

*Pangangalagaan ko at pakamamahalin ang puso ko't kalusugan... bilang babae, huwarang ina, kabiyak, anak at kapatid, at higit sa lahat, bilang ako... isang TAO...*

MABUHAY KA,  
*Pusong  
Pinay!*

ASSESSMENT  
AND MANAGEMENT  
OF CARDIOVASCULAR  
RISKS IN WOMEN

A SHORT GUIDE FOR HEALTHCARE PRACTITIONERS



## INTRODUCTION

The prevalence of diseases of the cardiovascular system has grown in epidemic proportions all over the world. In the Philippines, based on statistics issued by the Department of Health (DOH) for 2004, of the 10 top leading causes of death among women, diseases of the heart and disorders of the vascular system are number 1 and number 2, respectively. Roughly, about 36 of deaths among women are due to diseases of the cardiovascular system. Diabetes mellitus which is an independent cardiovascular risk ranks 6th as the cause of death among women.

In “Project EVA: Evaluation of the Knowledge, Attitudes and Practices of Filipino Women on Cardiovascular Disease and Risk Factors in Metro Manila,” the perceived leading cause of illness and death among Filipino women is cancer, not cardiovascular diseases (CVD).

The same survey showed that the health problem for which women respondents sought consultation was cancer. Filipino women, as part of their culture, would rather put the health concern of their husbands and children before their own, so that when CVD is diagnosed in them, by then such is already in its full-blown course with its attendant complications. Primary prevention would, by then, no longer be applicable.

The optimal time to prevent CVD through assessment and management of cardiovascular risk factors is as early as possible in a woman’s life. However, access to the expertise of specialist and tertiary care is not always available to most of the Filipino women.

It is therefore the objective of this advocacy manual to provide a guide for healthcare practitioners (doctors, nurses and healthcare volunteers) to properly assess a woman’s cardiovascular risk, educate these women on proper healthy lifestyle, and advise them when to consult a specialist.

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## WHY A GUIDE TO CVD PREVENTION FOR HEALTHCARE PRACTITIONERS IN THE PHILIPPINES?

- Filipino men and women are both at risk for CVD. However, men usually are the ones who are given medical attention early because of the cultural barrier that makes women's heart health less of a priority than men's.
- Many women are not aware that the number 1 leading cause of death in the Philippines is diseases of the cardiovascular system. (Table 1). Therefore, identification of the cardiovascular risk factors among women is less.
- A healthcare practitioner is often the only healthcare giver a woman consults and thus, plays an important role in the identification of global risks factors e.g., diabetes mellitus, dyslipidemia, hypertension.
- In our healthcare system, especially in the rural setting, cardiovascular specialists may not always be available to meet the needs for cardiovascular assessment.
- Atherosclerosis is the underlying cause of CVD, and its development into full-blown symptomatic event is preceded by a symptom-free period when preventive measures for the risk factors can be implemented.
- Prevention and reduction of global cardiovascular risk early in a woman's life must be a priority.

**TABLE 1. TOP TEN FEMALE DEATHS BY CAUSE**

TOP TEN FEMALE DEATHS BY CAUSE Number and Percent, Philippines 2004		
CAUSE	NUMBER	PERCENT
1. Diseases of the Heart (1)	30,500	18.4
2. Disease of the Vascular System (2)	22,750	13.8
3. Malignant Neoplasm (3)	19,129	11.6
4. Pneumonia (5)	16,276	9.8
5. Ill-defined and unknown causes of mortality	10,362	6.3
6. Diabetes Mellitus (9)	8,852	5.2
7. TB all forms (6)	8,029	4.9
8. Accidents (4)	6,442	3.9
9. Chronic Lower Respiratory Diseases (8)	5,891	3.6
10. Certain conditions originating in the perinatal period	5,371	3.2

Total Deaths for Female: 165,441

Taken from 2004 NSO Data

## WHAT IS THE THRUST OF WOMEN'S HEART HEALTH ADVOCACY?

- **TO CREATE AWARENESS AMONG WOMEN** at all levels that CVD is the number 1 killer of Filipino women through mass media advocacy campaign;
- **TO EDUCATE FILIPINO WOMEN** through lay fora, seminars, and workshops;
- **TO ENCOURAGE FILIPINO WOMEN** to engage in healthy lifestyle, consult their doctors and take their medicines;
- **TO BREAK THE CULTURAL BARRIER** that makes women's heart health of less priority than men's;
- **TO ENROLL AS MANY ADVOCATES** from among the lay, non-health professionals and from government;
- **TO TRAIN PHYSICIANS TO EDUCATE WOMEN** to close the gap between perception and reality of cardiovascular disease.

*Source: The PHA Council on Women's Cardiovascular Health*

## WHAT FACTORS DETERMINE A WOMAN'S GLOBAL CARDIOVASCULAR RISKS?

- Risk factors are defined as either non-modifiable or modifiable. Global cardiovascular risk factors for women are:

### Modifiable

- Age
- Family history
- Menopause

### Non-modifiable

- Blood pressure
- Plasma cholesterol
- Plasma LDL cholesterol
- Plasma HDL cholesterol
- Plasma triglyceride
- Body weight
- Glucose intolerance
- Cigarette smoking
- Diabetes mellitus

*Abbreviations: LDL: low-density lipoprotein; HDL: high-density lipoprotein.*

- The presence of multiple risk factors, as in the metabolic syndrome, substantially increases global cardiovascular risks.

**TABLE 2. Components of the metabolic syndrome in women as the main risk factor for CVD\***

FACTOR	DEFINITION
Central Obesity plus	BMI > 30 kg/m <sup>2</sup> or waist circumference ≥ 88 cm
Hypertension	SBP ≥ 130 mmHg or DBP ≥ 85 mmHg, or specific treatment of previously diagnosed hypertension
Reduced HDL cholesterol	< 1.29 mmol/l (<50 mg/dl) or specific treatment for this lipid abnormality
Raised triglycerides	< 1.7 mmol/l (≥150 mg/dl) or specific treatment for this lipid abnormality
Raised fasting plasma glucose	≥ 6.1 mmol/l (≥110 mg/dl) or previously diagnosed type 2 diabetes mellitus

*Abbreviations: BMI: Body mass index; SBP: Systolic blood pressure; DBP: Diastolic blood pressure; HDL: High-density lipoprotein*

*\*Definition by the International Diabetes Federation.*

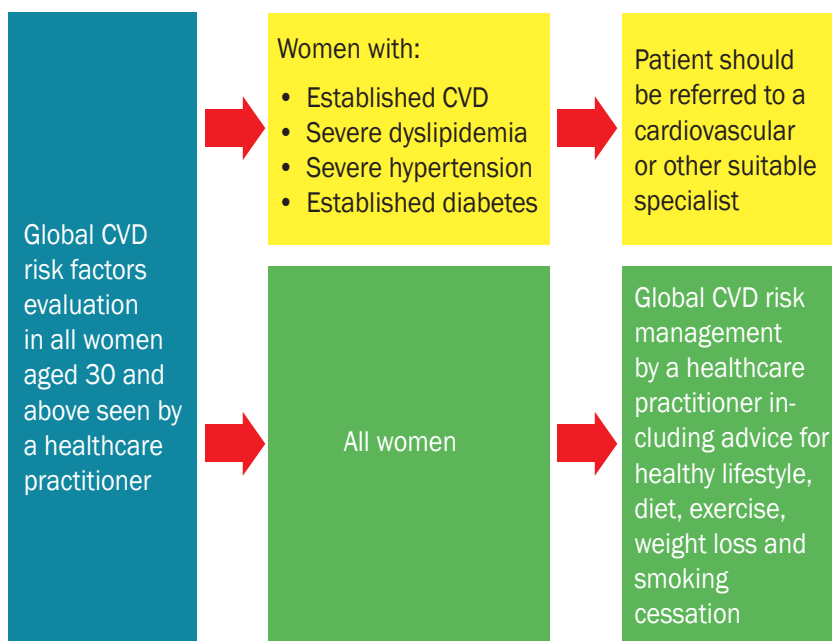
## WHICH GLOBAL RISK FACTORS SHOULD BE ASSESSED BY HEALTHCARE PRACTITIONERS?

- Global cardiovascular risk should be assessed in all women aged 30 and above when consulting a healthcare practitioner.
- Many women appear healthy with no symptoms of CVD; nevertheless, they are potentially at increased risk.
- As a minimum requirement, the following risk factors included in the Framingham Risk Score must be assessed:
  - Age
  - Blood pressure
  - Total plasma cholesterol, LDL-C, HDL-C
  - Cigarette smoking
  - Diabetes
- Other important information to establish:
  - Personal and family
  - History of CVD
  - Gynecological and obstetric history, including age at menopause
  - Body weight
  - Waist circumference
  - Diet
  - Alcohol consumption
  - Physical fitness
- Additional parameters to consider are:
  - Fasting plasma glucose
  - 75-g oral glucose tolerance test (advisable in high-risk patients or in those with abnormal fasting plasma glucose)
  - Fasting plasma triglycerides

## WHICH PATIENTS CAN BE MANAGED FOR GLOBAL CARDIOVASCULAR RISKS BY HEALTHCARE PRACTITIONERS?

- A woman with a high-risk profile or overt CVD requires intensive management, including drug therapy.
- Consultation with a cardiovascular specialist is essential if global cardiovascular risk is high, or if CVD is present.

**FIGURE 1. Guide to determine patients suitable for cardiovascular risk management**



*Abbreviation: CVD: cardiovascular disease*



## WHAT IS THE FRAMINGHAM RISK SCORE?

Framingham Risk Score establishes the probability of developing coronary heart disease (CHD) in 10 years among men and women aged 30-74 years, who at baseline examination do not have overt CHD.

The major independent risk factors identified include:

- Cigarette smoking
- Hypertension (BP  $\geq$  140/90 mmHg or on antihypertensive medication)
- Low HDL cholesterol ( $<$ 40 mg/dL)
- Family history of premature CHD (CHD in male first-degree relative  $<$ 55 years; CHD in female first-degree relative  $<$ 65 years)
- Age (men  $\geq$ 45 years; women  $\geq$ 55 years)

If a person has high HDL cholesterol ( $\geq$ 60 mg/dL), one risk factor is subtracted from the count. If the person has type 2 diabetes, this person is classified as having a CHD risk equivalent.

## HOW TO USE THE FRAMINGHAM RISK SCORE

Based on the calculations, the person with multiple risk factors is assigned to one of three categories according to 10-year risk for CHD (myocardial infarction + CHD death):  $>$ 20 percent, 10-20 percent, and  $<$ 10 percent. A person with 10-year risk  $>$ 20 percent is elevated to the category of CHD risk equivalent.

It should be noted however, that the Framingham equations for 10-year CHD risk are not intended to be used to track changes in risk over time as risk factors are modified. The 10-year risk calculation is intended to be performed at the outset to help guide decisions about the intensity of therapy.

*Source: Third Report of the National Cholesterol Education Program (NCEP), Adult Treatment Panel III (ATP III)*

## FRAMINGHAM RISK SCORE

### Step 1

Age		
Years	LDL Pts	Chol Pts
30-34	-1	[-1]
35-39	0	[0]
40-44	1	[1]
45-49	2	[2]
50-54	3	[3]
55-59	4	[4]
60-64	5	[5]
65-69	6	[6]
70-74	7	[7]

### Step 2

LDL - C		
(mg/dl)	(mmol/L)	LDL Pts
<100	<2.59	-3
100-129	2.60-3.36	0
130-159	3.37-4.14	0
160-190	4.15-4.92	1
≥190	≥4.92	2

Cholesterol		
(mg/dl)	(mmol/L)	Chol Pts
<160	<4.14	[-3]
160-199	4.15-5.17	[0]
200-239	5.18-6.21	[1]
240-279	6.22-7.24	[2]
≥280	≥7.25	[3]

### Step 3

HDL - C			
(mg/dl)	(mmol/L)	LDL Pts	Chol Pts
<35	<0.90	2	[2]
35-44	0.91-1.16	1	[1]
45-49	1.17-1.29	0	[0]
50-59	1.30-1.55	0	[0]
>60	>1.56	-1	[-2]

### Step 4

Blood Pressure				
Systolic (mm Hg)	Diastolic (mm Hg)			
	<80	80-84	85-89	90-99
<120	0[0] pts			
120-129	0[0] pts			
130-139			0[1] pts	
140-159				0[2] pts
≥160				0[3] pts

Note: When systolic and diastolic pressures provide different estimates for point scores, use the higher number

### Step 5

Diabetes		
	LDL Pts	Chol Pts
No	0	[0]
Yes	2	[2]

### Step 6

Smoker		
	LDL Pts	Chol Pts
No	0	[0]
Yes	2	[2]

(sum from 1-6)

### Step 7

Adding up the points	
Age	_____
LDL-C or Chol	_____
HDL-C	_____
Blood Pressure	_____
Diabetes	_____
Smoker	_____
Point total	_____

### Step 8 (determine CHD risk from point total)

CHD Risk				
LDL Pts Total	10 Yr CHD Risk	Chol Pts Total	10 Yr CHD Risk	
<-3	1%			
-2	2%			
-1	2%	<[-1]	[2%]	
0	3%	[0]	[3%]	
1	4%	[1]	[3%]	
2	4%	[2]	[4%]	
3	6%	[3]	[5%]	
4	7%	[4]	[7%]	
5	9%	[5]	[8%]	
6	11%	[6]	[10%]	
7	14%	[7]	[13%]	
8	18%	[8]	[16%]	
9	22%	[9]	[20%]	
10	27%	[10]	[25%]	
11	33%	[11]	[31%]	
12	40%	[12]	[37%]	
13	47%	[13]	[45%]	
≥14	≥56%	≥[14]	≥[53%]	

### Step 9 compare to average person your age

CHD Risk				
Age (years)	Average 10Yr CHD Risk	Average 10Yr Hard* CHD Risk	Low** 10Yr CHD Risk	
30-34	3%	1%	2%	
35-39	5%	4%	3%	
40-44	7%	4%	4%	
45-49	11%	8%	4%	
50-54	14%	10%	6%	
55-59	16%	13%	7%	
60-64	21%	20%	9%	
65-69	25%	22%	11%	
70-74	30%	25%	14%	

\*Hard CHD events exclude angina pectoris.

\*\*Low risk was calculated for a person the same age, optimal blood pressure, LDL-C 100-129 mg/dL or cholesterol 160-199 mg/dL, HDL-C 45 mg/dL for men or 55 mg/dL for women, non-smoker, no diabetes.

Risk estimates were derived from the experience of the Framingham Heart Study, a predominantly Caucasian population in Massachusetts, USA.

Source: Framingham Heart Study

Key	
Color	Relative Risk
green	Very low
white	Low
yellow	Moderate
rose	High
red	Very High

## LIFESTYLE CHANGES I – CIGARETTE SMOKING

### GOAL: Permanently stop smoking all forms of tobacco

- Cigarette smoking increases CVD risk in both men and women in a dose-dependent manner.
- In Project EVA, 31% of women reported to smoke tobacco and half of them reported that their spouses also engage in smoking.
- The goal is complete smoking cessation and avoidance of passive smoking.
- Establish smoking cessation strategy such as behavioural counseling of both husband and wives, nicotine replacement therapy and other pharmacologic intervention.
- Arrange follow-up visits to monitor progress of the intervention.

*Source: The Philippine Heart Association (PHA) Clinical Practice Guidelines for the Management of Dyslipidemia in the Philippines–Smoking Cessation Guide Project EVA...*

## LIFESTYLE CHANGES II – DIET

### GOAL: Adopt a Healthy Well-balanced Diet

- For women at any level of cardiovascular risk, a low-fat, low-cholesterol diet is recommended for life.
- Encourage dietary intervention by consumption of the following items:
  - 30-40% fat from total caloric intake;
  - <300 mg /day to approximately 450 mg/day to 100 mg for every 1,000 kilocalories consumed daily.
- The Food and Nutrition Research Institute of the Department of Science and Technology and the Nutritionists-Dietitians Association of the Philippines provide a simple diet guide and meal plan.
- Pointers to observe in planning meals:
  - Choose fruits, vegetables, cereals, breads, dried beans and nuts (i.e., almonds and walnuts).
  - Use fish as main dish at least three times a week. Eat chicken meat as a substitute to fish at least three to four times a week.
  - Use lean parts of red meat and prepare as broiled, boiled or roasted. Trim visible fats.
  - Use evaporated filled milk or skimmed milk instead of whole milk, and avoid whole milk products such as cheese, butter, cream.
  - Use margarine made with allowed vegetable oil.
  - Use polyunsaturated fats and oils such as corn oil, olive oil, soy-bean oil, canola oil.
  - Limit eggs to only three per week.
  - Avoid rich desserts such as cakes, pastries, cookies, pies, ice cream and chocolate.
  - Always read the nutrition labels of packaged/processed foods.

*Source: The Philippine Heart Association (PHA) Clinical Practice Guidelines for the Management of Dyslipidemia in the Philippines–Dietary Guide*

## LIFESTYLE CHANGES III – PHYSICAL FITNESS

### GOAL: Regular Physical Exercise

- Regular physical activity is associated with a lower risk of death from CVD and CHD, but mechanisms are multifactorial.
- Benefits of exercise:
  - Lower levels of Triglycerides and LDL, higher HDL cholesterol
  - Improved insulin sensitivity
  - Lower blood pressure
  - Managed body weight
  - Relief of stress
- For physical activity to be protective, it must be vigorous, aerobic, habitual and continuing;
- 3 hours a week of moderately vigorous activity or activity equivalent to 3,500 kilocalories is protective.
  - MODERATELY VIGOROUS ACTIVITY INCLUDES:
    - Swimming
    - Basketball, volleyball, badminton, tennis
    - Jogging or running
  - 3,500 KILO CALORIES IS THE EQUIVALENT OF:
    - Walking 35 miles ( 56 km)
    - Climbing 435 flights of stairs ( 20 steps/flight)
- A woman with established CVD should be referred for exercise testing.

*Source: The Philippine Heart Association (PHA) Clinical Practice Guidelines for the Management of Dyslipidemia in the Philippines–Physical Activity Guide*

*Abbreviation: CHD (coronary heart disease)*

## LIFESTYLE CHANGES IV – WEIGHT MANAGEMENT

**GOAL: Body Mass Index between 18.5 – 22.9 kg.m<sup>2</sup> in adult Asians**

- Adiposity is associated with CVD, as well as stroke and numerous other co-morbid conditions.
- Obesity is associated with higher all-cause mortality, largely because of an increased CVD mortality.
- Benefits:
  - Reduces blood pressure
  - Reduces plasma LDL and triglyceride levels
  - Increases HDL levels
  - Decreases glucose intolerance
- Reinforce the message that the only effective way to lose weight is to restrict total calorie intake.
- Stress that regular physical exercise assists in weight loss.
- Although BMI is most widely used measure of adiposity, abdominal obesity is more strongly correlated with CVD, ratio of waist to hip circumference (WHR) is used to indicate abdominal fat accumulation.
- According to the Asia Pacific Perspective: Redefining Obesity and its Treatment, waist circumference, is a preferred measure of abdominal obesity compared to WHR.

*Source: The Philippine Heart Association (PHA) Clinical Practice Guidelines for the Management of Dyslipidemia in the Philippines–Weight Management Guide*

## HOW TO MANAGE HIGH BLOOD LIPID LEVELS (DYSLIPIDEMIA)

**GOAL: Plasma total cholesterol <5 mmol/l or <190mg/dl (non-diabetic patients); <4.5 mmol/l <175 mg/dl (patients with diabetic or established CVD)**

- Elevated total plasma cholesterol levels are a significant cardiovascular risk factor, and must be of prime concern in the prevention of CVD.
- Initiation of lifestyle interventions is essential in all patients with elevated lipid levels.
- Patients with mildly elevated total cholesterol may achieve the target total cholesterol concentration through lifestyle interventions (balanced diet, increased physical fitness, smoking cessation).
- Women at low cardiovascular risk (0-1 risk factors) should be monitored at 5-year intervals, and importance of lifestyle interventions stressed at each consultation.
- If 2 or more risk factors are present (10-year risk  $\leq$  20%), a full analysis of plasma lipoproteins should be performed. (LDL-C, HDL-C, triglyceride).
- The low-density lipoprotein cholesterol target is <100 mg/dl (2.6 mmol/dl) in women with known CHD or CHD equivalent.
- High-risk women should be monitored at 1 year intervals.
- In women, specially in their menopausal stage, HDL-C and high triglyceride levels may be more prevalent. Therefore, lifestyle change and possibly drug therapy are recommended.
- Consult a cardiovascular physician if drug therapy is recommended.

*Source: Assessment and Management of Cardiovascular Risks in Women: A Short Guide for Menopause Practitioners*

## HOW TO MANAGE HIGH BLOOD PRESSURE

**GOAL: Systolic blood pressure/diastolic blood pressure <140/<90 mmHg (non-diabetic patient), or <130 /< 80 mmHg (patient with diabetes or chronic kidney disease)**

- After the age of 45 years, blood pressure rises steeply in women, and by the age of 60, average SBP levels in women are higher than men's.
- In hypertensive postmenopausal women, only about one-third have effectively controlled blood pressure levels.
- High blood pressure is one of the most powerful modifiable risk factors for cardiovascular morbidity and mortality.
- A decrease in SBP of only 2-3 mmHg lowers the likelihood of death from stroke by 10% and from ischemic heart disease or other vascular causes by 7%.
- At every consultation, the blood pressure of women (especially those in the peri-menopausal stage) who are at higher risk of having raised blood pressure, must be measured.
- Lifestyle changes help lower blood pressure if such is not seriously elevated i.e. women with SBP/diastolic blood pressure (DBP) 120-139/80-89 mmHg.
- A woman with no symptoms of CVD still requires antihypertensive therapy if blood pressure is high (>140/90 mmHg).
- More rigorous control of blood pressure, using antihypertensive agents, is essential in a woman with additional cardiovascular risk factors, sub-clinical organ damage or diabetes.
- Modification of renin-angiotensin-aldosterone system (RAAS) activity might be important in blood pressure control of a hypertensive peri- or postmenopausal woman.

*Source: Assessment and Management of Cardiovascular Risks in Women: A Short Guide for Menopause Practitioners*



## THE MENOPAUSE AND HORMONE REPLACEMENT THERAPY

- It is a known fact that women in their reproductive age are protected from developing atherosclerosis by estrogen. However, during menopause the risk of CVD and the mortality and morbidity due to CAD is higher in women.
- Hormone Therapy (HT) is currently not indicated for coronary protection in women of any age. Initiation of HT by women ages 50 to 59 years or by those within 10 years of menopause to treat typical menopause symptoms (e.g. vasomotor, vaginal) does not seem to increase the risk of CHD events. There is emerging evidence that initiation of estrogen therapy (ET) in early postmenopause may reduce CHD risk.\*
- However, the PHA Council on Cardiovascular Women's Health would like to reserve issuing a statement about hormone replacement therapy (HRT) and its role in reducing CVD until further evaluation and review of all evidences.

*\*Source: Estrogen and Progestogen Use in Postmenopausal Women: 2010 position statement of the North American Menopause Society. Menopause: The Journal of the North American Menopause Society*

## ACCURATE OBESITY ASSESSMENT

- BMI does not distinguish between fat and muscle.
- A highly muscular and athletic, healthy woman may be defined as overweight or obese using BMI.
- BMI is not accurate in a woman who is <150 cm tall.
- BMI is not accurate in a woman > 65 years old.
- Waist measurement provides an accurate measurement of abdominal obesity.
  - Place a tape measure around the woman's bare abdomen just above the iliac crest;
  - Ensure that the tape measure is snug, but does not compress the skin, and is parallel to the floor;
  - The measurement is taken with the woman standing upright and relaxed while exhaling.

*Source: Assessment and Management of Cardiovascular Risks in Women: A Short Guide for Menopause Practitioners*

## GUIDE TO LIPID MANAGEMENT

### LDL-C Goals based on Global Risk in NCEP-ATP III

ATP III Risk Categories and LDL-C Goals (Highest to Lowest)	LDL-C Goal
CHD CHD Risk Equivalents Other cardiovascular disease or Diabetes mellitus or Aortic aneurysm or 10-year risk greater than 20%	< 100 mg/dl (2.6 mmol/L) or < 70 mg/dl (1.8 mmol/L)
Multiple (2+) Risk Factors	< 130 mg/dl (3.4 mmol/L)
0 – 1 risk factors	< 160mg/dl (4.1 mmol/L)

*ATP III, U.S. Adult Treatment Panel III; CHD, coronary heart disease; CVD, cardiovascular disease; LDL-C, low-density lipoprotein cholesterol.*

## GUIDE TO LIPID MANAGEMENT

### LDL-C Treatment Thresholds for Diet and for Drugs

Risk Category	LDL-C	Diet, Lifestyle Initiation Level	Drug Treatment Initiation Level
0-1 Other risk factors *	< 160mg/dl (4.14mmol/L)	≥ 160 mg/dl	≥ 190 mg/dl (4.91 mmol/L) (160 – 189 mg/dl; LDL-C- lowering drug optional)
2+ Other risk factors (10-year risk ≤ 20%)	< 130 mg/dl (3.36 mmol/L)	≥ 130 mg/dl	10-year risk 10-20%: ≥ 130 mg/dl 10-year risk <10%: ≥ 160 mg/dl
CHD or CHD risk equivalent (10-year risk > 20%)	<100 mg/dl or < 70 mg/dl (1.8 mmol/L)**	≥ 100 mg/dl	≥ 100 mg/dl**

*Adapted from the expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol on Adults CHD, coronary heart disease; LDL-C, low-density lipoprotein cholesterol.*

*\*Almost all people with 0 to 1 other risk factors have a 10-year risk less than 10%: thus, 10-year risk assessment in people with 0 to 1 risk factor is not necessary.*

*\*\*Revised to lower levels in light of the PROVE-IT and REVERSAL trials. Clinical judgment may call for deferring drug therapy in this subcategory.*

## GUIDE TO LIPID MANAGEMENT

### Role of Total Cholesterol, HDL-C, and Triglyceride Values in Management of Lipid Disorders

Values	Drug Management
<b>Serum Cholesterol levels*</b>	
≈150 mg/dl (3.9 mmol/L)	New goal for CHD or equivalent risk
< 175 mg/dl (4.5 mmol/L)	Goal for diabetics or CHD or equivalent
< 190 mg/dl (5.0 mmol/L)	General goal; desirable; check LDL
> 190-239 mg/dl (5.0 – 6.2 mmol/L)	Only acceptable if total risk low; check LDL
≥ 240 mg/dl (6.2 mmol/L)	Govern by LDL
<b>Serum HDL-C Levels</b>	
>60 mg/dl (1.6 mmol/L)	High. protective. leave
< 40 mg/dl (1.03 mmol/L), in women <46 mg/dl (1.2 mmol/L)	Low. Risk factor. Consider drug treatment if other risks**. Otherwise exercise and diet
<b>Triglyceride (Fasting) Levels</b>	
< 150 mg/dl (1.69 mmol/L)	Normal
180 – 199 mg/dl (1.69 – 2.25 mmol/L)	Borderline; non-drug treatment (loss weight, increased exercise, moderate alcohol intake, dietary therapy)
250 – 499 mg/dl (2.26 – 5.63 mmol/L)	High; Lifestyle treatment; drugs if high LDL-C or low HDL-C
≥ 500 mg/dl (5.65 mmol/L)	Very High, urgent treatment needed; risk of pancreatitis

*CHD, coronary heart disease; HDL-C, high-density lipoprotein cholesterol; LDL, low-density lipoprotein; LDL-C, low-density lipoprotein cholesterol.*

*\*European standards, others from ATP III*

*\*\*Other risk factors for coronary heart disease, besides cholesterol levels, defined by ATP III as family history of premature CHD, smoking, hypertension, age (men ≥ 45, women ≥ 55), HDL-C less than 40 mg/dl (1.03 mmol/L), and diabetes with microalbuminuria.*

## ACCURATE BLOOD PRESSURE MEASUREMENT

- Ensure that the woman has been comfortably seated for several minutes in a quiet room.
- Advise the woman to avoid caffeine, exercise and smoking for  $\geq 30$  minutes before measurement.
- Check that no tight clothing constricts the arm.
- Rest the woman's arm on a table, preferable with the brachial artery level with the heart.
- Use a standard cuff (12 – 13 x 35 cm); have larger and smaller cuffs available.
- The bladder should encircle at least 80% of the arm (but not more than 100%).
- Check that any remaining air in the cuff is evacuated before putting it on the woman's arm.
- Inflate the cuff to  $> 30$  mmHg above the estimated SBP needed to occlude the pulse.
- Deflate slowly at a rate of 2-3 mmHg/second until regular tapping sounds are audible.
- Use Korotkoff sounds to identify SBP and DBP: first heard when the cuff pressure equals the SBP, and ceasing once the cuff has been deflated below the DBP.
- Take at least two measurements at an interval of 1-2 minutes; additional measurements are required if the first two vary markedly.
- At the first examination, blood pressure should be checked in both arms to detect possible differences due to peripheral vascular disease.
- If values vary in different arms, use the higher one.

*Source: Assessment and Management of Cardiovascular Risks in Women: A Short Guide for Menopause Practitioners*

## BLOOD PRESSURE CLASSIFICATION

JNC 7 Category	SBP/DBP
Normal	<120/80
Prehypertension	120-139/80-89
Hypertension	≥ 140/90
Stage 1	140-159/90-99
Stage 2	≥ 160-100

*DBP, diastolic blood pressure; JNC, Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure; SBP, systolic blood pressure*

*Sources: The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. JAMA 2003; 289:2560-71.*

## LIFESTYLE MODIFICATIONS TO PREVENT AND MANAGE HYPERTENSION\*

Modification	Recommendation	Approximate SBP Reduction (Range)**
Weight Reduction	Maintain normal body weight (body mass index 18.5 – 24.9 kg/m <sup>2</sup> )	5-20 mmHg/ 10kg
Adopt DASH eating plan	Consume a diet rich in fruits, vegetables, and low-fat dairy products with a reduced content of saturated and total fat	8-14 mmHg
Dietary sodium reduction	Reduce dietary sodium intake to no more than 100 mmol per day (2.4 g sodium or 6 g sodium chloride)	2-8 mmHg
Physical activity	Engage in regular aerobic physical activity such as brisk walking (at least 30 mins. per day, most days of the week)	4-9 mmHg
Moderation of alcohol consumption	Limit consumption to no more than 2 drinks (e.g., 24 oz beer, 10 oz wine, 3 oz 80-proof whiskey) per day in most men, and to no more than 1 drink per day in women and lighter weight persons	2-4 mmHg

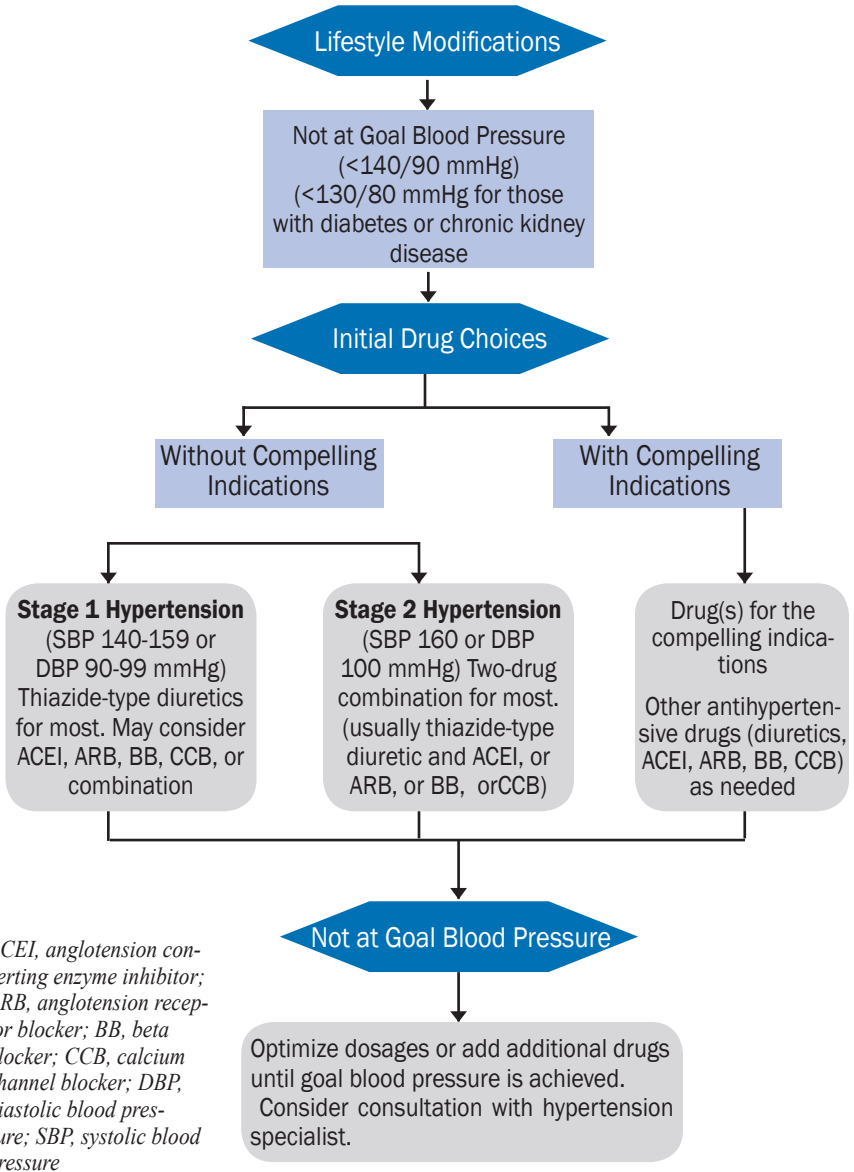
*DASH, Dietary Approaches to Stop Hypertension; SBP, systolic blood pressure*

*\*For overall cardiovascular risk reduction, stop smoking.*

*\*\*The effects of implementing these modifications are dose and time dependent, and could be greater for some individuals.*

*Sources: The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. JAMA 2003; 289:2560-71*

## ALGORITHM FOR TREATMENT OF HYPERTENSION



*Sources: The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. JAMA 2003; 289:2560-71*

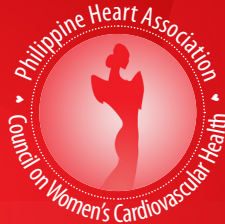
## CHECKLIST FOR EFFECTIVE CARDIOVASCULAR RISK EVALUATION

### Initial Consultation

- |  |  |
|--|--|
| <input type="checkbox"/> Family history                  | <input type="checkbox"/> Body mass index       |
| <input type="checkbox"/> Cigarettes/day                  | <input type="checkbox"/> Waist circumference   |
| <input type="checkbox"/> Alcohol consumption             | <input type="checkbox"/> Physical activity     |
| <input type="checkbox"/> Menopausal status               | <input type="checkbox"/> Blood pressure        |
| <input type="checkbox"/> Age                             | <input type="checkbox"/> Framingham Risk Score |
| <input type="checkbox"/> Chronic kidney disease          | <input type="checkbox"/> Diet                  |
| <input type="checkbox"/> Diabetes                        | <input type="checkbox"/> Lipid profile         |
| <input type="checkbox"/> Existing cardiovascular disease | <input type="checkbox"/> Blood glucose         |

### Follow-up visits/monitoring

- |  |  |
|--|--|
| <input type="checkbox"/> Cigarettes/day      | <input type="checkbox"/> Body mass index       |
| <input type="checkbox"/> Alcohol consumption | <input type="checkbox"/> Waist circumference   |
| <input type="checkbox"/> Menopausal status   | <input type="checkbox"/> Blood pressure        |
| <input type="checkbox"/> Age                 | <input type="checkbox"/> Framingham Risk Score |
| <input type="checkbox"/> Physical fitness    | <input type="checkbox"/> Lipid profile         |
| <input type="checkbox"/> Diet                | <input type="checkbox"/> Blood glucose         |



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MABUHAY KA,  
*Pusong  
Pinay!*



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