patient population. According to CMS: “There is a need for all providers to work actively to continuously monitor and address disparities, and to be accountable for reducing gaps in care and outcomes. All CMS beneficiaries must have access to and receive person-centered, equitable, effective, safe, timely, and efficient care and services.”

Hypertension (high blood pressure) is clinically defined as blood pressure above 140/90. The more forcefully that blood pumps, the more the arteries stretch to allow blood to easily flow. If blood pressure remains high, over time the tissue that makes up the walls of arteries gets stretched and damaged. A person with hypertension may not feel that anything is wrong, but high blood pressure can cause permanent damage, often leading to heart attack and heart failure, stroke, kidney failure, blindness, and other health consequences. Typically, a diagnosis of hypertension is made after a patient’s blood pressure is high at more than one visit.

The DASH (Dietary Approaches to Stop Hypertension) eating plan, promoted by the National Institutes of Health, has been proven to lower high blood pressure, especially when combined with salt restriction. This plan recommends:

- Eating vegetables, fruits, and whole grains
- Including fat-free or low-fat dairy products, fish, poultry, beans, nuts, and vegetable oils
- Limiting foods that are high in saturated fat, such as fatty meats, full-fat dairy products, and tropical oils such as coconut, palm kernel, and palm oils
- Limiting sugar-sweetened beverages and sweets

Additional References

Clinical Care Model

- Evidence-Based Care Design
- Patient-Centered Medical Home

Resources: PHS login required

- Guideline: Guideline for the Management of Hypertension for Pharmacist Clinicians
- Guideline: PMG Primary Care SL: Management of Hypertension Care Pathway
- Training: Hypertension Epic Ambulatory Training
- Training: PCMH: Hypertension Management
Additional Resources

- **DASH Eating Plan.** A plan that helps creates a heart-healthy eating style, recommended by the NIH.
- **Intermountain Patient Handouts.** Patient education materials related to high blood pressure.
- **JNC-8 (Eighth Joint National Committee).** JNC-7 update focused on a limited set of clinical questions.
- **Million Hearts®.** Department of Health and Human Services campaign, implemented by the CDC and CMS, with guidance on creating blood pressure protocols.