Vascular Risk Reduction (VRR)

Welcome!

- Presentation & Activities

- Focus: Work together to discover ways to best implement vascular risk identification into your practice

- Engage, collaborate and have fun!

Vascular Risk Reduction

Objectives:

- Describe which clinical assessments may indicate vascular risk.

- Identify who to screen for cardiovascular risk assessment.

- Implement vascular risk assessments into clinical practice.

Impact of Vascular Disease

Vascular Risk Round Up:

1. Volunteer reads <u>Question </u>card.

2. The person with the correct <u>Answer</u> card must wave it and read the answer aloud.

3. If correct, it will be his/her turn to read out the question on the Question card.

4. If not correct, everyone must agree on the correct answer, then ask the person with the correct Answer card to read out his/her question.

5. Play continues until all questions have been read, along with their correct answers.

Identifying Vascular Risk-
Who Has BAD FAT?

Assess the following:

Blood pressure

Alcohol use

Diabetes (yes/no)

Every Patient visit!

Fruits and vegetables

Activity

Tobacco use

Waist

Height

Obesity

Identifying Vascular Risk-
Who Has HIGH RISK?

Diabetes
- 40 years or older
- 15 year duration and at least 30 y/o with MVD

Abdominal Aortic Aneurysm

Clinical evidence of atherosclerosis
- MI, coronary revascularization, stroke/TIA, PVD

Chronic Kidney Disease (CKD)

Hypertension (high risk): with 3 VRF
- Male, >55 y/o, smoker, LVH, family history of CVD, abnormal ECG, TC/HDL ratio >6, microalbuminuria
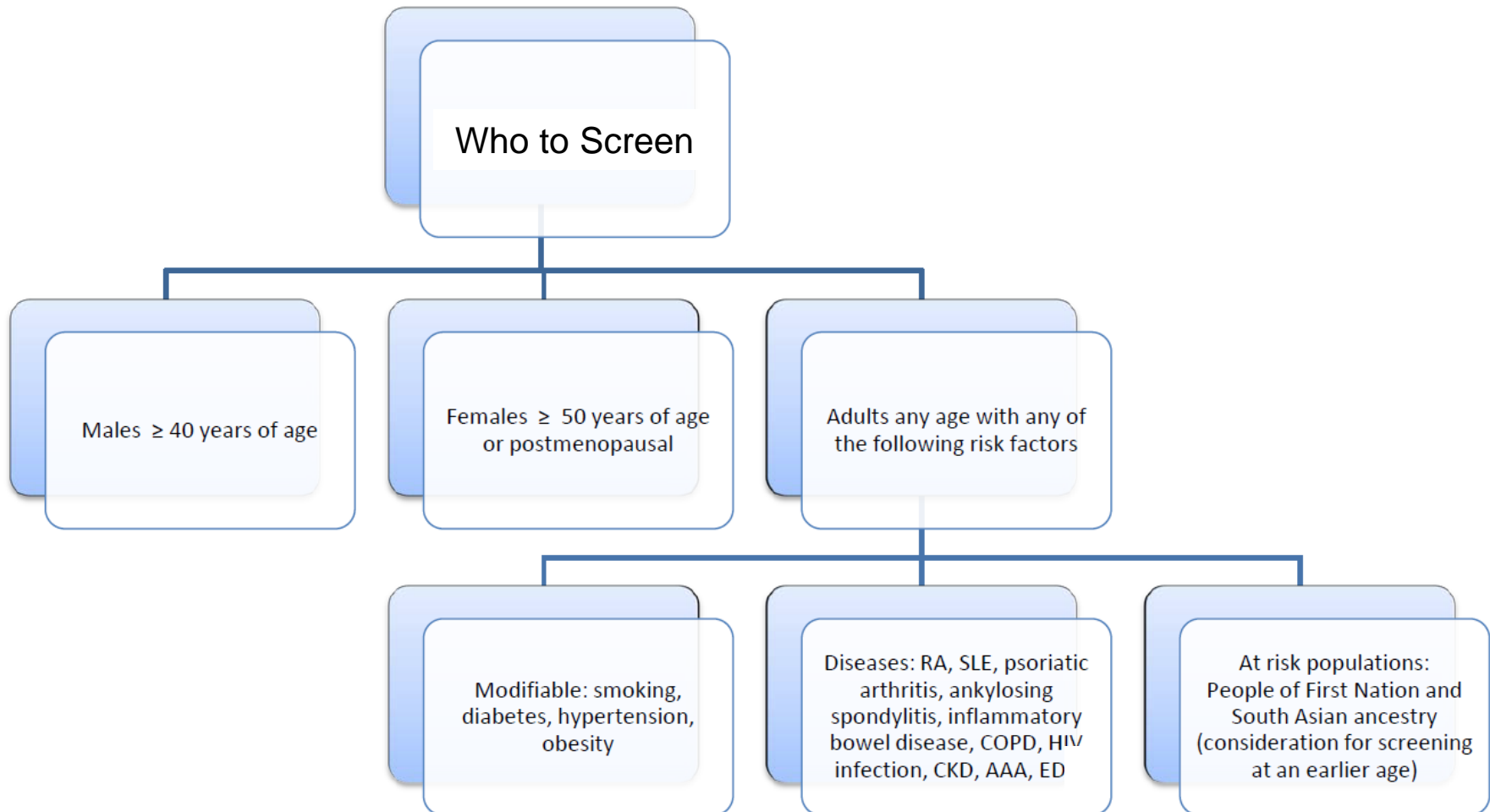
Identifying Vascular Risk

Who needs additional screening for vascular risk?

Labs?

Vascular Risk Assessment – Who to Screen

Who to Screen

- Males ≥ 40 years of age
- Females ≥ 50 years of age or postmenopausal
- Adults any age with any of the following risk factors
  - Modifiable: smoking, diabetes, hypertension, obesity
  - Diseases: RA, SLE, psoriatic arthritis, ankylosing spondylitis, inflammatory bowel disease, COPD, HIV infection, CKD, AAA, ED
  - At risk populations: People of First Nation and South Asian ancestry (consideration for screening at an earlier age)
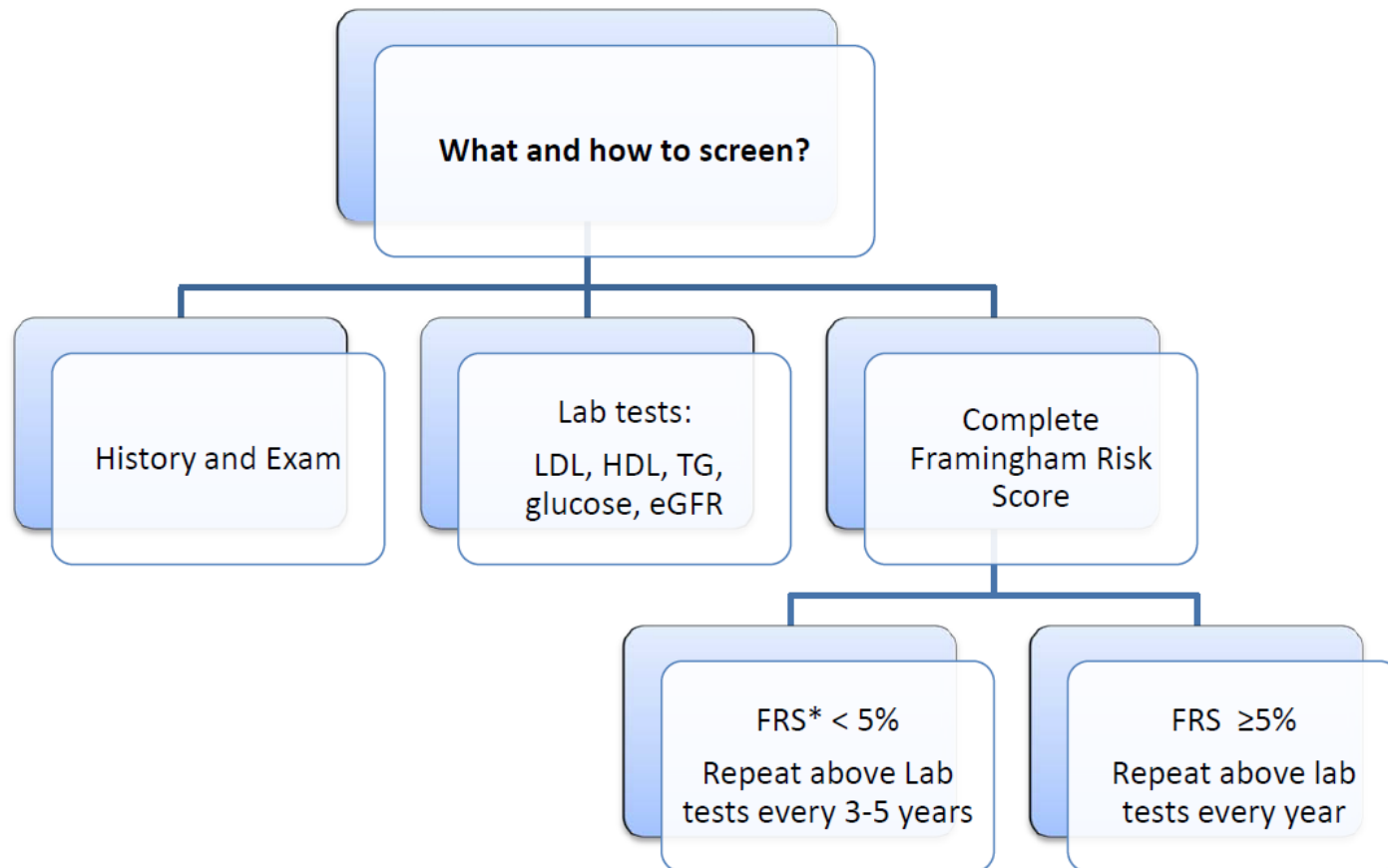
Cardiovascular Risk Assessment:

Who to Screen

Vascular Risk Assessment – How to Screen

How to screen for

vascular risk?

Vascular Risk Assessment – How to Screen

Framingham Risk Score (FRS) Estimation of 10-year Cardiovascular Disease (CVD) Risk

Step 1

Step 1 In the "points" column enter the appropriate value according to the patient's age, HDL-C, total cholesterol, systolic blood pressure and if they smoke or have diabetes. Calculate the total points.

Step 2 Using the total points from Step 1, determine the 10-year CVD risk %.

Step 3 For subjects between 30 and 59 years – double cardiovascular disease risk percentage if cardiovascular disease is present in a first degree relative before 55 years of age for men and 65 years of age for women

Risk factor		Risk points				Points
		Men		Women		
Age						
30-34		0		0		
35-39		2		2		
40-44		5		4		
45-49		6		5		
50-54		8		7		
55-59		10		8		
60-64		11		9		
65-69		12		10		
70-74		14		11		
75+		15		12		
HDL-C (mmol/L)						
>1.6		-2		-2		
1.3-1.6		-1		-1		
1.2-1.3		0		0		
0.9-1.2		1		1		
<0.9		2		2		
Total cholesterol						
<4.1		0		0		
4.1-5.2		1		1		
5.2-6.2		2		3		
6.2-7.2		3		4		
>7.2		4		5		
Systolic blood pressure (mmHg)	Not treated	Treated	Not treated	Treated		
<120	-2	0	-3	-1		
120-129	0	2	0	2		
130-139	1	3	1	3		
140-149	2	4	2	5		
150-159	2	4	4	6		
160+	3	5	5	7		
Diabetes	Yes	3		4		
	No	0		0		
Smoker	Yes	4		3		
	No	0		0		
Total Points						

Step 2

Total points	10-year CVD Risk (%)	
	Men	Women
-3 or less	<1	<1
-2	1.1	<1
-1	1.4	1.0
0	1.6	1.2
1	1.9	1/5
2	2.3	1.7
3	2.8	2.0
4	3.3	2.4
5	3.9	2.8
6	4.7	3.3
7	5.6	3.9
8	6.7	4.5
9	7.9	5.3
10	9.4	6.3
11	11.2	7.3
12	13.3	8.6
13	15.6	10.0
14	18.4	11.7
15	21.6	13.7
16	25.3	15.9
17	29.4	18.51
18	>30	21.5
19	>30	24.8
20	>30	27.5
21+	>30	>30

Can be calculated concurrently with adjusted Cardiovascular Age at: www.chiprehab.com

For mobile device applications from the CCS, please visit: www.ccsguidelineprograms.ca or www.ccs.ca

HDL-C: high-density lipoprotein cholesterol.

Vascular Risk Assessment - FRS

On-line: The University of Edinburgh: Cardiovascular Risk Calculator

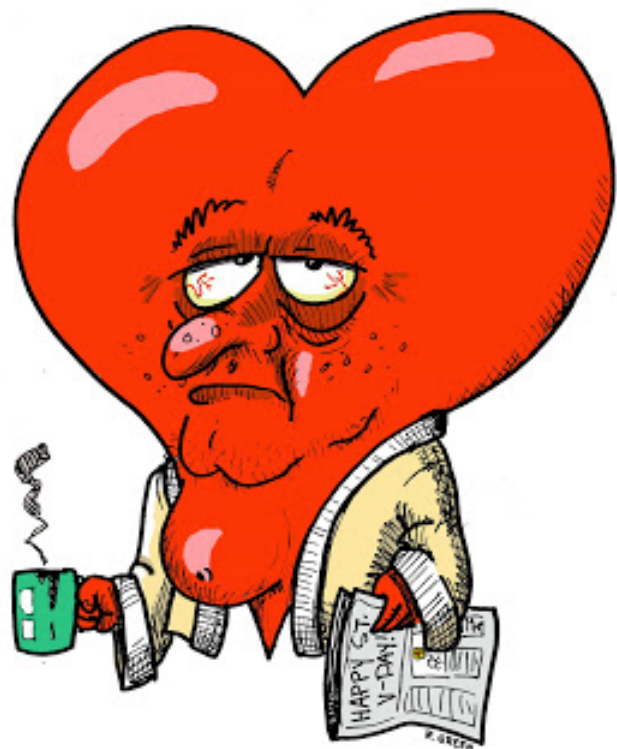http://cvrisk.mvm.ed.ac.uk/calculator/calc.asp

Mobile App:

CCS – Lipid Guidelines

Vascular Risk Assessment – Cardiovascular Age

CV Age motivates people to achieve risk factor targets

Vascular Risk Assessment: Enhanced Lipid Reporting

- A laboratory-based solution for determination and reporting of CV risk

- Information required at point of ordering lipid profile to calculate CV risk (FRS):

- FRS (10 year CVD risk) reported back with lipid results; recommendations to consider therapy based on 2012 guidelines

LIPIDS	
LIP	includes Chol, HDL, LDL and Trig **F**
CHOL	Cholesterol Only
HDL	HDL Only
TRIG	Triglycerides **F**

CVD RISK ASSESSMENT	
CVD	Cardiovascular Disease **F**

Smoker   Y   N
Systolic BP_____ / Treated Y   N
Diabetes Y   N
years having diabetes ___
Chronic Kidney Disease   Y   N
Atherosclerosis   Y   N
Family history of CVD in first degree relative before age 60   Y   N

Objective:
- ↑ appropriate use of meds for dyslipidemia
- ↓ inappropriate use of lipid panels
- Use provincially to ↓ vascular morbidity

Demonstration project underway in Lethbridge

Vascular Risk Assessment: Enhanced Lipid Reporting

Test	Result	Flag	Reference	Site
CVD 10-YR RISK				
CHOLESTEROL	2.49		mmol/L	
HDL	1.29		mmol/L	
TRIG	0.48		0.0-1.7 mmol/L	
LDL	1.0		0.0-3.4 mmol/L	
NON-HDL	1.20		0.00-4.20 mmol/L	
CVD RISK CALC				
CVD 10-YR RISK	55.0		%	

High Risk (FRS >=20% or presence of High risk features)
Treatment advised in all patients
Treatment targests:LDL-C <=2.0 mmol/L or decrease by >=50%
   or Non-HDL-C <=2.6 mmol/L or ApoB <=0.8 g/L

- Lab report identifies risk and recommended guidelines

Test	Result	Flag	Reference	Site
CVD 10-YR RISK				
CHOLESTEROL	6.45		mmol/L	
HDL	2.09		mmol/L	
TRIG	4.49	#H	0.0-1.7 mmol/L	
LDL	2.3		0.0-3.4 mmol/L	
NON-HDL	4.36	H	0.00-4.20 mmol/L	
CVD RISK CALC				
CVD 10-YR RISK	15.6		%	

Intermediate Risk (FRS 10 - 19%)
Treatment advised if LDL-C >= 3.5 mmol/L or
   Non-HDL-C >=4.3 mmol/L or ApoB >=1.2 g/L
Treatment targests:LDL-C <=2.0 mmol/L or decrease by >=50%
   or Non-HDL-C <=2.6 mmol/L or ApoB <=0.8 g/L

- If risk suitable for Statin it will be identified

Vascular Risk – What to do

Treatment stratified by Risk Features

Low Risk
-No high risk features
-FRS < 10%

Intermediate Risk
-No high risk features
-FRS 10-19%

High Risk
-FRS ≥ 20%
-clinical vascular dz
-AAA
- Diabetes ≥ 40 yrs, or >15 yrs duration and age ≥ 30 yrs or microvascular dz
-CKD
-High risk HTN

LDL < 5mmol/L

LDL ≥ 5 mmol/L

LDL ≥ 3.5 mmol/L

LDL < 3.5mmol/L

Health Behavior Modification
No Statin Therapy

Health Modification
Statin Therapy

Health Behavior Modification
No Statin Therapy

Health Behavior Modification
Statin Therapy

Canadian Cardiovascular Society

Vascular Risk Assessment – Enhanced Lipid Reporting

Blood pressure

Alcohol use

Diabetes

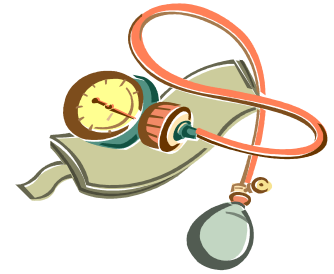**F**ruits and vegetables

Activity

Tobacco use

Waist **H**eight **O**besity **?** *Labs?*

BP Measurement Technique

VRA – How to Assess BP

Only clinicians specifically trained to measure BP accurately should assess BP.*

- Use standard measurement technique
  - *Proper technique is critical!*
- Recommended to use automated BP devices (OBPM)

Measure BP on both arms at least once (same position) to confirm similar readings

- If different readings, always use arm with higher reading for BP measurement

Blood Pressure Assessment:
Patient preparation and posture

Standardized Preparation:

Patient
- No acute anxiety, stress or pain.
- No caffeine, smoking or nicotine in the preceding 30 minutes.
- No use of substances containing adrenergic stimulants such as phenylephrine or pseudoephedrine (may be present in nasal decongestants or ophthalmic drops).
- Bladder and bowel comfortable.
- No tight clothing on arm or forearm.
- Quiet room with comfortable temperature
- Rest for at least 5 minutes before measurement
- Patient should stay silent prior and during the procedure.

Blood Pressure Assessment:
Patient preparation and posture

Standardized technique:

Posture

- The patient should be calmly seated with his or her back well supported and arm supported at the level of the heart.

- His or her feet should touch the floor and legs should not be crossed.

Hypertension CANADA

What's wrong with this picture?

Blood Pressure Assessment: Patient position

What should we consider when taking an accurate BP?

Appropriate cuff size	No strenuous exercise 2 hour prior
Rest for five minutes	Keep BP arm at heart level
Calm, comfortable environment	Cuff edge is 3 cm above elbow crease
No tight clothing on arm or forearm	Initial: 3 readings on both arms; f/u on arm with highest BP. If unable to get initial 3 readings use non-dominant arm
No crossing of legs	
No talking during measurement	F/U-3 BP readings every 1-2 minutes; leave room after first successful reading
Ensure bladder/bowel is empty	
No smoking/nicotine/caffeine/light activity 30min prior	

Arm Circumference

Arm Circumference (cm)	Size of Cuff (cm)
From 18 – 26 cm	9 X 18 (child/small adult)
From 26 – 33 cm	12 X 23 (regular adult)
From 33 – 41 cm	15 X 33 (large adult)
> 41 cm	18 X 36 (extra large adult)

- BP cuff too large = a low BP reading
- BP cuff too small = a high BP reading

Calibrated/Validated Equipment

BP thresholds for drug treatment*

* lifestyle modification is recommended for all regardless of BP

General population (including CKD) (CHEP 2011**)	140/90
Very elderly (≥80) (CHEP 2013**)	**150**
Diabetes (CHEP 2000**)	130/80
Very low CV risk (CHEP 2000**)	**160/100**

** Year of incorporation into CHEP recommendations

CHEP

Hypertension CANADA

Office or Home Automated BP

Recommend use of office devices that measure without a healthcare professional present or home automated blood pressure measurements

When preformed with the correct procedure, the office automated BP that is ≥ 135/85 should be considered out of target.
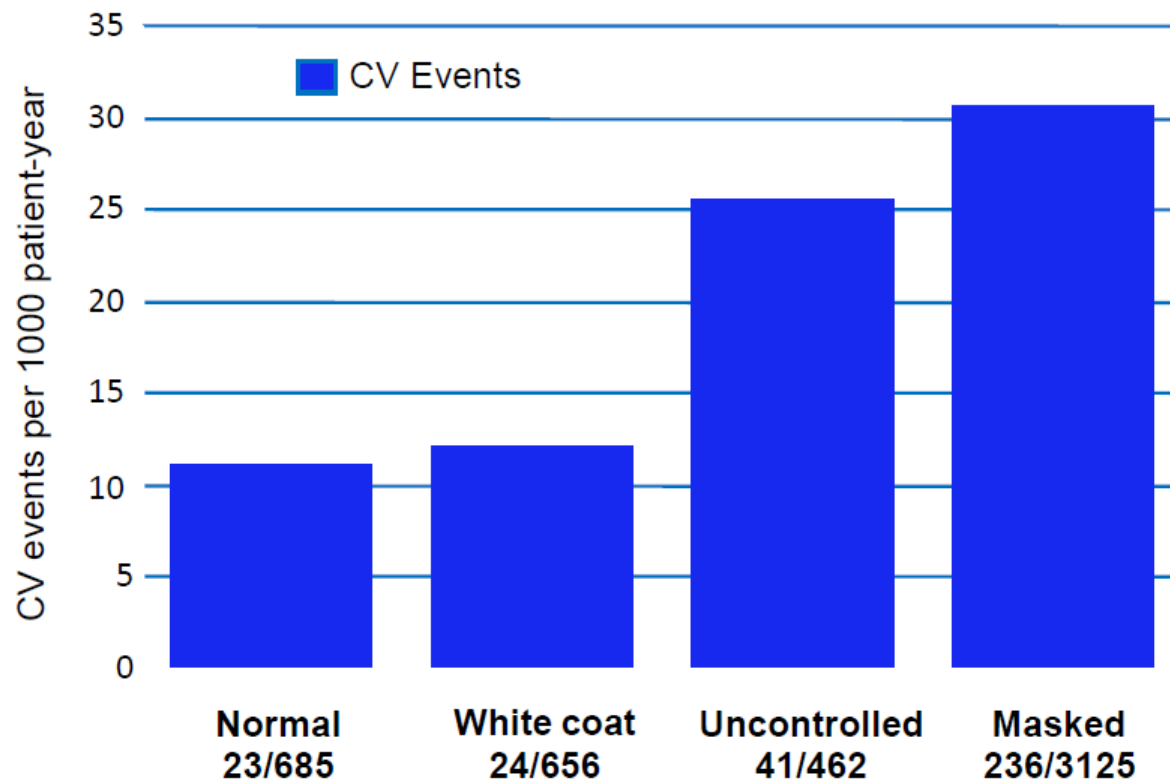
Only Relying on Office Pressures misses out on White Coat and Masked Hypertension
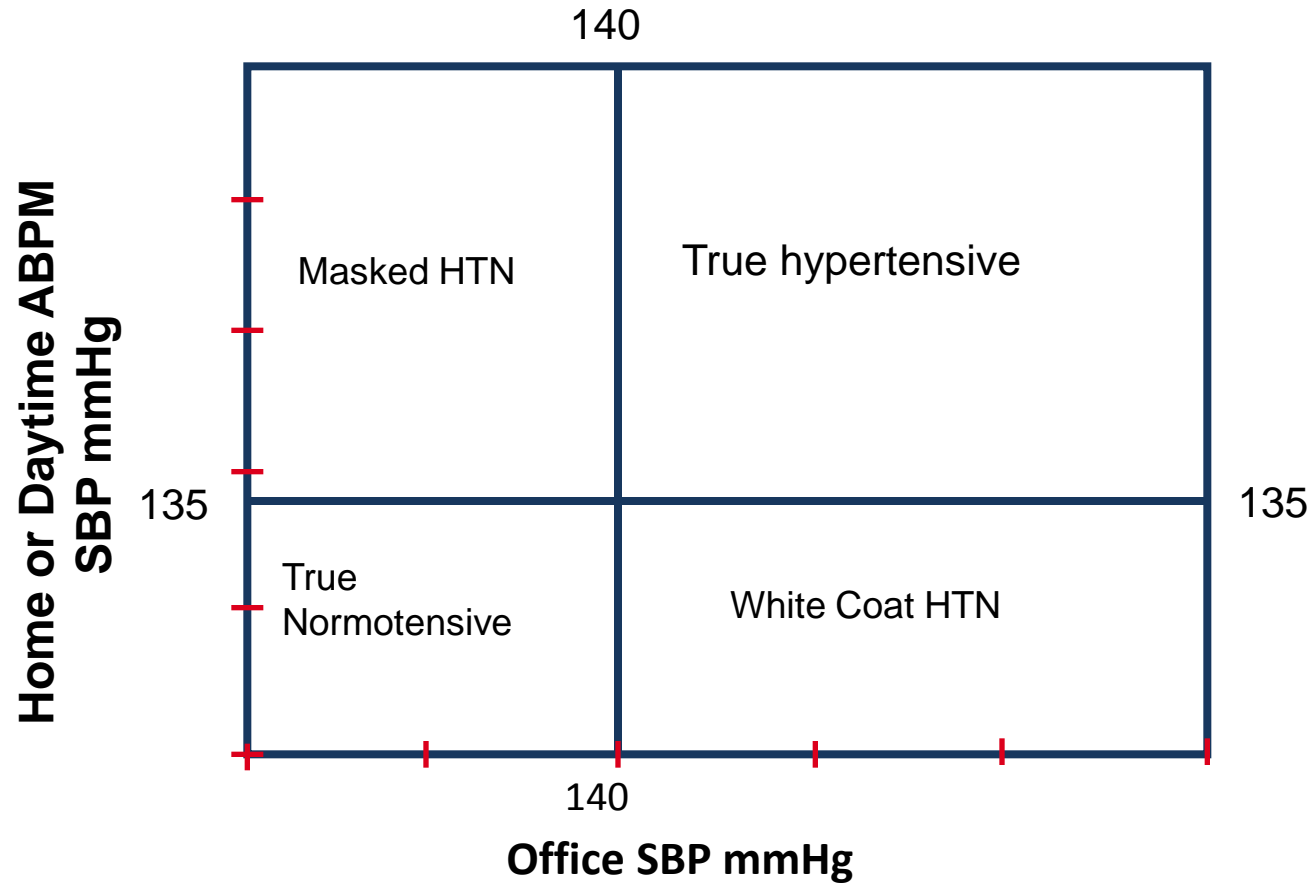
Derived from Pickering et al. *Hypertension* 2002:40:795-796

The prognosis of masked hypertension

Prevalence is approximately 10% in hypertensive patients.

Okhubo et al. *J. Am. Coll. Cardiol.* 2005;46;508-515

CHEP

Hypertension CANADA

Home measurement of blood pressure

- Enables diagnosis of white coat and masked hypertension
- Assists early diagnosis of hypertension
- Improves prediction of cardiovascular prognosis
- Improves adherence to drug therapy
- Enables better blood pressure control

Home blood pressure measurement

- Home BP measurement is encouraged to increase patient involvement in care

- Which patients?
  - suspected diagnosis of hypertension
  - Suspected non adherence
  - Diabetes mellitus
  - Chronic kidney disease
  - White coat hypertension or effect
  - Masked hypertension

Average BP equal to or over 135/85 mmHg should be considered elevated

Some patients are not suitable for home monitoring due to:

- Anxiety

- Physical or mental disability

- Arm not suited to blood pressure cuff

- Irregular pulse or arrhythmias

- Lack of interest

Recommended home blood pressure monitors

- Monitors that have been validated as accurate and available in Canada are listed at **www.hypertension.ca/chs** in the 'device endorsements' section
  - The boxes containing the device are also marked with

Monitors A&D® or LifeSource® Models: 705, 767, 767PAC, 767Plus, 774, 774AC, 779, 787, 787AC
Monitors Omron® Models: HEM-705 PC, HEM-711, HEM-741CINT
Monitors Microlife® or Thermor® (also sold under different brand names)
Models: BP 3BTO-A, BP 3AC1-1, BP 3AC1-1 PC, BP 3AC1-2, BP 3AG1, BP 3BTO-1,BP 3BTO-A (2), BP 3BTO-AP, RM 100, BP A100 Plus, BP A 100
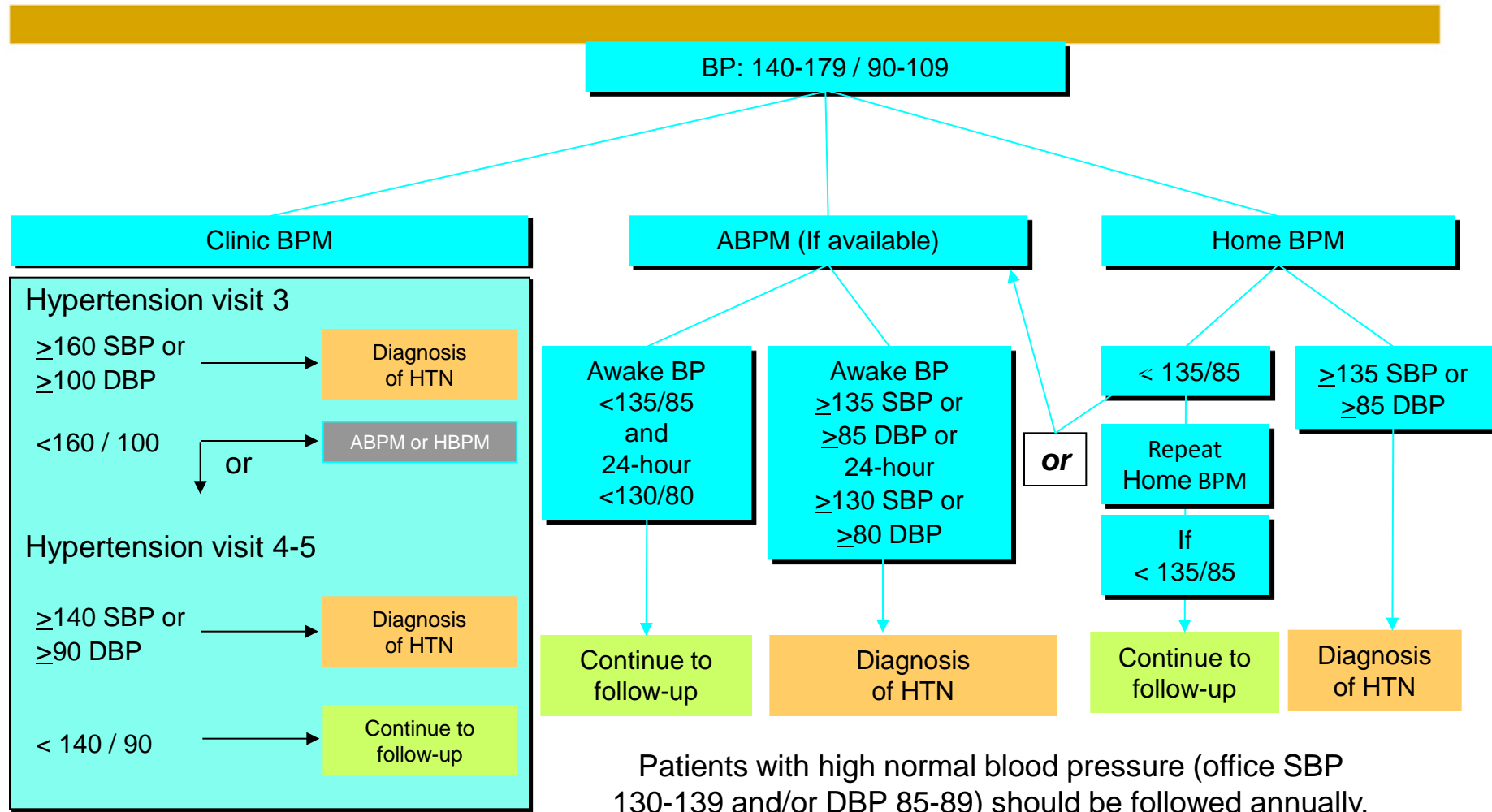
Vascular Risk Assessment – Diagnosis of Hypertension

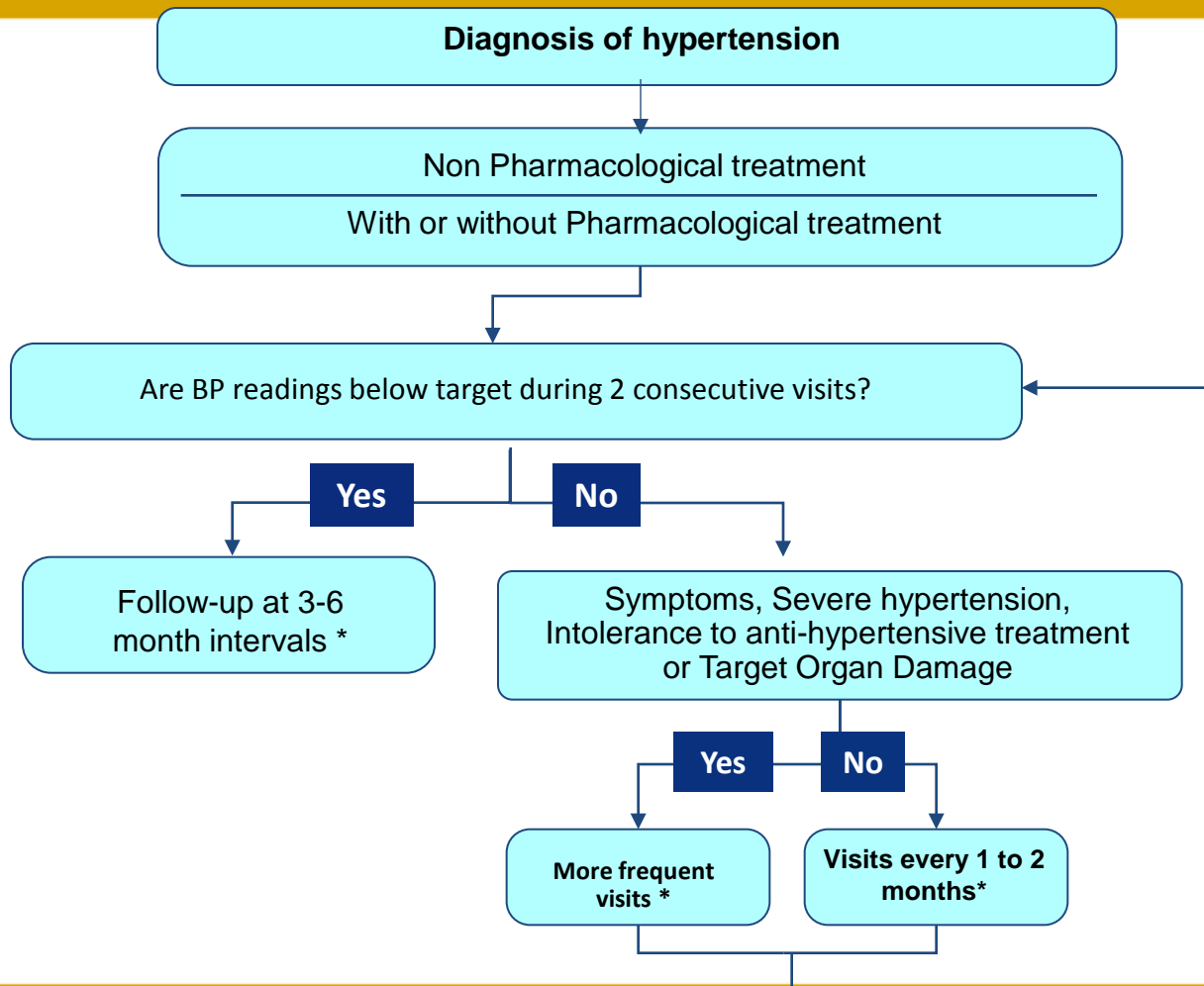| OBPM	ABPM	HBPM
Hypertensive Emergency SBP>200 or DBP>130	Mean awake BP ≥135 / 85	Average BP ≥ 135 / 85
If **no** macrovascular target organ damage (TOD) BP > 180/110	Mean 24 hour BP ≥ 130 / 80	
If macrovascular TOD BP ≥140 / 90		
BP > SBP 160 /100 over 3 visits		
BP > 140 / 90 over 4-5 visits		

Criteria for the Diagnosis of Hypertension and Recommendations for Follow-up

BP: 140-179 / 90-109

Clinic BPM

Hypertension visit 3

$\geq$160 SBP or $\geq$100 DBP → Diagnosis of HTN

<160 / 100 → or → ABPM or HBPM

Hypertension visit 4-5

$\geq$140 SBP or $\geq$90 DBP → Diagnosis of HTN

< 140 / 90 → Continue to follow-up

ABPM (If available)

Awake BP <135/85 and 24-hour <130/80 → Continue to follow-up

Awake BP $\geq$135 SBP or $\geq$85 DBP or 24-hour $\geq$130 SBP or $\geq$80 DBP → Diagnosis of HTN

or

Home BPM

< 135/85 → Repeat Home BPM → If < 135/85 → Continue to follow-up

$\geq$135 SBP or $\geq$85 DBP → Diagnosis of HTN

Patients with high normal blood pressure (office SBP 130-139 and/or DBP 85-89) should be followed annually.

CHEP

Hypertension CANADA

Criteria for the Diagnosis of Hypertension and Recommendations for Follow-up

Diagnosis of hypertension

Non Pharmacological treatment

With or without Pharmacological treatment

Are BP readings below target during 2 consecutive visits?

Yes **No**

Follow-up at 3-6 month intervals *

Symptoms, Severe hypertension, Intolerance to anti-hypertensive treatment or Target Organ Damage

Yes **No**
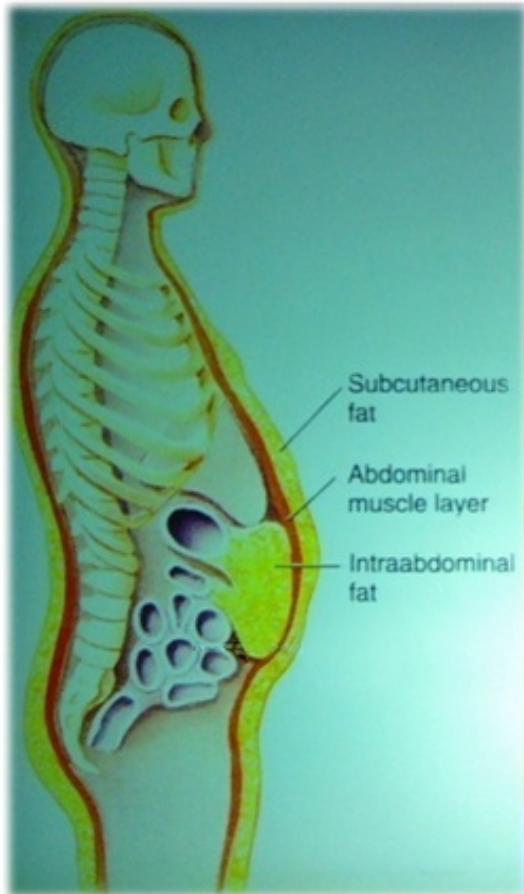
More frequent visits *

Visits every 1 to 2 months*

*Consider home blood pressure measurement in hypertension management, to assess for the presence of masked hypertension or white coat effect and to enhance adherence.
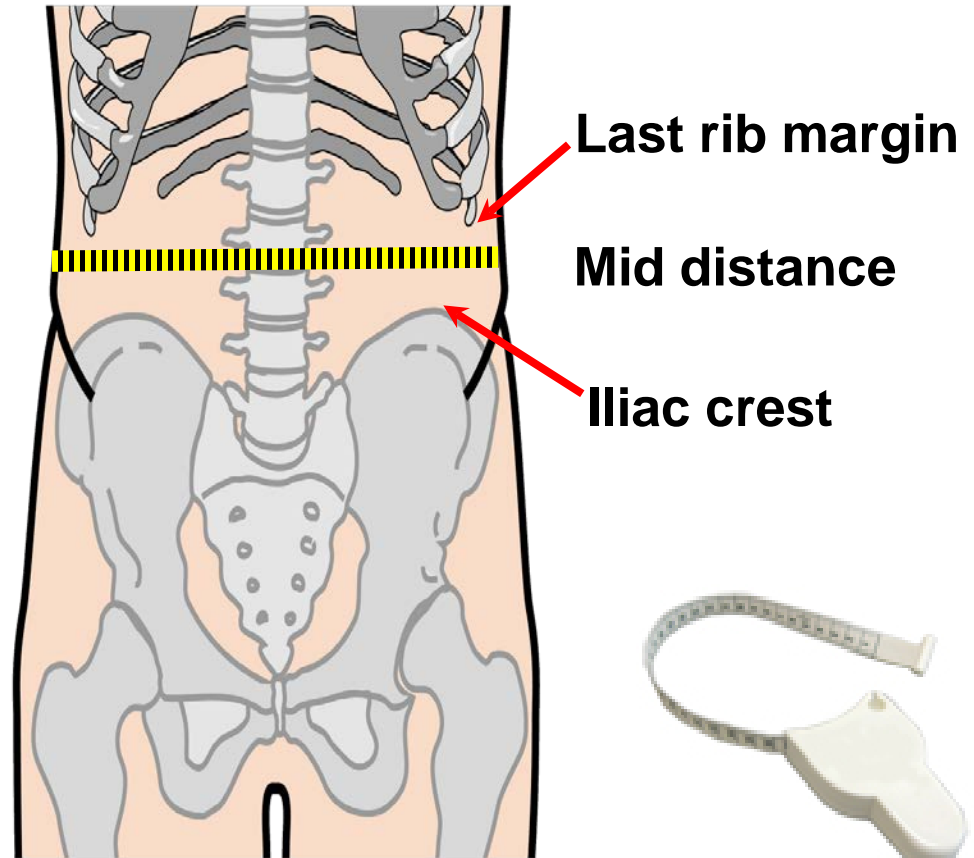
Measuring Waist Circumference

VRR – How to Assess Waist Circumference

Men:
< 102 cm

Women:
< 88 cm

Last rib margin

Mid distance

Iliac crest

Courtesy J.P. Després 2006

Waist Circumference:

An important vital sign:

	Men	Women
Canada & US	< 102 cm	< 88 cm
Europid	< 94 cm	< 80 cm
South Asian/Chinese	< 90 cm	< 80 cm
Japanese	< 85 cm	< 90 cm

Video on waist measurement at www.heartandstroke.ca
http://www.heartandstroke.com/site/c.ikIQLcMWJtE/b.3484281/k.515D/Healthy_living__Assess_your_weight.htm

Vascular Risk Assessment

Blood pressure

Alcohol use

Diabetes

Fruits and vegetables

Activity

Tobacco use

Waist **H**eight **O**besity   **?**   *Labs?*

Identifying Vascular Risk

Key Messages:

- Assess all adult patients for vascular risk

- Complete a cardiovascular risk assessment on all appropriate individuals.

- Utilize recommended techniques and resources when completing assessments.

How can you implement Vascular Risk Assessment into your daily practice?

- Everyone at every patient visit?
- Identify who is HIGH RISK?
- Those requiring additional assessment?

Questions?

A Special Thanks to:

The Calgary & Lethbridge Vascular Risk Reduction Programs and the CvHS SCN - VRR RxEACH Project, for their support and collaboration.

References:

Canadian Cardiovascular Society:

http://www.ccs.ca/index.php/en/

C-CHANGE Clinical Resource Centre:

http://www.c-changecrc.ca/

Harmonization of guidelines for the prevention and treatment of cardiovascular disease: the C-CHANGE Initiative – www.cmaj.ca (November 18, 2014)

Hypertension Canada (CHEP recommendations): http://hypertension.ca

Vascular Risk Reduction Resource:

http://www.albertahealthservices.ca/10585.asp