Using the Pharmacists' Patient Care Process to Manage High Blood Pressure:

A Resource Guide for Pharmacists

Acknowledgments

This guide was developed by the Division for Heart Disease and Stroke Prevention within the Centers for Disease Control and Prevention and in collaboration with the American Medical Association and the American Pharmacists Association (APhA).

Contributions to the development and review of this guide were made by Jeffrey M. Durthaler, MS, RPh (IHRC, Inc.); Lauren Taylor, BS (Oak Ridge Institute for Science and Education guest researcher); Stacia Spridgen, PharmD, Anne Burns, BSPharm, and Lindsay Kunkle, PharmD (APhA); Michael Rakotz, MD, and Kathleen A. Heneghan, MPH (American Medical Association); Marialice Bennett, RPh, FAPhA (Ohio State University College of Pharmacy); and Mary Ann Kliethermes, PharmD (Midwestern University College of Pharmacy).

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Contents

Introduction

Background

Heart disease and stroke are leading causes of death and disability in the United States, according to the American Heart Association.[1] In this country, someone has a heart attack every 42 seconds, someone dies of a heart attack every minute, someone has a stroke every 40 seconds, and someone dies of a stroke every 4 minutes.[1]

People can protect themselves from heart disease and stroke in many ways. For example, they can reduce their risk by making lifestyle changes such as:

- Maintaining a healthy weight.
- Being more physically active.
- Eating more fruits, vegetables, whole grains, fish, and low-fat dairy products.
- Consuming less sodium, sugar, animal fat, sugary drinks, and alcohol.
- Avoiding or stopping smoking.

People can also reduce their risk by:

- Checking and keeping their blood pressure and cholesterol levels under control.
- Talking with health care professionals like doctors and nurses about their blood pressure.
- Keeping medical appointments to monitor their blood pressure if it is high.
- Taking medicines if they are prescribed.

In addition, people can increase their chances of living longer and reduce damage to their hearts and brains by knowing the warning signs of heart attack and stroke and by understanding the importance of calling 911 for help right away when these signs occur.

Health care professionals already play a critical role in reducing heart disease and preventing stroke in the United States, but more can be done. Pharmacists specifically have a unique opportunity to have an effect on outcomes associated with heart disease and stroke. Community pharmacists can help by being proactive in identifying the needs of their patients and taking action to influence healthy behaviors.

Pharmacists can have a positive effect on population health by:

- Creating community awareness about heart disease and stroke.
- Providing patient care services such as encouraging lifestyle modifications and self-management, counseling people who are not adhering to prescribed drug treatments, helping patients take their medications correctly, and screening for uncontrolled and undiagnosed high blood pressure.
- Participating in team-based care and collaborative practice agreements.
- Using clinical protocols.
- Supporting e-prescribing with bidirectional messaging between pharmacist and prescriber to improve medication management.
- Embracing quality improvement initiatives.
- Participating in continuing education programs.
- Getting certifications in chronic disease management.

About This Resource Guide

The Centers for Disease Control and Prevention's (CDC's) Division for Heart Disease and Stroke Prevention recognizes the contribution that community pharmacists can make to improve population health. CDC developed this publication, *Using the Pharmacists' Patient Care Process to Manage High Blood Pressure: A Resource Guide for Pharmacists,* as a call to action to use the Pharmacists' Patient Care Process[2] as a way to

prevent and manage high blood pressure through team-based care, with the goal of reducing heart disease and stroke in the United States. It compiles information about current resources and emerging practices, as well as tools and examples that pharmacists can use to help them improve health outcomes associated with cardiovascular disease.

Pharmacists are encouraged to partner with their state or local health departments, community health workers, doctors, and other health care professionals to understand the prevalence of high blood pressure in their communities and learn how to help people manage this condition. CDC believes that by doing so, pharmacists will ultimately be able to practice their profession at the top of their training, which will help improve cardiovascular health in the United States.

This resource guide also provides an overview of high blood pressure, a discussion of the importance of accurate measurements,

and guidance on how to take a patient's blood pressure. The final section outlines the five steps of the Pharmacists' Patient Care Process and provides suggestions on how these steps can be applied to managing high blood pressure. References and web links for resources that support the suggested actions are also provided.

CDC acknowledges that the scope of services associated with managing high blood pressure will vary among pharmacists and pharmacy practices—from the basics of screening to blood pressure monitoring to comprehensive management. Thus, the actions taken and the resources used will also vary, depending on the scope of the services provided.

Pharmacists' Patient Care Process

Overview

In 2014, the Pharmacists' Patient Care Process was released by the Joint Commission of Pharmacy Practitioners, and it is endorsed by 13 national pharmacy organizations.[2] This process promotes a consistent approach to patient care delivery in any pharmacy practice setting.

Multiple strategies are being used to support and promote use of the Pharmacists' Patient Care Process. For example, it has been incorporated into the 2016 Accreditation Council for Pharmacy Education (ACPE) accreditation standards and key elements for the professional program in pharmacy leading to the Doctor of Pharmacy degree, and continuing education providers are being encouraged to include it in educational programs for pharmacists. The Pharmacists' Patient Care Process is also being incorporated into the ASHP accreditation standard for postgraduate year one (PGY1) pharmacy residency programs and the ASHP accreditation standard for postgraduate year two (PGY2) pharmacy residency programs.

Joint Commission of Pharmacy Practitioners

- Academy of Managed Care Pharmacy
- Accreditation Council for Pharmacy Education
- American Association of Colleges of Pharmacy
- American College of Apothecaries
- American College of Clinical Pharmacy
- American Pharmacists Association
- American Society of Consultant Pharmacists
- American Society of Health-System Pharmacists
- National Alliance of State Pharmacy Associations
- National Association of Boards of Pharmacy
- National Community Pharmacists Association

In addition, the process is being used as a framework for the development of structured electronic patient care documents that pharmacists can share electronically with other health care professionals. Quality measures related to the use of the Pharmacists' Patient Care Process are being considered by the Pharmacy Quality Alliance as part of its quality measure development process. At the individual practice level, pharmacists are encouraged to embrace both the foundational elements and the specific five steps of the Pharmacists' Patient Care Process.

As part of this process, pharmacists use a patient-centered approach in collaboration with other health care professionals on a patient's health care team to optimize patient health and medication outcomes.[2] An essential first step in this approach is the establishment of a patient-pharmacist relationship that supports engagement and effective communication with patients, families, and caregivers throughout the process. At the core of the process, pharmacists also must document activities and continually

collaborate and communicate with doctors, other pharmacists, and other health care professionals to provide safe, effective, and coordinated care (Figure 1). This process is further enhanced by the use of information technology systems that allow for efficient and effective documentation of activities and communication among all individuals involved in patient care.

Figure 1. Pharmacists' Patient Care Process

Pharmacists' Patient Care Process

Collaborate • Communicate • Document

Pharmacists use a patient-centered approach in collaboration with other providers on the health care team to optimize patient health and medication outcomes.

Using principles of evidence-based practice, pharmacists:

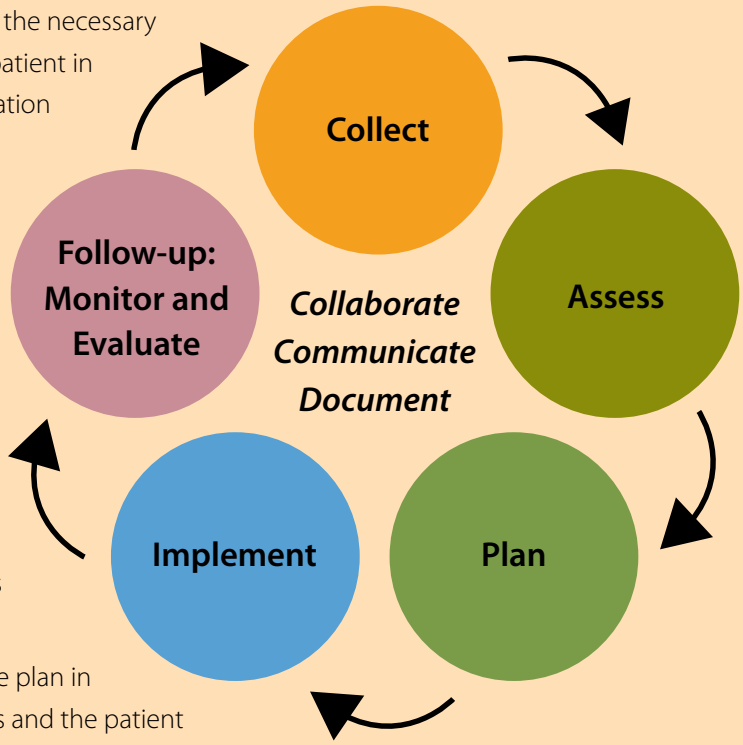
Collect: The pharmacist assures the collection of the necessary subjective and objective information about the patient in order to understand the relevant medical/medication history and clinical status of the patient.

Assess: The pharmacist assesses the information collected and analyzes the clinical effects of the patient's therapy in the context of the patient's overall health goals in order to identify and prioritize problems and achieve optimal care.

Plan: The pharmacist develops an individual patient-centered care plan, in collaboration with other health care professionals and the patient or caregiver that is evidence-based and cost-effective.

Implement: The pharmacist implements the care plan in collaboration with other health care professionals and the patient or caregiver.

Follow-up: Monitor and Evaluate: The pharmacist monitors and evaluates the effectiveness of the care plan and modifies the plan in collaboration with other health care professionals and the patient or caregiver as needed.



Source: Joint Commission of Pharmacy Practitioners. The Pharmacists' Patient Care Process.

Using the Pharmacists' Patient Care Process to Manage High Blood Pressure

The primary objective of this guide is to align the efforts of pharmacists with current national initiatives designed to improve the cardiovascular health of the United States by controlling blood pressure among the adult population. The Pharmacists' Patient Care Process is recommended as a strategy to achieve this goal, in collaboration with doctors and other health care professionals through team-based care. The success of these efforts will depend largely on three factors: the adoption of a population health perspective, the use of health information technology to improve medication management, and the sustainability of cardiovascular pharmacy services.

Adopting a Population Health Perspective

Although the Pharmacists' Patient Care Process is designed to be individualized, the current and evolving health care environment calls for all health care practitioners to also adopt a population health perspective. Pharmacists must seek to understand the epidemiology of cardiovascular disease in the populations they serve and to provide services in ways that reduce chronic disease and promote health and wellness.[3,4] Because of their combination of access, skills, and services, pharmacists are uniquely positioned and qualified to respond to the health needs of their communities.

Accessing Patient Information

The Pharmacists' Patient Care Process is largely dependent on collecting necessary patient information. Pharmacists must collate information submitted by patients (e.g., medical history forms); obtained from direct interactions with other health care professionals (e.g., by phone, fax, or in person); obtained electronically from the interconnectivity of the pharmacy and patients' electronic health records (EHRs); and obtained through direct, face-to-face interactions with patients. Pharmacists are encouraged to start where they are with the resources they have and begin moving their practice toward the most efficient process for collecting patient information. In many cases, this change will require developing formal data-sharing agreements with doctors, hospitals, and health care systems.[5]

Sustaining Cardiovascular Pharmacy Services

Short-term and long-term success depends on payment models that sustain the use of the Pharmacists' Patient Care Process for the management of high blood pressure. Although resolving the payment and reimbursement issues that face clinical pharmacy practice are beyond the scope of this resource guide, pharmacists are encouraged to partner with payers, health care providers, and peers to explore, discuss, and learn about existing and emerging payment models.[6]

High Blood Pressure

Overview

One in three Americans has high blood pressure (also called hypertension), and it is more common among some population groups, including African Americans and adults older than 60.[7] High blood pressure is the second most common reason for U.S. adults to visit their doctors, and it is responsible for more than 34 million office visits each year.[8] In 2016, the estimated direct and indirect cost of high blood pressure in the United States was $48.6 billion.[1] Chronic high blood pressure can cause heart disease, stroke, kidney disease, and blindness.[7] In 2016, the economic costs of heart disease and stroke were estimated at $316.6 billion, including $193.1 billion in direct medical expenses and $123.5 billion in indirect costs.[1]

Benefits of Blood Pressure Screening and Control

Of the 34 million Americans who have uncontrolled high blood pressure, about 11 million (1 in 3) are not aware that they have this condition and are not taking medication to control it.[8] Controlling blood pressure with medications is one of the most cost-effective ways to reduce premature disease and death from cardiovascular disease. Studies have shown that a 12- to 13-point reduction in blood pressure among those with high blood pressure can reduce the number of heart attacks by 21%, strokes by 37%, and all deaths from cardiovascular disease by 25%.[9]

The U.S. Preventive Services Task Force recommends that clinicians screen adults 18 years or older for high blood pressure.[10,11] Studies have shown that clinical, economic, and quality-of-life outcomes improve when pharmacists routinely screen patients for blood pressure control and medication adherence as part of team-based care.[12]

Goals and Treatment

Blood pressure should be measured by health care professionals in every clinical encounter for adults aged 18 or older.[12] Lifestyle modification and self-management counseling should be provided to patients with high blood pressure. Clinicians should also help patients set blood pressure goals and should prescribe

medications based on the most current hypertension treatment protocols and guidelines. Routine office visits should be scheduled to synchronize medication therapy and monitor high blood pressure and treatment efforts.[13,14] A team-based disease management program should be used to track and monitor patients with high blood pressure and help prevent and manage comorbid conditions such as diabetes.[15,16]

Barriers to Achieving Blood Pressure Goals

Studies have found that several barriers can prevent people from meeting their blood pressure goals,[17–25] including the following:

- Clinical inertia.
- Medication cost.
- Lack of awareness.
- Lack of access to care.
- Medication side effects.
- Medication nonadherence.
- Masked high blood pressure.
- White coat high blood pressure.
- Lack of standardized treatment protocols.
- Inaccurate blood pressure measurements.

- Challenges in making healthy lifestyle changes.
- Beliefs and attitudes about high blood pressure.

Importance of Measuring Blood Pressure Accurately

The control of blood pressure begins with an accurate measurement leading to a correct diagnosis, effective treatment, routine monitoring, and medication adherence. For more than a century, the mercury sphygmomanometer was the gold standard for measuring blood pressure.[26] A combination of new technology (i.e., electronic or digital equipment) and concerns for the environment has led to the replacement of this device. However, the accuracy of new technology and the prevalence of white coat and masked high blood pressure have raised concern about the quality of blood pressure measurements.[26]

Inaccurate blood pressure measurements have significant public health implications because minor errors can result in the misdiagnosis of millions of people. According to one analysis, a 5 mm Hg underestimate of blood pressure could lead to 21 million people being mislabeled as having high normal blood pressure rather than high blood pressure, resulting in a missed opportunity for medication treatment.[26] Similarly, a 5 mm Hg overestimate could result in 27 million people being

misdiagnosed with high blood pressure, which would expose them to unnecessary treatment and the potential for adverse events.[26] These concerns are compounded by the effects of white coat and masked high blood pressure and the fact that the indirect measurement of blood pressure is the only practical way to identify high blood pressure.[26]

Common sources of error in blood pressure measurements include human errors (e.g., incorrect cuff size, improper body positioning, inadequate rest period, terminal digit preference, lack of repeat measurements), patient factors (e.g., recent caffeine, decongestant, or nicotine use; talking during the measurement), and device-related factors (e.g., failure to properly use, inspect, maintain, or calibrate a device validated by the American National Standards Institute, Association for the Advancement of Medical Instrumentation, or International Organization for Standardization).[26] Pharmacists should be aware of these problems, and efforts are ongoing to address them. Resource 1 offers recommendations for improving the accuracy of blood pressure measurements for self-monitoring blood pressure devices, including pharmacy kiosks. Resource 2 offers guidance for pharmacists on how to measure a patient's blood pressure correctly.

Resource 1. How to Improve the Accuracy of Self-Monitoring Blood Pressure Devices

For Home Monitors, Pharmacists Should:

- Recommend monitors with the following features: automated; upper arm cuff; validated by ANSI, AAMI, or ISO;* memory storage capacity; accuracy checked by doctor, pharmacist, or nurse after purchase.[27]
- Instruct patient through verbal and visual communication on correct body position and operating procedures for the device, including routine calibration and maintenance.[28]
- Evaluate appropriate use of monitor, review stored blood pressure measures, and assess medication adherence at time of refill of antihypertensive medication.[29]

For Pharmacy Kiosks, Pharmacists Should:

- Only use clinically validated blood pressure kiosks and routinely calibrate and maintain them.
- Encourage patient to use kiosk at time of refill of antihypertensive medication. Instruct patient through verbal and visual communication on correct body position and operating procedures for the device.
- Implement technology to automatically transmit data from kiosk to pharmacy computer system.[30–33]
- Evaluate blood pressure measures, assess medication adherence, and take action as appropriate.

*American National Standards Institute, Association for the Advancement of Medical Instrumentation, or International Organization for Standardization.

Resource 2. How to Monitor and Record Blood Pressure*

Before you measure a patient's blood pressure, note that differences between left arm and right arm (or "interarm") blood pressure are common. Several studies have been done to determine the "normal" variation between the right and left arms. In general, any difference of 10 mm Hg or less is considered normal and not a cause for concern. Some studies have shown that the average interarm systolic blood pressure difference is significantly higher in patients with coronary artery disease. For this reason, it's a good idea to discuss differences higher than 10 mm Hg with a patient's primary care provider.

When you take a patient's blood pressure for the first time, it's recommended that you take it in both arms. If the patient is taking his or her blood pressure at home, readings are easier to take in the nondominant arm. If the patient's home blood pressure readings are different from those taken in the pharmacy, discuss this difference with the patient's primary care provider.

Many factors affect blood pressure. Interarm differences emphasize the importance of measuring blood pressure in both arms initially to prevent misdiagnosis of high blood pressure. If one arm consistently has higher blood pressure than the other, that arm should be used to measure the patient's blood pressure.

Make sure the cuff fits.
Measure around the patient's upper arm and choose a monitor with the correct size cuff.

Make sure the patient is still.
Patients should not smoke, drink caffeinated beverages, or exercise within 30 minutes before measurement.

Make sure the patient sits correctly.
Patients should sit with their back straight and supported. Their feet should be flat on the floor, and their legs should not be crossed. Their arms should be supported on a flat surface (such as a table) with the upper arm at heart level. Make sure the middle of the cuff is placed directly above the eye of the elbow. Check the monitor's instructions for an illustration of appropriate use.

Take multiple readings.
Each time you take a patient's blood pressure, take two or three readings 1 minute apart, and record all the results.

Measure at the same time daily.
It's important to take the readings at the same time each day, such as morning and evening.

Accurately record all results.
Record all readings, including the date and time taken. Share blood pressure records with other members of the patient's health care team.

Understand the readings.
Optimal blood pressure is less than 120/80 mm Hg (systolic pressure is less

than 120 and diastolic pressure is less than 80). Read Understanding Blood Pressure Readings to learn more about what the numbers mean.

Consult the patient's primary care provider if you get several high readings.
A single high reading of blood pressure is not an immediate cause for alarm. However, if you get a high reading, take the patient's blood pressure several times, make sure the monitor is working properly, and consult the patient's primary care provider to discuss next steps. When the systolic (top number) reading is 180 or higher or the diastolic (bottom number) reading is 110 or higher, emergency medical treatment is required for evaluation and treatment. See Hypertensive Crisis.

Watch the How to Measure Blood Pressure video.
An instructional video is available online.

*Adapted from American Heart Association's How to Monitor and Record Your Blood Pressure website.

How to Use the Pharmacists' Patient Care Process to Manage High Blood Pressure

Although the Pharmacists' Patient Care Process can be used to address any disease, this guide is designed to show pharmacists how to help patients manage high blood pressure. This section describes each of the five steps of the Pharmacists' Patient Care Process and suggests specific actions that pharmacists can take. These actions will vary in application and intensity depending on the patient care service provided. This section also provides references and web links for resources that support the suggested actions.

For all of the services they provide, pharmacists should recognize that a holistic, patient-centered approach can be beneficial. Patients with high blood pressure often have other conditions, such as diabetes and high cholesterol. Pharmacists using the Pharmacists' Patient Care Process to address high blood pressure should prioritize their services while also working to address all of their patients' medication needs and health problems, rather than focusing solely on one condition. Although the primary goal may be to manage high blood pressure, pharmacists should also consider the whole patient.

The five steps of the Pharmacists' Patient Care Process are:

- Step 1: Collect.
- Step 2: Assess.
- Step 3: Plan.
- Step 4: Implement.
- Step 5: Follow-Up: Monitor and Evaluate.

Step 1: Collect

The first step in the Pharmacists' Patient Care Process as it relates to the management of high blood pressure is to collect the necessary medical, medication, and lifestyle history of the patient, as well as information from physical assessments and biometric tests. This information (e.g., blood pressure measurements) can be collected by the patient, the pharmacist, or other health care professionals. When possible, this information should link to the patients' EHR.[5] Possible data points to collect (based on the services provided) are listed here, along with references and web links where appropriate.

COLLECT

The pharmacist assures the collection of necessary subjective and objective information about the patient in order to understand the relevant medical/medication history and clinical status of the patient. Information may be gathered and verified from multiple sources, including existing patient records, the patient, and other health care professionals. This process includes collecting:

- ☐ A current medication list and medication use history for prescription and nonprescription medications, herbal products, and other dietary supplements.
- ☐ Relevant health data that may include medical history, health and wellness information, biometric test results, and physical assessment findings.
- ☐ Patient lifestyle habits, preferences and beliefs, health and functional goals, and socioeconomic factors that affect access to medications and other aspects of care.

Medical History

- Age.
- Sex.
- Race.
- Fall risk.[34,35]
- Heart age.[36]
- Blood pressure.
- Immunization status.
- Past surgeries and procedures.
- Current diagnoses, treatment plans, and therapy goals.
- Family medical history (e.g., heart disease, stroke, diabetes, high cholesterol).

Results of Physical Assessment and Biometric Tests

- Body mass index: Body mass index calculator.
- Resting heart rate:
  - Medical History and Physical Exam for High Heart Rate.
  - Medical History and Physical Exam for Slow Heart Rate.
- Presence of edema (swelling).
- Current blood pressure: Physical Exam for High Blood Pressure.
- Laboratory tests (e.g., Electrolytes, Lipid Profile, Liver Panel, Renal Panel, Hemoglobin A1c, Basic Metabolic Panel, Comprehensive Metabolic Panel).

- Understanding laboratory tests and Chemistry Panels.

Note: Laboratory tests should be based on patient- and medication-specific factors.

Medication History

- Name.
- Dose.
- Route.
- Purpose.
- Frequency.
- Effectiveness.
- Adverse events.
- Administration time.
- Adherence and persistence.[37]
- Awareness and knowledge of medications.
- Attitude, beliefs, and medication-taking behaviors.
- Pharmacist Drug Adherence Work-up Tool (DRAW).

Note: Other medications, over-the-counter products, and dietary supplements should also be reviewed.

Lifestyle History

- Stress.
- Diet and nutrition.
- Physical activity and exercise.
- Sleeping patterns and disorders.
- Alcohol, smoking, and tobacco use.
- Awareness and knowledge of high blood pressure and its health effects.
- Attitude and approach to wellness and disease prevention: My Life Check: Life's Simple 7 Success Plan.

Step 2: Assess

The second step in the Pharmacists' Patient Care Process as it relates to the management of high blood pressure can include assessing blood pressure control, heart age, risk of heart attack and stroke, presence of medication-related problems, and need for lifestyle modification. Possible data points to assess (based on the services provided) are listed here, along with references and web links where appropriate.

Risk of Heart Attack and Stroke[36,38–40]

- Calculate age of each patient's heart (for those aged 30–74 years with no history of cardiovascular disease [CVD]): Heart Age Predictor Using BMI.
- Calculate estimate of 10-year risk of heart attack from CVD: Arteriosclerotic Cardiovascular Disease (ASCVD) Risk Estimator.
  - Determine blood pressure control based on patients' specific goals:
  - The JNC 7 Report.
  - Hypertension Treatment Protocols.
  - Recommendations for Treating Hypertension (*JAMA* editorial).
- Assess patients' current self-measurement of blood pressure (frequency, method, and device).

Presence of Medication-Related Problems[41–44]

- Appropriateness of the medication:
  Is the medication appropriate for the medical condition being treated?
  Does the patient have an indication that is not being treated or prevented?
- Effectiveness of the medication:
  Is the most effective medication being used for the medical condition?
  Is the dose appropriate and able to achieve the intended goals of therapy?
- Safety of the medication:
  Is the patient experiencing an adverse event from the medication?
  Is the dose so high it could cause toxicity in the patient?

ASSESS

The pharmacist assesses the information collected and analyzes the clinical effects of the patient's therapy in the context of the patient's overall health goals in order to identify and prioritize problems and achieve optimal care. This process includes assessing:

- ☐ Each medication for appropriateness, effectiveness, safety, and patient adherence.
- ☐ Health and functional status, risk factors, health data, cultural factors, health literacy, and access to medications or other aspects of care.
- ☐ Immunization status and the need for preventive care and other health care services, where appropriate.

- Adherence to the medication:
  Is the patient able and willing to take the medication as intended?
  Is the patient able to access the needed medication?
  - Pharmacist Drug Adherence Work-up Tool (DRAW).
  - Drug Therapy Problem Categories Framework for PQA Measures.

- The Patient-Centered Medical Home: Integrating Comprehensive Medication Management to Optimize Patient Outcomes: Resource Guide.

Note: Other medications, over-the-counter products, and dietary supplements should also be reviewed.

Need for Lifestyle Modification[45,46]

- Stress.
- Diet and nutrition.
- Physical activity and exercise.
- Sleeping patterns and disorders.
- Alcohol, smoking, and tobacco cessation.
- Awareness and knowledge of high blood pressure and its health effects.
- Attitude and approach to wellness and disease prevention: My Life Check: Life's Simple 7 Success Plan.

Coordination, Referral, and Transitions of Care[47]

- Identify members of patients' care teams and determine need for referral.
- Assess communication and care coordination among care team.
- Prioritize information to prepare for discussion with patient, prescribers, and caregivers.

Step 3: Plan

The third step in the Pharmacists' Patient Care Process as it relates to the management of high blood pressure is to develop a patient-centered care plan. This plan is developed in collaboration with the patient, prescriber, and caregivers and should be documented in the pharmacy patient record. This plan can include the blood pressure elements listed here (based on the services provided) and include patient-specific goals.

Blood Pressure Monitoring and Control[27,28]

- Collaborate to develop, adjust, or reinforce individualized blood pressure goals.
- Seek commitment to routine self-monitoring and reporting.
- Help patients select a self-monitoring device.
- Agree on method and frequency for reporting measurements:
  - Hypertension Control: Action Steps for Clinicians.
  - Self-Measured Blood Pressure Monitoring: Action Steps for Public Health Practitioners.

PLAN

The pharmacist develops an individualized patient-centered care plan, in collaboration with other health care professionals and the patient or caregiver that is evidence-based and cost-effective. This process includes establishing a care plan that:

- ☐ Addresses medication-related problems and optimizes medication therapy.
- ☐ Sets goals of therapy for achieving clinical outcomes in the context of the patient's overall health care goals and access to care.
- ☐ Engages the patient through education, empowerment, and self-management.
- ☐ Supports care continuity, including follow-up and transitions of care as appropriate.

Medication Therapy Management[44,48–50]

- Collaborate to prioritize and address each medication-related problem.
- Set goals to optimize each medication therapy.

- Develop tactics to educate and empower patients to meet self-management and adherence goals:
  - The Patient-Centered Medical Home: Integrating Comprehensive Medication Management to Optimize Patient Outcomes: Resource Guide.
  - Medication Therapy Management in Pharmacy Practice: Core Elements of an MTM Service Model.
  - Medicare Part D Medication Therapy Management Program Standardized Format.
  - Improving Medication Adherence Among Patients with Hypertension: A Tip Sheet for Health Care Professionals.

Lifestyle Modification[45,46,51–60]

- Collaborate with patients to identify and set lifestyle modification goals:
  - Reduce stress.
  - Improve diet and nutrition.
  - Increase physical activity and exercise.
  - Cease alcohol, smoking, and tobacco use.
  - Standardize sleeping patterns and mitigate sleep disorders.
  - Increase awareness and knowledge of high blood pressure and its health effects.
  - Improve attitude and approach to wellness and disease prevention.
  - Prioritize modifications and develop incremental goals to promote success.
  - Develop tactics to educate and empower patients to self-manage and achieve goals:
    - Stress Management.
    - ChooseMyPlate.gov.
    - SuperTracker.
    - Alcoholics Anonymous.
    - Al-Anon Family Groups.
    - MySmokefree: Your Personalized Quit Experience.
    - Healthy Eating & Lifestyle Resource Center.
    - Description of the DASH Eating Plan.
    - Physical Activity Guidelines.
    - How to Control Your Fat and Cholesterol: How to Control Your Cholesterol Numbers.
    - How to Control Your Hypertension: Learning to Control Your Sodium Intake.

Coordination, Referral, and Transition of Care[47,61]

- Discuss proposed plan and prioritize actions in collaboration with patients, prescribers, and caregivers.
- Document the plan: Blood Pressure Assessment Program Screening Guidelines.

Step 4: Implement

The fourth step in the Pharmacists' Patient Care Process as it relates to the management of high blood pressure is to implement the patient-centered care plan in collaboration with the patient, caregivers, and other health care professionals. All components of this step involve some aspect of education and coaching to support disease self-management. Possible actions (based on the services provided) are listed here, along with references and web links where appropriate.

Self-Monitoring of Blood Pressure[27,28]

- Instruct patients on appropriate use of self-monitoring blood pressure device.
- Educate patients on how to monitor, document, and report blood pressure measurements.
- Educate patients about when to seek medical advice: Self-Measured Blood Pressure Monitoring: Action Steps for Public Health Practitioners.

Medication Therapy Management[13,14,37,44,48–50,62,63]

- Initiate, modify, administer, or discontinue medication therapy to resolve medication-related problems based on collaborative practice agreement, clinical protocol, or prescriber approval of pharmacist's recommendations:
  - Collaborative Practice Agreements and Pharmacists' Patient Care Services: A Resource for Pharmacists.
  - Hypertension Treatment Protocols.
- Provide patients and health care providers with an updated medication list and medication action plan.
- Implement tactics to improve medication adherence.
- Encourage use of a single pharmacy for obtaining medications:
  - Pharmacy's Appointment Based Model: A Prescription Synchronization Program that Improves Adherence.

IMPLEMENT

The pharmacist implements the care plan in collaboration with other health care professionals and the patient or caregiver. During the process of implementing the care plan, the pharmacist:

- ☐ Addresses medication- and health-related problems and engages in preventive care strategies, including vaccine administration.
- ☐ Initiates, modifies, discontinues, or administers medication therapy as authorized.
- ☐ Provides education and self-management training to the patient or caregiver.
- ☐ Contributes to coordination of care, including the referral or transition of the patient to another health care professional.
- ☐ Schedules follow-up care as needed to achieve goals of therapy.

  - Pharmacy's Appointment Based Model: Implementation Guide for Pharmacy Practices.
  - Morisky Scale.

Lifestyle Modification[45,46,51–60]

- Implement tactics to achieve behavior modifications:
  - Reduce stress.
  - Improve diet and nutrition.
  - Increase physical activity and exercise.
  - Improve sleeping patterns and mitigate sleep disorders.
  - Cease alcohol, smoking, and tobacco use.
  - Increase awareness and knowledge of high blood pressure and its health effects.
  - Improve attitude and approach to wellness and disease prevention.
- Give patients resources to help them modify their lifestyles.
- Affirm commitment to monitoring and reporting.

Coordination, Referral, and Transition of Care[47,61]

- Coordinate implementation of the care plan and monitoring of progress.
- Refer patients to other health care professionals as necessary.
- Document activities and tactics used to implement the care plan.
- Communicate actions and goals with other health care team members as appropriate.
- Schedule follow-up visits with patients as needed.

Step 5: Follow-Up: Monitor and Evaluate

The fifth step in the Pharmacists' Patient Care Process as it relates to the management of high blood pressure is to follow up by monitoring and evaluating patient adherence to the health care plan, as well as health outcomes and progress toward meeting goals. During follow-up visits, the pharmacist will repeat Steps 1 to 4 as needed to assess progress and determine if adjustments to the care plan are needed.

Blood Pressure Monitoring and Control[27,28]

- Assess adherence to self-monitoring of blood pressure.
- Review blood pressure measurements and evaluate degree of control.
- Measure blood pressure and evaluate progress toward meeting goals.
- Repeat Steps 1 to 4 as needed.

FOLLOW-UP: MONITOR AND EVALUATE

The pharmacist monitors and evaluates the effectiveness of the care plan and modifies the plan in collaboration with other health care professionals and the patient or caregiver as needed. This process includes the continuous monitoring and evaluation of:

- ☐ Medication appropriateness, effectiveness, and safety and patient adherence through available health data, biometric test results, and patient feedback.
- ☐ Clinical endpoints that contribute to the patient's overall health.
- ☐ Outcomes of care, including progress toward or the achievement of goals of therapy.

Medication Therapy Management[13,14,27,37,44,48–50,62–65]

- Reassess medication appropriateness, effectiveness, safety, and adherence.
- Evaluate progress toward meeting goals and outcomes.
- Repeat Steps 1 to 4 and update care plan as needed.
- Review and update medication list to ensure accuracy.
- Provide updated medication list to patients.
- Provide patients with copy of updated medication action plan.
- Educate or coach patients about medications and chronic disease.
- Help patients get access to medications:
  - Supporting Your Patients with High Blood Pressure.
  - Improving Medication Adherence Among Patients with Hypertension: A Tip Sheet for Health Care Professionals.
  - Your Health: How to Measure Your Pulse.
  - Self-Measured Blood Pressure Monitoring: Action Steps for Public Health Practitioners.
  - Medicines to Help You: High Blood Pressure.
  - Check. Change. *Control.*™ Understanding and Managing High Blood Pressure.

Lifestyle Modification[45,46,51–60]

- Reassess adherence to lifestyle modification tactics.
- Evaluate progress modifying lifestyle to meet goals.
- Repeat Steps 1 to 4 as needed.

Coordination, Referral, and Transition of Care[47,61]

- Schedule follow-up visits with patients for continued monitoring and evaluation.
- Refer patients to other health care professionals if needed.
- Document services provided and share documentation and information with other members of the health care team as appropriate: ASHP-APhA Medication Management in Care Transitions Best Practices.

Quality Measures of Value: A Population Health Approach

"Beginning with the end in mind" is critical to the success of any quality improvement initiative. As stated previously, the primary objective of this guide is to align the efforts of pharmacists with current national initiatives designed to improve the nation's cardiovascular health by controlling blood pressure among the adult population. The Pharmacists' Patient Care Process is recommended as a strategy to achieve this goal, in collaboration with doctors and other health care professionals through team-based care. This goal can be met through the adoption of a population health perspective, the use of health information technology to improve medication management, and the sustainability of cardiovascular pharmacy services.

Evidence suggests that controlling blood pressure is a foundational measure of value in improving cardiovascular health and, if achieved within a population, can significantly slow the incidence and reduce the prevalence of heart disease and stroke. Primary measures of success involve tracking the proportion of patients with known high blood pressure who have achieved control and the proportion who are adhering to their medication therapy.[66] Secondary measures focus on self-monitoring, lifestyle modification, and medication therapy management.[67] Tertiary measures involve changes to how health care service are delivered, such as through expanded use of electronic health information; collaborative practice agreements; and value-based, risk-sharing payment models. Figure 2 illustrates cardiovascular health measures that pharmacists can use to track the populations they manage.[68]

Figure 2. Measures of Value for Applying the Pharmacists' Patient Care Process to the Management of High Blood Pressure

Primary Measures

- Proportion of patients with known high blood pressure who have achieved blood pressure control.
- Proportion of patients with high blood pressure adhering to medication regimes.
- Proportion of patients who have a lifestyle modification plan in place.

Secondary Measures

- Proportion of patients with high blood pressure who have a self-monitoring plan.
- Proportion of patients with an annual comprehensive medication review.
- Proportion of patients with high blood pressure with a patient-centered care plan.
- Proportion of patients with a reconciled medication list at point-of-care transition.
- Proportion of patients with a personal medication list.
- Proportion of patients enrolled in a medication synchronization program.

Tertiary Measures

- Proportion of patients aware that they have high blood pressure.
- Proportion of patient profiles with electronic health records appropriate for treating high blood pressure.
- Proportion of patients who are part of a formal approach to team-based care.
- Proportion of patients enrolled in the pharmacy appointment-based model.

Source: Centers for Disease Control and Prevention. FOA DP13-1305, and FOA DP13-1422. State Public Health Actions to Prevent and Control Diabetes, Heart Disease, Obesity and Associated Risk Factors and to Promote School Health.

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