## Cardiovascular (CVD) Risk Management Guidelines for Primary Health Care Providers

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## Cardiovascular Risk Management Guidelines for Primary Health Care Providers

## Objectives

- To identify the eligible population for cardiovascular risk assessment
- To take history, perform a clinical examination and do basic investigations
- To predict the 10 -year cardiovascular risk
- To provide cardiovascular risk management as per the risk status
- To offer lifestyle modification
- To offer drug treatment and arrange long-term follow up


## What is the 10 year CVD risk?

- It is the level of risk of a fatal or non-fatal major cardiovascular event (i.e. heart attack or stroke), which is expressed as probability of developing it in 10 years
- It is determined with simple risk-scoring tools and calculated as the combined effect of multiple risk factors (age, gender, smoking status, blood pressure, diabetes status, history of CVD and total cholesterol or body mass index)


## Benefits of risk based approach

- Can reduce number of clinical events and premature deaths
- Identify high risk patients with no history of CVD and initiate early preventive interventions
- Useful for individuals with a history of CVD and follow up of clients
- Cost effective strategy especially in limited resource settings


## Eligibility Criteria to use this guide

1. Category A. Age $\geq 35$ years -CVD risk assessment done
2. Category B. Age between 20-34 years with risk factors-CVD risk assessment not done

Management of Category bis:

- Offer lifestyle modification for all
- refer to specialist for management, if single risk factors identified


## Predict the 10-year cardiovascular risk

CVD risk prediction charts should not be applied to those:

- Who have established cardiovascular disease (ischemic heart diseases, stroke/TIA, peripheral vascular disease)
- With renal dysfunction
- With diabetic nephropathy


## But these categories are at high risk for CVD

- Aged less than 35years
- offer life style modification
- management based on individual risk factors (refer to specialist)


## Predict the 10-year cardiovascular risk

- Use WHO/ISH Cardiovascular Risk Prediction Chart.
- Categorize cardiovascular risk as $<10 \%, 10 \%$ to $<20 \%, 20 \%$ to $<30 \%$, and $\geq 30 \%$.
- If total cholesterol testing could not be arranged use the mean value $5 \mathrm{mmol} / \mathrm{I}(200 \mathrm{mg} / \mathrm{dl})$ for CVD risk assessment
- When applying the CVD risk assessment for ages 35-40 years use the age category 40-49 of risk prediction chart
- Communicate to the patient the benefits of minimizing the risk and what could be done to minimize the risk to $<10 \%$
$\begin{array}{lll}\text { Risk Level } & 10 \% & 10 \% \\ & \text { SEAR B People with Diabetes Mellitus }\end{array}$



Age
Gender
Systolic BP
Total cholesterol
Smoking status DM

A 62-year-old male a smoker no diabetes
total cholesterol - $7 \mathrm{mmol} / \mathrm{L}$ BP - 150/90 mmHg


A 62-year-old male a smoker no diabetes
total cholesterol - $7 \mathrm{mmol} / \mathrm{L}$ BP - 150/90 mmHg

Figure 21. WHO/ISH risk prediction chart for SEAR B. 10 -year risk of a fatal or non-fatal cardiovascular event by gender, age, systolic blood pressure, total blood cholesterol, smoking status and presence or absence of diabetes mellitus.
Risk Level $\quad<10 \% \quad 10 \%$ to $<20 \% \quad-\quad 20 \%$ to $<30 \% \square 30 \%$ to $\quad \square 0 \%-\square$



This chart can only be used for countries of the WHO Region of South-East Asia, sub-region B, in settings where blood cholesterol can be measured. (see Table 1)

## A 62-year-old male

 a smoker no diabetes total cholesterol - $7 \mathrm{mmol} / \mathrm{L}$ BP - 150/90 mmHg

This chart can only be used for countries of the WHO Region of South-East Asia, sub-region B, in settings where blood cholesterol can be measured. (see Table 1)

A 62-year-old male a smoker no diabetes total cholesterol - $7 \mathrm{mmol} / \mathrm{L}$ BP - $150 / 90 \mathrm{mmHg}$ status and presence or absence of diabetes mellitus.


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Risk Level $\quad<10 \% \quad \square 10 \%$ to $<20 \% \quad \square \quad 20 \%$ to $<30 \% \quad \square \quad 30 \%$ to $<40 \%$ SEAR B People with Diabetes Mellitus


SEAR B People without Diabetes Mellitus


This chart can only be used for countries of the WHO Region of South-East Asia, sub-region B, in settings where blood cholesterol can be measured. (see Table 1)

A 62-year-old male
a smoker
no diabetes
total cholesterol - $7 \mathrm{mmol} / \mathrm{L}$ BP - 150/90 mmHg status and presence or absence of diabetes mellitus.

SEAR B People with Diabetes Mellitus


SEAR B People without Diabetes Mellitus


This chart can only be used for countries of the WHO Region of South-East Asia sub-region B, in settings where blood cholesterol can be measured. (see Table 1)

A 62-year-old male a smoker no diabetes total cholesterol - $7 \mathrm{mmol} / \mathrm{L}$ BP - 150/90 mmHg



This chart can only be used for countries of the WHO Region of South-East Asia, sub-region B, in settings where blood cholesterol can be measured. (see Table 1)

## CV risk management as per the risk status

## $B P<140 /<90 \mathrm{mmHg}$

- offer lifestyle modifications
- assess CVD risk every year

BP 140-159/90-99mmHg

- offer lifestyle modifications
- repeat BP measurements after 3 months
BP continues to be $140-159 / 90$
-99 mmHg , despite life style modification
- commence anti-hypertensives, long term follow up
- Review CVD risk annually


## BP <140/<90mmHg

- offer lifestyle modifications
- assess CVD risk every 6 months

BP 140-159/90-99mmHg

- offer lifestyle modifications
- repeat BP measurements after 3 months
BP continues to be 140-159/90 -
99 mmHg despite life style modification
- commence anti-hypertensives, long term follow up
- Review CVD risk every 6 months
- Offer lifestyle modifications
- Start Statin (atorvastatin 20 40mg daily)
review total cholesterol after 3 months


## $B P \geq 140 / \geq 90 \mathrm{mmHg}$

-commence anti-hypertensive drugs -review BP monthly and optimize drug treatment
-review CVD risk after 6 months

If risk remains $\geq 20 \%$ after 6 months of optimal interventions
-refer to a specialist clinic

## CVD risk prediction charts-updated in 2019

## 2007 <br> 2019



The WHO \& ISH CVD risk prediction charts were first developed

Updated charts were developed and presented


Helps improve the accuracy of the CVD risk estimate for each individual

## 2007 WHO \& ISH risk chart

 14 WHO epidemiological sub - regions represented
## 2019 WHO risk chart

 21 IHME GBD*regions with more similarity in grouping of countries

* Institute for Health Metrics and Evaluation; Global Burden of Disease


## 2007 risk prediction chart

- Risk charts used in settings where blood cholesterol can be measured
- Risk charts used in settings where blood cholesterol cannot be measured



## 2019 risk prediction chart

- Laboratory-based charts
- Non-laboratory-based charts



## 2007 risk prediction chart <br> Without individual cholesterol values



## 2019 risk prediction chart <br> Non-laboratory based



## Laboratory-based charts

## Non-laboratory-based charts

- Age
- Sex
- Smoking
- Systolic blood pressure
- Presence or absence of diabetes
- Total cholesterol
- Age
- Sex
- Smoking
- Systolic blood pressure
- BMI

Laboratory-based charts

## Used for treatment decisions

Non-laboratory-based charts

Used for decisions
regarding referral

## 2007 risk prediction chart



## 2019 risk prediction chart



WHO cardiovascular disease risk laboratory-based charts
Southeast Asta
Indonesia, Cambodia, Lao PDR, Sri Lanka, Maldives, Myanmar, Malayia, Philippines, Thailand, Timor-Lete. Viet Nam, Mauritius, Seychelle


WHO cardiovascular disease risk non－laboratory－based charts Southeast Asla
Indonesia，Cambodia，Lao PDR，Sri Lanka，Maldives，Myanmar，Malaysia，Philippines，Thailand，Timor－Leste，Viet Nam，Mauritius，Seychelle

| Risk Lev |  |  |  | ＜5\％ |  |  | 5\％to | $0 \times 10$ |  |  | \％10 | 20\％ |  |  | 20\％ | c305 |  |  | 230\％ |  |  |
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| $\begin{gathered} \text { Age } \\ \text { (years) } \end{gathered}$ | Men |  |  |  |  |  |  |  |  |  | Women |  |  |  |  |  |  |  |  |  | SEP |
|  | Non－3moke |  |  |  |  | Smat |  |  |  |  | Nonsmoter |  |  |  |  | Smot |  |  |  |  | （mmity） |
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| 70.74 | 17 | 19 |  |  |  |  |  |  | $=$ | 30 | 15 | 15 | 10 | 10 | 17 |  |  |  |  |  | 140.159 |
|  | 14 | 13 | 10 | 17 | 18 | 11 |  |  |  |  | 12 | 12 | 13 | ㅍ | 14 | 17 | 111 | 19 | 19 |  | 120.139 |
|  | 11 | 12 | 13 | 19 | 13 | 15 | 76 | 11 | ㅍi］ |  | 10 | 10 | 11 | 11 | 17 | 12 | 15 | 15 | 10 | ［11 | ＜120 |
| 65．69 |  |  |  |  |  |  | 39 | 11 | 36］ | 39 | $1{ }^{16}$ | 17 | 18 | II | 19 |  |  |  |  | 30 | $\geq^{180}$ |
|  | 16 | 17 | 19 |  |  |  |  |  | $\cdots$ | 31 | 13 | 14 | 14 | 13 | 15 |  |  |  |  |  | 160.179 |
|  | 12 | 19 | 15 | 16 | 12 | 11 | 19 |  |  |  | 11 | 11 | 11 | 12 | 12 | 17 | T01 | 11 | 19 |  | 140.159 |
|  | 10 | 11 | 12 | $\square$ | 14 | 14 | 15 | 16 | 11 |  | 9 | 9 | 9 | 10 | 10 | 17 | 14 | 13 | 15 | 16 | 120．139 |
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| 60.64 | 15 | 11 | 19 |  |  |  |  | $\square$ | 31 | 34 | 71 | 13 | 14 | 19 | 13 |  |  |  |  |  | $2^{180}$ |
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| 50.54 | 9 | 19 | 11 | 13 | 17 | 15 | 11 |  |  |  | $\square$ | 1 | 1 | 9 | 9 | 11 | 10 | 7 | Ti1 | 17 | $2^{180}$ |
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| 14 | 5 | 6 | 7 | － | $10$ | 10 | 12 | 14 | 11 |  | 5 | 5 | 5 | 5 | ${ }^{\circ}$ | 11 | 11 | 12 | 13 | $14$ | $2^{190}$ |
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## Advise the patient and family

- Education-
- Explain what is CVD risk
- Complications,
- Management, follow up
- Drug compliance
- Motivation-
- Adhere treatment
- Written instructions
- On PMR
- Education materials


## Lifestyle modifications

- Weight control- Maintain correct BMI

Low calorie diet
Increased physical activity

- Dietary Changes

Reduce salt intake
Restrict sugar consumption
Increase fruit and vegetable intake
Limit fat /Trans fat intake

- Physical activity
- Tobacco cessation
- No alcohol


## Thank you

