GUIDELINES & PROTOCOLS
ADVISORY COMMITTEE

SUMMARY OF GUIDELINE

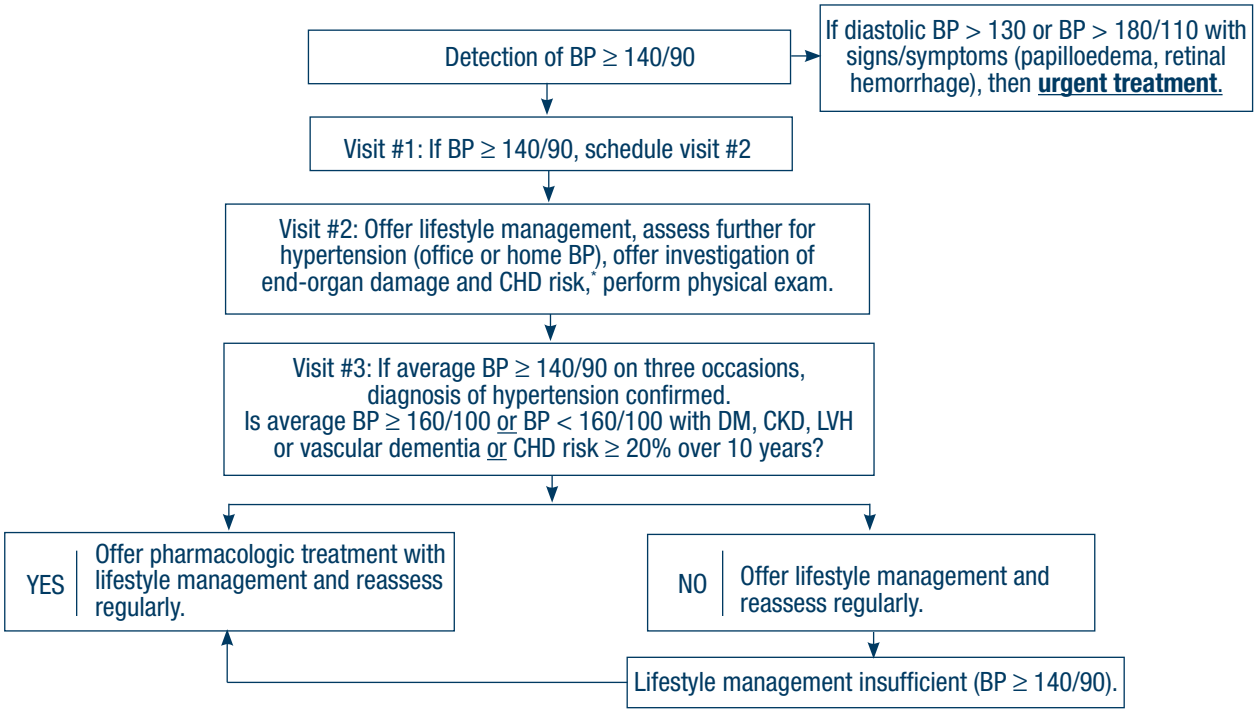
Guideline Effective Date: February 15, 2008

Hypertension – Detection, Diagnosis and Management

For full Guideline and Flow Sheet go to website: http://www.bcguidelines.ca

Detection and diagnosis

- Establish a baseline BP in all adults and reassess periodically depending on age and risk factors.
- BP monitoring should be rigorous with: known elevated BP, CV end organ damage (cerebrovascular disease, CHD, LVH, CKD, PVD, retinopathy), other risk factors, BP therapy.



* INVESTIGATIONS: Urinalysis; blood chemistry (potassium, sodium, creatinine/eGFR); FBG; lipids; ECG; microalbuminuria (albumin/creatinine ratio); Framingham risk assessment (10-year CHD risk) or UKPDS risk assessment if Type II diabetes.

Management: general principles

- Desirable BP readings: No co-morbid conditions, < 140/90; Diabetes, renal disease or other target organ damage, ≤ 130/80; isolated systolic hypertension, < 160.
- At each visit: Measure BP, reinforce healthy lifestyle, review knowledge of condition, ensure minimum dose of meds.
- Facilitate care using Flow Sheet and other CDM tools.
- At least annually: Consider risk factors, co-morbidities, target organ damage; check creatinine/ eGFR.

Lifestyle management

- Smoking cessation: Refer to QuitNow Services at 1(877)455-2233 or www.quitnow.ca.
- Physical activity: 30-60 minutes of moderate intensity aerobic exercise 4-7 days per week.
- Weight reduction: BMI 18.5-24.9 kg/m^2; waist circumference < 102 cm/40” for men and < 88 cm/35” for women (< 90 cm/35” for Asian men and < 80 cm/32” for Asian women).
- Diet: DASH = emphasize fruits, vegetables, low-fat dairy, fibre, whole grains, low saturated fats and cholesterol.
- Salt intake: ≤ 1,500 milligrams per day (1 teaspoon table salt).
- Alcohol consumption: ≤ 2 drinks/day; ≤ 14/week for men or ≤ 9/week for women.
- Potassium, calcium, magnesium: Supplementation not recommended.

Pharmacologic management

- Uncomplicated hypertension
  - ➤ BP of 140/90 to 160/100 and 10-year CHD risk < 20% (Table 1) use clinical judgment.
  - ➤ BP ≥ 160/100, pharmacologic treatment and lifestyle modification are recommended, even without other risk factors.

Over ➟

Table 1. Benefits of blood pessure lowering with medication in patients with mild hypertension

	CHD RISK/10 YEARS	MI PREVENTED/5 YEARS	NNT/5 YEARS
Male: age 55, non-smoker, SBP 140-159	12%	1.2/100 patients	83
Male: age 55, smoker, SBP 140-159	25%	2.5/100 patients	40
Female: age 55, non-smoker, SBP 140-159	4%	0.4/100 patients	250
Female: age 55, smoker, SBP 140-159	8%	0.8/100 patients	125

- First line: consider low-dose thiazide diuretic.
- If BP is not adequately controlled, add one or more of: ACEI, ARB if ACEI intolerant, long-acting DHP-CCB (for those at risk of or with a history of stroke).
- Consider low-dose ASA for ages 50-70 and Framingham risk score ≥ 20% (avoid if history of hemorrhagic stroke).

- Hypertension complicated by co-morbid conditions
  - Control co-morbid conditions optimally and choose antihypertensives with care.
  - First line treatment options (Table 2):

Table 2. First-line treatment of hypertension complicated by comorbid condtions

	INITIAL THERAPY	SECOND LINE THERAPY	NOTES AND/OR CAUTIONS
Cardiovascular disease			
CHD	ACEI for most; ß-blockers for stable angina.	Long-acting CCB	Avoid short-acting nifedipine.
MI	ACEI + ß-blocker.	ARB if ACEI intolerant and LV dysfunction is present; long-acting CCB if ß-blocker contraindicated or ineffective.	Avoid non-DHP CCB if HF present.
LVH	Thiazide diuretic; ACEI; long-acting CCB.	ARB if ACEI intolerant.	Avoid arterial vasodilators, e.g., hydralazine, minoxidil.
HF	ACEI + ß-blocker; aldosterone antagonist in selected patients.	ARB if ACEI intolerant; hydralazine/ isosorbide dinitrate if ACEI and ARB intolerant; if BP not controlled, add ARB to ACEI ± thiazide or loop diuretics ± long-acting DHP-CCB.	If combining ACEI + ARB, monitor for AEs, e.g., hypotension, hyperkalemia, worsening renal function. Avoid ß-blockers with bradycardia.
Cerebro-vascular disease	ACEI + thiazide diuretic.	Long-acting CCB.	Use caution lowering BP in acute stroke situation; choose drugs & their route carefully to avoid precipitous BP falls.
Non-diabetic CKD			
Non-diabetic CKD	ACEI if proteinuria (urinary protein > 500 mg/24 hrs or ACR > 30).	ARB if ACEI intolerant; thiazide as additive therapy; loop diuretic for volume overload.	Avoid ACEI and ARB if bilateral renal artery stenosis or unilateral disease with solitary kidney.
Renovascular disease	Thiazide diuretic; ACEI; long-acting CCB.	ARB if ACEI intolerant; combination of first-line medications.	Avoid ACEI and ARB if bilateral renal artery stenosis or unilateral disease with solitary kidney.
Diabetes mellitus			
DM with albuminuria	ACEI	ARB if ACEI intolerant + additional hypertensive agents to achieve target BP.	--
DM without albuminuria	Thiazide diuretic; ACEI; DHP-CCB.	ARB if ACEI intolerant; if not tolerated, use a non-DHP CCB.	--

Note: Table adapted from 2007 Canadian Hypertension Education Program recommendations at www.hypertension.ca/chep

Contraindications to antihypertensive medications

- Contraindications:
  - Asthma: ß-blockers.
  - 2° or 3° heart block: ß-blockers & non-DHP CCBs.
- Relative contraindications:
  - COPD: ß-blockers.
  - Gout: Thiazide diuretics.
  - Heart failure: Non-DHP CCBs, alpha-blockers.
  - Renal insufficiency: Potassium-sparing agents.
  - Depression: ß-blockers, central alpha agonists, reserpine.