

SOP

Cardiovascular Risk Assessment in Adults Using WHO Cardiovascular Disease Risk Charts

Department of Public Health

Faculty of Medicine

UWUSL

Standard Operating Procedure (SOP) for Cardiovascular Risk Assessment in Adults Using WHO Cardiovascular Disease Risk Charts

(1) Title

Assessment of Cardiovascular Risk in Adults using WHO Cardiovascular Disease Risk Charts

(2) Issued by

Department of Public Health, Faculty of Medicine, Uva Wellassa University of Sri Lanka

(3) Purpose

To establish a standardized procedure for assessing cardiovascular disease (CVD) risk among adults in order to identify individuals at high risk, provide preventive interventions, and reduce morbidity and mortality associated with cardiovascular diseases

(4) Scope

This SOP applies to:

- Medical students during clinical and Public Health appointments
- Medical officers and healthcare staff in outpatient clinics and community settings
- Non-communicable disease (NCD) screening programs
- Primary healthcare institutions and field clinics

(5) Responsibilities

(5.1) Medical Students / Healthcare Staff

- Obtain relevant cardiovascular risk history
- Measure anthropometric and clinical parameters accurately
- Identify modifiable and non-modifiable risk factors
- Calculate cardiovascular risk using approved risk charts/tools
- Educate patients regarding lifestyle modifications

(5.2) Supervising Medical Officers / Tutors

- Guide and supervise assessments
- Confirm cardiovascular risk categorization
- Provide clinical management advice and feedback
- Ensure ethical and professional conduct

(6) Ethical and Professional Considerations

- Maintain patient confidentiality
- Request informed consent before assessment
- Ensure privacy during examination
- Communicate respectfully and clearly
- Provide non-judgmental counselling
- Ensure patient comfort and safety

(7) Preparation

(7.1) Environment

- Quiet, private, and well-lit area
- Seating arrangement for patient comfort



(7.2) Materials Required

Blood pressure apparatus (sphygmomanometer)



- Stethoscope



- Weight scale



- Height measuring scale/ stadiometer



- Measuring tape



- Glucometer or laboratory results (if available)

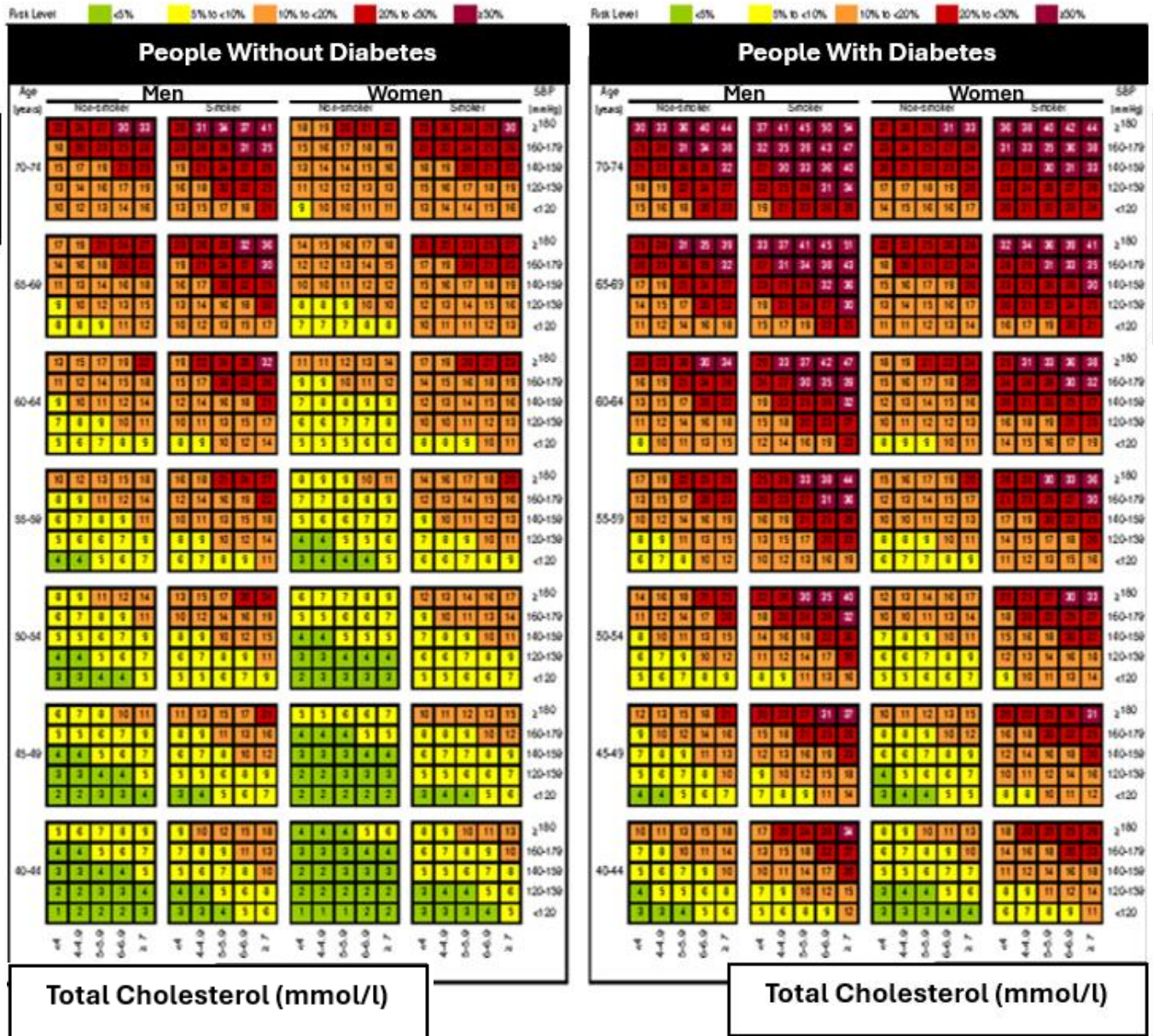


- Lipid profile reports (if available)

GGT			5
HbA1C			4
FBS/Glucose			7
Lipid Profile			
- Cholesterol	175	mg/dL	
- Triglyceride	40	mg/dL	
- HDL-C	89	mg/dL	
- LDL-C	76	mg/dL	
Total protein		g/dL	

- WHO/ISH (World Health Organization/ International Society of Hypertension) or national cardiovascular risk charts

WHO Cardiovascular Disease Risk Laboratory-based Charts South Asia



(7.3) Preparation of Patient

- (1) Explain procedure to patient
- (2) Request consent
- (3) Ensure patient has rested for at least 5 minutes before BP measurement
- (4) Advise removal of tight clothing affecting measurements

(8) Procedure for Cardiovascular Risk Assessment

(8.1) History Taking

Assess the following risk factors:

Non-modifiable Risk Factors

- Age
- Sex
- Family history of premature cardiovascular disease (Premature Cardiovascular diseases and diabetes in first degree relatives – male relatives <55 years, female relatives <65 years)

Modifiable Risk Factors

- Smoking/tobacco use within 1 year duration
- Alcohol consumption as a regular manner
- Physical inactivity (whether patient engages in physical activity ≥ 30 minutes per day at least 5 days per week or not)
- Unhealthy diet
- Hypertension
- Diabetes mellitus
- Dyslipidaemia
- Obesity
- Psychosocial stress

Past Medical History

- Ischemic heart disease – whether being followed up at a special Unit
- Stroke/TIA (Transient Ischaemic Attack)
- Chronic kidney disease
- Peripheral vascular disease

Medication History

- Antihypertensive drugs
- Antidiabetic medications
- Lipid-lowering therapy

(8.2) Physical Examination

(1) Blood Pressure Measurement

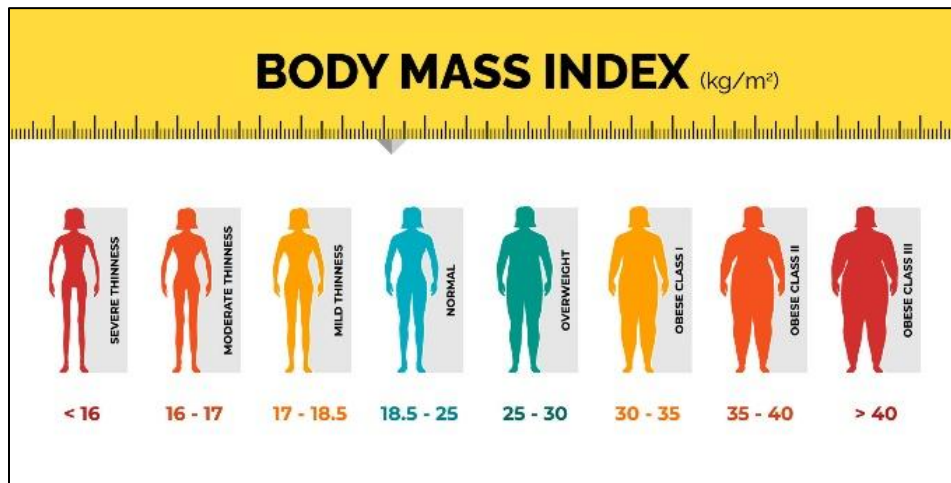
- Measure BP using standard technique (Systolic blood pressure (SBP))
- Record systolic and diastolic blood pressure

(2) Anthropometric Measurements

1) Body Mass Index (BMI)

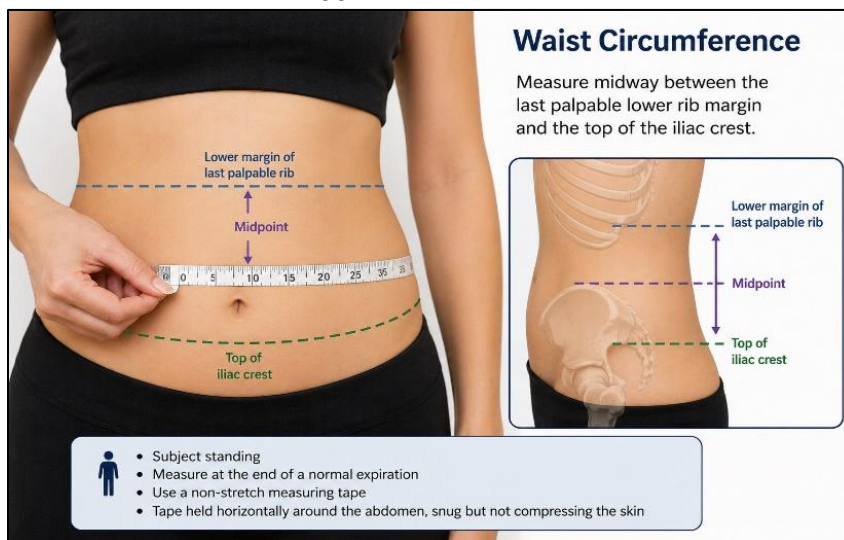
- Measure height and weight accurately
- Categorize BMI according to standard guidelines

$$\text{Body Mass Index} = \frac{\text{Weight (Kg)}}{[\text{Height (m}^2\text{)}]^2}$$



2) Waist Circumference

- Measure midway between last palpable lower rib margin and top of the iliac crest
- Identify central obesity
 - Men < 108cm
 - Women < 88cm



(8.3) General Examination

Assess for:

- Pallor
- Cyanosis
- Pedal oedema
- Xanthelasma/xanthomas
- Signs of vascular disease



(8.4) Laboratory Assessment

If available, assess:

- Fasting blood glucose / HbA1c
- Random Blood Sugar
- Serum total cholesterol (if in mg/dl divide by 38 to convert to mmol/l)
- Lipid profile
- Urine Albumin

GGT			5
HbA1C			4
FBS/Glucose			7
Lipid Profile			
- Cholesterol	175	mg/dL	
- Triglyceride	40	mg/dL	
- HDL-C	89	mg/dL	
- LDL-C	76	mg/dL	
Total protein		g/dL	

(8.5) Cardiovascular Risk Calculation

(1) Use WHO/ISH or National Cardiovascular Risk Charts (**laboratory based** or **non-laboratory based**)

(2) **Information needed**

- Presence or absence of diabetes
- Gender
- Smoker or non-smoker
- Age
- Systolic blood pressure (SBP)
- Total blood cholesterol (if in mg/dl divide by 38 to convert to mmol/l)
- BMI

(3) Assess the eligibility for using the Cardiovascular Risk Charts

People who are not eligible to be screened using this chart:

- Age <35 years, ≥75 years
- Other Medical conditions*

When can treatment decisions be made without risk stratification using risk charts

- Documented ASCVD (Atherosclerotic Cardiovascular Disease) [Stroke/ TIA/ Myocardial Infarction/ Peripheral vascular disease]
- Total blood cholesterol level >8 mmol/L (≥ 309 mg/dL)
- Diabetic Nephropathy, Retinopathy, Neuropathy
- Systolic BP > 160 mmHg
- Chronic Kidney Disease (stage 3 to 5)

(4) **Steps of cardiovascular risk assessment** using WHO/ISH or National Cardiovascular Risk Charts (**Laboratory based**)

Step 1 – Select the appropriate chart depending on the presence or absence of diabetes

Step 2 – Select male or female tables

Step 3 – Select smoker or non-smoker boxes

- All current smokers and those who have smoked within last one year from assessment are considered as smokers.
- Smoking included cigarettes, beedi, cigar, pipe etc.)

Step 4 – Select age group box (if age is 50-59 years select 50, if 60-69 years select 60 etc)

Step 5 – Find the box indicates the serum cholesterol level

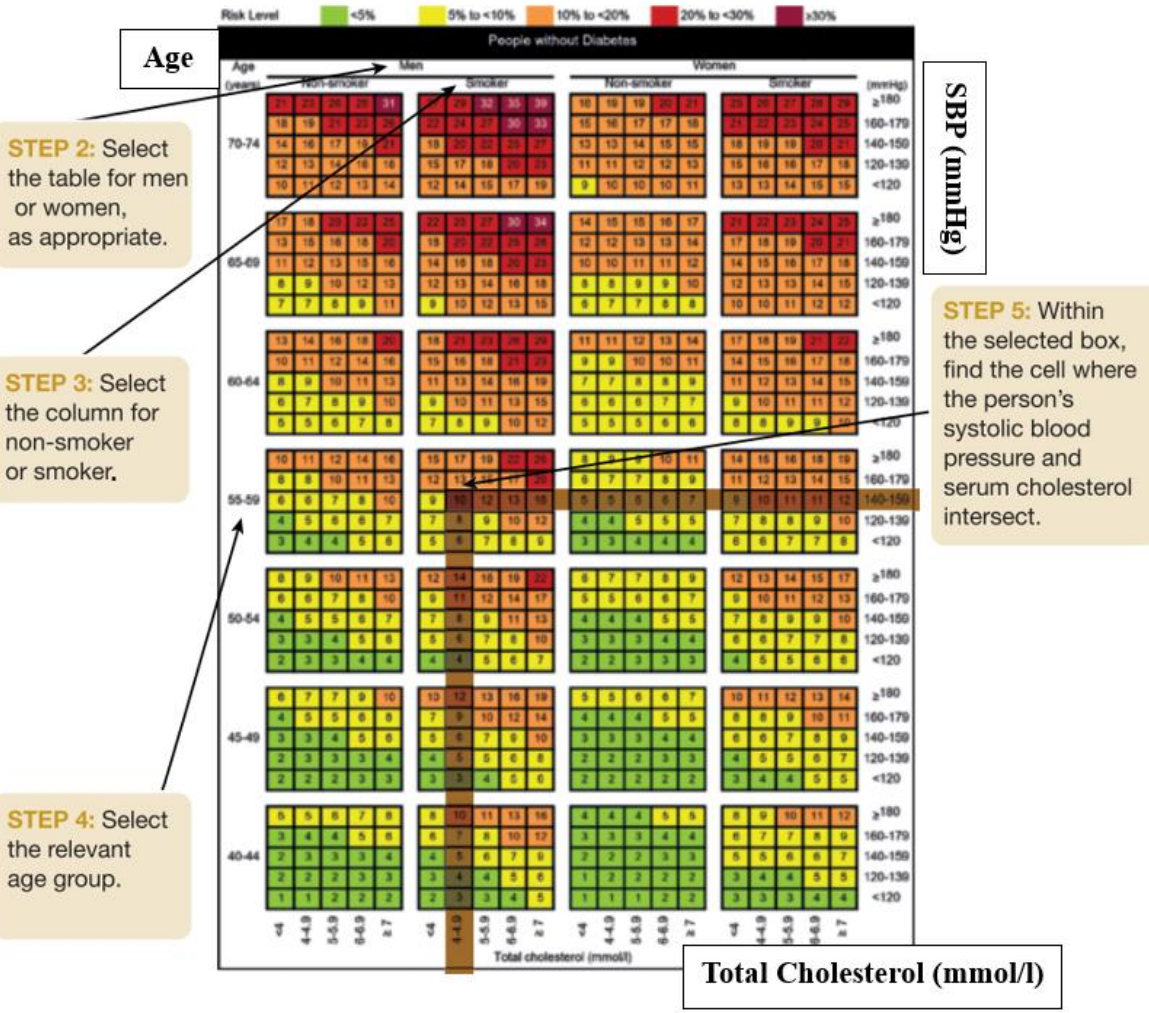
The total cholesterol level is indicated in the WHO risk prediction chart in mmol/l.

Therefore, convert the participant's cholesterol level in mg/dl to mmol/l using the following table.

Step 6 – Within the selected box (after following step 1-4), find the cell where the individual's systolic blood pressure (SBP) and total blood cholesterol intersects. The colour of this cell determines the 10-year cardiovascular risk

Illustration of how to use the WHO CVD risk (laboratory-based) chart

STEP 1: Select the section of the chart for people with or without diabetes.



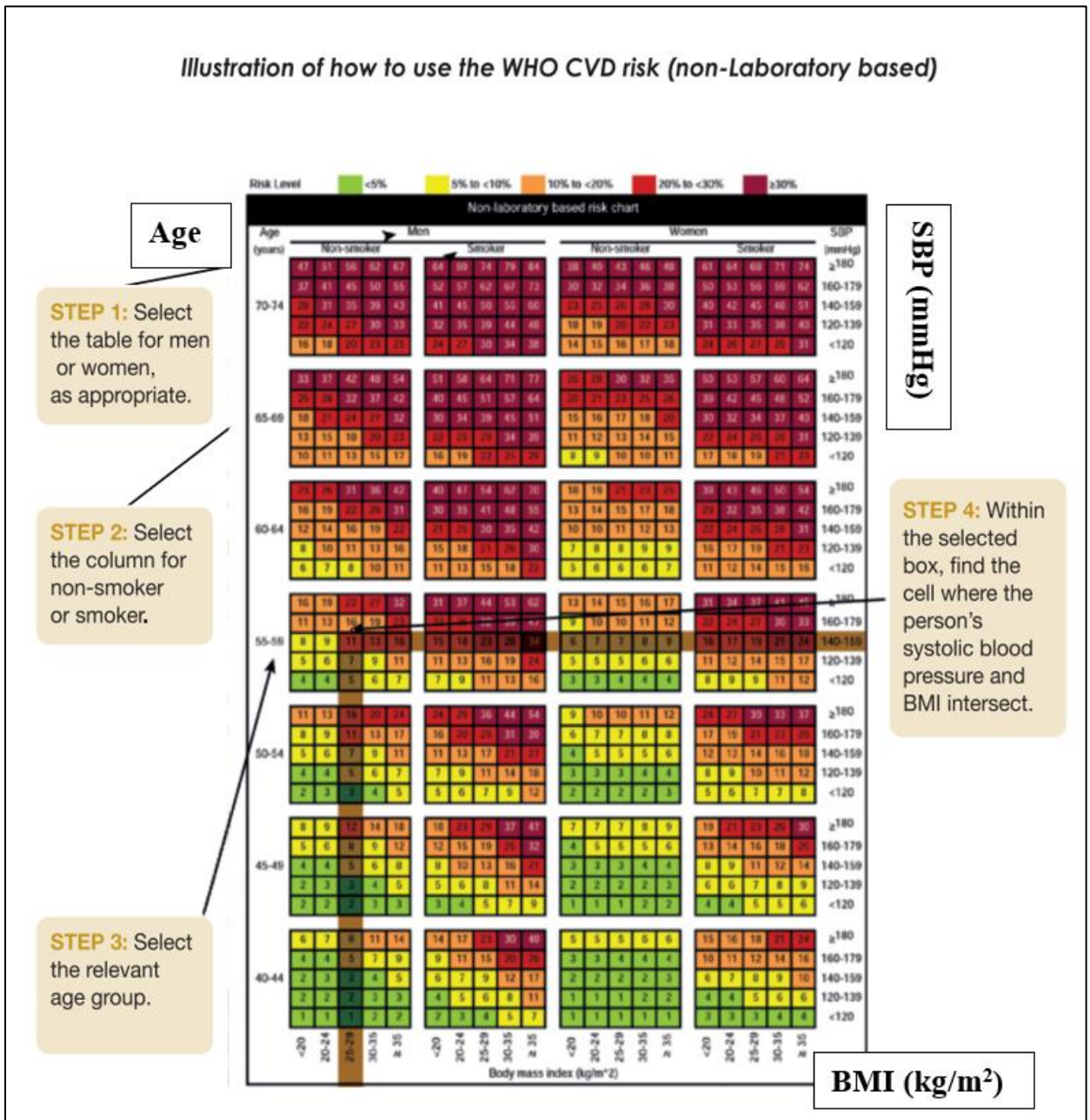
(5) **Steps of cardiovascular risk assessment** Using WHO/ISH or National Cardiovascular Risk Charts (**Non - Laboratory based**)

Step 1 - Select the table for men or women, as appropriate

Step 2 - Select the column for non-smoker or smoker

Step 3: Select the relevant age group






Step 4 - Within the selected box, find the cell where the person's systolic blood pressure and BMI intersect.



(6) Predict the 10-year cardiovascular risk

WHO CVD risk prediction charts indicate 10-year risk of a fatal or non-fatal major cardiovascular event (Myocardial Infarction or stroke), according to age, sex, blood pressure, smoking status, total cholesterol and presence or absence of diabetes mellitus.

1. Document (record under risk category) and communicate to the patient his/her cardiovascular risk status.
2. Categorize cardiovascular risk as,
 - <5% Green
 - 5% to <10% Yellow
 - 10% to < 20% Orange
 - 20% to <30% Red
 - >30% Dark Red

CARDIOVASCULAR RISK CATEGORIZATION		
<5%	GREEN	
5% to <10%	YELLOW	
10% to < 20%	ORANGE	
20% to <30%	RED	
>30%	DARK RED	

3. Communicate to the patient the benefits of minimizing the risk and what could be done to minimize the risk to <5%.

Reference

National Guideline for Cardiovascular Risk Management for Primary Health Care Providers

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