

## 2007 Canadian Hypertension Education Program Recommendations: The Short Clinical Summary - An Annual Update

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Program

### On behalf of the Canadian Hypertension Education Program

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A version of the hypertension recommendations designed for patient and public education has been developed to assist health care practitioners manage hypertension. The summary is available electronically at [www.hypertension.ca](http://www.hypertension.ca) and [www.heartandstroke.ca](http://www.heartandstroke.ca). Bulk orders of 25 or more copies can be obtained by contacting Megan Smith, Blood Pressure Canada coordinator at [hyperten@ucalgary.ca](mailto:hyperten@ucalgary.ca).

2007 marks the eighth consecutive year that the Canadian Hypertension Education Program has updated recommendations for the management of hypertension. This year we have focused on the need to assess blood pressure in all Canadian adults and to regularly assess blood pressure in those with high normal values. In addition, the 2007 recommendations support the increasing evidence that hypertension can be prevented through public health interventions to reduce dietary sodium.

**The new key messages identified in the 2007 Recommendations are:**

- *Adults with high normal blood pressure require annual blood pressure assessment.* 1 in 5 adult Canadians have high normal blood pressure (130-139/85-89 mmHg). Of those who are overweight and have high normal blood pressure, 40% will develop hypertension within 2 years and 60% will develop hypertension within 4 years. Therefore, annual or more frequent assessment of blood pressure and appropriate lifestyle interventions to prevent hypertension are recommended for those with high normal blood pressure.
- *Reducing sodium in the diet of Canadians.* Excess dietary sodium is a significant cause of hypertension. Patients and the general public need to be educated to select foods low in sodium (to aim for a sodium intake of less than 100 mmol/day) and the food sector needs to reduce the sodium content of food either voluntarily or by regulation.

**Other important recommendations for the management of the patient with hypertension:**

- *All Canadian adults need to have blood pressure assessed at all appropriate clinical visits.* Blood pressure increases with age such that 50% of Canadians over age 65 have hypertension. For those with normal blood pressure at age 65, over 90% will develop hypertension within their lifespan. To identify those with hypertension all adults require ongoing assessment of blood pressure throughout their lives.
- *Optimum management requires assessment of overall cardiovascular risk.* Over 90% of Canadians with hypertension have other cardiovascular risks. Identifying and managing risk factors beyond hypertension can reduce the overall risk of cardiovascular disease by over 60% and can alter the blood pressure target (Table 1) and specific classes of antihypertensive medications recommended (Table 2).
- *Lifestyle modifications are effective in reducing blood pressure and cardiovascular risk.* Hypertension can be prevented, blood pressure can be reduced and other cardiovascular risks are favorably impacted by a healthy diet, regular physical activity, moderation in alcohol, reductions in dietary sodium and in some, stress reduction (Table 3). Simple and brief health care professional interventions markedly increase the probability of a patient adhering to lifestyle changes.
- *Treat patients to the recommended targets to achieve optimum cardiovascular risk reduction.* Greater reduction in cardiovascular disease is achieved by lowering the blood pressure to the stated targets (Table 1).
- *Combinations of therapies (both drug and lifestyle) are generally necessary to achieve target blood pressures.* Most patients require more than one antihypertensive drug and lifestyle changes to achieve recommended blood pressure targets. When using two drugs to lower blood pressure combinations of a beta blocker, ACE inhibitor or angiotensin receptor blocker produce less than additive hypotensive effect.
- *Monitor patients whose blood pressure is above target at least every 2 months.* To achieve blood pressure control, follow-up at short intervals is required to both improve patient adherence and increase the intensity of treatment.
- *Focus on adherence.* Non-adherence to therapy is one of the most important challenges to improving blood pressure control. Adherence to therapy should be assessed at each visit and specific interventions can improve adherence to therapy (Table 4).

**Table 1: Target Values for Blood Pressure\***

| <b><u>Condition</u></b>           | <b><u>Target (SBP/DBP mmHg)</u></b> |
|-----------------------------------|-------------------------------------|
| Diastolic ± systolic hypertension | <140/90                             |
| Isolated systolic hypertension    | <140                                |
| Diabetes                          | <130/80                             |
| Chronic kidney disease            | <130/80                             |

\* It is recommended that normotensive adults with established cardiovascular disease be treated with an ACE inhibitor. Normotensive adults who have had a stroke or TIA should be treated with an ACE inhibitor and a diuretic.

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**Table 2: Considerations in the Individualization of Antihypertensive Therapy**

ACE Angiotensin-converting enzyme; TIA transient ischemic attack; ARB angiotensin II receptor blocker

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|   | <i>Initial therapy</i>  | <i>Second-line therapy</i>  | <i>Notes and/or Cautions</i>  |
|---|---|---|---|
| <b>HYPERTENSION WITHOUT OTHER COMPELLING INDICATIONS</b>            |   |   |   |
| Diastolic+/- Systolic Hypertension                                  | Thiazide diuretics, beta blockers, ACE-inhibitors, ARBs, or long-acting calcium channel blockers (consider ASA and statins in selected patients)                  | Combinations of first-line drugs  | Beta-blockers are not recommended as initial therapy in those over 60 years of age. Hypokalemia should be avoided by using potassium-sparing agents in those who are prescribed diuretics as monotherapy. ACE inhibitors are not recommended in blacks. ACE inhibitors and ARBs are teratogenic and marked caution is required if prescribing to women of child bearing potential . |
| Isolated systolic hypertension without other compelling indications | Thiazide diuretics, ARBs or long-acting dihydropyridine calcium channel blockers.   | Combinations of first-line drugs  | Same as diastolic+/- systolic Hypertension  |
| <b>DIABETES MELLITUS</b>  |   |   |   |
| Diabetes mellitus with nephropathy                                  | ACE inhibitors or ARBs  | Addition of thiazide diuretics, cardioselective beta-blockers, long-acting calcium channel blockers or use an ARB/ACEI combination  | If the serum creatinine level is >150 µmol/L, a loop diuretic should be used as a replacement for low-dose thiazide diuretics if volume control is required   |
| Diabetes mellitus without nephropathy                               | ACE inhibitors, ARBs, dihydropyridine CCBs or thiazide diuretics  | Combination of first-line drugs or if first line agents are not tolerated addition of cardioselective beta-blockers and/or long-acting non dihydropyridine calcium channel blockers | Albumin to creatinine ratio [ACR] < 2.0 mg/mmol in men and < 2.8 mg/mmol in women   |
| <b>CARDIOVASCULAR AND CEREBROVASCULAR DISEASE</b>                   |   |   |   |
| Angina  | Beta-blockers. ACE inhibitors except in low risk revascularized patients  | Long-acting calcium channel blockers  | Avoid short-acting nifedipine   |
| Prior myocardial infarction   | Beta-blockers and ACE inhibitors (ARBs if ACEI- intolerant)   | Long-acting calcium channel blockers  |   |
| Heart failure   | ACE inhibitors (ARBs if ACEI-intolerant), beta-blockers and spironolactone  | ARBs or hydralazine/isosorbide dinitrate (thiazide or loop diuretics, as additive therapy)  | Avoid nondihydropyridine calcium channel blockers (diltiazem, verapamil). Monitor potassium and renal function if combining and ACE inhibitor and ARB.  |
| Left ventricular hypertrophy  | ACE inhibitors, ARBs, dihydropyridine calcium channel blockers, diuretics, (beta-blockers for patients under 55 years)  |   | Avoid hydralazine and minoxidil   |
| Past cerebrovascular accident or TIA                                | ACE inhibitor/diuretic combinations   |   | This does not apply to acute stroke. Blood pressure reduction reduces recurrent cerebrovascular events in patients with stable past cerebrovascular disease.  |
| <b>NON DIABETIC CHRONIC KIDNEY DISEASE</b>                          |   |   |   |
| Non diabetic chronic kidney disease with proteinuria                | ACE inhibitors (ARBs if ACEI-intolerant) diuretics as additive therapy  | Combinations of additional agents   | Avoid ACE inhibitors or ARB if bilateral renal artery stenosis or unilateral disease with solitary kidney. Patients placed on an ACE inhibitor or an ARB should have their serum creatinine and potassium carefully monitored.  |
| Renovascular disease  | Similar to diastolic +/- systolic hypertension without compelling indications for other medications   |   | Avoid ACE inhibitors or ARB if bilateral renal artery stenosis or unilateral disease with solitary kidney.  |
| <b>OTHER CONDITIONS</b>   |   |   |   |
| Peripheral arterial disease   | Does not affect initial treatment recommendations   | Does not affect initial treatment recommendations   | Avoid beta-blockers with severe disease   |
| Dyslipidemia  | Does not affect initial treatment recommendations   | Does not affect initial treatment recommendations   |   |
| Global vascular protection  | Statin therapy for patients with 3 or more cardiovascular risk factors or with atherosclerotic disease<br>Low dose ASA in patients with controlled blood pressure |   | Caution should be exercised if blood pressure is not controlled.  |

**Table 3: Lifestyle therapy to reduce the possibility of becoming hypertensive and to reduce blood pressure and to reduce the risk of blood pressure-related cardiovascular complications in hypertensive patients**

1. Healthy diet: high in fresh fruits, vegetables low fat dairy products, dietary and soluble fibre, whole grains and protein from plant sources, low in saturated fat, cholesterol and salt in accordance with Canada's Guide to Healthy Eating
2. Regular physical activity: accumulation of 30-60 minutes of moderate intensity dynamic exercise 4-7 days per week
3. Low risk alcohol consumption ( $\leq 2$  standard drinks/day and less than 14/week for men and less than 9/week for women)
4. Attaining and maintaining ideal body weight (BMI 18.5-24.9 kg/m<sup>2</sup>)
5. A waist circumference  
    < 102 cm for men  
    < 88 cm for women
6. Reduction in sodium intake to less than 100 mmol/day
7. A smoke free environment

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#### **Table 4: Strategies to Improve Adherence**

Adherence can be improved by a multi-pronged approach:

1. Adherence to pharmacological and nonpharmacological therapy should be assessed at every visit
2. Simplify medication regimens using once daily dosing of long acting medications, combination tablets and utilizing medication compliance aids
3. Tailor pill-taking to fit patients' daily habits
4. Encourage greater patient responsibility by encouraging monitoring home blood pressure
5. Coordinate with chronic disease management programs to improve monitoring of adherence with pharmacological and lifestyle modification prescriptions
6. Educate patients and patients' families about hypertension and its treatment

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