LIFEBRIDGE
Physician Network

LifeBridge Physician Network Care Path
Management of Hypertension

June 26, 2015

LBPN Care Path Aim: *To develop and implement standard protocols, based on the best evidence, that provide a consistent clinical experience for LifeBridge Health patients and allow us to quantitatively demonstrate to payers the high-value care we provide.*

Key Points:

- ✓ **The main objective of hypertension treatment is to attain and maintain goal blood pressure.**
- ✓ **For hypertensive adults 60 years of age or older**, treat to a blood pressure of less than 150/90 mm Hg.
- ✓ **For hypertensive adults less than 60 years of age**, treat to a blood pressure of less than 140/90 mm Hg. This same threshold is recommended for hypertensive adults with diabetes or nondiabetic chronic kidney disease (CKD).
- ✓ **Implement lifestyle interventions** and continue through management.
- ✓ **Do not use an ACEI and an ARB together** in the same patient.
- ✓ **If goal cannot be reached using recommended drug treatment approach**, consider referral to a hypertension specialist.

WHY? Rationale for Hypertension Focus

- Hypertension is the most common condition seen in primary care and leads to myocardial infarction, stroke, renal failure, and death if not detected early and treated appropriately.
- 67 million American adults--or 1 of every 3 adults--have high blood pressure.
- Only 47% of people with high blood pressure have their condition under control.
- Nearly 1 of 3 American adults has prehypertension—blood pressure numbers that are higher than normal, but not yet in the high blood pressure range

WHAT? Evidence-Based Recommendations

I. Management[i]:

- See Appendix for *JNC8 2014 Hypertension Guideline Management Algorithm*.
- In the general population aged ≥60 years, initiate pharmacologic treatment to lower blood pressure (BP) at systolic blood pressure ≥150 mm Hg or diastolic blood pressure ≥90 mm Hg and treat to a blood pressure goal of less than 150/90 mm Hg.
- For hypertensive adults less than 60 years of age, treat to a blood pressure of less than 140/90 mm Hg. This same threshold is recommended for hypertensive adults with diabetes or nondiabetic chronic kidney disease (CKD).

- There is moderate evidence to support initiating drug treatment with an angiotensin-converting enzyme inhibitor, angiotensin receptor blocker, calcium channel blocker, or thiazide-type diuretic in the nonblack hypertensive population, including those with diabetes.
- In the black hypertensive population, including those with diabetes, a calcium channel blocker or thiazide-type diuretic is recommended as initial therapy.
- There is moderate evidence to support initial or add-on antihypertensive therapy with an angiotensin-converting enzyme inhibitor or angiotensin receptor blocker in persons with CKD to improve kidney outcomes.
- Implement lifestyle interventions and continue through management.

II. Treatment Strategy[ii]:

- The main objective of hypertension treatment is to attain and maintain goal BP.
- If goal BP is not reached within a month of treatment, increase the dose of the initial drug or add a second drug from one of the classes: thiazide-type diuretic, CCB, ACEI, or ARB (see Appendix, Figures 2 and 3).
- The clinician should continue to assess BP and adjust the treatment regimen until goal BP is reached. If goal BP cannot be reached with 2 drugs, add and titrate a third drug from the list (thiazide-type diuretic, CCB, ACEI, or ARB; see Appendix, Figures 2 and 3).
- Do not use an ACEI and an ARB together in the same patient.
- If goal BP cannot be reached using only the drugs in the list (thiazide-type diuretic, CCB, ACEI, or ARB) because of a contraindication or the need to use more than 3 drugs to reach goal BP, antihypertensive drugs from other classes can be used.
- Referral to a hypertension specialist may be indicated for patients in whom goal BP cannot be attained using the above strategy or for the management of complicated patients for whom additional clinical consultation is needed.

Measures of Performance (aligned with CMS ACO/PQRS/Meaningful Use CQM measures)

1. **Screening for High Blood Pressure, Follow Up Documented** (ACO #21; CMS22v3; PQRS #317)
   Percentage of patients aged 18 years and older seen during the reporting period who were screened for high blood pressure AND a recommended follow-up plan is documented based on the current blood pressure (BP) reading as indicated. Reported once per year.
   Domain: Population/Public Health
   Numerator: Patients who were screened for high blood pressure AND have a recommended follow-up plan documented, as indicated, if the blood pressure is pre-hypertensive or hypertensive.
   Denominator: All patients aged 18 years and older.

2. **Controlling High Blood Pressure** (ACO #28; NQF #18; PQRS #236)

Percentage of patients 18-85 years of age who had a diagnosis of hypertension and whose blood pressure was adequately controlled (<140/90mmHg) during the measurement period. Reported once per year.

Domain: Clinical Process/Effectiveness

Numerator: Patients whose most recent blood pressure is adequately controlled (systolic blood pressure < 140 mmHg and diastolic blood pressure < 90 mmHg) during the measurement period.

Denominator: Patients 18 through 85 years of age who had a diagnosis of essential hypertension within the first six months of the measurement period or any time prior to the measurement period.

3. **Tobacco Use: Screening and Cessation Intervention** (ACO #17; NQF #28; PQRS #226)

Percentage of patients aged 18 years and older who were screened for tobacco use one or more times within 24 months AND who received cessation counseling intervention if identified as a tobacco user.

Domain: Population/Public Health

Numerator: Patients who were screened for tobacco use at least once within 24 months AND who received tobacco cessation counseling intervention if identified as a tobacco user.

Denominator: All patients aged 18 years and older.

Tools and Resources

- 2014 Evidence-Based Guideline for the Management of High Blood Pressure in Adults: Report From the Panel Members Appointed to the Eighth Joint National Committee (JNC 8) http://jama.jamanetwork.com/article.aspx?articleid=1791497

- An Effective Approach to High Blood Pressure Control: A Science Advisory From the American Heart Association, the American College of Cardiology, and the Centers for Disease Control and Prevention. http://hyper.ahajournals.org/content/early/2013/11/14/HYP.0000000000000003.full.pdf

- Clinical Practice Guidelines for the Management of Hypertension in the Community: A Statement by the American Society of Hypertension and the International Society of Hypertension http://csc.cma.org.cn/attachment/2014315/1394885445745.pdf

- 2013 European Society of Hypertension/European Society of Cardiology Guidelines for the Management of Arterial Hypertension http://www.esh2013.org/wordpress/wp-content/uploads/2013/06/ESC-ESH-Guidelines-2013.pdf

- HHS Million Hearts Campaign Hypertension Protocol Template: http://millionhearts.hhs.gov/resources/protocols.html

- NCQA Heart/Stroke Recognition program http://www.ncqa.org/tabid/140/Default.aspx

- VA/DoD Clinical Practice Guidelines for Hypertension: http://www.healthquality.va.gov/guidelines/CD/htn/

- American Academy of Family Physicians, Hypertension Guidelines: http://www.aafp.org/afp/topicModules/viewTopicModule.htm?topicModuleId=12

LBPN Contributing Experts/Team

- Dr. Mauro Moscucci
- Dr. Susan Mani
- LBPN Quality Committee

Questions?

If you have questions about this Care Path or would like to connect with a specialist to discuss further, please contact either Dr. Charles Albrecht at 410-601-6340, or David Baker at 410-601-6666.

References

James PA, Oparil S, Carter BL, et al. 2014 Evidence-Based Guideline for the Management of High Blood Pressure in Adults: Report From the Panel Members Appointed to the Eighth Joint National Committee (JNC 8). *JAMA.* 2014;311(5):507-520. http://jama.jamanetwork.com/article.aspx?articleid=1791497

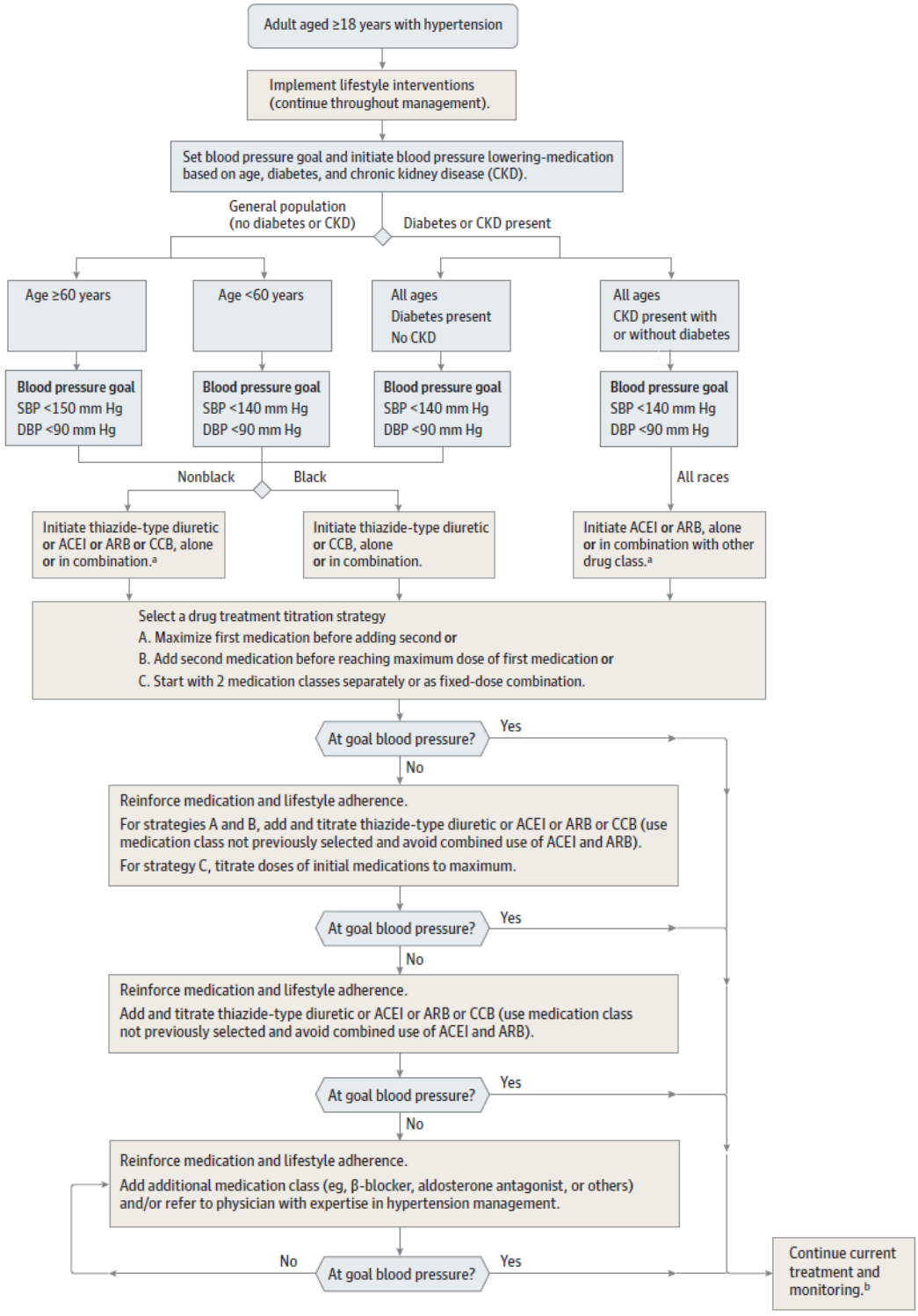
[i] James PA, Oparil S, Carter BL, et al. 2014 Evidence-Based Guideline for the Management of High Blood Pressure in Adults: Report From the Panel Members Appointed to the Eighth Joint National Committee (JNC 8). *JAMA.* 2014;311(5):507-520. http://jama.jamanetwork.com/article.aspx?articleid=1791497

[ii] Ibid.

APPENDIX

Source: 2014 Evidence-Based Guideline for the Management of High Blood Pressure in Adults: Report From the Panel Members Appointed to the Eighth Joint National Committee (JNC 8). JAMA. 2014;311(5):507-520.

Figure 1: JNC8 2014 Hypertension Guideline Management Algorithm



SBP indicates systolic blood pressure; DBP, diastolic blood pressure; ACEI, angiotensin-converting enzyme; ARB, angiotensin receptor blocker; and CCB, calcium channel blocker.

[a] ACEIs and ARBs should not be used in combination.

[b] If blood pressure fails to be maintained at goal, reenter the algorithm where appropriate based on the current individual therapeutic plan.

Figure 2: Strategies to Dose Antihypertensive Drugs

Strategy	Description	Details
A	Start one drug, titrate to maximum dose, and then add a second drug	If goal BP is not achieved with the initial drug, titrate the dose of the initial drug up to the maximum recommended dose to achieve goal BP If goal BP is not achieved with the use of one drug despite titration to the maximum recommended dose, add a second drug from the list (thiazide-type diuretic, CCB, ACEI, or ARB) and titrate up to the maximum recommended dose of the second drug to achieve goal BP If goal BP is not achieved with 2 drugs, select a third drug from the list (thiazide-type diuretic, CCB, ACEI, or ARB), avoiding the combined use of ACEI and ARB. Titrate the third drug up to the maximum recommended dose to achieve goal BP
B	Start one drug and then add a second drug before achieving maximum dose of the initial drug	Start with one drug then add a second drug before achieving the maximum recommended dose of the initial drug, then titrate both drugs up to the maximum recommended doses of both to achieve goal BP If goal BP is not achieved with 2 drugs, select a third drug from the list (thiazide-type diuretic, CCB, ACEI, or ARB), avoiding the combined use of ACEI and ARB. Titrate the third drug up to the maximum recommended dose to achieve goal BP
C	Begin with 2 drugs at the same time, either as 2 separate pills or as a single pill combination	Initiate therapy with 2 drugs simultaneously, either as 2 separate drugs or as a single pill combination. Some committee members recommend starting therapy with ≥2 drugs when SBP is >160 mm Hg and/or DBP is >100 mm Hg, or if SBP is >20 mm Hg above goal and/or DBP is >10 mm Hg above goal. If goal BP is not achieved with 2 drugs, select a third drug from the list (thiazide-type diuretic, CCB, ACEI, or ARB), avoiding the combined use of ACEI and ARB. Titrate the third drug up to the maximum recommended dose.

Abbreviations: ACEI, angiotensin-converting enzyme; ARB, angiotensin receptor blocker; BP, blood pressure; CCB, calcium channel blocker; DBP, diastolic blood pressure; SBP, systolic blood pressure.

[a]This table is not meant to exclude other agents within the classes of antihypertensive medications that have been recommended but reflects those agents and dosing used in randomized controlled trials that demonstrated improved outcomes.

Figure 3: Evidence-Based Dosing for Antihypertensive Drugs

Antihypertensive Medication	Initial Daily Dose, mg	Target Dose in RCTs Reviewed, mg	No. of Doses per Day
ACE inhibitors			
Captopril	50	150-200	2
Enalapril	5	20	1-2
Lisinopril	10	40	1
Angiotensin receptor blockers			
Eprosartan	400	600-800	1-2
Candesartan	4	12-32	1
Losartan	50	100	1-2
Valsartan	40-80	160-320	1
Irbesartan	75	300	1
β-Blockers			
Atenolol	25-50	100	1
Metoprolol	50	100-200	1-2
Calcium channel blockers			
Amlodipine	2.5	10	1
Diltiazem extended release	120-180	360	1
Nitrendipine	10	20	1-2
Thiazide-type diuretics			
Bendroflumethiazide	5	10	1
Chlorthalidone	12.5	12.5-25	1
Hydrochlorothiazide	12.5-25	25-100[a]	1-2
Indapamide	1.25	1.25-2.5	1

Abbreviations: ACE, angiotensin-converting enzyme; RCT, randomized controlled trial.

[a]Current recommended evidence-based dose that balances efficacy and safety is 25-50 mg daily.