Hypertension Management

Hypertension affects 19.7% of adult Canadians and is one of the most important modifiable risk factors for cardiovascular disease.[1] The prevalence continues to increase with more than 1000 people newly diagnosed with hypertension every day.[1] Uncontrolled hypertension can cause many different complications including stroke, dementia, coronary artery disease, left ventricular dysfunction, kidney disease, retinal disease and peripheral artery disease.[1]

Assessment

Blood pressure (BP) screening should be performed on all people over the age of 40 years to determine cardiovascular risk (ie. Framingham Risk Score) every 1-3 years.[1,2] Those with increased risk of cardiovascular disease should be screened more frequently. For the purposes of this study, the Framingham risk calculator will be used to determine cardiovascular risk for high risk patients and patients with chronic kidney disease. Other calculators that will be used in the study are for specific target populations. The UK Prospective Diabetes Study (UKPDS)[3] will be used for patients with diabetes and the International Model to Predict Recurrent Cardiovascular Disease[4] will be used for patients who have had a previous cardiovascular event (stroke, coronary artery disease or peripheral vascular disease). Diagnosis of hypertension can utilize ambulatory blood pressure measurements (ABPM), office blood pressure measurements (OBPM) or home blood pressure measurements (HBPM). Diagnosis is based on elevated systolic blood pressure (SBP), diastolic blood pressure (DBP) or both on several occasions. (See appendix 1 for a flow chart.) Current information suggests that HBPM has a stronger predictive association with cardiovascular prognosis than OBPM.[1] Home BP values greater than or equal to 135/85mmHg should be considered elevated and associated with an increased overall mortality risk analogous to office BP readings of greater than or equal to 140/90mmHg. Note that the diagnostic BP measurement for hypertension is not the same as the target BP for all groups.

Diagnosis of hypertension if BP greater than or equal to[1]

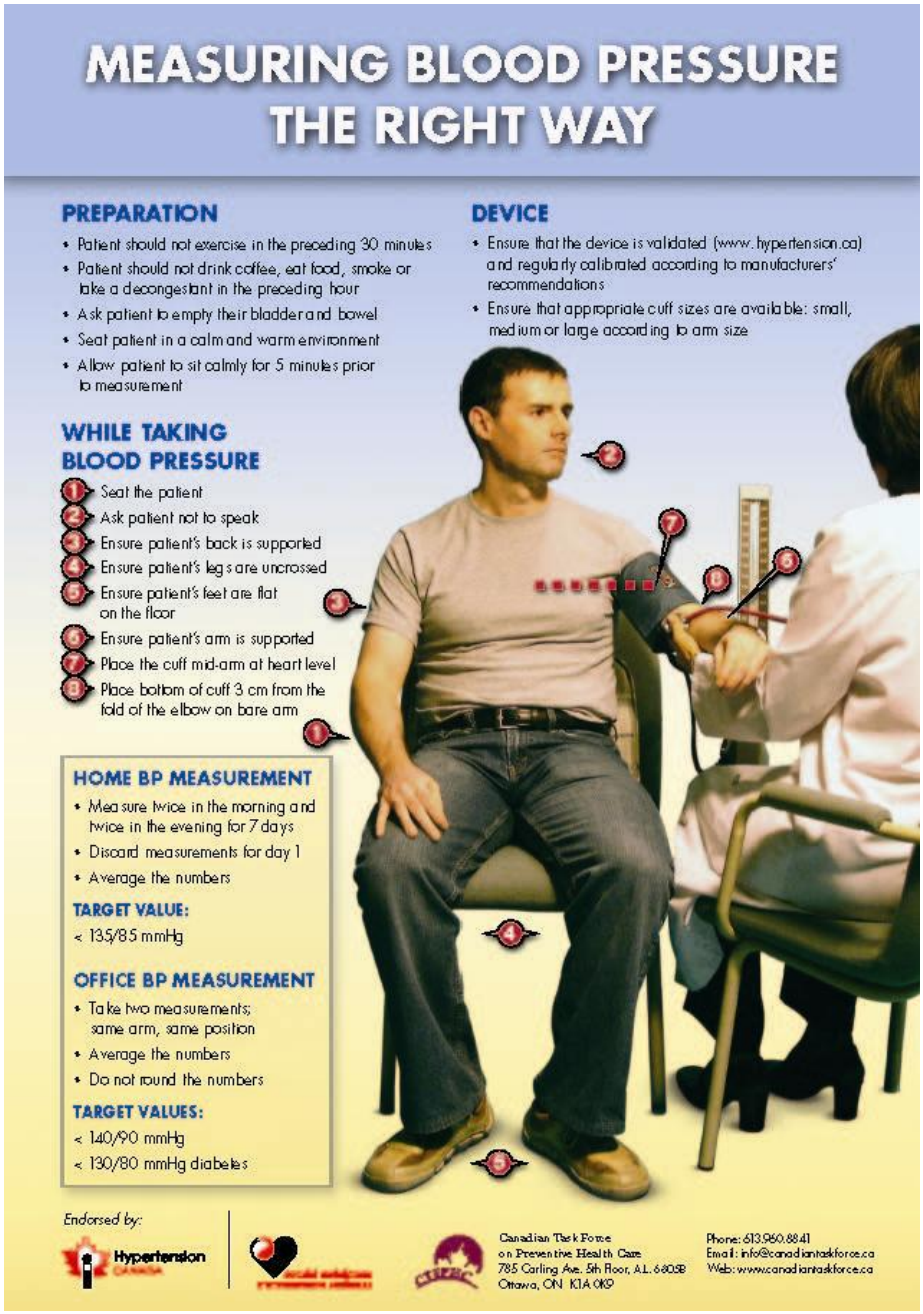
OBPM	ABPM	HBPM
Hypertensive urgency or emergency (SBP greater than 200mmHg or DBP greater than 130mmHg)	Awake SBP 135 mmHg or DBP 85mmHg	Average SBP 135 mmHg or DBP 85mmHg
Greater than 180/100mmHg	24 hour average SBP 130mmHg or DBP 80mmHg	
140-179/90-109mmHg with organ damage or diabetes		
SBP 160mmHg or DBP 100mmHg over 3 visits		
SBP 140mmHg or DBP 90mmHg over 4-5 visit		

Proper technique for BP measurement is critical to produce accurate results. Using a sphygmomanometer and stethoscope is the preferred method of determining blood pressure, but a calibrated automated blood pressure machine is acceptable.[1] Some automated machines can be programmed to take many measurements spaced 1-2 minutes apart. Wrist cuff blood pressure machines are not recommended for use in this study. See this link for additional information on blood pressure monitoring devices recommended by Hypertension Canada: http://www.hypertension.ca/devices-endorsed-by-hypertension-canada-dp1 BP measurement should be performed on both arms at least once to confirm similar readings. If the readings are different, always use the arm with the higher measurement for taking blood pressure. For the purposes of this study, use the same arm in the same position for all blood pressure monitoring.

Steps for accurate blood pressure measurement:

1. Appropriate sized cuff
2. Rest 5 minutes, seated with back supported
3. No talking, do not cross legs
4. Bare arm resting and supported at heart level
5. Lower edge of cuff 3cm above elbow crease
6. Air bladder centered on brachial artery
7. 2 readings 1-2 minutes apart – record average of the two readings
8. Record position (supine, sitting, standing) and arm (left or right)

For more information see:
http://www.hypertension.ca/images/2013_EducationalResources/2013_MeasureBPatHome_EN_P1006.pdf



The blood pressure target is less than 140/90mmHg in the majority of patients.[1] The exceptions are diabetics and very elderly. Diabetics should achieve a target blood pressure less than 130/80mmHg.[1] The very elderly (older than 80 years) should target a systolic blood pressure less than 150mmHg since they are more susceptible to hypotension.[1] Drug therapy should be titrated slowly to allow time for patients, especially elderly patients, to adjust. Hypotension places elderly patients at a high risk of falls that can have devastating consequences.

Treatment

Once diagnosed with hypertension, antihypertensive therapy should be started when blood pressure is greater than 140/90mmHg. An important intervention is to address modifiable lifestyle risk factors that affect hypertension such as smoking cessation[1], physical exercise[1], weight reduction[1], alcohol consumption[1], healthy diet (DASH diet)[6], sodium intake[7] and stress management.[1] These health behaviours should be reinforced with every interaction with the patient in a non-threatening manner. Refer to the lifestyle management material for an in-depth discussion. The choice of initial antihypertensive should be individualized based on presence of comorbid conditions.

In patients who have no heart disease, cerebrovascular disease, kidney disease or diabetes the choice of initial therapy is monotherapy with a thiazide diuretic, beta-blocker, angiotensin converting enzyme inhibitor (ACEi), angiotensin 2 receptor blocker (ARB) or long-acting calcium channel blocker (CCB). Thiazide diuretics are generally chosen first due to their cost efficiency. Patients taking a thiazide diuretic should be monitored for hypokalemia and prescribed potassium rich foods (such as bananas and oranges), a potassium supplement if required or potassium sparing diuretic. ACEi should not be used as first line in African Americans and beta-blockers should not be used as first line in patients older than 60 year.[1] Alpha blockers should not be used as first line monotherapy.[1] Combination therapy of both an ACEi and ARB is no longer recommended due to risk of adverse events except in patients with heart failure.[1] If a patient has SBP more than 20mmHg or DBP more than 10mmHg above their target, initial therapy with a combination may be considered; however, initiating more than one antihypertensive at the same time may cause significant hypotension and, therefore, in clinical practice usually one medication is initiated at a time. Useful combinations include a thiazide in combination with an ACEi, CCB, ARB or beta-blocker.[8] Consider starting on a low dose and titrating slowly as required until the patient reaches their target blood pressure. This information has been summarized in a table in Appendix 2.

Management of hypertension should follow a stepwise approach. If patients are intolerant, have side effects or have contraindications to initial therapy, another first line agent (thiazide, beta-blocker, ACEi, long-acting CCB or ARB) should be substituted. When patients continue to have SBP is 1-19mmHg or DBP is 1-9mmHg above goal with initial therapy, they should be assessed for any compliance or adherence issues, any other reasons for poor response and then prescribed a combination of first line agents such as a thiazide diuretic or CCB with an ACEi, ARB or beta-blocker. However, diltiazem or verapamil should be used very cautiously in combination with a beta-blocker. As mentioned before, the combination of an ACEi and ARB is not recommended for most patients. If patients have SBP more than 20mmHg or DBP more than 10mmHg above target with initial therapy, they should be assessed for any compliance or adherence issues, any other reasons for poor response and then prescribed additional antihypertensive drugs. Often these patients will require more than two antihypertensive drugs, but it is safer to start and titrate one at a time and assess response before adding a third medication. If the patient's blood pressure is below the target, the current regime should be continued.

Individualization of therapy by comorbid conditions:

The following information has been summarized in a table in Appendix 3.

Patients with coronary artery disease should receive an ACEi or ARB; however, patients should not receive both an ACEi and an ARB.[1,8] If blood pressure is not controlled with a single agent the combination of an ACEi and dihydropyridine CCB (amlodipine, nifedipine, felodipine) is preferable over an ACEi and diuretic.[1] If the patient also has stable angina a beta-blocker is recommended.[1]

All patients who have had a recent MI should be prescribed initial therapy of both an ACEi and beta-blocker.[1,8] If the patient is intolerant to or has side effects from the ACEi, an ARB may be combined with the beta-blocker. If a beta-blocker is not tolerated or contraindicated, the alternative is to prescribe a CCB; however, short acting CCB such as short acting nifedipine should not be used due to increase in hypotension and reflex sympathetic activation with tachycardia.[1,8,9]

Patients who have left ventricle hypertrophy with normal ejection fraction and no symptoms of heart failure (edema, fatigue and dyspnea) have stage B heart failure.[9] Initial therapy for hypertension includes a thiazide diuretic, ACEi or beta-blocker; an ARB may be used in patients who have not tolerated an ACEi.[9,10] All these first line therapies are effective in preventing and delaying the onset of heart failure symptoms, although ACEi and ARB may be superior because they promote more regression of LVH than beta blockers or diuretics.[9,11] A proposed mechanism of how ACEi and ARB may slow or reversing cardiac remodelling is by reducing the effects of angiotensin II on the heart. Angiotensin II increases expression of proteins and myocyte hypertrophy and stimulates collagen synthesis that leads to fibrosis of the cardiac tissue.[12] A long-acting CCB may also be used, but they are not as effective as ACEi or beta-blockers in preventing or delaying the onset of heart failure symptoms.[9,11] These patients should not receive hydralazine or minoxidil because these direct arterial vasodilators do not alter the progression to heart failure and resulted in a poorer clinical course.[1]

All patients with stage C heart failure (structural heart disease and symptoms of heart failure) should be prescribed an ACEi or ARB, a beta-blocker proven to reduce mortality (bisoprolol, carvedilol, and sustained release metoprolol succinate) and either spironolactone or eplerenone.[9] Caution should be exercised when starting a beta-blocker because heart failure patients are at risk of decompensation.[13] A thiazide or loop diuretic may be added for volume control.[1] If a patient can't tolerate an ACEi or ARB, the combination of hydralazine and isosorbide dinitrate may be prescribed.[9] Patients with heart failure symptoms should not receive verapamil or diltiazem because they can cause pulmonary congestion.[1]

Initial therapy in diabetic patients depends on the presence of comorbid conditions. Diabetics with cardiovascular disease, kidney disease, albuminuria (albumin-creatinine ratio (ACR) greater than 2mg/mmol) or other cardiovascular risk factors should receive an ACEi or ARB.[14] Diabetics without any cardiovascular risk factors may receive initial therapy with ACEi, ARB, dihydropyridine CCB (amlodipine/nifedipine/felodipine), or thiazide diuretics.[1,14] If blood pressure is not controlled with monotherapy, the combination of ACEi or ARB with a dihydropyridine CCB

(amlodipine/nifedipine/felodipine) is preferred over the combination of an ACEi or ARB with a thiazide diuretic.[1,14]

The treatment of hypertension during a stroke is divided into the acute period (onset-72hours) and 72 hours after stroke.[1] Treatment of hypertension within 24 hours of onset is not recommended unless the systolic BP is greater than 220mmHg or diastolic BP is greater than 120mmHg. After 24 hours, patients may receive an antihypertensive; however, caution must be exercised to gradually reduce blood pressure to prevent decreased cerebral blood flow and possibly worsen the effects of or induce further ischemia.[1,15] After the acute phase of the stroke, patients should be treated to target a blood pressure of 140/90mmHg.[1,15] The combination of a diuretic and ACEi is preferred over monotherapy with an ACEi or beta-blocker.[1,15] An ACEi and ARB should not be combined in patients with stroke.[1]

For patients with chronic kidney disease (CKD) refer to the kidney disease education materials. For treatment of hypertension in CKD, the choice of initial therapy depends on the presence of albuminuria and diabetes. Patients with a urine albumin-creatinine ratio (ACR) greater 30 mg/mmol should receive an ACEi or ARB.[1,16] A thiazide diuretic may be added for additional antihypertensive effect since thiazides have very little diuretic effect when a patient has low kidney function.[1] A loop diuretic may be added to assist in volume control or to control peripheral edema.[1] Combination of a ACEi or ARB with a diuretic, NSAID or COX-2 inhibitor can increase the risk of clinically significant hyperkalemia and acute kidney injury.[16] It is common for serum creatinine to increase approximately 15-25% (GFR decreases by 15-25%) when starting an ACEi or ARB but sudden changes or increases in serum creatinine greater than 25% require stopping the ACEi or ARB and referral to a nephrologist. Many hypertensive CKD patients require using combinations of antihypertensives to reach targets.[1,17]

Patients with diabetes and CKD should be treated similar to diabetics without CKD. Diabetic CKD patients should receive initial therapy with an ACEi or ARB if they have urine albumin-creatinine ratio greater than 2 mg/mmol, macrovascular complications (cardiac ischemia (silent or overt), peripheral

vascular disease or cerebrovascular or carotid disease), or microvascular complications (neuropathy, retinopathy).[14] If blood pressure is not controlled with monotherapy, the combination of ACEi or ARB with a dihydropyridine CCB (amlodipine/nifedipine/felodipine) is preferred over the combination of an ACEi or ARB with a thiazide diuretic.[1,14] Addition of a loop diuretic is recommended for patients who have extracellular volume overload demonstrated by peripheral edema.[1]

Patients with renovascular disease should be treated in the same manner as patients without specific indications.[1] However, they should be monitored closely when prescribed an ACEi or ARB. Patients with renal artery stenosis with a solitary kidney or bilateral disease are at increased risk of acute kidney injury.[1] These patients are often identified by having very high blood pressure that is not easily controlled even when using up to four antihypertensives.[16] These patients require close monitoring for sudden changes or increases in serum creatinine greater than 15% and should be referred to their general practitioner with consideration for referral to a nephrologist.[16] Renal artery stenosis is managed by renal artery angioplasty or stenting.[1]

Supplementation of potassium, calcium and magnesium is not recommended for the prevention or treatment of hypertension, but may be used if the patient has a documented deficiency. Other therapies such as omega 3 fatty acids are generally not recommended.

Follow-up/monitoring

Patients should perform regular home BP monitoring and keeping a log. A sample home blood pressure monitoring form has been included in Appendix 4. While no exact number of times per week is specified in the guidelines, most patients should monitor several times per week including both morning and evening measurements. More frequent monitoring may be required at times such as during acute illness and adjustment of medications. During every encounter, patients should be asked about symptoms of hypotension such as dizziness, light-headedness and patients should be evaluated for postural hypotension by performing supine and standing blood pressure measurements.[1,16] Patients

should be asked about progress with lifestyle modifications including smoking cessation at every encounter.[1]

Initial assessment should include the following laboratory tests: urinalysis, blood chemistry (sodium, potassium, creatinine), fasting blood glucose (or HgB A1C in diabetics), fasting cholesterol, and standard 12-lead ECG.[1] The urinalysis detects the presence of protein or albumin or blood and may indicate the patient requires further assessment for kidney or other diseases. A 12-lead ECG is recommended because high blood pressure puts patients at risk of developing myocardial infarction, left ventricular hypertrophy and subsequent heart failure. During the maintenance phase of hypertension management, electrolytes and creatinine should be repeated with a frequency reflecting the clinical situation.[1] Patients starting an ACEi or ARB should have close monitoring of potassium and serum creatinine to monitor for hyperkalemia and changes in renal function. Likewise, patients taking a thiazide diuretic should be monitored for hypokalemia and given a supplement if required, and patients taking potassium sparing diuretics should be monitored for hyperkalemia especially when used in combination with an ACEi or ARB. Fasting blood glucose can detect the abnormalities in glucose that may cause development of diabetes. Hemoglobin A1C is used to monitor effectiveness of antidiabetic treatment. High cholesterol requires treatment with a statin medication to reduce the risk of cardiovascular events.

If patients are unable to reach target blood pressures, they should be assessed for possible reasons for poor response. These can range from non-compliance with diet or medications to concomitant medications that cause hypertension to other reasons for secondary hypertension. Patients who are not controlled on three or more medications should be considered for referral to a nephrologist.

<u>Possible reasons for poor response</u>[1]
Non-compliance: diet or medications
NSAIDS, oral contraceptive pills, sex hormones, corticosteroids, anabolic steroids, sympathomimetics and decongestants, cocaine, amphetamines, erythropoietin, cyclosporine, tacrolimus, licorice, midodrine, MAOI, SSRI and SNRI
Dosage too low, inappropriate combinations

Obesity, smoking, alcohol consumption, sleep apnea, persistent pain, volume overload, excessive salt, renal sodium retention
Secondary hypertension: renal insufficiency, renovascular disease, primary hyperaldosteronism, hyperthyroidism, obstructive sleep apnea, other rare endocrine disease

Patient education

The focus of patient education is adherence, lifestyle modification and monitoring parameters such as postural hypotension or dizziness. Patients should understand the role of each medication and why management of hypertension is important for their overall health.

Key points for drug therapy[18]

Medication Class	Examples	Possible adverse effects
Thiazide diuretic	hydrochlorothiazide, chlorthalidione, indapamide	Hypokalemia, photosensitivity, GI upset. **Cautions:** Avoid in severe hepatic or renal disease. May precipitate gout in clients with history of gout
Loop diuretic	furosemide	Electroltye depletion, muscle cramps. **Caution:** need potassium rich foods/supplements with long term use. Monitor potassium closely when also on digoxin or potassium depleting steroids.
Potassium sparing diuretic	spironolactone, amiloride triamterene	Gynecomastia (breast development in men), fatigue, impotence. **Caution:** elevated potassium with clients with renal disease, or on NSAIDS, ACEi or ARB
ACEi	captopril , cilazapril, enalapril, fosinopril, lisinopril, quinipril, ramipril, perindopril, trandolapril	Cough, angioedema, leukopenia (low white blood cell count, loss of taste or metallic taste. **Caution** for all ACEi: Don't use in pregnancy, use with caution in renal insufficiency and may cause hypotension when used with diuretic. May need to discontinue or reduce diuretic 2-3 days prior starting this medication. A rise in serum creatinine after initiating an ACE is common, but acute kidney injury is possible especially in patients with renovascular disease.
ARB	candesartan, eprosartan, irbesartan, losartan, valsartan, telmisartan	Fatigue, dizziness, hyperkalemia. **Caution:** Don't use in pregnancy or in bilateral renal stenosis. A rise in serum creatinine after initiating an ARB is common, but acute kidney injury is possible especially in patients with renal stenosis. May cause hypotension when used with diuretic. May need to discontinue or reduce diuretic 2-3 days prior starting this medication. Advise patient to consult with MD.
Beta blocker	nadolol, sotalol, timolol	Bradycardia, masks hypoglycemia, fatigue, aggravate arterial insufficiency, bronchospasms, congestive heart failure. **Cautions:** Do not increase dose if heart rate is less than 45 beats per minute. Avoid or use with caution in asthmatics and type 1 diabetes; avoid in those with a heart block (Although beta blockers may rarely precipitate or worsen heart failure, research
Cardioselective beta blocker	acebutolol, atenolol, bisoprolol, metoprolol, propranolol	

		shows beneficial outcomes with the use of carvedilol, bisoprolol and metoprolol SR in those with heart failure.)
Alpha-beta blocker	carvedilol	
Non-dihydropyridine CCB	verapamil , diltiazem	Headaches,flushing, ankle swelling, lightheadedness, gingival hyperplasia, constipation. **Caution** with severe aortic stenosis/severe liver disease; with BB or digoxin may result in conduction disorders; Avoid grapefruit or grapefruit juice which may enhance effect.
Dihydropyridine CCB	amlodipine, felodipine, nifedipine	
Direct vasodilator	hydralazine, minoxidil	Increased hair growth, headache, angina in CAD clients, tachycardia, edema. **Cautions**: Avoid in mitral valve rheumatic fever (may→ drug induced lupus syndrome)
Alpha blocker	doxazosin, terazosin	Postural hypotension, dizziness, weakness, palpitations, headache. Since relaxes muscles in prostate and bladder may be used to treat pain of prostatis but should not be used in patients with prostate cancer or surgery, neurogenic bladder. Not recommended in severe renal or hepatic failure.
Central alpha agonists	clonidine (tablet, patch), methyldopa	Nasal congestion, drowsiness, dizziness, pruritis with the patch, dry mouth. **Cautions:** don't use in liver disease current or past; or with MAOI therapy. Clonidine – requires a slow withdrawal or rebound hypertension is possible. Methyldopa effectiveness is decreased with iron supplementation
Direct renin inhibitor	aliskiren	Aliskiren is no longer indicated for use in combination with ACE inhibitors or ARBs in Type 2 Diabetes (due to increases in non-fatal strokes, renal issues, hypotension and hyperkalemia).

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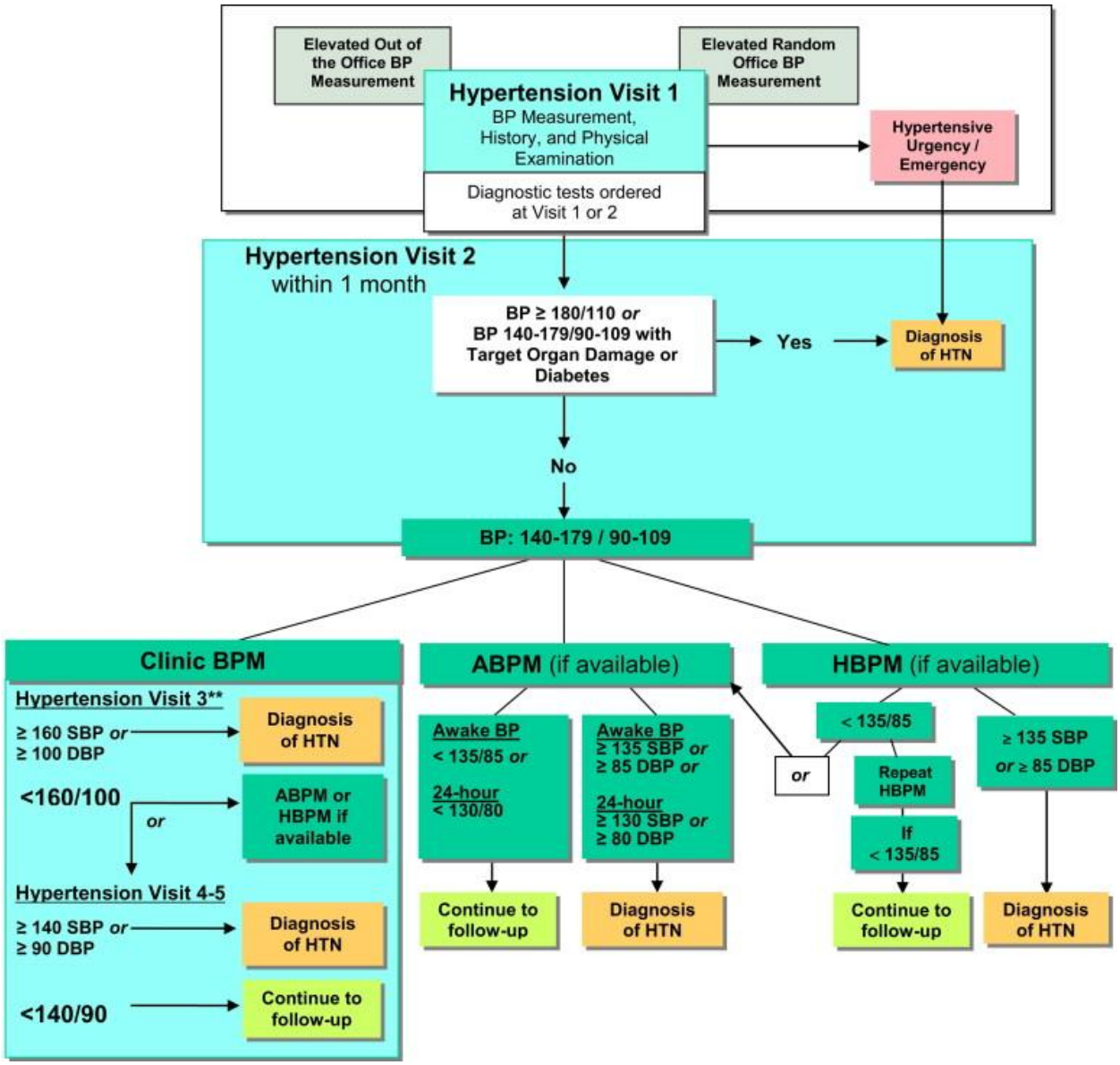
Appendix 1

Assessment and Diagnosis of Patients with Hypertension



Hackam D, Quinn R, Ravani P, et al. The 2013 Canadian Hypertension Education Program Recommendations for Blood Pressure Measurement, Diagnosis, Assessment of Risk, Prevention, and Treatment of Hypertension. Canadian Journal of Cardiology 2013; 29(5):528-542.

Appendix 2

Initial therapy	Thiazide, beta-blocker (if less than 60yrs), ACEi (except not in African American), long-acting CCB or ARB "Start low, go slow" Avoid hypokalemia with thiazide (supplemental potassium chloride if required)
Initial therapy but SBP more than 20mmHg or DBP more than 10mmHg above targets	Combination therapy with thiazide + ACEi, CCB, ARB or beta-blocker[8]
Adverse effects from initial therapy	Substitute with another first line agent (thiazide, beta-blocker, ACEi, long-acting CCB or ARB)
Uncontrolled with initial therapy, SBP 1-19mmHg or DBP 1-9mmHg above goal	Address compliance/adherence Combinations include: thiazide or CCB with ACEi, ARB or beta-blocker Caution diltiazem/verapamil with beta-blocker Do not use ACEi + ARB Consider other reasons for poor response
Uncontrolled with initial therapy, SBP more than 20mmHg or DBP more than 10mmHg above goal	Address compliance/adherence Add two more antihypertensive drugs
SBP and DBP below goal	Continue current regime

Margolis KL, Asche SE, Bergdall AR, et al. Effect of home blood pressure telemonitoring and pharmacist management on blood pressure control: a cluster randomized clinical trial. JAMA 2013; 310(1):46-56, online supplementary etable 1

Appendix 3

Individualization of therapy by comorbid conditions:

Coronary artery disease	ACEi/ARB, beta-blocker, ACEi + (amlodipine, nifedipine, felodipine)	
Recent MI	ACEi + beta-blocker (or ARB + beta-blocker)	if beta-blocker not tolerated or contraindicated use CCB
Heart failure	ACEi/ARB + beta-blocker + spironolactone and add thiazide or loop diuretic for volume control if can't tolerate ACEi or ARB, use hydralazine and isosorbide dinitrate	do not use verapamil or diltiazem
Diabetes	ACEi/ARB; amlodipine/nifedipine/felodipine, thiazide diuretic; combination ACEi/ARB + non-dihydropyridine CCB	ACEi/ARB especially if microvascular complications or macrovascular disease Suggest not using ACEi/ARB + thiazide
Stroke	24 hours after stroke ACEi + diuretic	
Left ventricle hypertrophy	ACEi/ARB, long-acting CCB, thiazide diuretic	do not use hydralazine or minoxidil
Non-diabetic chronic kidney disease	ACEi/ARB if proteinuria; add thiazide for antihypertensive effect ; add loop diuretic for volume control	Thiazides have very little diuretic effect
Renal artery stenosis		caution with ACEi/ARB in solitary kidney or bilateral disease due to risk of acute kidney injury

Adapted from: Hackam D, Quinn R, Ravani P, et al. The 2013 Canadian Hypertension Education Program Recommendations for Blood Pressure Measurement, Diagnosis, Assessment of Risk, Prevention, and Treatment of Hypertension. Canadian Journal of Cardiology 2013; 29(5):528-542.

Appendix 4

Home blood pressure monitoring form for patients

Hypertension CANADA

My Home Blood Pressure Log

My target home blood pressure is less than _____/_____ mm/Hg. I use my ☐ Right ☐ Left arm
Systolic / Diastolic

REST for 5 minutes before taking the first blood pressure reading (#1).
WAIT 1 minute before taking the second blood pressure reading (#2).
MEASURE before taking your blood pressure medication & before eating or 2 hours after eating.
TAKE your blood pressure 10 to 12 hours apart when doing AM & PM measurements.
READ "How to Measure Your Blood Pressure at Home" for more information about proper home blood pressure measurements techique at www.hypertension.ca
DISCARD the readings of the first day and do the average of the last 6 days.
BRING my log and my medications to every appointment with my health care professional.

SAMPLE

DATE		TIME	COMMENTS	Heart Rate (beats per minute)	BP Reading #1 (mmHg)		BP Reading #2 (mmHg)	
					Systolic	Diastolic	Systolic	Diastolic
June 15	Sample Morning	8:00 AM	Meds at 9 AM		138	82	135	80
	Sample Evening	8:00 PM	Upset		157	92	154	90
	Day 1 Morning							
	Day 1 Evening							
	Day 2 Morning							
	Day 2 Evening							
	Day 3 Morning							
	Day 3 Evening							
	Day 4 Morning							
	Day 4 Evening							
	Day 5 Morning							
	Day 5 Evening							
	Day 6 Morning							
	Day 6 Evening							
	Day 7 Morning							
	Day 7 Evening							
	Average							

DATE		TIME	COMMENTS	Heart Rate (beats per minute)	BP Reading #1 (mmHg)		BP Reading #2 (mmHg)	
					Systolic	Diastolic	Systolic	Diastolic
	Day 1 Morning							
	Day 1 Evening							
	Day 2 Morning							
	Day 2 Evening							
	Day 3 Morning							
	Day 3 Evening							
	Day 4 Morning							
	Day 4 Evening							
	Day 5 Morning							
	Day 5 Evening							
	Day 6 Morning							
	Day 6 Evening							
	Day 7 Morning							
	Day 7 Evening							
	Average							

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