

2005 Canadian Hypertension Education Program recommendations

New and important aspects of the sixth annual Canadian Hypertension Education Program's recommendations for management of hypertension

On behalf of the Evidence-Based Recommendations Task Force of the Canadian Hypertension Education Program

New key messages in the 2005 recommendations

Diagnosis of hypertension can be expedited as follows (Figure 1).

- *one visit:* hypertension diagnosed immediately in a hypertensive emergency or urgency;
- *two visits:* sustained blood pressure (BP) $\geq 180/110$ mm Hg or sustained BP $\geq 140/90$ mm Hg in the presence of diabetes, chronic kidney disease, or target organ damage;
- *three visits:* sustained BP $\geq 160/100$ mm Hg;
- *five visits:* sustained BP $\geq 140/90$ mm Hg;
- *home measurement or self-measurement:* duplicate home readings morning and evening for 1 week (excluding day 1) and blood pressure $\geq 135/85$ mm Hg; and
- *ambulatory BP monitoring:* average daytime pressure $\geq 135/85$ mm Hg or 24-hour average $\geq 130/80$ mm Hg.

Care must be taken to obtain accurate self-measurement and ambulatory BP readings using internationally validated equipment. Home and ambulatory readings should be initiated at or after the second visit. Hypertension is diagnosed if either systolic or diastolic BP is in the range for hypertension.

First-line therapy for hypertension without compelling indications for specific therapy (Table 1). Non-dihydropyridine calcium channel

blockers (verapamil, diltiazem) have been added to the list of first-line agents along with thiazide-type diuretics, beta-blockers for those younger than 60, angiotensin-converting enzyme inhibitors, dihydropyridine calcium channel blockers (eg, amlodipine), and angiotensin-receptor blockers.

Old but important considerations

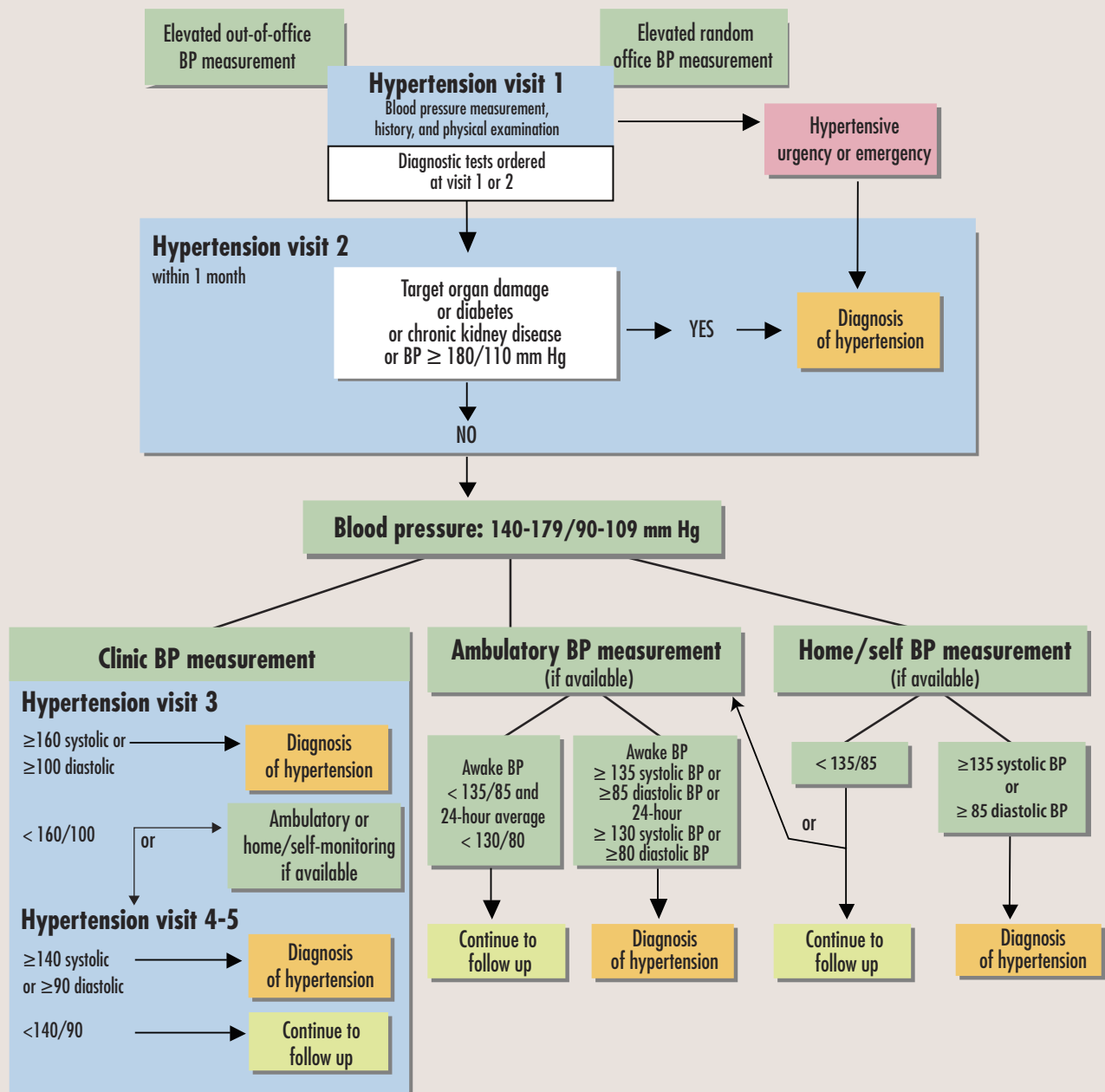
Assess and manage global cardiovascular risk.

More than 90% of hypertensive patients have other risk factors for cardiovascular disease that require assessment and management. Acetylsalicylic acid should be considered for controlled hypertensive patients. Statin-type drugs are recommended for hypertensive patients with established cardiovascular disease or three or more other cardiovascular risk factors, including age 55 or older and male sex.

Lifestyle modifications are the cornerstone of antihypertensive therapy. Efficacious lifestyle changes to reduce BP include:

- maintaining a diet low in salt and saturated fats and high in fresh fruit and vegetables and low-fat dairy products,
- between 30 and 60 minutes of moderately intense physical activity (such as brisk walking) 4 or more days a week,
- weight reduction for those who are overweight,
- reducing alcohol consumption for those who drink more than two standard drinks a day, and
- smoking cessation and a smoke-free environment to reduce risk of cardiovascular disease.

Figure 1. Expedited assessment and diagnosis of patients with hypertension: Focus on validated technologies for blood-pressure assessment



BP—blood pressure.

Table 1. Individualization of antihypertensive therapy

CONDITION	INITIAL THERAPY	SECOND-LINE THERAPY	NOTES AND CAUTIONS
Hypertension without other compelling indications	Thiazide diuretics, beta-blockers, ACE inhibitors, ARBs, or long-acting CCBs. Consider ASA and statins for certain patients	Combinations of first-line drugs	Alpha-blockers are not recommended as initial therapy. Beta-blockers are not recommended as initial therapy for those older than 60. To avoid hypokalemia, recommend potassium-sparing agents to those prescribed diuretics as monotherapy. ACE inhibitors are not recommended for black patients
Isolated systolic hypertension without other compelling indications	Thiazide diuretics, ARBs or long-acting dihydropyridine CCBs	Combinations of first-line drugs	To avoid hypokalemia, recommend potassium-sparing agents to those prescribed diuretics
Diabetes mellitus with nephropathy	ACE inhibitors or ARBs	Addition of thiazide diuretics, cardioselective beta-blockers, long-acting CCBs, or combine an ARB and an ACE inhibitor	If serum creatinine level is >150 µmol/L, a loop diuretic should replace low-dose thiazide diuretics if volume control is required
Diabetes mellitus without nephropathy	ACE inhibitors, ARBs, or thiazide diuretics	Combination of first-line drugs or addition of cardioselective beta-blockers or long-acting CCBs	
Angina	Beta-blockers (strongly consider adding ACE inhibitors)	Long-acting CCBs	Avoid short-acting nifedipine
Prior myocardial infarction	Beta-blockers and ACE inhibitors	Combinations of additional agents	
Heart failure	ACE inhibitors (ARBs if intolerant of ACE inhibitors), beta-blockers, and spironolactone	ARBs or hydralazine-isosorbide dinitrate (thiazide or loop diuretics, as additive therapy)	Avoid nondihydropyridine CCBs (diltiazem, verapamil)
Past cerebrovascular accident or TIA	ACE inhibitor and diuretic combinations		Reducing BP reduces recurrent cerebrovascular events
Renal disease	ACE inhibitors (diuretics as additive therapy)	Combinations of additional agents	Avoid ACE inhibitors if bilateral renal artery stenosis
Left ventricular hypertrophy	ACE inhibitors, ARBs, long-acting CCBs, diuretics, (beta-blockers for patients <60 y)		Avoid hydralazine and minoxidil
Peripheral arterial disease	Does not affect initial treatment recommendations	Does not affect initial treatment recommendations	Avoid beta-blockers in severe disease
Dyslipidemia	Does not affect initial treatment recommendations	Does not affect initial treatment recommendations	

ACE—angiotensin-converting enzyme, ARB—angiotensin II receptor blocker, ASA—acetylsalicylic acid, BP—blood pressure, CCB—calcium channel blocker, TIA—transient ischemic attack.

Combination therapy (both drug and lifestyle) is generally necessary to achieve target BP (Table 2). Most patients require more than one antihypertensive drug to achieve recommended BP targets. Combining lifestyle therapy with drug therapy reduces the number and doses of drugs required to achieve targets.

Table 2. Useful antihypertensive drug combinations: For added effect in dual therapy, combine an agent from column 1 with any agent from column 2.

COLUMN 1	COLUMN 2
Thiazide diuretic	Beta-blocker*
Long-acting calcium channel blocker*	Angiotensin-converting enzyme inhibitor
	Angiotensin II receptor blocker

*Use caution when combining a non-dihydropyridine calcium channel blocker with a beta-blocker.

Focus on adherence (Table 3).

- Assess adherence at each visit.
- Educate patients and their families, friends, and caregivers about hypertension and its treatment.
- Simplify medication and lifestyle therapies.
- Tailor pill-taking to patients' daily routines.

Treat to target (Table 4). Current recommended targets for reducing BP are:

- in general, <140 mm Hg systolic and 90 mm Hg diastolic, and
- for patients with diabetes or renal disease, <130 mm Hg systolic and <80 mm Hg diastolic.

Table 3. Recommendations for improving adherence to antihypertensive prescriptions: Use a multi-pronged approach.

Assess adherence to pharmacologic and nonpharmacologic therapy at every visit
Simplify medication regimens to once-daily dosing, and use electronic medication compliance aids
Tailor pill-taking to fit patients' daily habits
Encourage patients to take greater responsibility and have more autonomy in monitoring their blood pressure and adjusting their prescriptions
Coordinate with work-site health care providers to improve monitoring of adherence to pharmacologic and lifestyle modification prescriptions
Educate patients and their families about disease and treatment regimens

Table 4. Target values for blood pressure

CONDITION	TARGET (mm Hg)
Diastolic hypertension with or without systolic hypertension	<140/90
Isolated systolic hypertension	<140
Diabetes	<130/80
Renal disease	<130/80
Proteinuria >1 g/d	<125/75

Full 2005 recommendations can be viewed and downloaded from the Canadian Hypertension Society website at <http://www.hypertension.ca>.