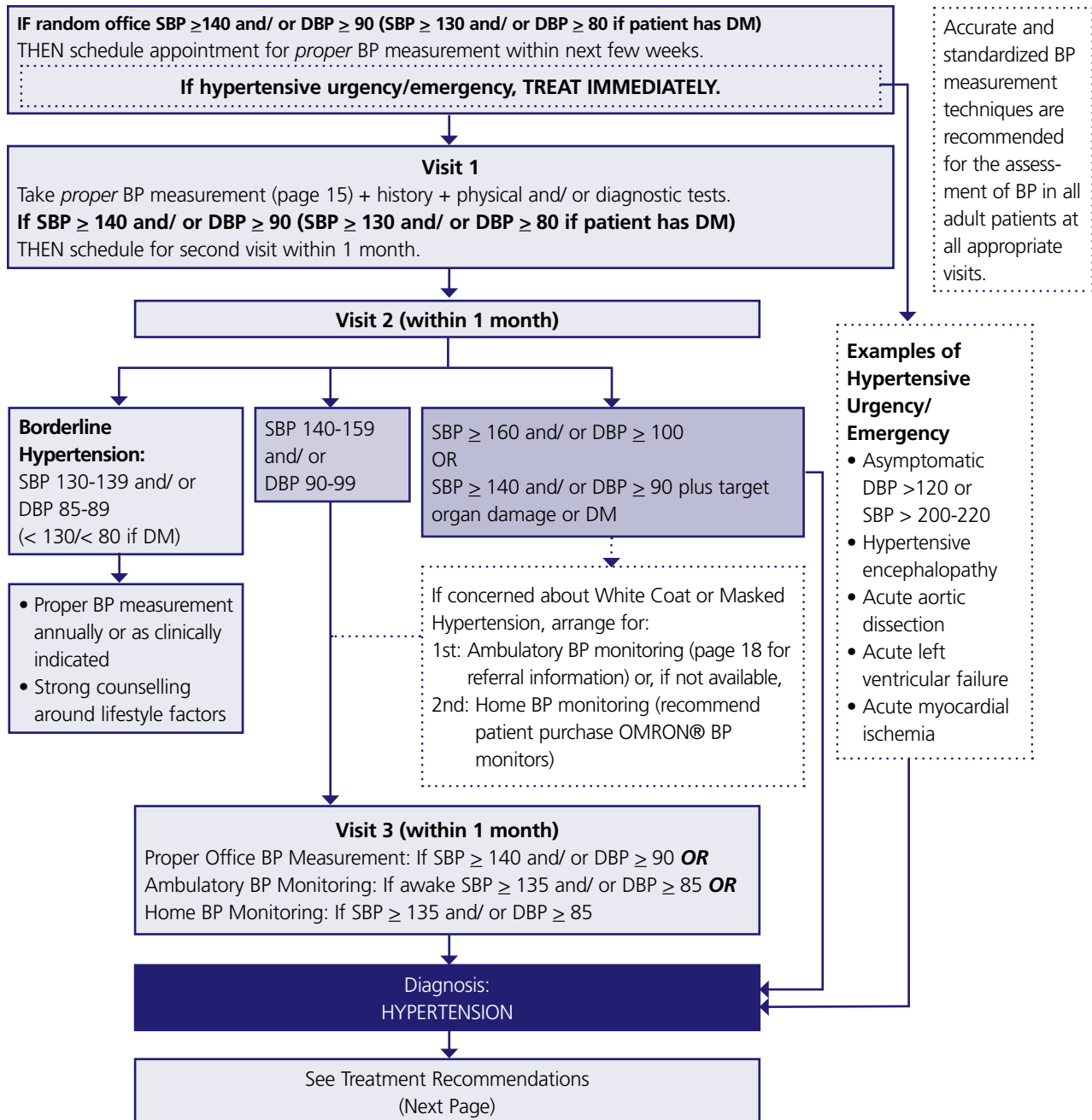




HYPERTENSION

DIAGNOSIS OF HYPERTENSION

Source: Adapted from: Canadian Hypertension Education Program (CHEP). Recommendations for the Management of Hypertension 2011 (www.hypertension.ca)



BP = Blood Pressure

CKD = Chronic Kidney Disease

DBP = Diastolic Blood Pressure

DM = Diabetes Mellitus

SBP = Systolic Blood Pressure



TREATMENT OF HYPERTENSION

Source: Adapted from the Canadian Hypertension Education Program (CHEP). Recommendations for the Management of Hypertension 2006, 2009 and 2012 ^{7,15}

KEY CONSIDERATIONS:

- Consider associated CVD risk factors when making treatment decision.
- Treat to target (<140/90 mmHg; <130/80 mmHg in patients with Diabetes).
- To achieve targets, sustained lifestyle modification plus medication is usually required – add second or third medications if necessary.
- Strategies to improve patient adherence to lifestyle modifications and antihypertensive therapy need to be incorporated in every patient’s management.

Lifestyle modification is the cornerstone for the prevention and management of hypertension and CVD.

All patients: Lifestyle counselling

- **Smoke-free environment**
- **Achieve a healthy weight:** BMI: 18.5 - 24.9 kg/m²
 - In those with BMI ≥25, start with weight loss target of 5% of body weight
 - Waist circumference: <102 cm in men, <88 cm for women (see page 10 for ethnic variations in cut-offs)
- **Engage in regular physical activity:** 30 (up to 60) minutes of moderate intensity activity 4 - 6 days/ week
- **Sodium:** <100 mmol/day (2300 mg or <1 teaspoon/ day) (See page 22 for a list of resources to assist patients to reduce sodium in their diet).
- **Adopt healthy eating habits:** high in fresh and frozen fruits and vegetables, low fat dairy products, dietary and soluble fibre, whole grains and proteins from plant sources, low in saturated fat/ cholesterol in accordance with Healthy Eating with Canada’s Food Guide
- Use the DASH diet to guide food choices (<http://dashdiet.org/>)
- **Alcohol:** in moderation (<2 drinks/ day); maximum 14 drinks/ week for men; maximum 9 drinks/ week for women
- **Stress reduction**

When considering choice of first line therapy:

- ACEI and ARBs are contraindicated in pregnancy; caution required in prescribing to women of child bearing potential
- ACEIs are not recommended as monotherapy for black patients *without another compelling indication*
- Beta blockers are not recommended for older patients without another compelling indication
- Use potassium sparing agents to avoid diuretic-induced hypokalemia
- Dual RAS blockade (ACEI Inhibitor + ARB) is generally not recommended

If co-morbid condition present

- Coronary Artery Disease (CAD)
- Diabetes Mellitus
- Chronic Kidney Disease (CKD)
- TIA/ Ischemic Stroke
- Non-diabetic CKD with proteinuria

include ACEI or ARB as part of treatment strategy

Based on patient’s age, consider the following strategy:

For patients <55 years

1. Low-dose beta blocker or ACEI (ARB if ACEI not tolerated)
2. Add diuretic and/ or long-acting CCB if necessary
3. Triple therapy eg: diuretic + ACEI/ ARB + long-acting CCB

Follow every few weeks until target BP achieved then every few months

For patients >55 years

1. Diuretic or long-acting CCB
2. Add alternative from (1) or ACEI (or ARB if ACEI not tolerated)

Follow every few weeks until target BP achieved then every few months

If >79 years

Individualize treatment strategy: Plan a gradual lowering of BP to target and be concerned about orthostatic hypotension.

Follow-up Assessment:

- Assess adherence to treatment with every visit (more detail page 13)
- Where possible, simplify treatment regimes by using once daily dosing or fixed-dose combinations
- Behaviour modification: teach patients to take their pills on a regular schedule associated with a routine daily activity (e.g., brushing teeth)

Encourage self-management:

- Home BP monitoring: recommend Omron® monitors

Refer to Hypertension Clinic or specialist with interest in hypertension:

- If patients require more than 3 medications to control BP
- If there are persistent side effects
- Or if unable to control the hypertension



SUPPLEMENTAL INFORMATION

Source: Adapted from the Canadian Hypertension Education Program (CHEP). Recommendations for the Management of Hypertension 2006 and 2009^{7,15}

RECOMMENDED TECHNIQUE FOR OFFICE BLOOD PRESSURE (BP) MEASUREMENT

- Measurements should be taken with a sphygmomanometer known to be accurate.
- Automated office blood pressure measurements (e.g. BpTRU) can be used in the assessment of office blood pressure.
 - When using automated office oscillometric devices such as the BpTRU, the patient should be seated in a quiet room. With the device set to take measures at 1 or 2 minute intervals, the first measurement is taken by a health professional to verify cuff position and validity of the measurement. The patient is left alone after the first measurement while the device automatically takes subsequent readings. The BpTRU automatically discards the first measure and averages the next 5 measures. 2011 CHEP recommendations
- Automated office SBP ≥ 135 or DBP ≥ 85 should be considered analogous to mean awake ambulatory SBP ≥ 135 and DBP ≥ 85 .
- Choose a cuff with an appropriate bladder width matched to the size of the arm.

Arm Circumference	Size of Cuff
18 – 26 cm	Child Model
26 – 33 cm	Standard Adult
33 – 41 cm	Large
41 – 47 cm	Extra Large
>47 cm	Thigh Cuff

- Place the cuff so that the lower edge is 3 cm above the elbow crease and the bladder is centered over the brachial artery.
- Have the patient *rest comfortably and quietly for 5 minutes in the seated position with back supported, legs uncrossed, arm bare, and ensure patient does not talk during BP measurement.*
- When first assessing blood pressure, take the blood pressure in both arms.
 - For follow up blood pressure measurements, use the arm with the highest readings.
- Take at least 2 measurements on the same arm.
- Increase the pressure rapidly to 30 mmHg above the level at which the radial pulse is extinguished.
- Place stethoscope over the brachial artery.
- Deflate the cuff at the approximate rate of 2 mmHg per heart beat.
- Read the systolic level (the first appearance of a clear tapping sound) and the diastolic level (the point at which the sounds disappear).
- Continue to auscultate at least 10 mmHg below phase V to exclude a diastolic auscultatory gap.
- Document:
 - BP to closest 2 mmHg on the manometer
 - Arm used
 - Patient position (sitting, standing, supine)
 - Heart rate

HOME BP MONITORING: ADVISE YOUR PATIENTS ON CORRECT TECHNIQUE www.heartandstroke.ca

To prepare to take your blood pressure:

- Wait at least 2 hours after a big meal or heavy physical activity
- Do not exercise, smoke, or drink coffee, tea or cola (any drink containing caffeine) 30 minutes before
- Do not measure your blood pressure when you are upset or in pain
- Be in a calm, warm environment
- Empty your bladder or bowel
- Sit quietly and calmly for 5 minutes with your back against a firm surface and your arm supported on a table or firm surface with the cuff at heart level.



When taking your blood pressure:

- Do not speak
- Be seated
- Keep your back supported
- Keep your legs uncrossed and both feet flat on the floor
- Ensure your arm is supported
- Place the cuff on your bare arm, 3 cm (1½ in) above your elbow, at heart level

Target home blood pressure measurement: <135/85

VALIDATED QUESTION TO ASSESS HYPERTENSIVE MEDICATION ADHERENCE ¹⁶

If you are currently on treatment with drugs to lower your blood pressure, tick one of the following statements which most accurately describes you:

- I take my blood pressure pills every day regularly. I never forget to take them.
- I take my blood pressure pills almost every day. Occasionally I forget.
- Sometimes I either forget or decide not to take my blood pressure pills, for short periods of time (days).
- I frequently forget or decide not to take my blood pressure pills for extended periods of time (weeks or months).

STRATEGIES TO ENHANCE ADHERENCE TO TREATMENT

Simplify treatment regimens:

- Use long-acting, once daily medications
- Use fixed-dose, combination regimes
- Use unit-of-use packaging

Refer to Appendix C for patient education strategies around medication adherence

IMPACT OF LIFESTYLE INTERVENTIONS ON BLOOD PRESSURE IN ADULTS

Lifestyle Risk Factor	Recommendations	Impact on Systolic/ Diastolic Blood Pressure (mmHg)
Physical Activity	Moderate exercise 3 or more times per week, at least 30 minutes at a time; or daily activity in 10-minute segments every day	↓10.3 / ↓7.5
Weight	A loss of 4.5 kg/10 lbs of total weight	↓7.2 / ↓5.9
Dietary Patterns	Follow the DASH diet	↓11.4 / ↓5.5
Sodium Intake	No more than 1 tsp salt per day (2300 mg of sodium)	↓5.8 / ↓2.5
Alcohol Intake	Limit your alcohol intake to 1-2 drinks a day to a weekly maximum of 14 drinks for men & 9 drinks for women	↓4.6 / ↓2.3



COMMUNITY RESOURCES - HYPERTENSION

SPECIALTY CLINICS/PROGRAMS:

Clinic/Program: **Hypertension Clinic**

University of Ottawa Heart Institute
40 Ruskin Street, Ottawa, ON K1Y 4W7
Tel: 613-761-5429 Fax: 613-761-4858
Email: bpclinic@ottawaheart.ca

Description: The Hypertension Clinic has been operating at the University of Ottawa Heart Institute for the past 15 years under the directorship of Dr. Frans Leenen. Dr. Leenen is a cardiologist and a certified hypertension specialist. Dr. Marcel Ruzicka joined the unit in 2001; Dr. Ruzicka is a nephrologist and a certified hypertension specialist. The Hypertension Clinic works on a referral-basis from family doctors and other specialists.

Appropriate for: Patients who require assessment and management of hypertension.

Hours: Mon to Thurs: 9:00 a.m. – 5:00 p.m.

Language: English, French, also accepts Quebec patients.

Cost: N/A

Referral: Physician referral required.

To refer, fax the referral form along with the following information: patient name and demographics, copies of any recent tests, most recent blood pressure, family physician name and billing #. Fax referral to clinic and inform patient that clinic will contact them with appointment.

Clinic/Program: **Renal Hypertension Clinic**

Ottawa Hospital, Riverside Campus
1967 Riverside Dr., Ottawa, ON K1H 7W9
Tel: 613-738-8207 Fax: 613-738-8337

Appropriate for: Patients who require assessment and management of hypertension; specifically those with renal disease or diabetes.

Hours: Mon to Fri: 7:30 a.m. – 5:00 p.m.

Language: English & French

Cost: N/A

Referral: Physician offices can fax referrals to (613)738-8384. All referrals are promptly triaged by a nephrologist and patients are seen according to the urgency of the situation

**Clinic/Program: Ottawa Cardiovascular Centre**

502-1355 Bank Street, Ottawa, ON K1H 8K7
Tel: 613-738-1584 Fax: 613-738-9097
E-mail: admin@ottawacvcentre.com

Ottawa Cardiovascular Centre (East)

204-595 Montreal Rd., Ottawa, ON K1K 4L2
Tel: 613-749-5421 Fax: 613-749-6621
E-mail: admin@ottawacvcentre.com
Director: Dr. Joel Niznick
Administrative Manager: May Moloughney

Description: Prompt access to comprehensive cardiovascular consultation, diagnosis, and follow up care.

Appropriate for: Patients who require assessment and management of hypertension and hyperlipidemia

Hours: Mon to Fri: 8:30 a.m. - 4:30 p.m. with telephones answered from 9:00 a.m. - 12:00 p.m. and 1:00 p.m. - 4:00 p.m.

Language: English, French

Cost: N/A

Referral: Use referral form: http://www.ottawacvcentre.com/OCC_Requisition_Form.pdf

REFERRING PATIENTS FOR 24-HOUR BLOOD PRESSURE MONITORING:

The 24-hour blood pressure monitor is an excellent diagnostic tool that assists physicians in determining the patient's blood pressure in normal daily life. This blood pressure monitor is put on and is worn for 24 hours. The machine automatically takes the blood pressure every 20 minutes from 6:00 a.m. to 10:00 p.m. and hourly from 10:00 p.m. to 6:00 a.m. The patient is asked to keep a diary detailing time at work, time of meals, medication, type and time of activities, and times when one has felt under stress. The monitor is returned to the Unit and is read by the attending physician.

Clinic/Program: Hypertension Clinic

University of Ottawa Heart Institute
40 Ruskin Street, Ottawa, ON K1Y 4W7
Tel: 613-761-5429 Fax: 613-761-4858
Email: bpclinic@ottawaheart.ca
Administrative Contact: Bonnie O'Connor

Appropriate for: UOHI patients as well as for patients referred from their doctor's office

Hours: See Hypertension Clinic hours

Language: English, French, also accepts Quebec patients.

Cost: \$100.00 (cash or cheque); may be waived depending on individual circumstances

Referral: Fax referral to clinic and inform patient that clinic will contact them with appointment.



Clinic/Program: [Ottawa Cardiovascular Centre](#)
502-1355 Bank Street, Ottawa, ON K1H 8K7
Tel: 613-738-1584 Fax: 613-738-9097
E-mail: admin@ottawacvcentre.com

Ottawa Cardiovascular Centre (East)
204-595 Montreal Road, Ottawa, ON K1K 4L2
Tel: 613-749-5421 Fax: 613-749-6621
E-mail: admin@ottawacvcentre.com

Description: Assessment and management of hypertension including the use of ambulatory BP monitoring

Appropriate for: Ambulatory patients referred from their doctor's office

Hours: Mon to Fri: 8:30 a.m. – 4:30 p.m.

Language: English, French

Cost: \$100.00

Referral: Download referral form: www.ottawacvcentre.com/OCC_Requisition_Form.pdf. Fax to either location and inform patient that clinic will contact them with appointment.

Clinic/Program: [Ambulatory Clinic – Pembroke Regional Hospital](#)
705 Mackay Street, Pembroke, ON K8A 1G8 (Tower C)
Tel: 613-732-3675 ext. 6167 Fax: 613-732-9986

Appropriate for: Ambulatory patients referred from their doctor's office

Hours: Mon to Fri: 7:30 a.m. – 4:30 p.m.

Language: English, French

Cost: No cost

Referral: Fax referral to clinic and inform patient that clinic will contact the physician with appointment.

Clinic/Program: [Ambulatory Clinic – Cornwall Cardio-Diagnostic Service](#)
820 McConnell, Room 109, Cornwall, ON K6H 4M4
Tel: 613-933-3572 Fax: 613-933-5320

Description: Outpatient cardiac diagnostic services (Directors: Dr. DeYoung, Dr. Baitz)

Appropriate for: Ambulatory patients referred from their doctor's office

Hours: Mon to Fri: 8:00 a.m. – 4:00 p.m. (closed between 12:00 p.m. - 1:00 p.m.; closes at 2:45 p.m. on Fridays)

Language: English

Cost: \$60.00 (cash or cheque only)

Referral: Fax referral form to clinic and contact clinic for appointment.



Clinic/Program: **Ambulatory Clinic – Hawkesbury & District General Hospital**
1111 Ghislain Street, Hawkesbury, ON K6A 3G5 (Located in the ECG department)
Tel: 613-632-1111 ext. 389 or 1-800-790-8870 ext. 5 Fax: 613-636-6183

Appropriate for: Patients referred from their doctor's office

Hours: Mon to Fri: 8:00 a.m. - 3:30 p.m.

Language: English, French

Cost: \$20.00 (cash or cheque)

Referral: Fax referral and contact ECG department to book appointment.

Clinic/Program: **Ambulatory Clinic – Deep River and District Hospital**
117 Banting Drive, Deep River, ON (Located in Laboratory Services)
Tel: 613-584-1266 ext. 163 Fax: 613-584-3145

Appropriate for: Patients referred from their doctor's office

Hours: Mon to Thurs: 7:30 a.m. – 12:00 p.m. and 4:00 p.m. – 6:00 p.m.
Fri: 7:30 a.m. – 12:00 p.m.

Language: English

Cost: No cost

Referral: Fax referral to Laboratory Services and contact ext. 163 to book appointment time.

Clinic/Program: **Ambulatory Clinic – Renfrew Victoria Hospital**
499 Raglan Street North, Renfrew, ON K7V 1P6 (Located in Ambulatory Clinics)
Tel: 613-432-4851 ext. 832 Fax: 613-433-5723

Appropriate for: Patients referred from their doctor's office

Hours: Mon to Fri: 8:00 a.m. – 4:00 p.m.

Language: English

Cost: \$40.00

Referral: Physician's office to call for appointment. Ensure that contact information is provided so that results can be mailed to office.



COMMUNITY-BASED PROGRAMS:

Clinic/Program: Blood Pressure/ Wellness Clinic
Somerset West Community Health Centre (CHC)
55 Eccles Street, Ottawa, ON K1R 6S3
Tel: 613-238-8210 ext. 2351 Fax: 613-235-2982
Check website for schedule updates: www.swchc.on.ca

Contact: Ginette Drouin

Description: Blood pressure checks in seniors' building and/ or at community health centres

Appropriate for: Seniors

Hours: BP Checks for Seniors:
1st Tues of the month: 100 Empress, 9:30 a.m. - 11:30 a.m.
3rd Wed of the month: 762 Somerset St. W., 11:00 a.m. - 12:00 p.m.
3rd Wed of the month rotates among: 1041 Wellington St., 865 Gladstone St.,
280 Rochester St. 1:30 p.m. - 3:30 p.m.
3rd Wed of the month: 865 Gladstone, 1:30 p.m. - 3:30 p.m.
2nd Thurs of the month: 10 Balsam (Italian Club), 1:00 p.m. - 2:00 p.m.
3rd Mon of the month: 425 Parkdale (Abbeyfield House), 10:30 a.m. - 11:30 a.m.

Language: English, French, Italian

Cost: N/A

Referral: None required

Clinic/Program: Chinese Blood Pressure and Wellness Clinic
Somerset West Community Health Centre
55 Eccles Street, Ottawa, ON K1R 6S3
Tel: 613-238-8210 Fax: 613-238-7595
Check website for schedule updates: www.swchc.on.ca

Contact: Emma Ping

Description: Blood pressure and wellness checks in seniors' buildings and community health centres.

Appropriate for: Chinese-speaking seniors

Hours: BP Checks for Seniors:
1st Tues of the month: 80 Florence, 10:00 a.m. - 12:00 p.m.
2nd Tues of the month: Yet Keen Senior Centre, 10:00 a.m. - 12:00 p.m.
1st Tues of the month: 395 Somerset, 9:00 a.m. - 11:00 a.m.
4th Thurs of the month: 1041 Wellington alternating with 280 Rochester, 9:30 a.m. - 11:30 a.m.
2nd Wed of the month: 280 Rochester, 10:00 a.m. - 12:00 p.m.

Language: Cantonese, Mandarin, Vietnamese, English (if needed)

Cost: N/A

Referral: None required



RESOURCES FOR ASSISTING PATIENTS TO ADOPT A HEALTHY DIET

WEBSITES:

Eating well with Canada's Food Guide: <http://www.hc-sc.gc.ca/fn-an/food-guide-aliment/index-eng.php/>

Canada's Food Guide was developed according to the latest evidence in nutrient standards and the prevention of chronic disease. A pdf can be downloaded or a print copy can be ordered free of charge.

Heart and Stroke Foundation Dash Diet: www.heartandstroke.ca/dash

An overview of the DASH (dietary approaches to stop hypertension) diet and how to build it into a regular diet

Hypertension Canada: <http://www.hypertension.ca/education>

Extensive educational tools for health care practitioners have been developed to help educate patients on hypertension and sodium.

Examples of tools available at the above link:

- Beyond the salt shaker; get the facts on sodium
- Healthy eating for your blood pressure
- Dietary sodium; shaking the habit

My BP www.myBPsite.ca

Hypertension Canada has also developed a hypertension association for Canadians with high blood pressure. Signing up and membership is free. Patients are provided with:

- updated and new educational resources,
- a regular newsletter,
- incentives to encourage a healthy lifestyles,
- lectures, and
- possibly, in the future, personalized health care professional advice.



BOOKLETS:

University of Ottawa Heart Institute Heart Healthy Living Guide

http://www.ottawaheart.ca/content_documents/Heart_Healthy_Living_Guide.pdf

This guide contains practical information on managing risk factors, heart healthy diets, and living and working with heart disease.

Hypertension Canada Healthy Eating for Your Blood Pressure

http://www.lowersodium.ca/uploads/2011_HealthyEatingforYourBloodPressureEN.pdf

Explains what sodium is and why it can be a problem. Filled with practical tips and “menu makeovers” to help reduce dietary sodium.

Get Your Blood Pressure Under Control Heart and Stroke Foundation: www.heartandstroke.ca

Covers all aspects of blood pressure management including sodium reduction.

WORKSHOPS:

University of Ottawa Heart Health Nutrition Workshops: <http://www.ottawaheart.ca/calendar.htm>

Participants get the facts on fat, cholesterol, fiber and salt and develop skills for heart healthy eating to help reduce or control blood cholesterol and improve the health of their arteries. To register please call 613-761-4753 or 1-866-399-4432 For patients outside Ottawa, a telehealth connection can be arranged. The patient can listen and view the workshop at a nearby hospital.

Peak Performance: www.peakperformance.on.ca

Coping with Cholesterol – Eat Smart Workshop: Cost \$30/person

Do you have elevated cholesterol or blood pressure? This workshop has all the nutrition information to get started on a heart healthy diet. It helps participants get started on a nutrition plan to better cope with elevated blood pressure and weight loss. This workshop reviews how to stay heart healthy and delves into which foods should be eaten.

DIETITIANS:

For advice or individual nutrition counselling, find a Dietitian through Dietitians of Canada website <http://www.dietitians.ca/Find-A-Dietitian/> or speak directly to a Dietitian through the Ontario Provincial Call Centre: toll free 1-877-510-5102 Monday to Friday 9:00 a.m. to 5:00 p.m. Eastern Time (ET). Evening hours are Tuesday and Thursday to 9:00 p.m. ET

