

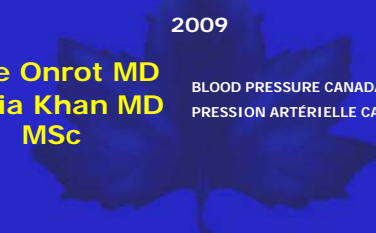




High Blood Pressure The Silent Killer

2009

Jake Onrot MD
Nadia Khan MD
MSc

BLOOD PRESSURE CANADA
PRESSION ARTÉRIELLE CANADA


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Overview

- What is high blood pressure?
- Why should I care?
- What causes it?
- How will I know if I have it?
- Can I measure my own blood pressure?
- How can I lower my blood pressure?
- Are there medications?

3


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What is blood pressure?

- The force or pressure on the inside of our arteries (blood vessels) as the blood circulates.
- You cannot feel changes in blood pressure.



4


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What is hypertension?

- A condition when blood pressure is always too high.
- Also called High Blood Pressure (HBP).
- Hypertension is a blood pressure of 140/90 mm Hg or greater.



5

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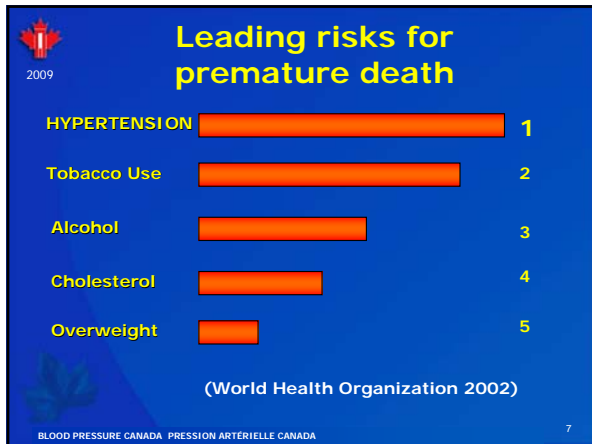


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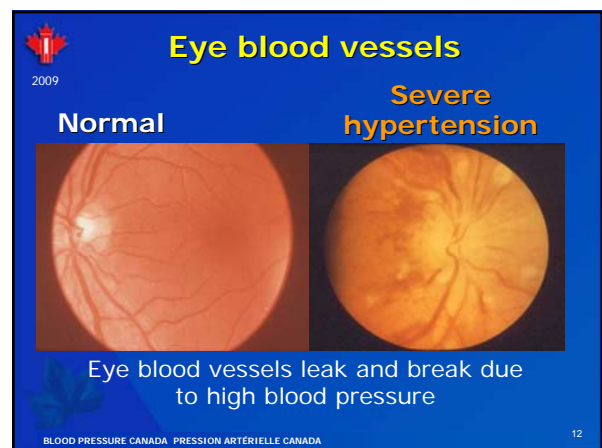
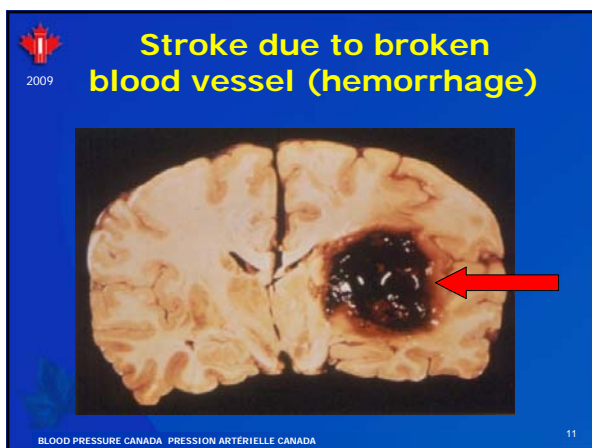
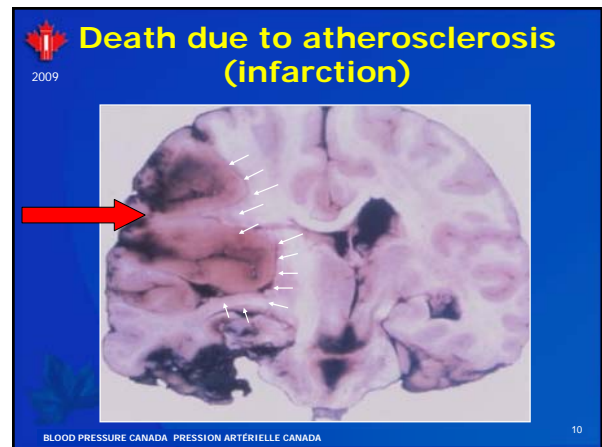
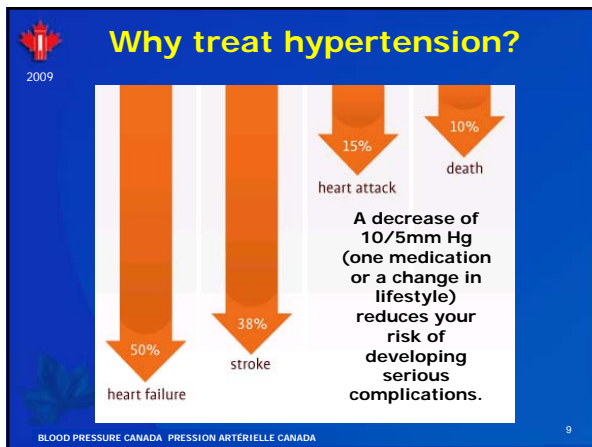
Why should I care?

6

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- 2009
- ## Hypertension can cause:
- Stroke (brain attack)
 - Heart attack & heart failure
 - Kidney failure
 - Sexual dysfunction
 - Dementia
 - Eye damage
 - Early death
- BLOOD PRESSURE CANADA PRESSION ARTÉRIELLE CANADA 8



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Question

Do you know how many Canadians have hypertension ?

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Answer

1 in **4** Canadians have hypertension.

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14

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What causes hypertension ?

- **Lifestyle** 60%
- Genetics 35%
- Underlying disease 5%
kidney disease, excessive use of aspirin-like drugs (NSAIDs)

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Your lifestyle can raise your blood pressure

- Physical inactivity
- Unhealthy diet
 - Not enough fruit, vegetables, and low-fat dairy;
 - Too much salt (sodium).
- Being overweight

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16

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Your lifestyle can raise your blood pressure


- Excess alcohol
- Smoking or exposure to cigarette smoke
- Stress

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17


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How is blood pressure measured?




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18

 **What do the numbers mean?**
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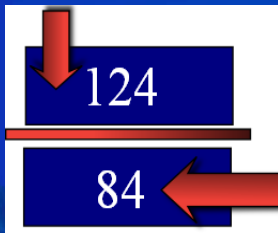
- The upper number is when the heart beats
- The lower number is when the heart relaxes
- Measured in mm Hg (millimeters of mercury)
e.g. 124/84 mm Hg



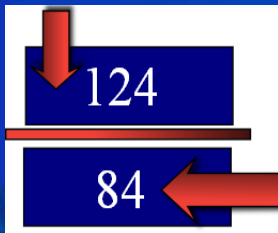
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 **What are the numbers called?**
2009


Systolic Blood Pressure (SBP)



Diastolic Blood Pressure (DBP)




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 **Question**
2009

How do you know if you have hypertension?


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 **Answer**
2009

Many people have hypertension and don't know it.


The only way to know if you have hypertension is to have your blood pressure measured.

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 **The silent killer**
2009

- Most people cannot feel if their blood pressure is high.
- Usually, there are no symptoms.

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 **How can I check to see if I have hypertension ?**
2009

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2009

Who can measure my blood pressure?

The diagram features a central blue circle with the word "You" inside. Surrounding it are four yellow ovals, each containing the name of a professional: "Your Family Doctor" at the top, "A Nurse" on the left, "Local Pharmacist" on the right, and "You" in the center.

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2009

How often should I check my blood pressure?

- If your blood pressure is:
 - Less than 130/85 - every 2 years
 - 130-139/85-89 - every year
 - Above 139/89 - check often

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2009

Can I measure my own blood pressure ?

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Self-measurement of blood pressure

- You can measure your own blood pressure at home.
- Home blood pressure measurement devices are available at most pharmacies.
- Purchase a device endorsed by the Canadian Hypertension Society (CHS) with the logo 
- Make sure your device has the right cuff size for your arm - ask if unsure.

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2009

Why treat hypertension?

The infographic consists of four vertical orange arrows pointing downwards. From left to right, they are labeled: "50% heart failure", "38% stroke", "15% heart attack", and "10% death". To the right of these arrows, a text box states: "A decrease of 10/5mm Hg (typical with one medication or a change in lifestyle) reduces your risk of developing serious complications."

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Who should get treated for Hypertension?

- Do I need medications to treat my blood pressure?

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Who should get treated for hypertension?

- Mary is a 68 year old retired accountant who has a blood pressure of 154/90 mmHg. She has angina but is otherwise healthy.
- Should she get treatment?



2009

Who should get treated?

- First, make sure there aren't reversible causes of high blood pressure
- Second, make sure the BP levels are consistent (usually 2-3 visits)
- Then assess risk factors and whether the patient has hypertension damage



2009

Treat the Patient, not the Pressure

- Yes, she needs treatment
- Patients are treated for blood pressure depending on their overall health status in addition to what your blood pressure is.



2009

- Patients with BP $>$ or $=$ 160 mmHg systolic pressure or $>$ or $=$ 100 mmHg diastolic pressure should be treated regardless of other health problems



2009

Treat the Patient, not the Pressure

- BP 140/90 - 160/100 mmHg should have their BP treated if they have:
- signs of hypertension damage like kidney disease or heart strain
- Diabetes
- Multiple risk factors for heart disease



2009

Who should get treated?

- John is a 48 year old teacher who was recently laid off. His BP is 154/90. He doesn't exercise very much, but is otherwise healthy.
- Should he get treated?

2009 **What is my risk?**

- myhealthcheckup.com

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2009 **myhealthcheckup.com** Cardiovascular Disease Risk Profile

Learn and Live

Name: Mr. X
 Consultation date: 2006-08-29
 Age: 55 years
 Gender: Male
 Height: 180 cm
 Ideal weight: 65 - 61 kg

CVD present	NO
Family history of CVD	NO
Blood Cholesterol (mmol/L)	6.5
Total Cholesterol	4.9
LDL Cholesterol	1.1
HDL Cholesterol	5.91
Total:HDL ratio	0.83
Blood Pressure (mmHg)	160
Systolic	100
Diastolic	NO
BP medication	Yes
Smoker	NO
Diabetes	NO
Weight (kg)	105
Body Mass Index (kg/m ²)	32.2
Waist Circumference (cm)	110
Cardiovascular Age	62.6

10-year Cardiovascular Risk

Your risk of cardiovascular disease (heart attack and fatal coronary event) over the next ten years is 25.6%. Your estimated cardiovascular age is 62.6 years.

You have 4 modifiable cardiovascular risk factors: total cholesterol, LDL-cholesterol, blood pressure and smoking.

- Reduce your total Cholesterol by 25% (LDL-Cholesterol by 35%) and lower your risk to 17.2%
- Increase your HDL-Cholesterol by 20% and lower your risk to 22.2%
- Reduce your blood pressure to 140 mmHg and lower your risk to 24%
- Quit smoking and lower your risk to 13.7%

By reducing your Total Cholesterol by 25%, increasing your HDL Cholesterol by 20%, reducing your systolic blood pressure to 140 mmHg and quitting smoking, you can lower your 10-year cardiovascular risk to 6.8%. You can also lower your cardiovascular age to 55.3 years.

These results represent average risks based on the information provided. The actual experience of individual patients will vary. Copyright © 2006 by Cardiocheck Inc. All rights reserved.

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2009 **Who can help me lower my blood pressure ?**

Your Family Doctor

A Nurse

You

A Dietitian

Your Pharmacist

A Psychologist

A Hypertension Specialist

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2009 **How can I lower my blood pressure ?**

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2009 **What you can do**

- Measure your blood pressure regularly.
- Increase your physical activity.
- Control your weight.
- Eat a healthy diet.
- Cut back on sodium and processed foods.

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2009 **What you can do**

- Limit alcohol.
- Become smoke-free.
- Reduce stress.
- See your doctor/health care provider.
- Take medications as prescribed.

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2009

Healthy lifestyles really make a difference

Intervention	Amount	Change in SBP/DBP
Reduce daily sodium intake by:	1800 mg	-5.1 / -2.7
Weight loss of	5kg (~10lb)	-5.0/ -4.0
Alcohol intake	- 3.6 drinks/day	-3.9 / -2.4
Aerobic exercise	120-150 min/week	-4.9 / -3.7
Dietary patterns	DASH diet	
	Hypertensive	-11.4 / -5.5
	Normotensive	-3.6 / -1.8

Applying the 2005 Canadian Hypertension Education Program recommendations: 3. Lifestyle modifications to prevent and treat hypertension Padwal R. et al. CMAJ · SEPT. 27, 2005; 173 (7) 749-751

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2009

Lifestyle changes make a difference

Is this your family's idea of a fitness centre?

BLOOD PRESSURE CANADA PRESSION ARTÉRIELLE CANADA 44

2009

Physical activity

Physical activity can:

- Decrease risk of heart disease and stroke.
- Lower blood pressure almost as much as taking one medication.
- Help to reduce weight.
- Help to reduce stress.

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2009

Physical activity

30 to 60 minutes per day!

- Make exercise a priority – make it part of your daily schedule.
- Do activities that you enjoy.
- Do a variety of activities.
- Exercise with a friend.
- Join a fitness class or get a personal trainer.
- Set small realistic attainable goals.

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2009

Walking & weight loss

- Walk 1 mile (1.6 Km) = 100 calories*
- Walk 4 miles (6.4 Km) 4 times a week and burn off up to ¼ Kg/week (½ lb / week) extra

* These are just estimates based on the literature for an averaged size person

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2009

Walking & weight loss

30 to 60 minutes per day!

- The BP lowering effect of walking vigorously for 40 minutes per day, 4x a week is as effective as greater amounts of exercise.
- The positive effects of exercise may last up to 72 hours.
- Therefore, build this into your weekly schedule.

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2009

Control your weight

- Lower your blood pressure by losing as little as 10 pounds (4.5 kg).

49



2009

Shake the salt habit

- Limit foods with added sodium.
- Limit fast and pre-prepared or processed foods (canned soups, pickles, chips, processed meats)
- Choose foods with the least added sodium.
- Limit salt/sodium used at the table and in cooking.

50



2009

Check food labels for sodium

Nutrition Facts	
Per 1/2 cup (125 mL)	
Amount	% Daily Value
Calories 70	
Fat 0.5 g	1 %
Saturated Fat 0 g + Trans Fat 0 g	0 %
Cholesterol 0 mg	
Sodium 250 mg	10 %
Carbohydrate 13 g	4 %
Fibre 2 g	8 %
Sugars 6 g	
Protein 2 g	
Vitamin A 1 %	Vitamin C 2 %
Calcium 0 %	Iron 4 %

Look for foods that provide 10% or less of your daily value for sodium.

51



2009

Limit alcohol

- No more than 2 drinks per day
- 9 drinks weekly for women
- 14 drinks weekly for men
- No Binging



52



2009

Become smoke-free

- Quit on your own (works for many).
- Join a smoking cessation program.
- Try gum, patch, pills.
- Avoid temptation.
- Discuss with your doctor or pharmacist.
- Choose smoke-free environments.

53



2009

Reduce stress

Take time to relax.

54

2008

What about medications for hypertension ?



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55

2008

Question

Do all people on medications for hypertension have their blood pressure under control?

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56

2008

Answer

Many people with hypertension require both lifestyle changes and more than one medication to control their blood pressure.

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57

2008

Hypertension medications

- It may take up to 6 weeks for pills to lower your blood pressure.
- Pills need to be continued, even when your blood pressure is controlled.
- Pills are usually taken for life (unless your doctor stops the medication).

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58

2008

Hypertension medications

Medications need to be taken as directed or...

- Blood pressure may not be controlled.
- Side effects may be more troublesome.
- An adverse reaction or event may result.
- Your doctor may think they are not working and prescribe a higher dose or add another medication.

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59

2009

High blood pressure

- Is a silent and common cause of disability and death.
- Can be prevented and treated by changes in lifestyle.
- Can cause problems that may be prevented by lifestyle changes and medication.

Get your blood pressure measured today!

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60

2009

What you can do

- Know your numbers.
- Know your targets.
- Measure your blood pressure at home.
- Make healthy lifestyle choices.
- Take pills as prescribed.

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2009

Resources

- Heart and Stroke Foundation
www.heartandstroke.ca/bp

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2009

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2009

Case: 64 F, seen Jan 18, 2011

- 10 years hypertension
- Home BP in fall 2010: 120-140/60-70
- Taking 3 different BP pills
- No symptoms, Otherwise well
- Office BP 170/90
- Meds adjusted
- Home BP 115/65, some dizziness
- Office BP now 148/70

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2009

The concept of white coat and masked hypertension

Home or Daytime ABPM SBP, mmHg	140	Masked HTN: Only high at home	True Hypertensive: High at home and office
	135	True Normotensive: Normal in office And home	White Coat HTN: Normal at home High in office
		140	Office SBP mmHg

Derived from Pickering et al. Hypertension 2002; 40: 795-796.

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2009

The prognosis of masked and white coat hypertension

Prevalence of masked hypertension is approximately 10% in the general population but is higher in patients with diabetes

J Hypertension 2007;25:2193-98

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2009 **Clinic, Home, Ambulatory (ABP) Blood Pressure Measurement Equivalence Numbers**

A clinic blood pressure of 140/90 mmHg has a similar risk of a:

Description	Blood Pressure mmHg
Home pressure average	135 / 85
Daytime average ABP	135 / 85
24-hour average ABP	130 / 80

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2009 **VII. Home measurement of blood pressure**

Home BP measurement should be encouraged to increase patient involvement in care

Which patients?

- Uncomplicated hypertension
- Suspected non adherence
- Office-induced blood pressure elevation (white coat effect)
- Masked hypertension

Average BP \geq 135/85 mm Hg should be considered elevated

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2009 **VII. Home Measurement of BP: Confirm contradictory home measurement readings**

If office BP measurement is elevated and home BP is normal or vice versa → Consider further assess using 24-h ambulatory blood pressure monitoring

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2009 **When Should I Be Worried?**

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2009 **A Tale of Two patients**

- 65 M
- Headache, blurred vision
- On 3 drugs
- BP at home: 190/110

- 65 M
- Feels fine
- On 2 drugs
- BP at pharmacy: 220/120

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2009 **Treat the Patient not the Pressure**

- hypertension is not a disease of the right arm

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2009

Advice for patients on when to contact a health care professional based on high average home blood pressure readings

Systolic BP (mmHg)	Diastolic BP reading	
Less than 130	Less than 85	Usual follow-up
130-179*	85-109*	Check reading again using the correct technique . If the readings remain high, discuss with your healthcare provider at your next regularly scheduled appointment
180 – 199*	110-119	Check reading again using the correct technique . If the readings remain high, schedule an appointment with your doctor to discuss your treatment plan.
More than 200*	More than 120	Check reading again using the correct technique . If the readings remain high, schedule an urgent appointment with your doctor to discuss your treatment plan.

*Patients with diabetes, chronic kidney disease or who are at high risk of cardiovascular events require individualized advice.

(resource available at www.hypertension.ca in the 3 Minute Hypertension Action Tool or www.heartandstroke.ca/BP)

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2009

Choosing the Right Drug: Educated Guess

- Custom Tailored Treatment
- "Measure" the patient:
 - Age, gender, race, lifestyle
 - Overall Risk Assessment
 - Co-existing illnesses
 - Aggravating factors
- Choose the "Cloth" (the drug)
- Cut the cloth (the dose)
- Try it on, and if it fits, wear it

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2009

"TWOOFERS" : Co-existing illnesses

Treating BP and another problem with the same drug

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2009

Some Twofer Examples; High BP and:

- Prostate problems
- Heart failure
- Angina
- diabetes
- Tamsulosin, terazosin
- Water pills, _prils, _sartans, Beta blockers
- Beta blockers, calcium blockers
- -prils

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2009

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2009

Question

1. Blood pressure measures the amount of pressure in your arteries.

- TRUE
- FALSE
- Don't know

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2009

Question

2. A blood pressure greater than 140 over 90 (140/90 mmHg) is considered too high.

- TRUE
- FALSE
- Don't Know



2009

Question

3. You can usually tell if your blood pressure is too high by the way you feel.

- TRUE
- FALSE
- Don't know



2009

Question

4. Having one elevated blood pressure reading means that you have high blood pressure.

- TRUE
- FALSE
- Don't know



2009

Question

5. Hypertension is a major risk factor for stroke and dementia.

- TRUE
- FALSE
- Don't know



2009

Question

6. The following lifestyle factors can help to treat and control high blood pressure:

- Having a healthy weight
 - Regular exercise
 - Eating a healthy diet
 - Restricting alcohol intake
 - Reducing sodium/salt intake
- TRUE
 - FALSE
 - Don't know



2009

Question

7. Smoking increases blood pressure.

- TRUE
- FALSE
- Don't know



2009

Question

8. Generally, people who do not have high blood pressure should have their blood pressure checked every 3 to 4 years.

- TRUE
- FALSE
- Don't know



2009

Question

9. If you are taking pills for high blood pressure you will need to stay on them the rest of your life.

- TRUE
- FALSE
- Don't know



2009

Question

10. If you are older than 65 and your blood pressure is elevated above your target despite your healthy lifestyle, should you be considered for medication?

- TRUE
- FALSE
- Don't know



2009

Getting it right (for health care providers and patients)

The 5 Steps to Change

1. Take control
2. Keep it simple
3. Take it slow
4. When you fall, get up
5. Change your mind



2009

Acknowledgements

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- Blood Pressure Canada
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- Heart and Stroke Foundation of Canada

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- Physicians – Charlotte Jones (Chair), Ross Feldman
- Dietitians - Wendy Shah, Marla Richardson

Downloadable at:
www.hypertension.ca/bpc

