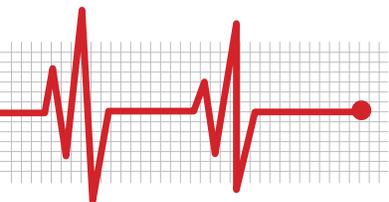


Adult Hypertension Clinical Practice Guidelines

MANAGING
HIGH BLOOD
PRESSURE

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INTRODUCTION

Worldwide, hypertension is the most important risk factor and the leading cause of death

due to cardiovascular disease. It is directly responsible for half of all deaths due to coronary heart disease (myocardial infarction) and two thirds of cerebrovascular accidents (stroke). An estimated 1.5 million New York City adults (one in four) have hypertension. Approximately 17% of them are undiagnosed, and only two-thirds of adult New Yorkers being treated for hypertension are controlled. Starting from 115/75, the risk of death from cardiovascular disease doubles with each 20 mmHg systolic and 10 mmHg diastolic increase. Health and Hospitals Corporation (HHC) serves some of the poorest neighborhoods in New York City where the death rates from hypertension are more than three times higher than the rest of the city.

To enhance the quality of care for all patients with hypertension, HHC is taking an important step to standardize hypertension management at all facilities. HHC has developed standardized blood pressure treatment and measurement protocols as well as a Corporate hypertension formulary for blood pressure medications and supplies, and has updated related performance indicators. By standardizing blood pressure measurement, HHC will prevent misdiagnosis, under- and over-treatment of hypertension, and improve the accuracy of blood pressure measurements across the system. In addition, HHC will improve individual hypertension disease management, increase rates of population blood pressure control, and decrease morbidity and mortality due to hypertension.

The Adult Hypertension Clinical Practice Guidelines are to be used as standard of care for the management of patients with hypertension treated at HHC facilities. The purpose of these guidelines is to guide practitioners in the diagnosis, treatment options and overall management of patients with hypertension.





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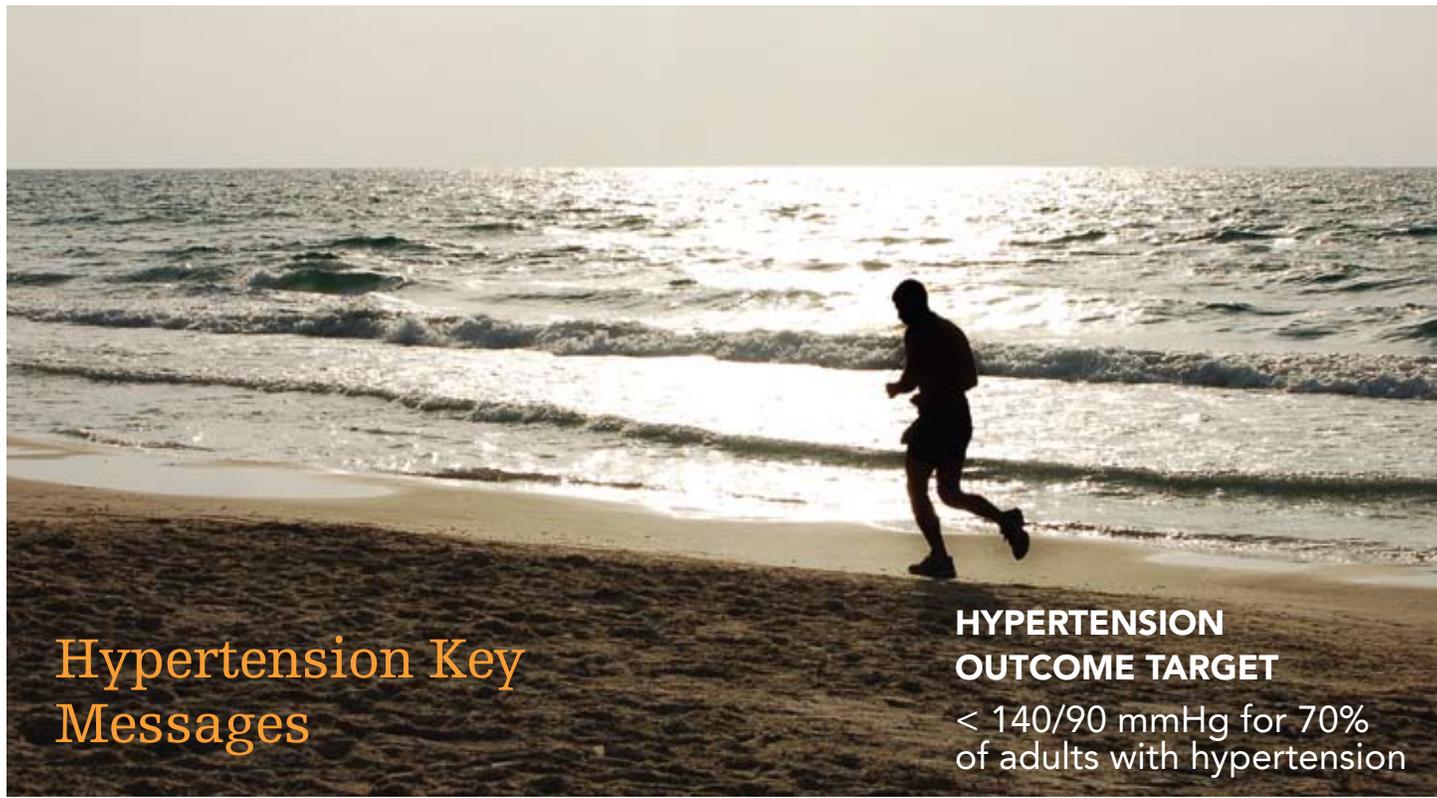
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ADULT HYPERTENSION CLINICAL PRACTICE GUIDELINES



Hypertension Key Messages

**HYPERTENSION
OUTCOME TARGET**
< 140/90 mmHg for 70%
of adults with hypertension

- Recommend healthy lifestyle changes, including increased physical activity and a low sodium diet, for all patients with hypertension and prehypertension.
- Prescribe thiazide diuretics as the initial drug of choice for most patients with hypertension.
- Aim for target blood pressure < 140/90 mmHg for most hypertensive patients and < 130/80 mmHg for those with diabetes or chronic kidney disease.
- Most patients with hypertension will require two or more antihypertensive medications to achieve goal blood pressure (< 140/90 mmHg or < 130/80 mmHg for patients with diabetes or chronic kidney disease).
- If blood pressure is ≥ 20 mmHg systolic or ≥ 10 mmHg diastolic above goal, recommend initiating therapy with two or more antihypertensive agents, one of which usually should be a thiazide type diuretic.
- The most effective therapy prescribed by the most careful clinician will control hypertension only if patients are motivated. Motivation improves when patients have positive experiences with and trust in, the clinicians. Empathy builds trust and is a potent motivator.

CLASSIFICATION OF BLOOD PRESSURE LEVELS FOR PEOPLE 18 OR OLDER¹

BP CLASSIFICATION	SYSTOLIC BP (mmHg)	AND/OR	DIASTOLIC BP (mmHg)
Normal	< 120	AND	< 80
Prehypertension	120-139	OR	80-89
Stage 1 Hypertension	140-159	OR	90-99
Stage 2 Hypertension	≥ 160	OR	≥ 100

1. For those without diabetes or renal disease. Based on the average of ≥ 2 correctly measured readings taken on 2 or more office visits

Adapted from: JNC7, National Heart, Lung, and Blood Institute and NYC DOHMH Hypertension Pocket Guide

Measuring Blood Pressure The Right Way

PATIENTS:

BE PREPARED

- No vigorous physical activity 30 minutes before
- No coffee, caffeinated soda (regular or diet), alcohol, or smoking 30 minutes before
- Empty bladder and bowel
- Sit calmly for 5 minutes

WHILE BLOOD PRESSURE IS TAKEN

- Be seated in a chair with back supported
- Do not talk
- Have arm supported at heart level (resting on a desk or table)
- Keep upper arm bare
- Keep legs uncrossed
- Keep both feet flat on the floor

PROVIDERS:

REMEMBER TO

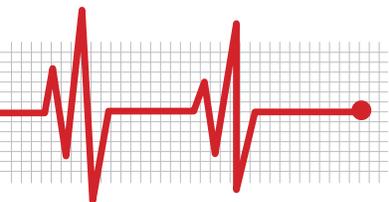
- Calibrate device regularly according to manufacturers' recommendations
- Wash hands
- Choose the proper cuff size



STOP

ARE YOU USING THE CORRECT CUFF SIZE?

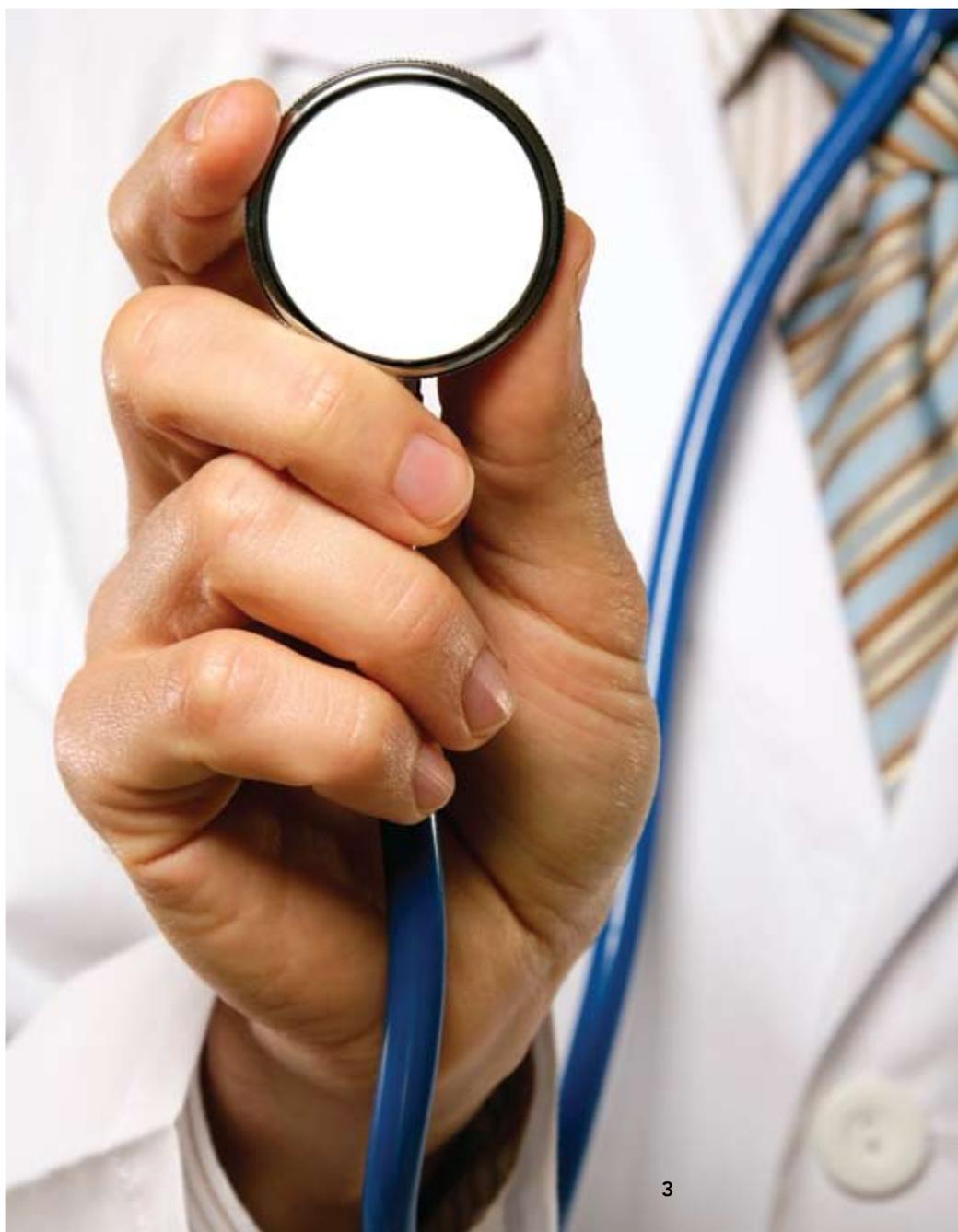
CUFF SIZES		
INDICATIONS	ARM CIRCUMFERENCE (INCHES)	ARM CIRCUMFERENCE (CM)
Small Adult	9-10	22-26
Standard Adult	11-13	27-34
Large Adult	14-17	35-44
Adult Thigh	18-21	45-52



History and Physical Examination

- Body Mass Index (BMI)
- Optic fundi
- Auscultation for carotid, abdominal, and femoral bruits
- Thyroid gland
- Heart and lungs
- Abdomen for enlarged kidneys, masses, abnormal aortic pulsation
- Lower extremities for edema and pulses
- Neurological assessment

Adapted from: NYC DOHMH
Hypertension Pocket Guide



DRUG INDUCED OR OTHER CAUSES

ANTI-HYPERTENSIVE DRUGS

- Inadequate doses
- Inappropriate combinations
- Non-adherence

OTHER DRUGS/ SUPPLEMENTS

- Nonsteroidal anti-inflammatory drugs and cyclooxygenase 2 (COX-2) inhibitors
- Sympathomimetics (decongestants, anorectics)
- Oral contraceptives
- Steroids
- Cyclosporine and tacrolimus
- Certain over-the-counter dietary supplements and medicines (e.g., ephedra, ma haung, bitter orange)
- Cocaine, amphetamines, other illicit drugs
- Erythropoietin
- Licorice (including some chewing tobacco)



Perform Lab Tests and Routine Studies

- Electrocardiogram
- Urinalysis
- Blood glucose
- Hematocrit
- Serum potassium
- Serum creatinine (or GFR)
- Fasting lipid panel (TChol, HDL, LDL, TGL)

Adapted from: JNC7, National Heart, Lung and Blood Institute

Identifiable Causes of Hypertension

- Sleep apnea
- Drug induced or related causes
- Chronic kidney disease
- Primary hyperaldosteronism
- Thyroid and parathyroid disease
- Renovascular disease
- Chronic steroid therapy and Cushing's syndrome
- Pheochromocytoma
- Coarctation of the aorta



TREATMENT OF HYPERTENSION IN ADULTS

BP Goal: < 140/90

PRESCRIBE HEALTHY LIFESTYLE CHANGES FOR ALL PATIENTS WITH HYPERTENSION (Table 1)

COMPELLING INDICATION? (Table 2)

This algorithm is **NOT** applicable (See suggested first-line meds for compelling indications)

PERFORM INITIAL LABORATORY TESTS AND STUDIES (Table 3)

What is the blood pressure?

140-159 systolic or 90-99 diastolic

- Prescribe healthy lifestyle changes
- Reassess in 3 months (One month if multiple CVD risk factors)

≥ 160 systolic or ≥ 100 diastolic

- Prescribe Lisinopril 5-10 mg daily¹ or Enalapril 5 mg daily¹ AND HCTZ 12.5 mg daily
- Check Chem-7 two wks after starting/changing dose¹
- Reassess BP and Rx tolerance in 2 wks
- Titrate doses to target BP or to max in 4-6 wks
- Change to ACE-I/HCTZ combination pill when BP controlled and if dosing allows
- ¹ Discontinue ACE-I if creatinine rises by > 30% or K+ ≥ 5.6 despite diet counseling

Yes — Is BP < 140/90? — No

- Prescribe HCTZ 12.5 mg daily
- Check Chem-7 two wks after starting/changing dose
- Reassess BP and Rx tolerance in 2 wks
- Titrate dose to target BP or to max (25 mg) in 4-6 wks

No — Is BP < 140/90? — Yes

- Add Lisinopril 5-10 mg daily¹ or Enalapril 5 mg daily¹
- Check Chem-7 two wks after starting/changing dose¹
- Reassess BP and Rx tolerance in 2 wks
- Titrate dose to target BP or to max (40 mg)
- Change to ACE-I/HCTZ combination pill when BP controlled and if dosing allows in 4-6 wks
- ¹ Discontinue ACE-I if creatinine rises by > 30% or K+ ≥ 5.6 despite diet counseling

- Add Amlodipine 2.5 to 5 mg daily
- Reassess BP and Rx tolerance in 2 wks
- Monitor for tachycardia and ankle edema
- Titrate dose to target BP or to max (10 mg) in 4-6 wks

No — Is BP < 140/90? — Yes

- Add Metoprolol XL 50 mg daily
- Reassess BP and Rx tolerance in 2 wks
- Titrate dose to target BP or to max (200 mg) in 4-6 wks

No — Is BP < 140/90? — Yes

REFER TO A SPECIALIST

- Table 1. Healthy Lifestyle Changes**
- Quit smoking
 - DASH/low sodium diet
 - Physical activity
 - Healthy weight
 - Limit alcohol

- Table 2. Compelling Indication**
- Cerebrovascular disease
 - Chronic kidney disease/GFR < 60
 - Congestive heart failure
 - Coronary Artery Disease
 - Pregnancy

- Table 3. Laboratory Tests and Studies**
- Chem-7
 - Fasting lipid panel
 - Electrocardiogram (ECG)
 - Urinalysis (U/A)

Once at BP goal, **change to combination formulations** if possible, and continue to promote healthy lifestyle changes. Follow up every 3-6 months, and continue to assess adherence. Please refer to medication table for additional prescribing information.

TREATMENT OF HYPERTENSION IN ADULTS WITH DIABETES

BP Goal: < 130/80

PRESCRIBE HEALTHY LIFESTYLE CHANGES FOR ALL PATIENTS WITH HYPERTENSION (Table 1)

COMPELLING INDICATION? (Table 2)

PERFORM INITIAL LABORATORY TESTS AND STUDIES (Table 3)

This algorithm is **NOT** applicable (See suggested first-line meds for compelling indications)

What is the blood pressure?

130-149 systolic or 80-89 diastolic

- Prescribe Lisinopril 5-10 mg daily¹ Or Enalapril 5 mg daily¹ (or if ACE-I intolerant, Losartan 50 mg daily)
- Check Chem-7 two wks after starting/changing dose¹
- Reassess BP and Rx tolerance in 2 wks
- Titrate doses to target BP or to max in 4-6 wks
- ¹ Discontinue ACE-I/ARB if creatinine rises by > 30% or K+ ≥ 5.6 despite diet counseling, K+ lowering meds

≥ 150 systolic or ≥ 90 diastolic

- Prescribe Lisinopril 5-10 mg daily¹ or Enalapril 5 mg daily¹ AND HCTZ 12.5 mg daily (Or if ACE-I intolerant, Losartan 50 mg daily)
- Check Chem-7 two wks after starting/changing dose¹
- Reassess BP and Rx tolerance in 2 wks
- Titrate doses to target BP or to max (200mg) in 4-6 wks
- Change to ACE-I/HCTZ or ARB/HCTZ combination pill when BP controlled and if dosing allows
- ¹ Discontinue ACE-I/ARB if creatinine rises by > 30% or K+ ≥ 5.6 despite diet counseling, K+ lowering meds

Is BP < 130/80?

Add HCTZ 12.5 mg daily

- Check Chem-7 two wks after starting/changing dose
- Reassess BP and Rx tolerance in 2 wks
- Titrate dose to target BP or to max (25 mg)
- Change to ACE-I/HCTZ or ARB/HCTZ combination pill when BP controlled and if dosing allows in 4-6 wks

Add Amlodipine 2.5 to 5 mg daily

- Reassess BP and Rx tolerance in 2 wks
- Monitor for tachycardia and ankle edema
- Titrate dose to target BP or to max (10 mg) in 4-6 wks

Is BP < 130/80?

Add Metoprolol XL 50 mg daily

- Reassess BP and Rx tolerance in 2 wks
- Titrate dose to target BP or to max (200mg) in 4-6 wks

Is BP < 130/80?

Is BP < 130/80?

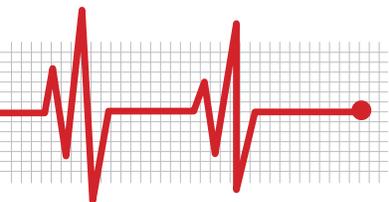
REFER TO A SPECIALIST

- Table 1. Healthy Lifestyle Changes**
- Quit smoking
 - DASH/low sodium diet
 - Physical activity
 - Healthy weight
 - Limit alcohol

- Table 2. Compelling Indication**
- Cerebrovascular disease
 - Chronic kidney disease/GFR < 60
 - Congestive heart failure
 - Coronary Artery Disease
 - Pregnancy

- Table 3. Laboratory Tests and Studies**
- Chem-7
 - Fasting lipid panel
 - Electrocardiogram (ECG)
 - Urinalysis (U/A)

Once at BP goal, **change to combination formulations** if possible, and continue to promote healthy lifestyle changes. Follow up every 3-6 months and continue to assess adherence. Please refer to medication table for additional prescribing information.



Lifestyle Modifications to Manage Hypertension and Pre-hypertension

KEY MODIFICATIONS	RECOMMENDED ACTIONS	APPROXIMATE SYSTOLIC BP REDUCTION
Physical activity	Get at least 2.5 hours of moderate activity (such as a brisk walk) a week.	4-9 mmHg
"DASH" Diet (Dietary Approaches to Stop Hypertension)	Eat plenty of fruits and vegetables, low fat dairy products, whole grains, fish, lean poultry and nuts—a diet low in saturated, trans and total fat.	8-14 mmHg
	Reduce sodium intake to no more than 100 mmol / day (~ 2.4 g sodium or 6 g sodium chloride).	2-8 mmHg
	Maintain adequate dietary potassium: more than 90 mmol (3,500 mg) a day. (Use clinical judgment in supplementing potassium)	2-4 mmHg
Weight Reduction	Maintain a healthy weight; keep body mass index (BMI) < 25 (for someone 5'10", < 175 pounds; for someone 5'4", < 146 pounds).	5-20 mmHg per 22 lbs weight loss
Alcohol Consumption	Limit to no more than: 2 drinks/day for most men 1 drink/day for women and lighter weight persons. (One drink=12 oz beer, 5 oz wine, or 1.5 oz spirits)	2-4 mmHg

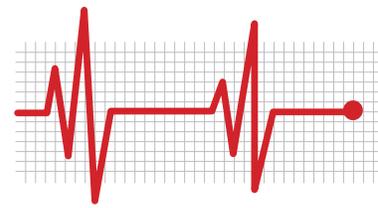
Selecting First-Line Antihypertensive Agents

	MEDICATION OPTIONS RED = RECOMMENDED FIRST-LINE DRUG	COMMENTS
Most Patients	Thiazide diuretics alone or combined with other drugs	If THIAZ contraindicated or not well tolerated, try ACEI, CCB, or BB (third line).
PATIENTS WITH COMPELLING INDICATIONS		
Coronary disease (confirmed or suspected)	BB, ACEI , CCB, THIAZ	If using a CCB, select a non-dihydropyridine. Consider aspirin and provide aggressive lipid management.
Post-myocardial infarction	BB, ACEI	Consider aspirin and provide aggressive lipid management.
Heart failure-systolic (low output)	ACEI or ARB, BB, ALDO , THIAZ	ACEI, BB, and ALDO associated with improved survival in systolic heart failure.
Heart failure-diastolic (abnormal ventricular filling)	ACEI or ARB, BB , THIAZ	ACEI, ARB and BB improve ventricular diastolic relaxation and decrease stiffness. BB reduces heart rate to improve diastolic filling. Monitor response to THIAZ closely as patients may be pre-load dependent.
Diabetes	ACEI or ARB , THIAZ, BB, CCB	ACEI and ARB have a renoprotective effect in addition to favorable blood pressure lowering properties. Goal: < 130/80 mmHg
Kidney disease or GFR < 60	ACEI or ARB	ACEI and ARB have a renoprotective effect in addition to favorable blood pressure lowering properties. Goal: < 130/80 mmHg
Cerebrovascular disease (non-acute)	THIAZ, ACEI	See AHA/ASA guidelines for evaluation of CVD risk in stroke patients.
Pregnancy	Methyldopa , labetalol, hydralazine	Usually treat only if Stage 2 HTN. Consult OB/GYN prior to using labetalol or hydralazine. Avoid diltiazem unless instructed by OB/GYN: potential teratogenicity. See ACOG guidelines.

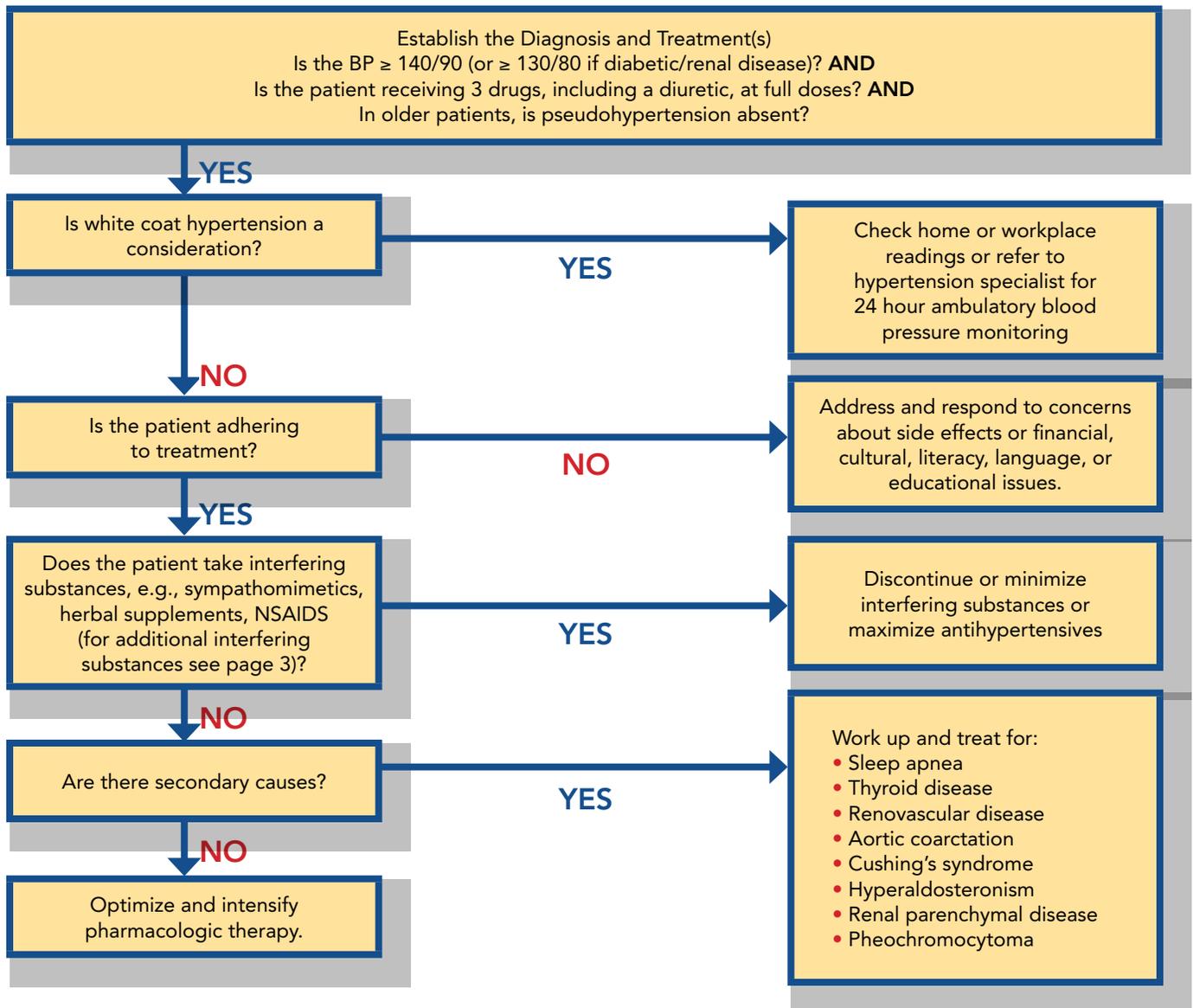


MEDICATION FORMULARY

HHC ANTIHYPERTENSIVE MEDICATION FORMULARY			
CATEGORY	MEDICATIONS	AVAILABLE FORMULARY DOSES	SIDE EFFECTS
Angiotensin Converting Enzyme Inhibitors (ACEI)	Lisinopril (Prinivil)	10 mg, 20 mg	<ul style="list-style-type: none"> Persistent cough; renal insufficiency; weakness or dizziness; skin rashes; alopecia; altered sense of taste; hyperkalemia, angioedema, anaphylaxis. Consider switching to CCB if present. Avoid in pregnancy. Beneficial in heart failure and post MI.
	Enalapril (Vasotec)	2.5 mg, 5 mg, 10 mg, 20 mg	
Angiotensin Receptor Blockers (ARB)	Losartan (Cozaar)	25 mg, 50 mg, 100 mg	<ul style="list-style-type: none"> Well tolerated as a class, but occasional angioedema, hyperkalemia, hypersensitivity; cramps; nasal congestion; dizziness, cough. Consider switching to CCB if present. Avoid in pregnancy. Renal artery stenosis.
	Telmisartan (Micardis)	20 mg, 40 mg, 80 mg	
Calcium Channel Blockers	Amlodipine	2.5 mg, 5 mg, 10 mg	<ul style="list-style-type: none"> Headaches; facial flushing; dizziness; ankle edema; hypotension; reflex tachycardia. Use caution with amlodipine in hepatic insufficiency. Sick sinus, 2nd and 3rd degree AVB; pulmonary congestion with diltiazem.
	Diltiazem ER	120 mg	
Beta Blockers	Metoprolol XL (Toprol)	25 mg, 50 mg, 100 mg	Exercise intolerance; hypotension; bronchospasm, decreased libido; impotence.
	Carvedilol (Coreg)	6.25 mg, 12.5 mg, 25 mg	
Thiazide Diuretics	HCTZ	12.5 mg, 25 mg	Fatigue; hypotension; renal insufficiency; hypokalemia; hyponatremia.
	Chlorthalidone	25 mg, 50 mg, 100 mg	
Potassium-sparing Diuretics	Spironolactone	25 mg, 50 mg, 100 mg	Hyperkalemia
	Dyazide (HCTZ/Triamterene)	25/37.5 mg , 25/50 mg	
Loop Diuretics	Furosemide	20 mg, 40 mg, 80 mg	Hypersensitivity: sulfa allergy; anorexia.
	Torsemide	5 mg	
Centrally-acting Alpha Agonist	Clonidine (Oral)	0.1 mg, 0.2 mg, 0.3 mg	Postural hypotension
Vasodilators	Hydralazine	10 mg, 25 mg, 50 mg, 100 mg	<ul style="list-style-type: none"> Headache; anorexia; nausea; vomiting; diarrhea; tachycardia; angina. Can develop false positive ANA with hydralazine.
	Minoxidil	2.5 mg, 10 mg	
Combination Drugs	Enalapril/HCTZ	5/12.5 mg, 10/25 mg	See individual side effect listings
	Lisinopril/HCTZ	10/12.5 mg, 20/12.5 mg, 20/25 mg	
	Losartan/HCTZ	50/12.5 mg, 100/12.5 mg, 100/25 mg	
	Amlodipine/Benazepril	5/10 mg, 5/20 mg, 10/20 mg	
Pregnancy + Stage 2 HTN	Methyldopa	125 mg, 250 mg, 500 mg	Postural hypotension
	Labetalol	200 mg, 300 mg	Consult with OB-Gyn
	Hydralazine	10 mg, 25 mg, 50mg, 100 mg	Consult with OB-Gyn



Treatment of Resistant Hypertension



Adapted from: Moser M and Setaro J. N Engl J Med 2006;355:385-392



PATIENT SELF CARE TOOLS AND MESSAGES



Prevent and Control High Blood Pressure

Healthy Lifestyle Changes are Powerful.

IF YOU SMOKE, QUIT NOW.

- If you have high blood pressure and smoke, your risk of heart attack is more than double.
- For free help quitting, call 311 and ask for the Smokers' Quitline.

EAT A HEART-HEALTHY DIET AND CUT THE SALT.

- Limit salt (sodium) in your diet.
- Eat more fruits, vegetables and whole grains.
- Choose low-fat dairy products and lean meat and fish.
- Limit alcohol intake.

GET MOVING

- Get at least 2.5 hours of moderate activity (such as a brisk walk) a week.
- If you are overweight, losing as little as 10 pounds can lower your blood pressure.

TAKE ALL THE MEDICATIONS YOUR DOCTOR PRESCRIBES

- When diet and exercise aren't enough, blood pressure-lowering medicines are safe and effective.
- Your doctor may prescribe one or more medications.
- Some people stop taking their medicine or skip because:
 - They don't feel sick, or
 - They're afraid they can't afford it, or
 - They're worried about side effects.
- Your doctor can help with these problems, so don't stop your medicine! Call your doctor to find a solution.
- Ask your doctor if taking low-dose aspirin can help reduce your chance of heart attack or stroke.

Adapted from: NYC DOHMH Health Bulletin,
Volume 6, No. 4, "High Blood Pressure"



HYPERTENSION SELF CARE GOALS

My Goals Before My Next Visit



Eat ___ servings of fruit and vegetables a day



Walk ___ minutes a day



Take my medicine daily



Make a list of my medicines



Limit salt



Stop or limit my alcohol



Stop smoking



Other

Choose one goal at a time.

What will I do? _____

When will I do it? _____

Where will I do it? _____

How often will I do it? _____

What might get in the way of my plan? _____

What can I do to make sure my plan works? _____

GOAL REVIEW

How important is it for you to reach this goal? (rate 1-10) Circle one

1	2	3	4	5	6	7	8	9	10
Not at all important		A little		50/50	Very important		Totally important		

How sure are you that you can reach this goal? (rate 1-10) Circle one

1	2	3	4	5	6	7	8	9	10
Not at all sure		A little		50/50	Very sure		Totally sure		

Patient Signature: _____ Clinician Signature: _____ Date _____

Agreed upon by the patient and clinician



TIPS TO MANAGE YOUR BLOOD PRESSURE

Blood pressure can be affected by many things. To avoid getting an incorrectly high or low blood pressure reading at your next visit, do the following:

BEFORE YOUR BLOOD PRESSURE IS TAKEN:

- Avoid smoking, vigorous physical activity, and drinking alcohol, coffee, or caffeinated soda (regular or diet) for at least 30 minutes.
- Keep upper arm bare by wearing short sleeves
- Empty your bladder and bowel.
- Sit quietly in a chair for 5 minutes.

WHEN YOUR BLOOD PRESSURE IS TAKEN:

- Have your back supported.
- Put your feet flat on the floor.
- Rest your arm on a table at heart level.

AFTER YOUR BLOOD PRESSURE IS TAKEN:

- Ask for your blood pressure reading and what it means.

Questions for My Healthcare Team

- What is my blood pressure reading?
- What is my blood pressure goal?
- Is my blood pressure under good control?
- What time should I take my blood pressure medicines?
- What if I forget to take my medicines?
- What are the possible side effects of my medicines?
- Are there any foods, drinks, herbs or dietary supplements I should avoid?
- How can I change my diet?
- How can I increase my physical activity?

Remember to Take My Medicine

- Take your medicine as part of your daily routine, such as while eating your breakfast or brushing your teeth.
- Post notes on the refrigerator, by the phone or on the medicine cabinet. Set an alarm reminder on your cell phone.
- Use a pill box to keep medicine organized.
- Re-fill medicines before they run out. Make a note on the calendar one (1) week before your medicine is due to run out.
- Eating a heart healthy diet and being physically active is just as important as taking your medicine.



Be Spicy, Not Salty

Salt Substitutes for Meat, Poultry, Fish

BEEF	.....	Bay leaf, nutmeg, onion, pepper
LAMB	.....	Curry powder, garlic, rosemary, mint
PORK	.....	Garlic, onion, sage, pepper, oregano
VEAL	.....	Bay leaf, curry powder, ginger
CHICKEN	.....	Ginger, oregano, paprika, rosemary
FISH	.....	Curry powder, dill, dry mustard

Salt Substitutes for Vegetables

CARROTS	.....	Cinnamon, cloves, rosemary, sage
CORN	.....	Cumin, curry powder, onion, parsley
GREEN BEANS	.....	Dill, curry powder, lemon juice, oregano, thyme
GREENS PEAS	.....	Onion, pepper, ginger, onion, parsley
POTATOES	.....	Dill, garlic, onion, paprika, parsley
SUMMER SQUASH	.....	Cloves, curry powder, sage, rosemary
WINTER SQUASH	.....	Cinnamon, ginger, nutmeg, onion

SERVING SIZE & PORTION GUIDELINES

- Meat, fish, poultry-3 oz. (about the size of the palm of your hand)
- Cheese-1 oz. (about the size of your thumb)
- Milk, yogurt, fresh vegetables-1 cup (about the size of a tennis ball)
- Bread-one slice
- Rice or cooked pasta-1/3 cup
- Potato or corn-1/2 cup
- Dry cereal-3/4 cup



Reduce Your Salt

- Do not add salt when cooking.
- Rinse canned foods like tuna and vegetables.

Avoid

- Smoked, cured, and processed beef, pork and turkey (cold cuts), frozen dinners and pizza, packaged food mixes, canned soups and broths and instant products.

Eat

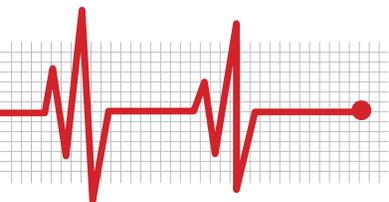
- Low or no-salt food.
- Unsalted snacks: chips, nuts, pretzels, and popcorn without butter.

Be a Smart Shopper

- Read all food labels.
- Remember: Sodium = salt.
- Choose foods that say:
 - Sodium-free
 - Very Low Sodium
 - Reduced sodium
 - Light in sodium
 - Unsalted

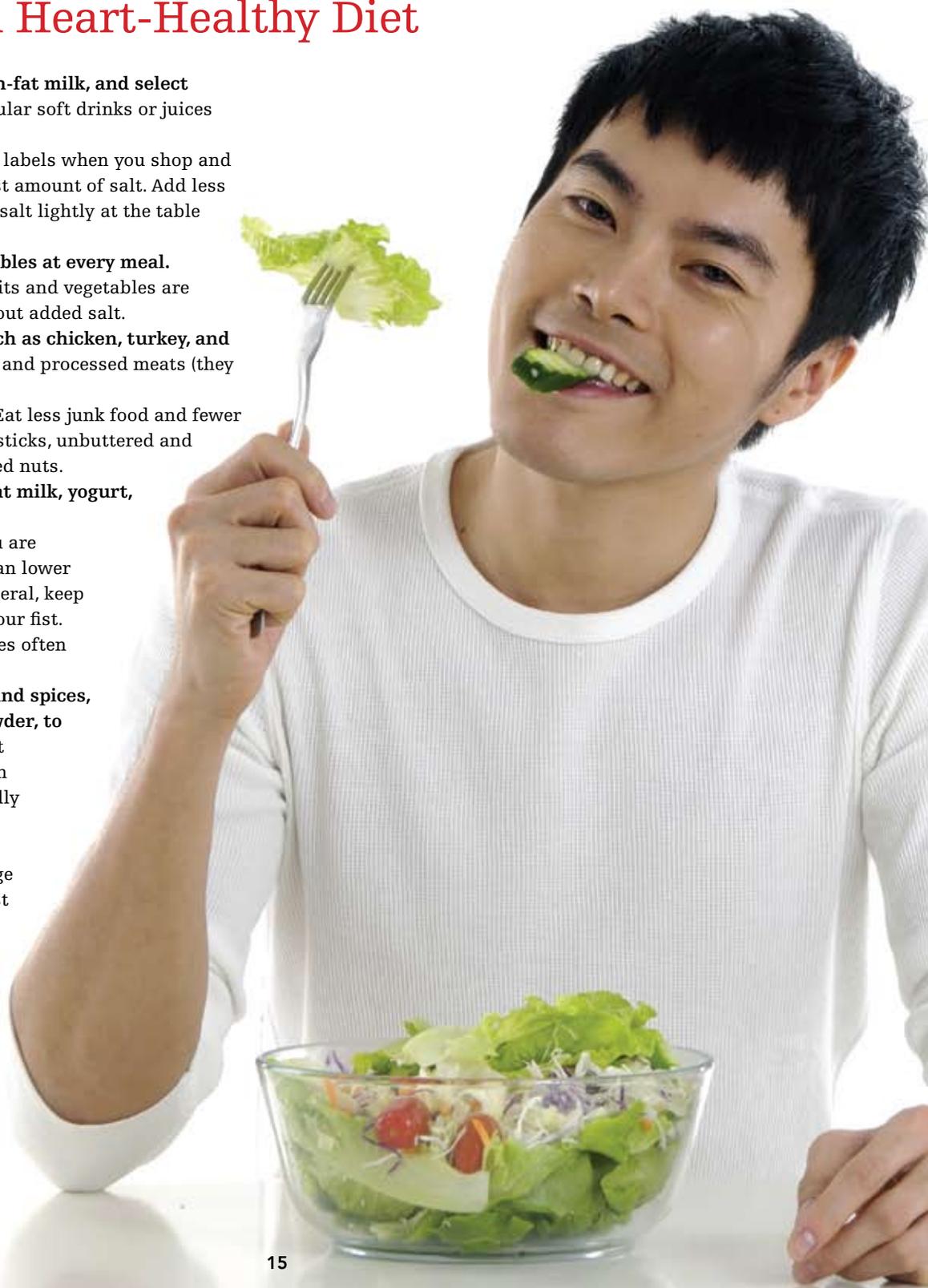
Buy

- Breakfast cereals that are low in salt.
- Fresh, frozen or canned “with no salt” vegetables.
- Fresh, lean cuts of fish, meat and chicken.



10 Tips for a Heart-Healthy Diet

- **Drink water, low-fat or non-fat milk, and select low-calorie soda.** Avoid regular soft drinks or juices (they have a lot of sugar).
- **Eat less salt.** Compare food labels when you shop and choose foods with the lowest amount of salt. Add less salt when cooking. Instead, salt lightly at the table for taste.
- **Eat fresh fruits and vegetables at every meal.** If only frozen or canned fruits and vegetables are available, choose ones without added salt.
- **Eat fresh, leaner meats such as chicken, turkey, and fish.** Avoid canned, smoked, and processed meats (they have a lot of salt).
- **Snack on healthier foods.** Eat less junk food and fewer sweets. Try fruit, vegetable sticks, unbuttered and unsalted popcorn or unsalted nuts.
- **Switch to low-fat or non-fat milk, yogurt, cheese, and frozen yogurt.**
- **Eat smaller portions.** If you are overweight, losing weight can lower your blood pressure. In general, keep portions about the size of your fist. Check serving sizes—packages often have several servings.
- **Instead of salt, use herbs and spices, such as onion or garlic powder, to season foods.** Don't add salt to boiling water. Cut back on instant products (they usually have added salt).
- **Eat less fast food—no more than once a week.** Avoid large and super-size portions. Fast food is high in calories, fat, and salt. Cooking at home allows you to control the amount of salt in your food.
- **Buy less of these high-salt foods:** frozen dinners and pizza, boxed food mixes, and canned soups and broths.



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nyc.gov/hhc



Hypertension Collaborative Care Pathway at HHC: Summary

Background

At HHC, the blood pressure control rate in non-diabetics is 46%. National benchmarks are 75-80%. Control rates at many HHC facilities have shown minimal improvement in recent years.

Barriers to control include:

- 'Therapeutic inertia' (failure to adjust treatment plans for uncontrolled illness)
- Poor access to primary care provider (PCP) appointments
- Inconsistent self-management engagement (adherence and home monitoring).

The Collaborative Treat-to-Target Pathway

Multiple published studies have demonstrated significant population-based improvements with a structured approach centering on registered nurses (RNs) providing:

- 1) Frequent evaluation of blood pressure control
- 2) Adjustment of medication in accordance with a PCP-created care plan
- 3) Adherence assessment and counseling
- 4) Self-monitoring using a home BP kit

In this "Collaborative Care Model" RNs deliver this care under the supervision of the PCP. HHC has adopted this approach at most facilities for anticoagulation clinics and depression (1 HHC facility). Eight facilities have adopted this model for hypertension.

RN Care Manager Staffing Requirements

Most patients achieve control in 2 to 3 visits. An average-sized HHC facility with 7500 hypertensive patients would need approximate a care manager 2 days per week to improve hypertension control rate by 10 points per year.

Results at HHC

From May 2012 through May 2013, the 8 HHC facilities that implemented the pathway increased their BP control rates by an average of 3.9 percentage points (9% relative increase in control rate). The 9 facilities that have not implemented have an average *decreased* by an average of 1.5 percentage points (3.5% relative decrease in control rate).

In May 2013, 7 out of 8 facilities fully implementing BP Collaborative Care achieved their 17-month high for BP Control rate. None of the non-implementing facilities achieved this.

Four additional facilities will have implemented the program by August '13.

Essential Features of Collaborative Care for Hypertension

Primary Care Provider

- Documents Care Plan
 - BP control target
 - Current medication regimen and next steps
 - Referral to RN for care management

Registered Nurse

- Evaluates patient every 2-3 weeks
 - Blood pressure
 - Adherence and side effects
- Advises patient on adjustment of medication according to PCP plan
- Documents visit (coded as 99211 – low complexity/‘Physician presence not required’)

RN – PCP Collaboration

- PCP directs RN’s care with the Care Plan and supervises care by reviewing the chart and discussing the care.
- If the Care Plan specifies next steps, the PCP does *not* see the patient, but reviews and ‘accepts’ the care provided in the visit note which appears in “Review Queue”
- If next steps are not specified in Care Plan or if RN has any concerns, the RN consults with PCP in real time and patient may have further evaluation as needed

Stages of Implementation

Preparation

- Designation and training of care teams
- Define standard work
- Identify or develop appropriate Quadramed ambulatory note

Initiation

- 3-5 new patients per week
- All patients have documented PCP care plan
- RN able to see routine patients without patient seeing PCP face-to-face
- PCP reviewing notes in Quadramed

Implementation

- 10-15 patients graduating per week (depending on size of facility)
- BP control achieved in average 3 or fewer visits

Monitoring

- Ongoing quality monitoring: sufficient referrals, BP improvement, standard work

HHC Hypertension Improvement Project

Collaborative Treat-To-Target Pathway – IMPLEMENTATION PLAN

Key Features of Collaborative Care Treat-to-Target Pathway

- Patients are referred by PCPs, who explain the program to the patient, define the blood pressure goal, and outline the plan for medical management
- Patients are seen by Team RN every 2-3 weeks until BP is controlled:
 - RN checks BP, reviews medication list, side effects and adherence
 - RN follows through with plan outlined by PCP
 - RN consults PCP as needed (face-to-face, phone or secure email/instant message as clinically appropriate)
 - RN documents the visit; PCP reviews in EMR review queue (similar to the procedure for a Medical Resident); PCP electronically co-signs (“accepts”)
- PCP bills for a level one revisit (99211); higher code if physician provides face-to-face care

Implementation at HHC

Preparation Stage:

- Senior leadership endorsement; designate RN care manager and PCP champion
- 90 minute meeting/training with HHC Office of Healthcare Improvement with participation from another HHC facility that has already implemented
- IT - if not available, request RN access to an ambulatory care note that is automatically sent to PCP for review and co-signature

Initiation Stage:

- Weekly 1-hour coaching calls with Office of Healthcare Improvement to review development of standard work, team building, use of tools (Tracker/PI tool; Adherence Screener)
- 3-5 new patients enrolled weekly
- RN is managing >50% of patients without a face-to-face PCP contact

Implementation Stage:

- Bi-weekly 1-hour coaching calls to review performance and discuss changes needed (referral rate, show rate, patient ‘graduation rate’, facility BP control rate)
- 8-10 new patients enrolled weekly

Ongoing Monitoring Stage:

- Monthly 30-minute coaching calls
- Facility performs own performance improvement

Hypertension Treat-to-Target Pathway: Guide to Implementation

Pre-Work Checklist

□ **Senior Leadership Engagement:**

- Medical leadership: Is Hypertension Improvement a top priority?
- Nursing leadership:
 - Is Care Management (monitoring control and adjusting medication under supervision/direction of PCP but without PCP presence) part of RN's role?
 - Can RN staff be allocated to this function?

□ **Program Implementation Team: Meets weekly, Monitors progress, Problem-solving**

- MD/PCP to serve as champion
- RN to lead program implementation and be initial RN participating in Pathway
- Administrator – coordinates team efforts

□ **IT: Is there a note in EMR that:**

- RN can document in visit note?
- Is listed for "review" and by PCP after RN has done a "partial accept"?
- Generates a coding sheet?

□ **Logistics**

- RN Schedule template (at least 10 slots per week, eventually will need minimum of 20)
- Workflow: how will patients identified by PCP be scheduled?
- Set time for weekly team meeting/huddles

□ **Clinical Preparation: Clinical team (PCP and RN) meets to review and discuss: (Additional training may be needed for any of these)**

- Program Guidelines (see HHC materials on these matters):
 - Workflow
 - Adherence counseling
 - BP measurement technique
 - Documentation/coding
 - Program Utilization Tracking
- Communication between RN and MD when needed for patient seeing RN:
 - Who will RN contact if MD input is needed while patient is seeing RN?
(PCP, preceptor, who is back-up?)
 - How will RN contact PCP if consultation needed when patient comes in?
(telephone, Instant Messaging, knock on door)
 - How RN and PCP have ongoing communication when patient is *not* on site?
 - "Huddles" needed for problem-solving, feedback – When? Where?

Hypertension Treat-to-Target Pathway Tracker

Date: _____

RN: _____

	Last Name	MR#	New or Follow-up?	BP TODAY (or no-show)	LAST BP	Adherence Score	Face to Face w PCP?
1.			New / F/U				N / Y
2.			New / F/U				N / Y
3.			New / F/U				N / Y
4.			New / F/U				N / Y
5.			New / F/U				N / Y
6.			New / F/U				N / Y
7.			New / F/U				N / Y
8.			New / F/U				N / Y
9.			New / F/U				N / Y
10.			New / F/U				N / Y
11.			New / F/U				N / Y
12.			New / F/U				N / Y
13.			New / F/U				N / Y
14.			New / F/U				N / Y
15.			New / F/U				N / Y

Pts. Showed _____
 No Show _____
 New: _____
 Controlled _____
 Adherence 100% _____
 Pt. saw PCP after _____

Plan:

1. ...to increase new patients?
2. ... to help patients achieve control?
3. ... to help RN to provide care w/o referring pt to PCP?

Comments:

HHC Hypertension Treat-to-Target Pathway

Suggestions for Visit Documentation and Coding

Treat-to-Target Pathways consist of a series of frequent, focused visits that are generally comprised of 1) assessment of illness control, 2) counseling on self-management and 3) adjustment of medications to achieve a pre-determined illness control target such as blood pressure less than 140/90.

General Principles:

- 1) This is a “planned visit” with the purpose of achieving better chronic illness control. The visit is not for a comprehensive review of the patient’s health or for care for acute illness. Patients requesting care for acute illness or assistance beyond the scope of the planned visit should be assisted in accessing this care through the clinic’s usual procedure.
- 2) The care is provided by the RN in accordance with instructions or direction from a physician (generally this should be the patient’s PCP).
- 3) Some visits will require face-to-face contact between patient and MD, but in general this is not necessary. The RN will deliver the care directed by the MD.
- 4) Coding/Billing: Review with facility finance/billing director. Level 1 revisits (e.g. 99211) do not require face-to-face contact between physician and patient.
- 5) Fee Reduction: A plan for a 60-day fee reduction is being considered.

Documentation Template

Subjective:

- a) Chief Reason for Visit: Hypertension management
- b) Presence/absence of acute problems
- c) Adherence Assessment and Medication List

Objective:

- a) Blood pressure and pulse
- b) Subjective (example: No acute distress)

Assessment:

- a) Blood Pressure: At goal or not?
- b) Possible reasons why not at goal: (example: non-adherence, and reason for non-adherence)

Plan:

- a) Plan according to (written/verbal) directions from Dr. PCP
- b) Medications: Change or no change?
- c) Counseling: (example: basics of hypertension, adherence counseling); patient repeat-back
- d) Self-Management Assistance: (example: Home BP monitoring kit; pill box)
- e) Referrals: Example: HHC Home Care BP pathway; nutrition; financial counseling
- f) Return visit

Sign: RN providing care (“Partial Accept” in Quadramed)

Cosign: electronic co-signature by PCP by the end of the business day (“Full Accept”)

Blood Pressure Management Visit Sample Note

April 7, 2012
Time: 3:10 PM

Visit Provider: Elena Porter, RN
Billing Provider: Karen Primero, MD

Translator: none

Subjective:

Reason for visit: Management of uncontrolled hypertension, under care of Dr. Primero.
Patient has no complaints.

Adherence: Reviewed medication list- patient brought in bottles. Patient states she did not start the new dose of amlodipine (5mg) because she had some of the old dose left (5 mg). Patient has no concerns about the medications. Started using pill box – does not find she forgets anymore.

Objective:

BP: Right 142/70 Left 144/74 Pulse 84, regular
No acute distress

Assessment:

Goal is <130/80 per Dr. Primero's note. Above goal now.
Patient is not taking correct dose of amlodipine, but is otherwise adherent to the regimen.

Plan:

Reviewed goal BP and regimen with patient. Advised to take medications as per Dr. Primero's instructions and not wait until bottles of previous medications are empty. Patient repeated back the instructions.
Gave Home BP monitor and instructed on use and to bring log to next visit
Return for BP check in 2 weeks.

Diagnosis: Hypertension

Code: 99211 - Revisit, Low Complexity

Sign: Elena Porter, RN

Cosign: I have reviewed and agree with the assessment and plan - Dr. Karen Primero

IMPORTANT: Verify billing procedures with appropriate finance or coding administrator at your facility.