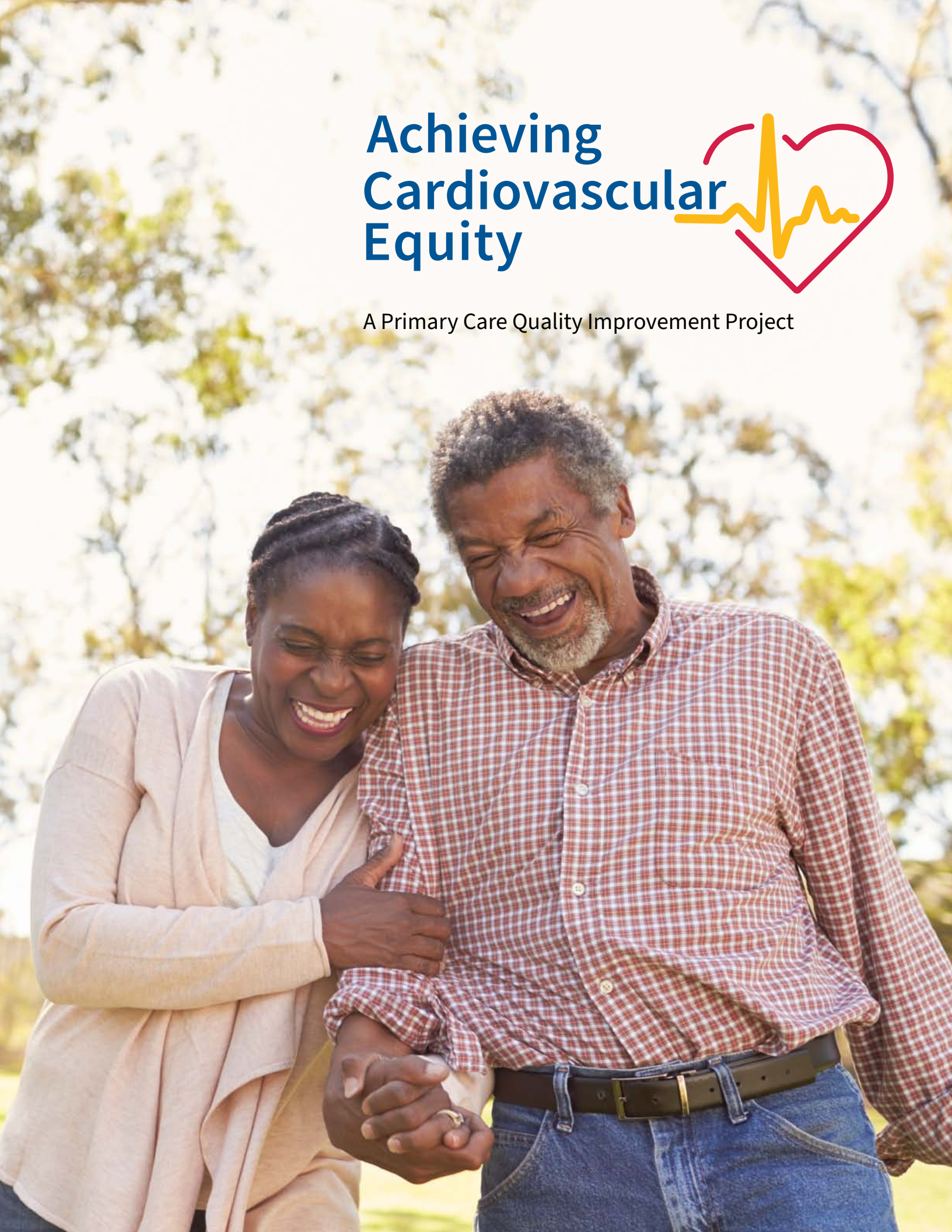
Achieving Cardiovascular Equity

A Primary Care Quality Improvement Project



Achieving Cardiovascular Equity

A Primary Care Quality Improvement Project

Change Package

Revised 2024

OHIO COLLEGES OF MEDICINE
GOVERNMENT RESOURCE CENTER

Ohio Department of Health

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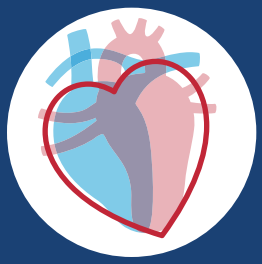


EXECUTIVE SUMMARY

Hypertension (HTN) and high cholesterol are major contributors to heart disease and stroke, which are among the most common, costly, and preventable health problems in the United States and Ohio.[1] Cardiovascular disease, which includes heart disease, stroke, and heart failure, is the leading cause of death in Ohio and nationwide.[2] Less than half of all patients with hypertension have their blood pressure (BP) controlled to goal; physicians partnering with patients have improved control in as little as 12 months.[3]

- Hypertension and high cholesterol impact 1 in 3 Ohio adults and prevalence only increases with age.[4]
- Hypertension is responsible for 33% of all cardiovascular disease and 43% of heart disease in Black people.[5]
- Ohio adults have a higher prevalence of stroke (3.7%) and heart disease (7.9%) compared with adults in the United States.[6]
- In 2021, heart disease claimed the lives of 30,578 Ohioans.[7]
- In 2020, 10.6 and 19.3 potential years of life are lost from heart disease in White and Black people, respectively.[8]

> "Black, Hispanic, and American Indian populations experience greater social disadvantage across all social determinant of health domains compared with the White population, with implications for cardiovascular disease development, progression, and mortality." [9]

Health Equity

Overall, men and women face similar risks for being diagnosed with cardiovascular disease. However, there are significant racial disparities where non-Hispanic Black adults are more likely to die of heart disease than non-Hispanic White adults.[10] Of note, Black Americans receive a diagnosis of high BP earlier in life and their average BP levels are higher, resulting in greater rates of non-fatal stroke, fatal stroke, heart disease deaths, and end-stage kidney disease.[11,12] Determinants of racial/ethnic disparities in BP control are multi-factorial and include patient, provider, organizational, community, and policy factors.[13] Focused efforts to address hypertension and cholesterol management in Black patients is necessary to advance cardiovascular equity. Only 1 in 4 statin-eligible patients across the US are prescribed a statin. Improving the utilization of statins would lower the risk of cardiovsacular disease. [14] These cardiovascular risk factors can be addressed successfully with proper medication, hypertension registries, unbiased proper BP management with cultural humility, lifestyle change, and addressing non-medical health-related social needs.[15,16]

About the Achieving Cardiovascular Equity (ACE) project

The ACE quality improvement project seeks to improve BP and/or cholesterol control across the patient population, with a specific focus on Black patients and those in Ohio's Appalachian region, and foster community partnerships to address health-related social needs. The Ohio Department of Health (ODH) will collaborate with the Ohio Colleges of Medicine Government Resource Center (GRC) and The Ohio State University Wexner Medical Center to address cardiovascular risk factors and heart disease disparities. ACE practices will incorporate strategies to improve diagnosis and management of hypertension and high cholesterol, utilize electronic health records (EHR) for reporting and monitoring of clinical quality measures, and identify and address health-related social needs. Quality improvement activities will follow the Institute for Healthcare Improvement's (IHI) Model for Improvement. The resources compiled in this Change Package can assist primary care providers to streamline processes, improve care and reduce disparities related to cardiovascular risk.

KEY DRIVER: Identifying Undiagnosed Hypertension

Accurate BP measurement is a fundamental skill required for the correct diagnosis and treatment of HTN.[17] Consider the following strategies to improve BP measurement and ensure consistent practice within your clinic.

1. Accurate, consistent measurement and recording of race and ethnicity.

Efforts to eliminate disparities must first ensure that the race and ethnicity of patients is collected in a diligent manner. Determining race and ethnicity based on appearance alone may lead to inaccurate categorization. Training staff to ask patients to self-report race and ethnicity increases the accuracy of this information and can assist in providing more effective treatment.

2. Functional equipment available in all patient rooms.

Have a plan in place to ensure equipment is available, calibrated, and working correctly. Investing time to stock or repair equipment will minimize staff frustration, allowing them to more easily focus on technique and new workflows to ensure accurate BP measurement. When able, we suggest use of validated blood pressure cuffs and, based on literature, automated office blood pressure monitoring.[18] A resource for validated BP monitors can be found at *https://www.validatebp.org/*

3. Complete staff training on accurate BP measurement.

Proper BP measuring technique, including a repeat measurement if a patient's first BP is high, can result in a more accurate hypertension stage classification. Repeat measurements should take place 1-2 minutes apart. Research suggests that approximately one third of patients were reclassified to a lower hypertension stage after a repeat BP reading. This can lead to improved decision-making around HTN management.[17]

- Consider how new employees will be trained and develop or modify a BP training checklist to align with your new workflow.
- Establish an annual review process to keep staff engaged and ensure proper BP measurement technique is sustained over time.

4. Use visual reminders to reinforce staff compliance with repeat BPs.

Examples of visual reminders include:

- Consider leaving the BP cuff on a patient with an elevated BP when a second reading is necessary.
- Use a flag or red heart to prompt next steps for clinic staff or patient follow-up.
- Display posters in common areas and exam rooms to serve as reminders.

KEY DRIVER: Effective Treatment of Hypertension

The elements included in the Effective Treatment section are appropriate for all patients with hypertension and include lifestyle modifications, BP goal setting, and self-monitoring.

Clinic processes to consider:

1. BP monitoring equipment

- Confirm every exam room has equipment which has been recently calibrated.
- Implement regular BP machine maintenance.

2. Staff training and education

- Conduct staff training for proper BP technique.
- Repeat BP technique staff training annually.
- Implement a plan to train new staff, including float pool, on technique and BP-specific protocols.
- Use visual reminders to reinforce processes, such as a poster in the room or leaving the BP cuff in place if the first BP reading is high. (See Appendix A.)

3. Use of Drug Treatment Algorithm(s)

- Consistent use of the drug treatment algorithm of your choice. (See pages 10-11 for examples.)

4. Commit to rapid follow-up care

- For patients with BP over 140/90, see within 2-4 weeks.
- Consider use of nursing, pharmacy, or other staff for additional access to care.
- Telehealth visits may be utilized to review self-measured blood pressure (SMBP) data. (See page 7 for sample workflow.)

Patient education to consider:

1. Use of self-measured BP (SMBP) devices

- Consider use of pharmacist or nursing staff to help patient with device setup.

2. Encourage lifestyle modifications

- Discuss Dietary Approaches to Stop Hypertension (DASH) diet
- Address alcohol, smoking /vaping, substance use, caffeinated beverages, and weight loss as appropriate.

3. Review special considerations on the next page when treating Black patients with diagnosed hypertension.

Considerations For Treating Black Patients With Diagnosed Hypertension

Provider Factor	Clinical Inertia
	Implicit biases, which occur in an unconscious manner, explain a potential disconnect between what a person explicitly believes and wants to do and the hidden influence of negative implicit associations on thoughts and actions.[19] This can lead to clinical inertia- the failure of providers to adequately treat hypertension in some groups. • Using peer-review office visits can help overcome clinical inertia and reduce disparities.[20] • The ability to communicate shared experiences and develop relationships with patients are key in BP management.[21]
Patient Factor	Medication is multi-factorial and modifiable[22,23]
	• Building confidence in Black patients' ability to take their prescribed medication leads to improved control.[24] • Use of single-pill antihypertensive combinations is one method that may be particularly beneficial in Black patients with diagnosed hypertension.[25]
	Hypertension beliefs
	• For Black patients that attributed their hypertension to family history, there is potential for decreased medication adherence.[26] • A large percentage of patients rated stress at home as a cause of their hypertension.[26]
	Need to improve self-efficacy
	• Clinically, patients have reported that their self-efficacy is an important concern when discussing barriers associated with their ability to take antihypertensive medications.[24] • Self-efficacy is a key predictor of medication adherence over time in Black patients with hypertension. Initial levels of self-efficacy are influenced by the presence of depressive symptoms as well as the perceived quality of patient-provider communication.[27]
Community Factors	Community connection
	• Addressing health-related social needs for those who need help is an important strategy.[28]

Timely Follow-Up For Hypertension

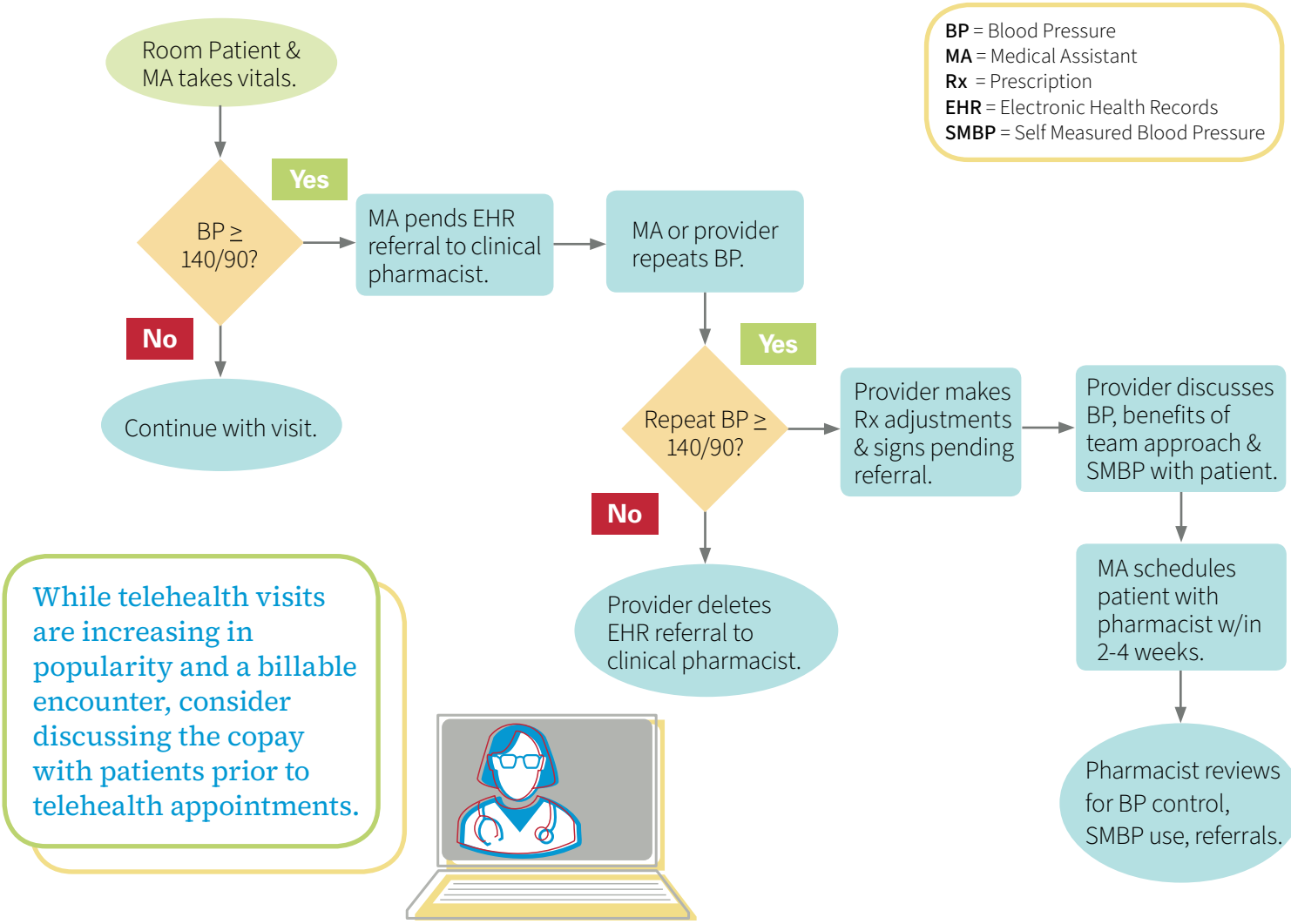
Patients who received a repeat BP and have an elevated average BP result should be scheduled for follow-up within two to four weeks.

The purposes of the follow-up hypertension visit are to:

1. Obtain additional BP readings.
2. Assess and address barriers to taking medication.
3. Start new or intensify medications in adults who are medication adherent but still have elevated BPs.
4. Provide education on hypertension, including lifestyle modification and the DASH diet.
5. Provide self-monitoring BP instructions.
6. Assist with self-management goal-setting.

Scheduling a Follow-up Visit

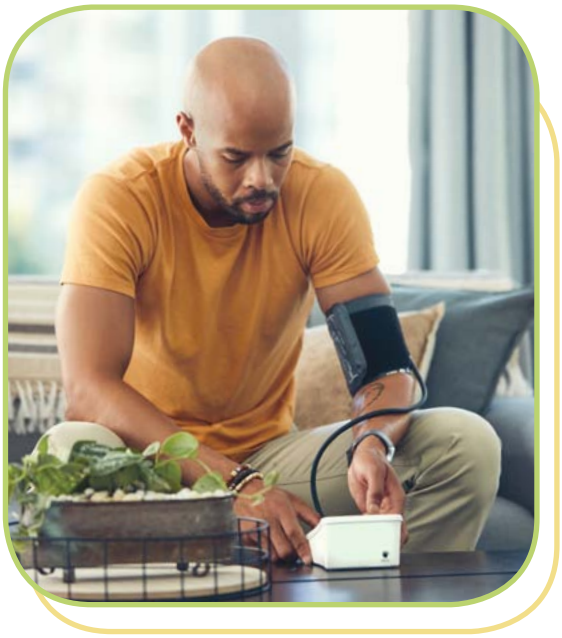
To increase the number of patients returning for follow-up visits, establish guidelines and a referral process for hypertension follow-up. Consider all visit options such as telehealth, group visits, or utilizing pharmacy or nursing staff. A sample workflow is shared below for your consideration.



Incorporating Home Blood Pressure Monitoring Into Your Clinic

SMBP processes are integral to a patient's BP control. Key process changes can help address the utilization of SMBP monitoring and ensure the patient receives the necessary care and follow-up.

1. **Have clinic staff ensure that any patient with an elevated BP can access a SMBP device.**
    - *www.validatebp.org* lists validated SMBP units.
    - Encourage use of arm cuff units only, and that patient has the correct cuff size.
    - Ensure the cuff is covered by patient's insurance plan.
2. **Identify the appropriate clinic staff to provide patient support and education for SMBP. Consider pharmacists and/or nurse extenders to:**
    - Assist in setting up the SMBP device and ensure the patient understands how to use the device and the proper technique for an accurate BP.
    - Assist with Bluetooth connections for compatible devices, as needed.
    - Titrate medication, if needed and with pharmacy oversight.
    - Provide patient education on topics such as DASH diet and exercise benefits.
3. **Decide how and when patients should share SMBP data.**
    - At a minimum, encourage patients to record SMBP readings twice daily for 3 days.[29]
    - Share SMPB data in one of the following ways:
        - » Direct connection to the patient portal via Bluetooth-enabled SMBP devices.
        - » Advise the patient to bring the device to the next appointment for review.
        - » Provide a paper BP log to capture readings and advise the patient to upload a picture to the patient portal or bring to their next appointment.



4. **Determine a threshold or criteria at which to notify the provider to review data or identify the next steps.**
5. **Use the following CPT codes to reimburse for SMBP activities.[30] The economic case for SMBP is also worth reviewing.[31]**

    CPT code 99743: Use <u>once</u> when staff provides SMBP training, device set up and/or calibration, and instruction for at-home BP monitoring.

    CPT code 99744: Use <u>once a month</u> for ongoing treatment, such as electronic or in-person review of BP logs to inform next steps.

Hypertension Drug Treatment Guidelines

The examples on pages 10-11 display algorithms showing simple, effective pharmacologic therapy approaches for treating patients with hypertension, which prioritize once daily, dual/triple combination, low cost medications to enhance medication adherence. The treatment algorithms also prioritize lifestyle change, and in Black populations without chronic kidney disease, thiazide-type diuretics and calcium channel blockers as first line medications.[32] These algorithms represent two possible approaches to treating and controlling hypertension for your patient.

Next steps for your clinic:

1. Choose a hypertension treatment guideline and use it!
    - » Consider the treatment algorithms on pages 10-11.
2. Commit to quick follow-up (2-4 weeks) for patients with uncontrolled high BP. This system can include nurse visits and clinical pharmacists as well.
3. Monitor for treatment adherence.

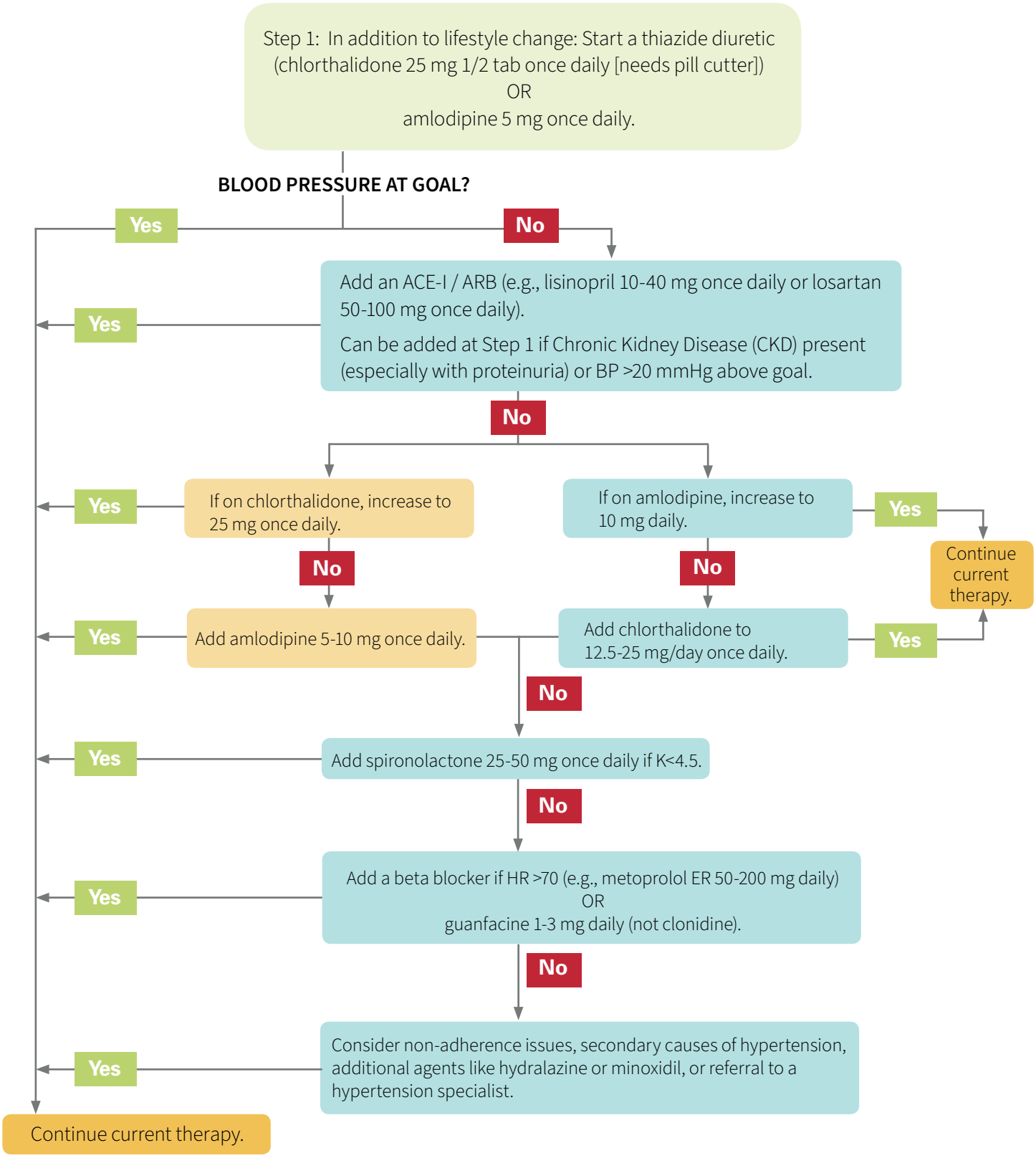
Medication Resources

Medical Reference Lists for providers and staff are provided in Appendices B, C and D. These include information on drug class and examples, common side effects, and single-pill combination therapy and clinical comments to consider. Also, Medicaid and managed care plans use a unified preferred drug list. This list separates agents by drug class and identifies which are preferred (and therefore covered) and which would require a prior authorization.

https://medicaid.ohio.gov/stakeholders-and-partners/phm/unified-pdl

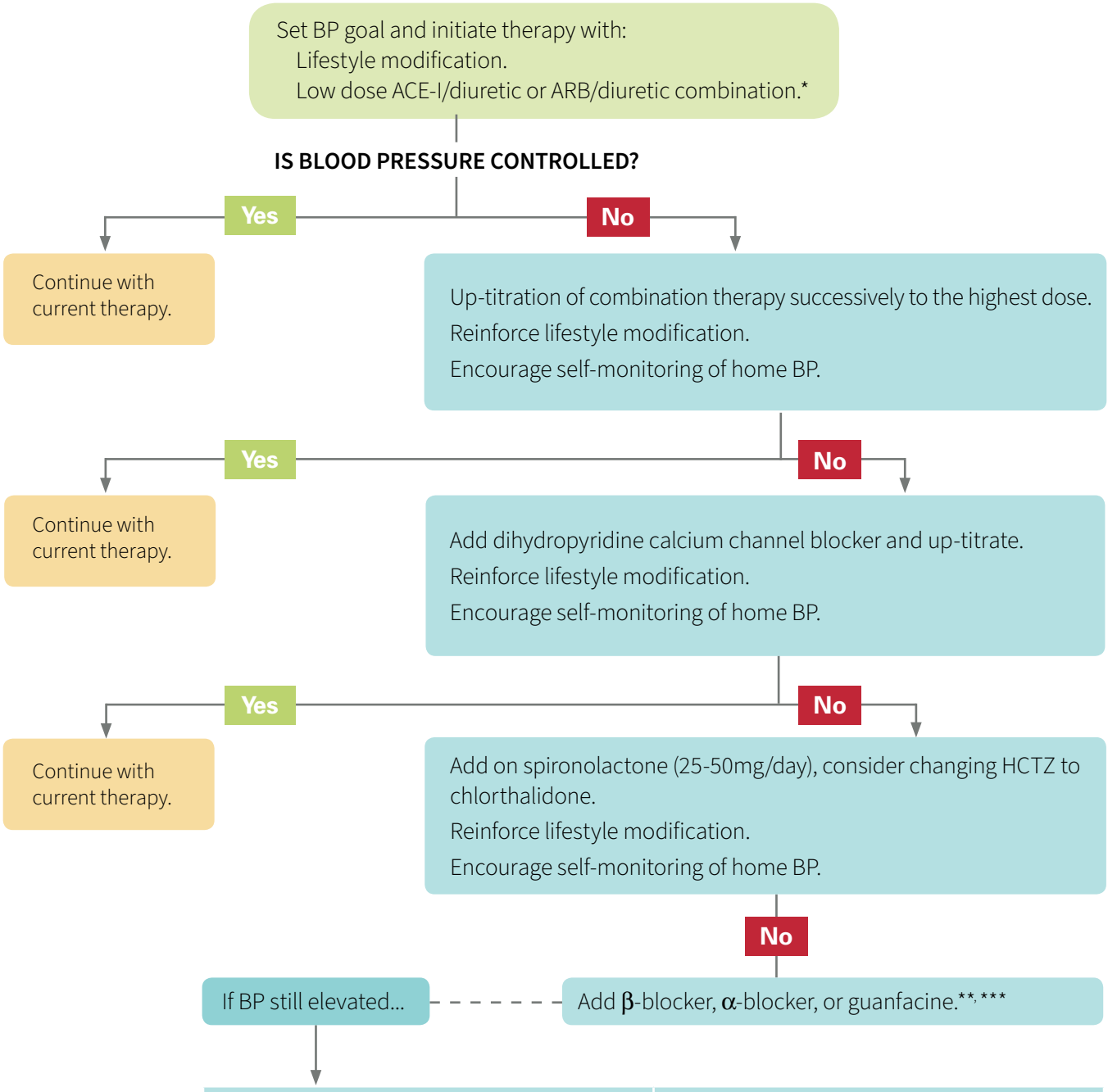
Updated Hypertension Drug Treatment Algorithm[33]

Use of a validated treatment algorithm will improve blood pressure control within your practice. This example, recommended for use in the Systolic Blood Pressure Intervention Trial (SPRINT), is one option. Medication reference lists are provided in Appendix C and D.



Classic Hypertension Drug Treatment Guideline[34]

Use of a validated treatment algorithm will improve blood pressure control within your practice. Medication reference lists are provided in Appendix C and D.



*If pregnant or pregnancy potential, avoid using ACE-I or ARB or spironolactone
**Avoid starting a beta blocker if pulse <70 or on a non-dihydropyridine calcium channel blocker
***Guanfacine has similar mechanism of action as clonidine and is once daily instead of three times a day

KEY DRIVER: Effective Treatment Of Hyperlipidemia

Cholesterol is a lipid that is the main animal sterol, a central component of cellular structures, and a precursor of many hormones. Triglycerides are also lipids and are chemical fats. Saturated fats are solid at room temperature (e.g., butter); unsaturated fats are liquid at room temperature (e.g., oils). Currently, the most clinically relevant types of lipoproteins are:

- High-density lipoprotein (**HDL**) which carries mostly cholesterol from body tissues to the liver; **HDL** is considered the "good cholesterol."
- Low-density lipoprotein (**LDL**) which carries mostly cholesterol to body tissues and is associated with atherosclerotic cardiovascular disease (ASCVD); **LDL** is considered the "bad cholesterol."
- Very low-density lipoprotein (VLDL) carries mostly triglycerides to body tissues.

Total Cholesterol – HDL

Non-HDL Cholesterol

What is hyperlipidemia?

Hyperlipidemia represents an elevated level of lipids in the body. Clinical laboratories generally interpret lipid values as presented in Table 1.

Table 1: Clinical laboratory interpretation of lipid value

	Suboptimal (mg/dL)	Desirable (mg/dL)	Recommended if high CV risk*	Recommended if very high CV risk**
Total Cholesterol	> 240	< 200		
Non-HDL Cholesterol		< 130		
LDL	> 160	< 100	< 70	< 55
Triglycerides	> 200	< 150		
HDL	< 40	> 40 (for men) > 50† (for women)		

* History of diabetes mellitus, coronary artery disease (CAD), ischemic stroke, or transient ischemic attack, as defined by the American Heart Association (AHA)

**History of multiple major atherosclerotic cardiovascular disease (ASCVD) events (e.g., myocardial infarction, ischemic stroke, or symptomatic peripheral artery disease) or 1 major ASCVD event and multiple high-risk conditions (e.g., diabetes mellitus, hypertension, chronic kidney disease, current smoking)[A]

† HDL >90 mg/dL may be indicative of increased health risk rather than health benefit.[35]

For primary prevention of ASCVD, serum lipids are most commonly evaluated and managed based on overall ASCVD risk. Nonfasting lipid tests are generally acceptable to evaluate serum lipid levels and associated ASCVD risk. To estimate a patient's 10-year ASCVD risk, consider utilizing the American College of Cardiology's (ACC) ASCVD Risk Estimator, which is built into many electronic health records.[36] *https://tools.acc.org/ascvd-risk-estimator-plus/#!/calculate/estimate/*

[A] Lloyd-Jones DM, Morris PB, Ballantyne CM, et al. 2022 ACC Expert Consensus Decision Pathway on the Role of Nonstatin Therapies for LDL-Cholesterol Lowering in the Management of Atherosclerotic Cardiovascular Disease Risk: A Report of the American College of Cardiology Solution Set Oversight Committee. J Am Coll Cardiol, 80(14), 1366-1418. doi:10.1016/j.jacc.2022.07.006

When to treat hyperlipidemia and/or ASCVD risk?

Primary Prevention

For primary prevention, current guidelines recommend treating hyperlipidemia with statins for patients who have 1) 10-year ASCVD risk ≥20%, 2) LDL levels ≥190 mg/dL, 3) diabetes mellitus, or 4) known familial hypercholesterolemia. For other patients, current guidelines recommend clinical discussion of ASCVD risk calculation and additional "risk enhancers" such as family history of premature ASCVD, chronic kidney disease, history of preeclampsia or premature menopause, and comorbid inflammatory diseases.[38-40] See Page 14 for a sample risk treatment algorithm.[41]

Shared Decision Making

Try the Mayo Clinic's Statin Choice Decision Aid for individualized visualization for clinical decision making.[42] *https://statindecisionaid.mayoclinic.org/*

Secondary Prevention

For secondary prevention of ASCVD --in patients who have a personal history of CAD, ischemic stroke, transient ischemic attack, or peripheral artery disease --patients should be on statin therapy. Statin add-on therapies such as ezetimibe and/or PCSK9 inhibitors may be considered for treatment intensification to achieve LDL goals. As outlined in Table 1, the LDL goal should be less than 70 mg/dL (or less than 55 mg/dL if considered very high CV risk). We suggest reviewing prior CT chest images to assess for presence of CAD.

How to treat hyperlipidemia and/or ASCVD risk?

- Encourage healthy diet and exercise lifestyle modifications for all adult patients. These components affect your cholesterol in different ways.
- Exercise is known to increase HDL "good cholesterol" levels and lower triglycerides. The AHA recommends at least 150 minutes of moderate-intensity aerobic activity per week.
  - » Diet is important in lowering LDL "bad cholesterol" and triglycerides. Dietary cholesterol contributes significantly but not alone to serum total cholesterol levels.
  - » AHA recommends less than 300 mg of dietary cholesterol per day.
  - » **Saturated fats increase LDL levels and are thus considered less healthy compared to unsaturated fats. The AHA recommends that less than 6% of daily calories come from saturated fat.**

Often, medications are necessary to reduce serum lipid levels and/or associated ASCVD risk. Medication classes are introduced below. See Appendix E for additional detail.

Statins are first-line LDL and triglyceride lowering agents. Statins lower LDL and triglyceride levels by reducing cholesterol biosynthesis and increasing hepatic LDL receptors to remove serum LDL and VLDL. Statins also stabilize atherosclerotic plaque, reducing risk of thromboembolic events. Statins can either be low-, moderate-, or high-intensity based on their cholesterol-lowering capacities. Statins can also be lipophilic (can easily enter cells) versus hydrophilic (more hepatoselective).

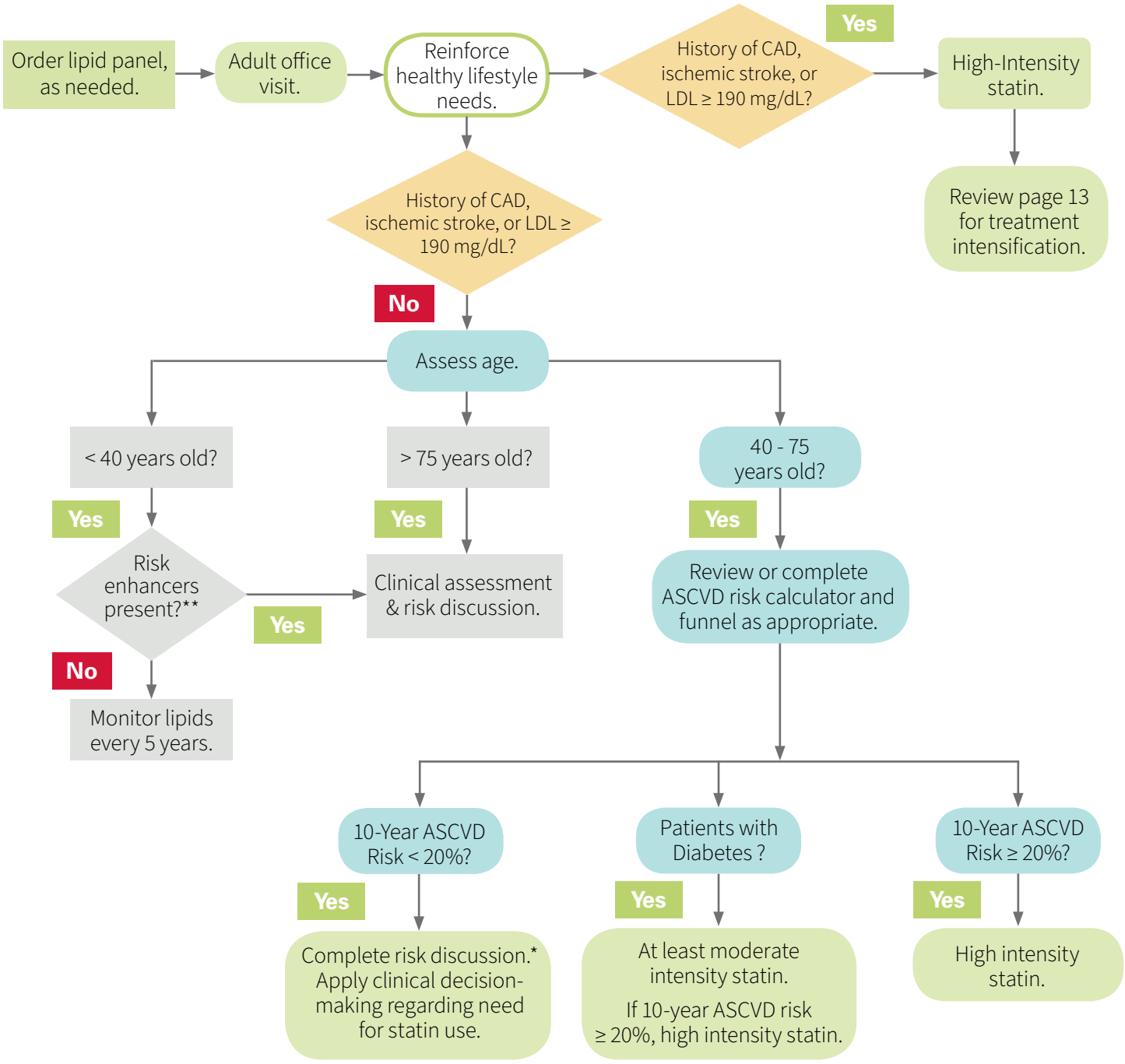
Ezetimibe lowers LDL levels by inhibiting small intestine cholesterol absorption and has shown additive LDL-lowering benefit to high-intensity statin therapy.

PCSK9 inhibitors (Repatha, Praluent, Leqvio) lower LDL levels by increasing hepatic LDL receptors. Explore coverage feasibility before prescribing.

Fibrates stimulate fatty acid uptake and catabolism, and vitamin B3 (niacin) may increase lipoprotein degradation and inhibit triglyceride biosynthesis. Neither of these medication classes has shown clear clinical benefit when used in combination with statin therapies and are thus less commonly prescribed. Avoid use of niacin in patients with dysglycemia.

Omega-3 fatty acids (alpha-linolenic acid (ALA), eicosapentaenoic acid (EPA), and docosahexaenoic acid (DHA)) have been shown to lower triglycerides by increasing fatty acid oxidation. Of this medication class, EPA (or icosapent ethyl, an ethyl ester of EPA) monotherapy has demonstrated higher and more consistent cardiovascular risk reduction.[43]

Sample ASCVD Risk Treatment & Statin Use Workflow



MI = Myocardial Infarction
CAD = Coronary Artery Disease
TIA = Transient Ischemic Attack
PVD = Peripheral Vascular Disease
PAD = Peripheral Artery Disease

*For risk discussion, consider the number of risk enhancers present and severity to inform the patient conversation around statin use.

**ASCVD risk enhancers:

- Family history of early CVD.
- Persistent LDL ≥160 mg/dL. or triglycerides ≥175 mg/dL.
- Smoking.
- Elevated BP.
- Chronic Kidney Disease.
- History of preeclampsia or menopause < 40 years.
- Inflammatory conditions (e.g., autoimmune diseases or HIV).

Adapted from the ACC/AHA primary prevention strategy.[41]

Monitoring Suggestions and Timely Follow-up Care

The frequency of lipid monitoring is not clinically certain.[44] The National Heart, Lung, and Blood Institute generally recommends lipid monitoring:

- Every five years starting at age 9 to 11 years old (or younger if there is a family history);
- Every one to two years for men aged 45 to 65 and women aged 55 to 65; and
- Every year for people above 65 years old.[45]

People with elevated lipid levels and/or ASCVD risk may need lipid levels checked more frequently. The AHA and ACC have recommended measuring fasting lipids 4 to 12 weeks after initiation or dose adjustment of a lipid-lowering medication and every 3 to 12 months thereafter.[38] The AHA and ACC have also recommended measuring fasting lipids before and 4 to 12 weeks after initiation of inflammatory disease-modifying or antiviral medications.

Consideration For Incorporating Into a Hypertension Visit Workflow

To streamline efforts for patients at risk for CVD, utilize your hypertension visits to: ensure that all patients with hypertension have had ASCVD risk and lipid assessment within the past year (and within the past 3 months for people with LDL levels ≥160 mg/dL or triglycerides ≥200 mg/dL.

- Ensure that all patients with hypertension have had ASCVD risk and lipid assessment within the past year.
- For people with LDL levels ≥160 mg/dL or triglycerides ≥200 mg/dL, review if completed greater than 3 months ago.

Other Management Pearls and Considerations:

For individuals who experience **statin-related myalgias**, consider any of the following to achieve the overall clinical goal of having your patient on maximally-tolerated statin dose.

» Check vitamin D and if low, try pre-statin vitamin D supplementation before statin retrial.

» In addition to statin retrial, consider an altered statin dosing schedule, lower dose of high-intensity statin, trial of hydrophilic rather than lipophilic statin (to theoretically reduce muscle cell entry), or lower intensity statin (without or with altered dosing schedule).

Review for **statin medication interactions**, such as with transplant, immunosuppressants and antivirals (e.g., Paxlovid). Hold statins when prescribing Paxlovid.

Disease processes with chronic inflammation (e.g., autoimmune diseases and chronic human immunodeficiency virus (HIV) infection) along with immunosuppressant, inflammatory disease-modifying, and antiviral medications may all predispose patients to hyperlipidemia and cardiovascular risk.[46] The AHA and ACC have recommended measuring fasting lipids before and 4 to 12 weeks after initiation of inflammatory disease-modifying or antiviral medications.[38]

Statins can generally be used safely in the setting of **cirrhosis** but consider discussion with Hepatology teams when prescribing to patients with liver disease.

The AHA has not confirmed dementia- or hemorrhagic stroke-related concerns of aggressive LDL lowering.[47]

Be aware of **bleeding risks** with icosapent ethyl and discuss with patients, particularly for patients on anticoagulants or antiplatelets.

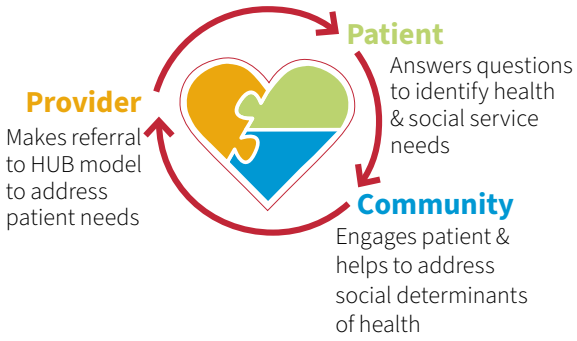
Some **diets** (e.g., ketogenic diets) may increase LDL and triglyceride levels but are thought to impact larger rather than small particle size LDL; consider discussion with Dietitian teams.

Consider **lipidologist referral** for recalcitrant hyperlipidemia or people with high ASCVD risk and specific limitations to treatment.

KEY DRIVER: Community Connection

Discussing health-related social needs provides an important opportunity to identify and address barriers impacting your patients' ability to fully manage their CVD risk.[48]

Connecting patients to community resources is a vital part of this process. A sample workflow is shown on page 14 to capitalize on team-based care. After a screening is completed, document in the EHR, and connect those in need with community partners. Consider referring to Ohio Pathways HUB providers in your area, see Appendix F. As part of this project, you may work with Unite Ohio which offers EHR integration or a web-based platform for access to a coordinated care network of health and social service resources. This platform helps providers identify health-related social needs, identify best-fit resources, make secure connections, and receive outcome details.



Tools for Assessing Health-Related Social Need Domains

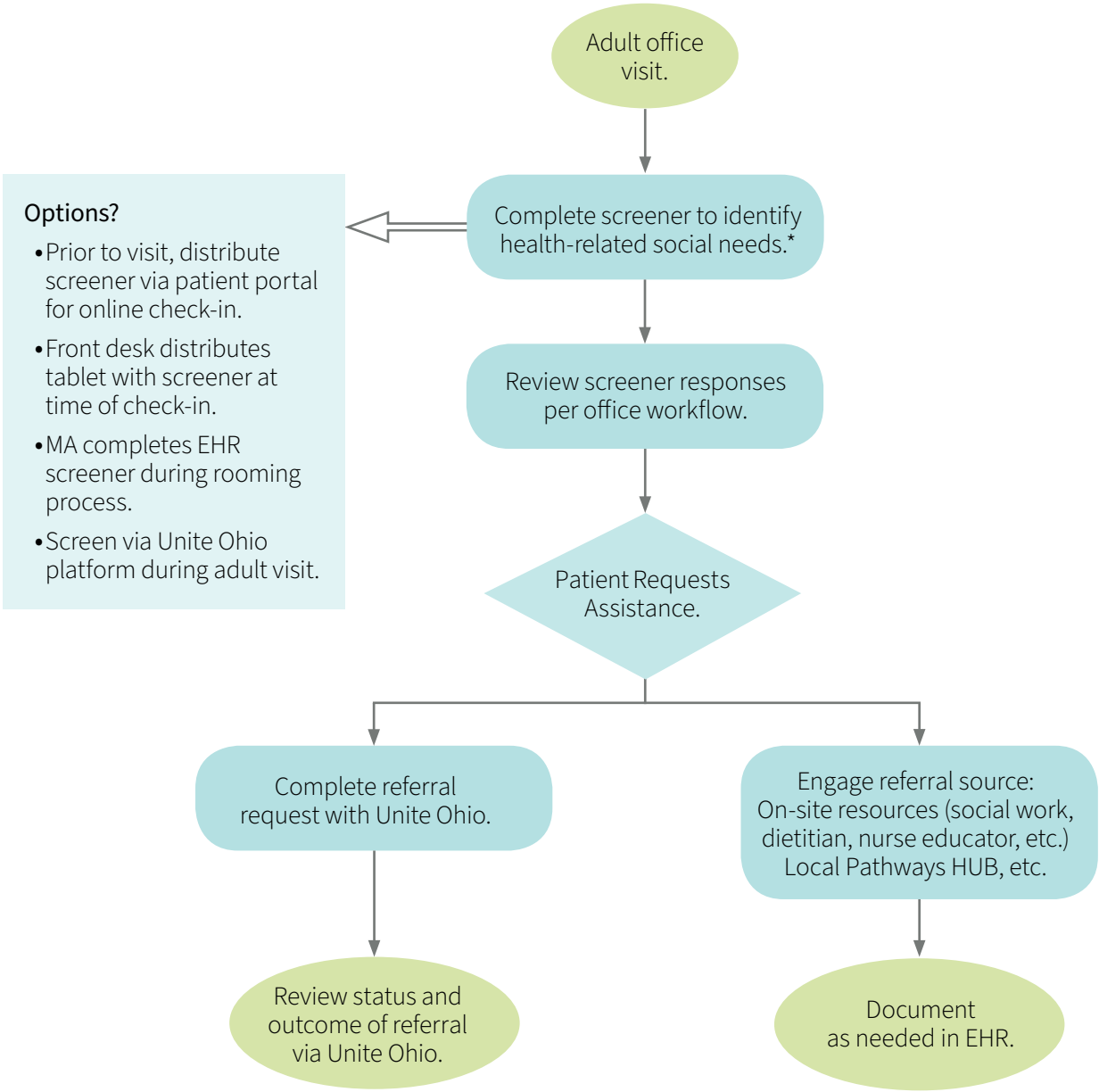
There are many validated tools to assess for health-related social needs. The table below shows a few options, including one built into many EHRs. Consider utilizing an EHR-integrated option, or explore if upgraded functionality is possible.

Domains \ Tools	AAFP: The EveryONE Project[49]	CMMI: Screening Tool[50]	PRAPARE Screening Tool[51]	Epic: SDOH Wheel
Alcohol Use		X		X
Depression & Anxiety		X	X	X
Financial Strain	X	X	X	X
Food Insecurity	X	X	X	X
Housing Stability	X	X	X	X
Physical Activity			X	X
Social Connections			X	X
Stress				X
Tobacco Use / Nicotine Use				X
Transportation Needs	X	X	X	X

AAFP: American Academy of Family Physicians; **CMMI**: Centers for Medicare & Medicaid Innovation; **SDOH** Social Determinants of Health; **PRAPARE**: Protocol for Responding to and Assessing Patients' Assets, Risks and Experiences

Utilizing a Team-Based Care Approach

The goal of this workflow is to link patients at highest risk for cardiovascular disease to community lifestyle change programs and other community resources. Consider using a referral platform, like Unite Ohio. If your clinic does not have access to Unite Ohio, contact us to explore this possibility. Continue using your EHR to it's fullest potential for screening and referral options.



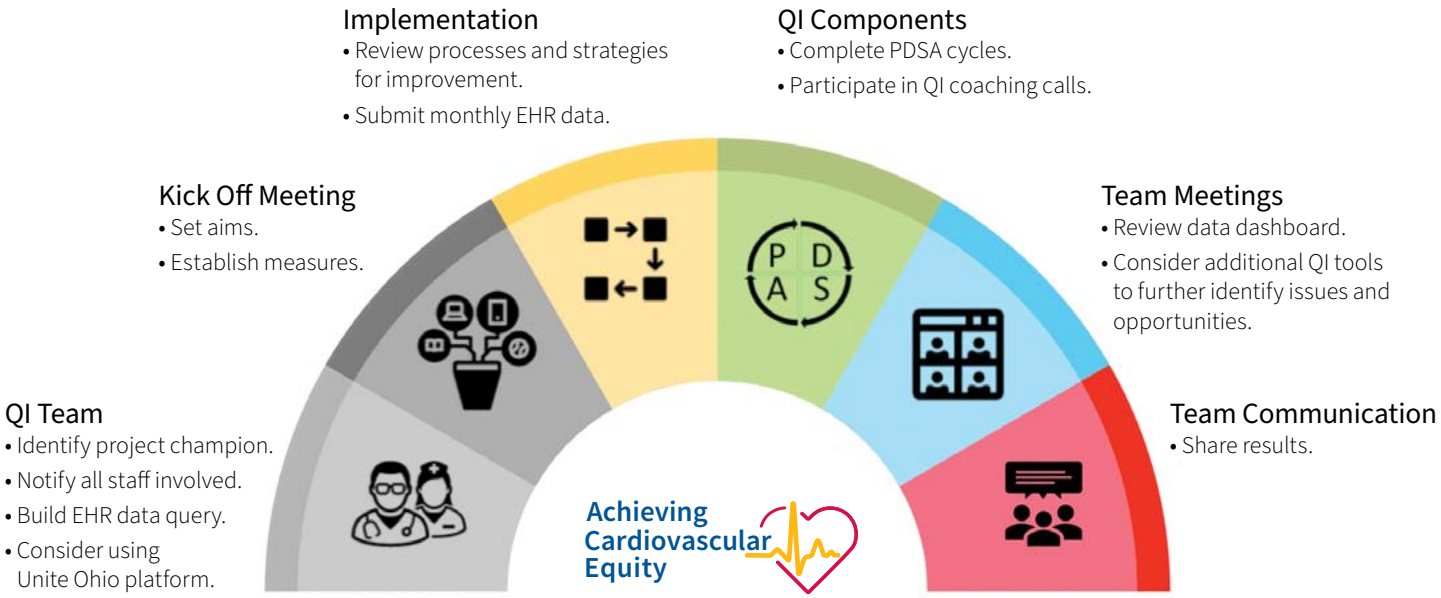
*Beginning calendar year 2024 CMS will provide an additional payment if the screening is completed during a qualifying visit.[52]

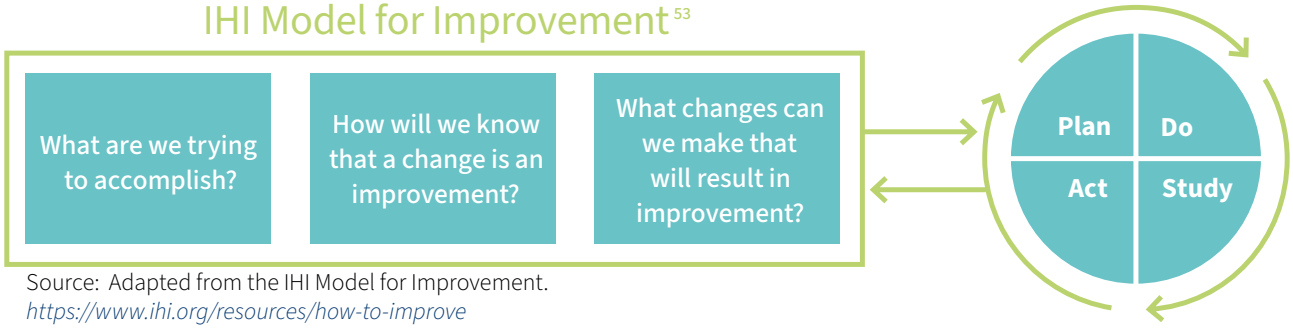
KEY DRIVER: Quality Improvement Engagement and Training

This quality improvement (QI) project will utilize the Institute for Healthcare Improvement's (IHI) Model for Improvement and work with clinics to improve cardiovascular health. This is achieved by improving hypertension control, addressing CVD risk, such as high cholesterol, and connecting patients with resources to address health-related social needs.

What to Expect

The image below shows some of the collaborative components and how they fit together. The learning process will evolve as strategies are addressed by clinical and QI experts during monthly calls, optional QI coaching is utilized, and best practices are shared with peers. Sites will complete small tests of change utilizing the IHI Model for Improvement to make changes that result in an improvement.





Source: Adapted from the IHI Model for Improvement.
https://www.ihi.org/resources/how-to-improve

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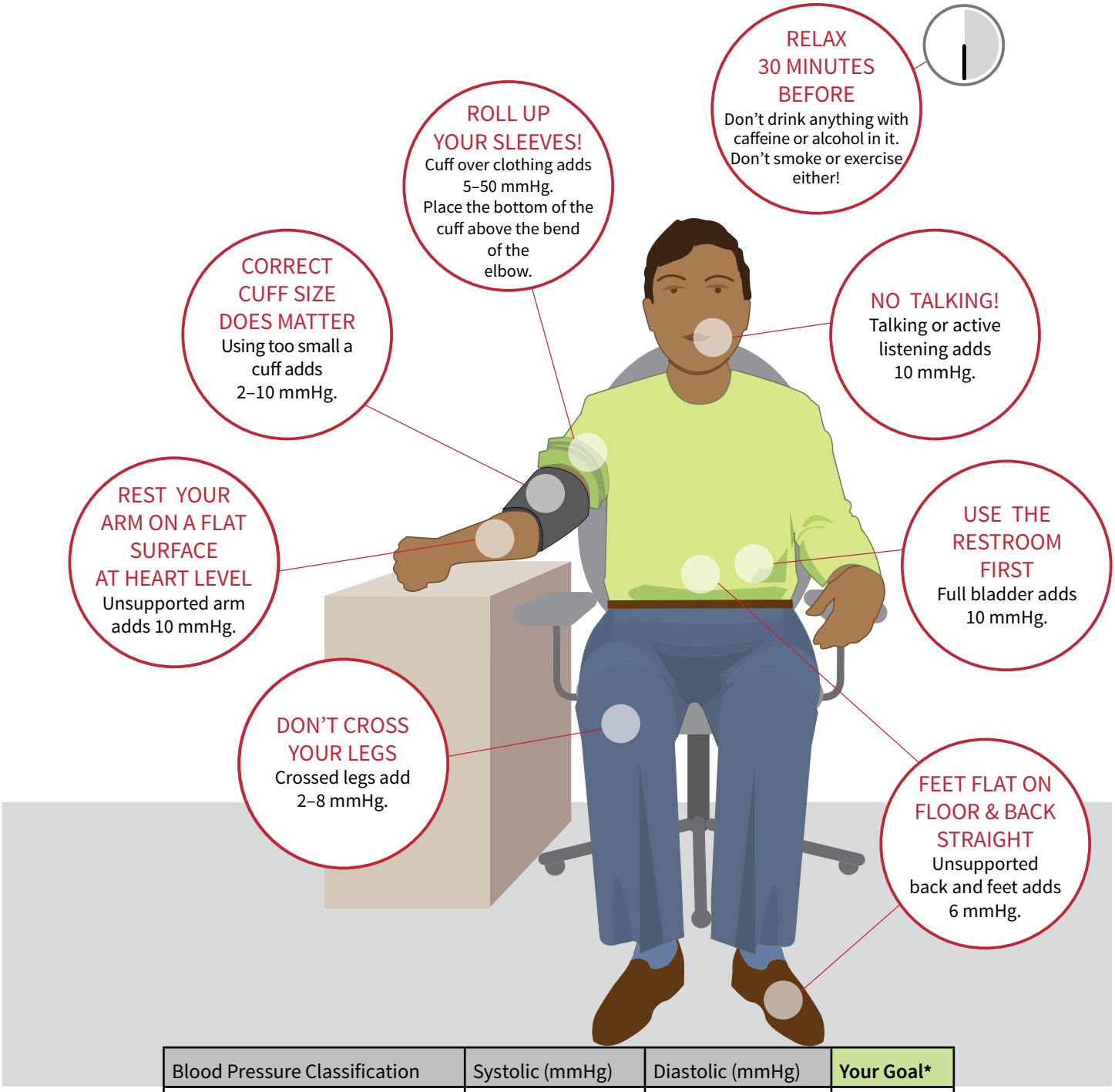
APPENDICES

Appendix A: Blood Pressure Measurement Instructions



Blood Pressure Classification	Systolic (mmHg)	Diastolic (mmHg)	**Your Goal***
Normal	<120	and <80	**<140 / 90**
Prehypertension	120-139	or 80-89	
Stage 1 Hypertension	140-159	or 90-99	
Stage 2 Hypertension	≥160	or ≥100	

These guidelines are based on the Eighth Joint National Committee of the American Academy of Family Physician guidelines. * Check with your provider to see if 130/80 is right for you.

Materials adapted from TARGET:BP in conjunction with American Heart Association and American Medical Association.

Appendix B: Medication Reference List for Staff-led Hypertension Visits

The table below can be used by nurses and other staff during follow-up hypertension visits to monitor for side effects and determine whether lab work is needed based on the medication class being used.

Commonly Associated Side Effects Of Blood Pressure Medications

Medication Class (generic names of individual medications)	Common Side Effects
Needs metabolic panel if starting or increasing this med class	
Diuretics (e.g., hydrochlorothiazide, chlorthalidone)	Increased urination (often goes away if used daily for several weeks), rash, low potassium
ACE-inhibitors (e.g., lisinopril, enalapril, benazepril)	Dry cough, increased potassium, increased creatinine
Angiotensin receptor blockers (e.g., losartan, valsartan)	Increased potassium, increased creatinine
Combinations which include an ACE-I, ARB, or diuretic	See side effects under individual classes
Aldosterone antagonist (e.g., spironolactone)	Increased potassium, increased creatinine, gynecomastia
No metabolic panel needed if starting or increasing this med class	
Calcium channel blockers (e.g., amlodipine, verapamil, diltiazem)	Ankle edema (amlodipine), slow heart rate (verapamil, diltiazem)
Beta blockers (e.g., metoprolol, atenolol, carvedilol)	Fatigue (usually gets better after several weeks), slowed heart rate (watch for pulse <60)
Alpha blockers (e.g., doxazosin, prazocin, terazocin)	Orthostatic hypotension
Centrally acting alpha-2 adrenergic agonist (e.g., clonidine, guanfacine)	Sedation, dry mouth, rebound hypertension if stopped suddenly
Vasodilators (e.g., hydralazine, minoxidil)	Headache, edema, tachycardia

Abbreviations: ACE-I = Angiotensin converting enzyme inhibitor, ARB = angiotensin receptor blocker

Appendix C: Types of Antihypertensive Combination Medications

Research indicates that single-pill combination therapy should be prescribed, as the vast majority of Black patients with diagnosed hypertension will need more than one antihypertensive agent to achieve BP goal <140/90. Furthermore, the likely lowering of BP goal targets will further necessitate the use of multiple agents.[54]

Types of Antihypertensive Combination Medications

Triple Combination	
Tribenzor (Pro)	Generic name: amlodipine / hydrochlorothiazide / olmesartan
Exforge HCT (Pro)	Generic name: amlodipine / hydrochlorothiazide / valsartan
Dual Combination	
ACE inhibitors with calcium channel blockers	
Tarka (Pro)	Generic name: trandolapril / verapamil
Lotrel (Pro)	Generic name: amlodipine / benazepril
Amlobenz	Generic name: amlodipine / benazepril
Lexxel	Generic name: enalapril / felodipine
Prestalia (Pro)	Generic name: amlodipine / perindopril
ACE inhibitors with thiazides	
Zestoretic (Pro)	Generic name: hydrochlorothiazide / lisinopril
Prinzide (Pro)	Generic name: hydrochlorothiazide / lisinopril
Uniretic (Pro)	Generic name: hydrochlorothiazide / moexipril
Accuretic (Pro)	Generic name: hydrochlorothiazide / quinapril
Capozide	Generic name: captopril / hydrochlorothiazide
Capozide 25 / 15	Generic name: captopril / hydrochlorothiazide
Capozide 25 / 25	Generic name: captopril / hydrochlorothiazide
Capozide 50 / 15	Generic name: captopril / hydrochlorothiazide
Capozide 50 / 25	Generic name: captopril / hydrochlorothiazide
Lotensin HCT (Pro)	Generic name: benazepril / hydrochlorothiazide
Monopril HCT (Pro)	Generic name: fosinopril / hydrochlorothiazide
Quinaretic	Generic name: hydrochlorothiazide / quinapril
Vaseretic (Pro)	Generic name: enalapril / hydrochlorothiazide
Angiotensin II receptor blockers with calcium channel blockers	
Azor (Pro)	Generic name: amlodipine / olmesartan
Twynsta (Pro)	Generic name: amlodipine / telmisartan
Exforge (Pro)	Generic name: amlodipine / valsartan
Angiotensin II receptor blockers with thiazides	
Teveten HCT (Pro)	Generic name: eprosartan / hydrochlorothiazide
Avalide (Pro)	Generic name: hydrochlorothiazide / irbesartan
Micardis HCT (Pro)	Generic name: hydrochlorothiazide / telmisartan
Edarbyclor (Pro)	Generic name: azilsartan medoxomil / chlorthalidone
Hyzaar (Pro)	Generic name: hydrochlorothiazide / losartan
Benicar HCT (Pro)	Generic name: hydrochlorothiazide / olmesartan
Diovan HCT (Pro)	Generic name: hydrochlorothiazide / valsartan
Atacand HCT (Pro)	Generic name: candesartan / hydrochlorothiazide

Appendix C: Types of Antihypertensive Combination Medications *(continued)*

Dual Combination: *continued*	
Antiadrenergic agents (central) with thiazides	
Aldoril (Pro)	Generic name: hydrochlorothiazide / methyldopa
Clorpres (Pro)	Generic name: chlorthalidone / clonidine
Antiadrenergic agents (peripheral) with thiazides	
Enduronyl	Generic name: deserpidine / methyclothiazide
Minizide	Generic name: polythiazide / prazosin
Renese-R	Generic name: polythiazide / reserpine
Beta blockers with thiazides	
Corzide 80 / 5	Generic name: bendroflumethiazide / nadolol
Tenoretic 50	Generic name: atenolol / chlorthalidone
Ziac (Pro)	Generic name: bisoprolol / hydrochlorothiazide
Corzide (Pro)	Generic name: bendroflumethiazide / nadolol
Corzide 40 / 5	Generic name: bendroflumethiazide / nadolol
Dutoprol (Pro)	Generic name: hydrochlorothiazide / metoprolol
Inderide (Pro)	Generic name: hydrochlorothiazide / propranolol
Lopressor HCT (Pro)	Generic name: hydrochlorothiazide / metoprolol
Tenoretic (Pro)	Generic name: atenolol / chlorthalidone
Tenoretic 100	Generic name: atenolol / chlorthalidone
Timolide	Generic name: hydrochlorothiazide / timolol
Miscellaneous antihypertensive combinations	
Consensi (Pro)	Generic name: amlodipine / celecoxib
Exforge HCT (Pro)	Generic name: amlodipine / hydrochlorothiazide / valsartan
Caduet (Pro)	Generic name: amlodipine / atorvastatin
BiDil (Pro)	Generic name: hydralazine / isosorbide dinitrate
Tekturna HCT (Pro)	Generic name: aliskiren / hydrochlorothiazide
Tribenzor (Pro)	Generic name: amlodipine / hydrochlorothiazide / olmesartan
Valturna (Pro)	Generic name: aliskiren / valsartan
Amturnide (Pro)	Generic name: aliskiren / amlodipine / hydrochlorothiazide
Apresazide	Generic name: hydralazine / hydrochlorothiazide
Byvalson (Pro)	Generic name: nebivolol / valsartan
Ser-Ap-Es	Generic name: hydralazine / hydrochlorothiazide / reserpine
Tekamlo (Pro)	Generic name: aliskiren / amlodipine
Potassium sparing diuretics with thiazides	
Maxzide (Pro)	Generic name: hydrochlorothiazide / triamterene
Aldactazide (Pro)	Generic name: hydrochlorothiazide / spironolactone
Moduretic 5-50	Generic name: amiloride / hydrochlorothiazide
Dyazide (Pro)	Generic name: hydrochlorothiazide / triamterene
Maxzide-25	Generic name: hydrochlorothiazide / triamterene

Appendix D: Hypertension Medication Reference List for Providers

Pharmacologic Therapy[55]

Drug Class	Examples	Comments
Thiazide-type Diuretics	Chlorthalidone HCTZ	• May worsen hyperuricemia/gout. • Monitor serum potassium and creatinine levels initially, then within 2-4 weeks and annually thereafter if normal. • May cause photosensitivity (rare). • Chlorthalidone twice as potent and half-life 2-3 times longer than HCTZ at given dose.
ACE-I	Lisinopril Ramipril Benazepril Enalapril	• Contraindicated in pregnancy. • Possible dry cough and/or angioedema. • Avoid concomitant use with an ARB or direct renin inhibitor or ARNI*. • Monitor serum potassium and creatinine initially, then within 2-4 weeks and annually thereafter if normal. • Up to 30% increase in serum creatinine after initiation of therapy considered normal. Consider interruption, discontinuation, and screening for renal artery stenosis.
ARB	Candesartan Irbesartan Losartan Valsartan Olmesartan Telmisartan	• Contraindicated in pregnancy. • Avoid concomitant use with an ACE-I or direct renin inhibitor or ARNI*. • Monitor serum potassium and creatinine initially, then within 2-4 weeks and annually thereafter if normal. • Up to 30% increase in serum creatinine after initiation of therapy considered normal. Consider interruption, discontinuation, and screening for renal artery stenosis.
DHP CCB	Amlodipine Felodipine Nifedipine	• More common adverse drug reactions may include lower extremity edema and headache (often temporary). • Hepatic dysfunction can increase levels (begin at lower doses). • Amlodipine half-life more than twice that of felodipine or available sustained-release nifedipine.
Non-DHP CCB	Verapamil Diltiazem	• Verapamil may cause constipation and is contraindicated in AV node dysfunction, systolic HF and decreased LV function. • Diltiazem associated with less constipation but also contraindicated in AV node dysfunction, systolic HF and decreased LV function. • Hepatic dysfunction can increase levels (begin at lower doses).

*The only ARNI currently available is Entresto® (valsartan/sacubitril). It is NOT FDA-approved for hypertension and should only be used in patients with chronic heart failure class II to IV. If a patient is on Entresto®, they should NOT be on concurrent ACE-I or ARB therapy.

Abbreviations: ACE-I = angiotensin converting enzyme inhibitor; ARB = angiotensin receptor blocker; ARNI = angiotensin receptor–neprilysin inhibitors; DHP CCB = dihydropyridine calcium channel blockers ; HCTZ = Hydrochlorothiazide.

Pharmacologic Therapy[55] *(continued)*

Drug Class	Examples	Comments
BB	Non-selective Propranolol Cardioselective Atenolol Metoprolol (Tartrate & Succinate) Combined alpha- and beta-blocker Carvedilol Labetalol	• Discontinue with slow taper over a period of at least one week. • Avoid combination with non-DHP CCBs and centrally acting alpha-2 adrenergic agonists due to increased risk of bradycardia and heart block. • As dose increases, cardioselectivity decreases. • Use with caution in patients with COPD, asthma, diabetes, and peripheral vascular disease; may want to consider use of a cardioselective BB in patients with those comorbid conditions. • Concurrent use of centrally acting alpha-2 adrenergic agonists and a beta blocker may result in increased risk of sinus bradycardia. • An exaggerated clonidine withdrawal response, including rebound hypertension, may be seen with beta blockers (except for labetalol or carvedilol).
ALDO ANTAG	Spironolactone Eplerenone	• Avoid use in cases of hyperkalemia (K+ > 5.0 mmol/L) or severe kidney dysfunction (GFR < 30 mL/min). • Dosing interval should be increased as renal function declines to every 24-48 hours for GFR < 50 mL/min. • Monitor potassium and kidney function initially, then within 2-4 weeks and annually thereafter if normal. • Higher risk of gynecomastia with spironolactone than eplerenone.
Alpha-Adrenergic Blockers	Doxazosin Prazosin Terazosin	• Initiate at low doses. • Administer first dose at bedtime to avoid syncope. • Could be beneficial in patients with benign prostatic hyperplasia and hypertension. • Alpha blockers are not recommended as a single agent for treating hypertension.
Centrally Acting alpha-2 Adrenergic Agonist	Clonidine Guanfacine Methyldopa	• Monitor for adverse drug reactions such as somnolence and dry mouth. • Discontinue with a slow taper to avoid rebound hypertension and withdrawal symptoms. • Concurrent use of centrally acting alpha-2 adrenergic agonists and a beta blocker may result in increased risk of sinus bradycardia and an exaggerated clonidine withdrawal response, including rebound hypertension. • Note: Guanfacine has similar mechanism of action as clonidine but can be given once daily.
Vasodilator	Hydralazine Minoxidil	• May result in edema and reflex tachycardia that respond well to concomitant use of a diuretic and beta-blocker. • Hydralazine can be prescribed twice daily. • Monitor for headache and lupus-like syndrome (dose-related) with hydralazine. • Monitor for hypertrichosis and fluid overload, including pericardial effusions with minoxidil (should monitor volume status closely).

Abbreviations: BB = beta blocker; ALDO ANTAG = Aldosterone antagonist; DHP CCB =dihydropyridine calcium channel blockers.

Appendix E: Cholesterol Medication Reference List

A medication reference list for lipid-lowering medications is provided below.[54-56]

Table 2. Lipid-Lowering medications

First line: Statins		
Class	**Medication (Brand Name), dosing**	**Notes**
High-intensity statins (daily dose lowers LDL by ≥ 50%)	Atorvastatin (Lipitor), 40-80 mg once daily	Lipophilic
	Rosuvastatin (Crestor), 20-40 mg once daily	Hydrophilic
Moderate-intensity statins (daily dose lowers LDL by 30-49%)	Atorvastatin (Lipitor), 10-20 mg once daily	Lipophilic
	Rosuvastatin (Crestor), 5-10 mg once daily	Hydrophilic
	Pravastatin (Pravachol), 40-80 mg once daily	Hydrophilic; short half-life – evening dosing to achieve maximum LDL reduction
	Pitavastatin (Livalo, Zypitamag), 2-4 mg once daily	Lipophilic
	Simvastatin (Zocor), 20-40 mg once daily	Lipophilic; short half-life – evening dosing to achieve maximum LDL reduction
	Lovastatin (Altoprev), maximum LDL reduction 40 mg once daily	
	Fluvastatin (Lescol), XL 80 mg once daily or 40 mg twice daily	
Low-intensity statins (daily dose lowers LDL by < 30%)	Pravastatin (Pravachol), 10-20 mg once daily	Hydrophilic; short half-life – evening dosing to achieve maximum LDL reduction
	Pitavastatin (Livalo, Zypitamag), 1 mg once daily	Lipophilic
	Simvastatin (Zocor), 10 mg once daily	Lipophilic; short half-life – evening dosing to achieve maximum LDL reduction
	Lovastatin (Altoprev), 20 mg once daily	
	Fluvastatin (Lescol), 20-40 mg once daily	
Statin add-on therapies		
Cholesterol absorption inhibitors	Ezetimibe (Zetia), 10 mg once daily	
PCSK9 inhibitors	Alirocumab (Praluent), 75 mg every 2 weeks or 300mg every 4weeks	• Require subcutaneous injection • Discuss with lipidologist, pharmacy, drug company, or insurance teams if challenges due to cost, access, and/or prior authorizations.
	Evolocumab (Repatha), 140 mg every 2 weeks or 420 mg every 4 weeks	
	Inclisiran (Leqvio), 284 mg at 0 months, 3 months, and then every 6 months	

Abbreviations: LDL, low-density lipoprotein

Table 2. LDL-lowering medications *(continued)*

Salvage therapies if absolute statin intolerance or other contraindications		
Resins	Cholestyramine (Prevalite, Questran), 4-24 g once daily	• May increase serum triglyceride levels; avoid if triglycerides >300 mg/dL • Can bind with other medications and decrease their absorption
	Colesevelam (Welchol), 3.75 g once daily	
	Colestipol (Colestid), Granules: 5-30 g once daily, Tablets: 2-16 g once daily	
Fibrates	Fenofibrate, variable dosing based on brand product	• Require subcutaneous injection • Discuss with lipidologist, pharmacy, drug company, or insurance teams if challenges due to cost, access, and/or prior authorizations.
	Gemfibrozil (Lopid), 600 mg twice daily	
Vitamin	Vitamin B3 (Niacin), variable dosing based on regular, sustained, or extended release	Avoid in patients with dysglycemia

Abbreviations: LDL, low-density lipoprotein

Table 3: Triglyceride-lowering medications

First line: Statins		
Statin Add-On Therapies		
Class	Medication (Brand Name), dosing	Notes
Omega-3 fatty acids	Icosapent ethyl (Vascepa), 2 g twice daily	• Contains 900 mg EPA. • May yield greater improvement towards cardiovascular outcomes. • We recommend caution in patients with bleeding risk.
	Omega-3 acid ethyl esters (Lovaza), 4 g once daily	Contains 460 mg EPA + 380 mg DHA
Salvage therapies: Fibrates, Vitamin B3 (Niacin)		

Abbreviations: EPA, eicosapentaenoic acid; DHA, docosahexaenoic acid

Table 4: Combination lipid-lowering medications

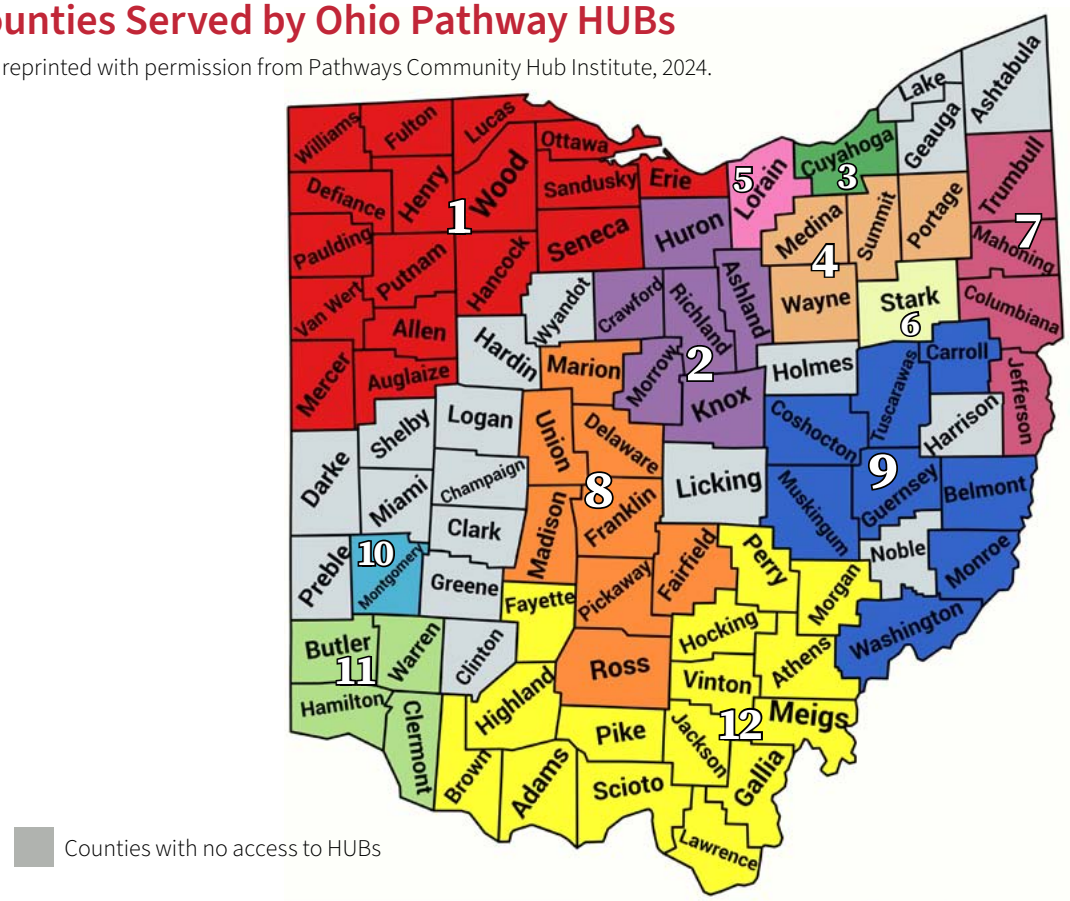
Medication (Brand Name)
Ezetimibe-simvastatin (Vytorin)
Ezetimibe-rosuvastatin (Roszet)
Amlodipine-atorvastatin (Caduet)

Appendix F: Pathways HUB Models in Ohio

Services and procedures vary by location. Please reach out to the your nearest HUB to assist your patients in addressing health-related social needs that may be impacting their ability to address health concerns.

Counties Served by Ohio Pathway HUBs

Map reprinted with permission from Pathways Community Hub Institute, 2024.



	Hub Name	Web Address
1	Northwest Ohio Pathways HUB	https://www.hcno.org/regional-programs/northwest-ohio-pathways-hub/
2	Community Health Access Project (CHAP)	https://chap-ohio.com/
3	Better Health Partnership Pathways HUB	https://www.betterhealthpartnership.org/
4	Pathways HUB Community Action	https://www.ca-akron.org/pathways-community-hub-model
5	Lorain County Community Action Program (LCCAA) Pathways HUB*	https://www.lccaa.net/programs/pathways
6	Stark County Community Action Pathway HUB	https://www.sccaa.org/wba/content/agency-programs/community-action-pathways-hub/
7	Mahoning Valley Pathways HUB	https://www.mahoninghealth.org/mahoning-county-pathways-hub/
8	Central Ohio Pathways Hub	https://www.healthimpactohio.org/
9	Bridges to Wellness HUB (Formerly Access Tuscarawas)	https://www.accesstusc.org/bridges-to-wellness
10	Dayton Regional Pathways HUB	https://gdaha.org/
11	Health Care Access Now	https://healthcareaccessnow.org/
12	Corporation of Ohio Appalachian Development (COAD) Pathways HUB*	https://coadinc.org/pathways/

* Entity not yet certified.

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