

Guideline for Management of NCDs in Primary Health Care (Total Risk Assessment Approach)



World Health Organization



Ministry of Health



**Guideline for Management of NCDs in
Primary Health Care
(Total Risk Assessment Approach)**

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Message from the Hon. Minister of Health



It gives me great pleasure in releasing this message on the occasion of the launch of the first edition of the Guideline for Management of Non Communicable Diseases in Primary Health Care, which is an outcome of the collaborative effort of the Non Communicable Diseases Unit, Policy Analysis & Development Unit of the Ministry of Health and the Ceylon College of Physicians. The effort of these institutions in producing such a booklet is much appreciated.

This booklet is intended for use by all medical officers at Primary Health Care level in the island. It is hoped that this booklet will enable the early detection and appropriate management of all those at risk of developing Cardiovascular Diseases.

Maithripala Sirisena
Minister of Health
Democratic Socialist Republic of Sri Lanka
Suwasiripaya,
Rev. Baddegama Wimalawansa Thero Mawatha,
Colombo 10.

Message from the Secretary, Ministry of Health



I would like to take this opportunity to acknowledge the efforts of the Non Communicable Diseases Unit, the Policy Analysis & Development Unit of the Ministry of Health and the Ceylon College of Physicians in producing this booklet which has been developed with the objective of identifying those at risk of developing Cardiovascular Diseases using the multiple risk factor approach.

The support rendered by all Professional and international organizations in the publication of this booklet is much appreciated.

Dr. Y. D. Nihal Jayathilaka
Chairperson / National NCD Steering Committee
Secretary
Ministry of Health
Democratic Socialist Republic of Sri Lanka
Suwasiripaya,
Rev. Baddegama Wimalawansa Thero Mawatha,
Colombo 10.

**Message from the Additional Secretary (Medical Services),
Ministry of Health**



It is with great pleasure that I release this message on the launch of the Guideline for Management of Non Communicable Diseases in Primary Health Care.

I am grateful to the Non Communicable Diseases Unit, the Policy Analysis & Development Unit and the Ceylon College of Physicians for their effort in producing this valuable guide. The invaluable contribution by these three institutions is much appreciated.

This booklet which is based on the WHO/ISH risk prediction chart is expected to enable the identification of the apparently healthy population at risk of developing Cardiovascular Diseases.

May the launching of this booklet pave the way forward for a nation free of Non Communicable Diseases.

Dr. P. G. Mahipala
Chairperson / Working Group on NCD Prevention and Control
Additional Secretary (Medical Services)
Ministry of Health
Democratic Socialist Republic of Sri Lanka
Suwasiripaya,
Rev. Baddegama Wimalawansa Thero Mawatha,
Colombo 10.

Message from the Director General of Health Services



It is with great pleasure that I release my message on this occasion of the launch of the first edition of the Guideline for Management of Non Communicable Diseases in Primary Health Care which is based on the concept of Multiple Risk Factor Approach. This has been introduced to the Sri Lankan scenario with the aim of identifying those at risk of developing Cardiovascular Diseases within the next ten years.

May I take this opportunity to congratulate the Non Communicable Diseases Unit, the Policy Analysis & Development Unit of the Ministry of Health and the Ceylon College of Physicians for their combined effort in the production of this booklet.

Dr. Ajith Mendis
Chairperson / National Advisory Board for Non Communicable Diseases
Director General of Health Services
Ministry of Health
Democratic Socialist Republic of Sri Lanka
Suwasiripaya
Rev. Baddegama Wimalawansa Thero Mawatha
Colombo 10.

Message from the Director Non Communicable Diseases



Two-thirds of all annual deaths in Sri Lanka is attributed to Non Communicable Diseases and thirty percent of them are due to Cardiovascular diseases. Majority of these deaths are among people less than 65 years of age which affects the social and economic development of the country.

Greater part of cardiovascular events occur in individuals with modest elevation of several risk factors than marked elevation of a single risk factor. Management of individuals with conventional single risk factor approach leaves sub optimal control and failure to address other coexistent risk factors, which leave patients at unacceptably high risk of cardiovascular events. Addressing low level of individual risk factor, ignores the high risk of having more than one risk factor. Low level of risk factor could be controlled by lifestyle modifications without drug interventions which is a burden to self, the family and society.

WHO multiple risk factor approach through risk stratification is a useful tool to identify those at risk of cardiovascular diseases to motivate them to change behaviour and where appropriate to prescribe antihypertensive and lipid lowering drugs as indicated in the guideline.

This guideline is intended to be used widely, by all medical professionals towards better management of cardiovascular diseases. I would like to extend my sincere gratitude to all those who supported us in numerous ways to make this publication a reality.

Dr. D.T.P. Liyanage
Consultant Community Physician
Director/Non Communicable Diseases
Ministry of Health

Message from the President, Ceylon College of Physicians



It is with great pleasure that I send this brief note to the Guideline on Non Communicable Diseases Management in Sri Lanka. Non Communicable Diseases have become a sizable problem in our country and a colossal sum of money and resources are spent in treating those with established clinical outcomes. We, however, need to answer the question whether we have done enough to prevent clinical outcomes in Non Communicable Diseases.

Prevention of clinical end points in NCDs requires few strategies. These include an inexpensive method of detecting high risk groups, implementing proven yet affordable preventive measures and monitoring the adherence.

We believe that this Guideline developed by the Ministry of Health in consultation with the World Health Organization, Japan International Co-operation Agency and other stake holders, provides a scientifically reasonable and affordable way of achieving above objectives. We could embark on more ambitious and sophisticated ways of achieving these objectives but the affordability and sustainability of such programmes become questionable. When implementing guidelines at community level on a larger group of people we need to think different to our usual approach in patient care and consider mainly non-pharmacological interventions. Like me, most of our clinicians will find it difficult, initially.

Finally, let me thank the Non Communicable Diseases Unit of the Ministry of Health for this initiative taken to combat Non Communicable Diseases at community level in our country. I hope this programme will make a significant impact on Non Communicable Diseases related disease burden in this country and I request all our members to provide the necessary support that requires to sustain this programme smoothly throughout the country.

Professor Sarath Lekamwasam
MD, FRCP, PhD, FCCP, Hon FCP(SA), FRACP(Hon)
President, Ceylon College of Physicians 2012

Guideline for Management of NCDs in Primary Health Care (Total Risk Assessment Approach)

Ministry of Health

This guideline has been developed by the Ministry of Health for use by Medical Officers involved in Primary Health Care¹. The guideline will also be used for screening of those presenting at Healthy Lifestyle Centers at primary healthcare institutions which have adopted the total risk assessment approach. According to this guideline, management of an individual is determined by the total risk score/category based on the individual risk factors detected during screening. Guideline would guide the Medical Officer to make the best therapeutic option, however in certain clinical situations Medical Officer has the freedom to deviate from the guideline as required needed. The indications for referral to a specialist clinic are also given. Health guidance for lifestyle modification should be carried out following screening. The Personal Medical Record is to be used for documentation.

This guideline should be interpreted along with the Flow chart “Overview” (Refer to page 21).

1. Use this guideline for persons with any of the following conditions:

- a. Age 40 years
- b. Age between 35 – 40 years if they have any of the following
 - Smoking (within the last year)
 - Overweight (waist circumference- male 90cm, female 80cm or BMI 25kg/m²)
 - Raised BP (140/90mmHg in non-diabetics, 130/80mmHg in diabetics)
 - Diabetes or symptoms suggestive of diabetes
 - History of premature cardiovascular disease in first degree relatives (male relative <55years, female relative<65years)
 - History of diabetes in first degree relatives

¹applies to primary health care at all health care institutions

2. Check if the patient has an acute presentation.

If yes, provide emergency treatment according to the Guideline on Emergency Care Management at Primary Level.

Refer the patient to a specialized unit if needed after stabilization.

3. Take a history, perform a clinical examination and do simple investigations.

At the end of the clinical encounter, you should be able to answer the following questions. The Personal Medical Record is to be used to document findings of history, examination and investigations.

History	Documentation
What is the gender of the patient?	<i>Record under personal details (Page 2)</i>
What is the occupation?	<i>Record under personal details (Page 2)</i>
Does the patient have chest pain and or/breathlessness on exertion, pain in calf on walking?	<i>Record under medical history</i>
Does the patient have a history of heart disease, stroke, TIA, diabetes/ pre-diabetes kidney disease, cancer, hypertension or chronic respiratory diseases. If yes, whether being followed up at a specialist unit?	<i>Record under medical history</i>
What are the medicines that the patient is currently taking?	<i>Record under current medication section</i>
What is the age of the patient?	<i>Record under medical examination section</i>
Has the patient smoked during the last year?	<i>Record under medical examination section</i>
Does the patient currently consume alcohol?	<i>Record under medical examination section</i>
Is the patient engaged in regular physical activity (30 minutes per day at least 5 days a week)?	<i>Ask the person</i>

Examinations	Documentation
What is the waist circumference? What is the BMI?	<i>Record under medical examination section</i>
What is the blood pressure of the patient? If BP 140/90 mmHg (130/80 mmHg in diabetics) repeat measurement at the same visit after 20 minutes.	<i>Record under medical examination section</i>

Investigations	Documentation
Is FBS 7 mmol/l (126 mg/dl) or RBS 11.1mmol/l (200 mg/dl)?	<i>Record the values (even if it is less than given cut offs) under medical examination section</i>
Is there protein in urine? <i>-test to be performed in the institution</i>	<i>Record under medical examination section</i>
What is the total cholesterol? <i>-sample of blood can be sent to the closest Base Hospital</i>	<i>Record under medical examination section</i>

** Consider renal function test if blood pressure is persistently 160/100mmHg

4. Refer the patient to a specialist clinic if the history and examination reveal any one of the following :

- BP 140 / 90 in people less than 40 yrs
 - *to exclude secondary causes of hypertension*
- BP 140/90 (in DM 130/80 mm Hg) in spite of treatment with 3 drugs
- Known heart disease, stroke, TIA, PVD or kidney disease who are not being followed up by specialist clinic
 - *this is to obtain a plan of management which can be continued at the primary level*
- Angina, shortness of breath on exertion, claudication
- Proteinuria
- DM with two consecutive fasting blood glucose > 7.2 mmol/l (130 mg/dl) despite good compliance with life style modification and drug therapy with maximum tolerated doses of metformin + sulphonylurea
- DM with severe infection and/or foot ulcers
- DM with recent deterioration of vision or no eye examination in 2 years

5.**Predict the 10 year cardiovascular risk.**

Note: cardiovascular risk prediction charts **should not be applied** to those

- who have had a previous vascular event (e.g. ischemic heart diseases, stroke)
- with peripheral vascular disease
- with renal dysfunction
- with diabetic nephropathy

Document (record under risk category) and **communicate** to the patient his/her cardiovascular risk status

- Use WHO/ISH Cardiovascular Risk Prediction Chart.
- Categorize cardiovascular risk as <10%, 10% to <20%, 20% to <30% and 30%.
 - If serum cholesterol level is not available use the mean value 5 mmol/l
 - For ages 35-40 use the age box 40-49
- Communicate to the patient the benefits of minimizing the risk and what could be done to minimize the risk.

6.**Offer drug treatment to the following patients regardless of their risk category:**

- All individuals with raised BP 160/100 mmHg
 - start them on one of the following drugs:
thiazide-like diuretic, ACE inhibitor, calcium channel blocker or beta blocker.
(Consider thiazide-like diuretic, ACE inhibitor and calcium channel blocker as the first line drugs.)

Caution: Women of reproductive age receiving ACE inhibitors should be advised to consult a doctor and discontinue it if planning for pregnancy.

- All individuals who have total cholesterol level at or above 8 mmol/l
 - Prescribe a statin.
- All patients with diabetes who have target organ damage confirmed by a specialist
 - Prescribe a statin

7.**Provide cardiovascular risk management as per the risk status.****Risk <10%**

Risk <10% denotes the green areas of the WHO/ISH Risk Prediction Chart.

Level of risk: LOW

Those who have **BP 140/90mmHg** but **< 160/100mmHg**, should be offered **lifestyle modifications**.

Repeat **BP** measurements every **6 months** and treat according to the risk chart. Consider the risk category obtained at baseline until the next risk assessment is done at 2 years.

Review **cardiovascular risk** of this patient according to the guideline **every 2 years**

Risk 10% to <20%

Risk 10% to <20% denotes yellow areas of the WHO/ISH Risk Prediction Chart.

Level of risk: MODERATE

Those who have **BP 140/90mmHg** but **<160/100mmHg** should be offered **lifestyle modifications**.

Repeat **BP** measurements every **6 months** and treat according to the risk chart. Consider the risk category obtained at baseline until the next risk assessment is done at 12 months.

Review **cardiovascular risk** of this patient according to the guideline **every 12 months**.

Risk 20% to <30%

Risk 20% to <30% denotes orange areas of the WHO/ISH Risk Prediction Chart.

Level of risk: HIGH

Lifestyle modifications are recommended.

If patients in this category with **BP 140/90mmHg**, are unable to achieve a good control of blood pressure **within 4-6 months** with lifestyle modifications start them on one of the following **drugs**: thiazide-like diuretic, ACE inhibitor, calcium channel blocker or beta blocker. (Consider thiazide-like diuretic, ACE inhibitor, and calcium channel blocker as the first line drugs.)

Review **cardiovascular risk** of this patient according to the guideline **every 6 months**.

If serum cholesterol is persistently **> 5mmol/l (200mg/dl)** despite lifestyle modifications start on a statin (Atorvastatin 10-20 mg daily).

Caution: Women of reproductive age receiving ACE inhibitors should be advised to consult a doctor and discontinue it if planning for pregnancy.

Risk 30%

Risk 30% denotes red and maroon areas of WHO/ISH Risk Prediction Chart.

Level of risk: VERY HIGH

Lifestyle modifications are recommended.

If patients in this category have **BP 130/80 mmHg**, start them on one of the following **drugs**: thiazide-like diuretic, ACE inhibitor, calcium channel blocker or beta blocker. (Consider thiazide-like diuretic, ACE inhibitor, and calcium channel blocker as the first line drugs.)

Add **Statin**(Atorvastatin 10-20 mg daily). Total Cholesterol Goal is 5mmol/l (200mg/dl)

If cholesterol level is not controlled on full dose of statin, refer to a specialist clinic.

Review **cardiovascular risk** of this patient according to the guideline **every 3 months**.

If risk is still >30% after 3-6 months of prescribed interventions at first visit, refer to a specialist clinic.

Caution: Women of reproductive age receiving ACE inhibitor should be advised to consult a doctor and discontinue it if planning for pregnancy

8.

In addition to the above interventions, apply the following to the individuals with diabetes mellitus:

Goals for Glycaemic Control

Test	Normal	Goal
FBS	<100 mg/dL	90- 130 mg/dL
RBS	<140 mg/dL	110-180 mg/dL

**(divide by 18 to convert mg/dL to mmol/l)*

Treatment:

- Prescribe metformin and life style modifications to all individuals diagnosed with diabetes mellitus irrespective of the risk category

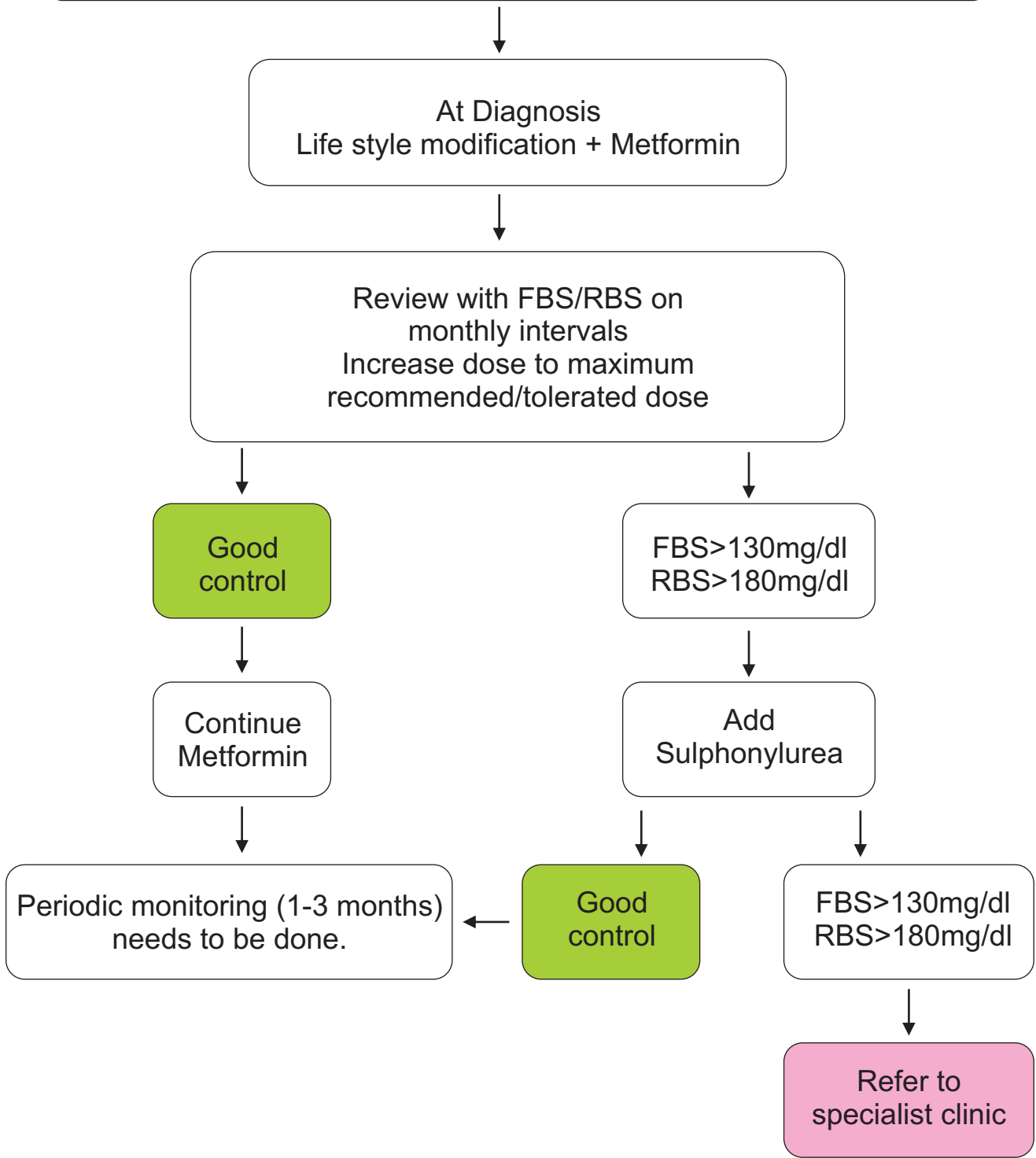
diabetes mellitus is diagnosed when

- fasting blood glucose 7 mmol/l (126mg/dl) with suggestive symptoms
 - persistent fasting blood glucose 7 mmol/l (126mg/dl) in asymptomatic individuals
- Titrate treatment according to blood glucose control.

If unable to control despite life style modifications and maximum tolerated doses of metformin and a sulphonylurea, refer to a specialist hospital.

- Decide the need for anti-hypertensive and statin therapy based on the risk category
- Give advice on foot care
- Follow up at 1 -3 months
- Use flow sheet for follow up

Drug Treatment of a newly diagnosed patient with diabetes



9. Advise the patient and family on the following:

- Importance of continued treatment (compliance).
- Motivate the patient and family to adhere to the treatment regimens.
- Educate the patient and the family on NCDs with regard to the disease, complications, management and prognosis.
- Provide written instructions on the Personal Medical Record.

10. Lifestyle modification.

Weight control

All individuals who are overweight and obese should be encouraged to lose weight through a combination of reduced energy diet (dietary advice) and increased physical activity.

BMI	< 18.5 kg/m ²	- Underweight
	18.5-24.9 kg/m ²	- Normal
	25-29.9 kg/m ²	- Overweight
	30 kg/m ²	- Obese

Waist circumference	Males:	90cm (36")
	Females:	80cm (32")

Dietary Changes

- reduce daily salt intake by at least one third and if possible to < 5g (1 tea spoon) per day
- limit eating processed food and fast food
- restrict sugar consumption .
- encourage fruits and vegetables (recommendation is at least 400-500g a day).
- limit fatty food and encourage consumption of lean meat and fish.

**For further reference - Food Based Dietary Guidelines for Sri Lankans
Nutrition Division - Ministry of Health**

Physical Activity

All adults should be encouraged to take at least 30 minutes of moderate physical activity (e.g. Brisk walking) a day at least 5 days of the week.

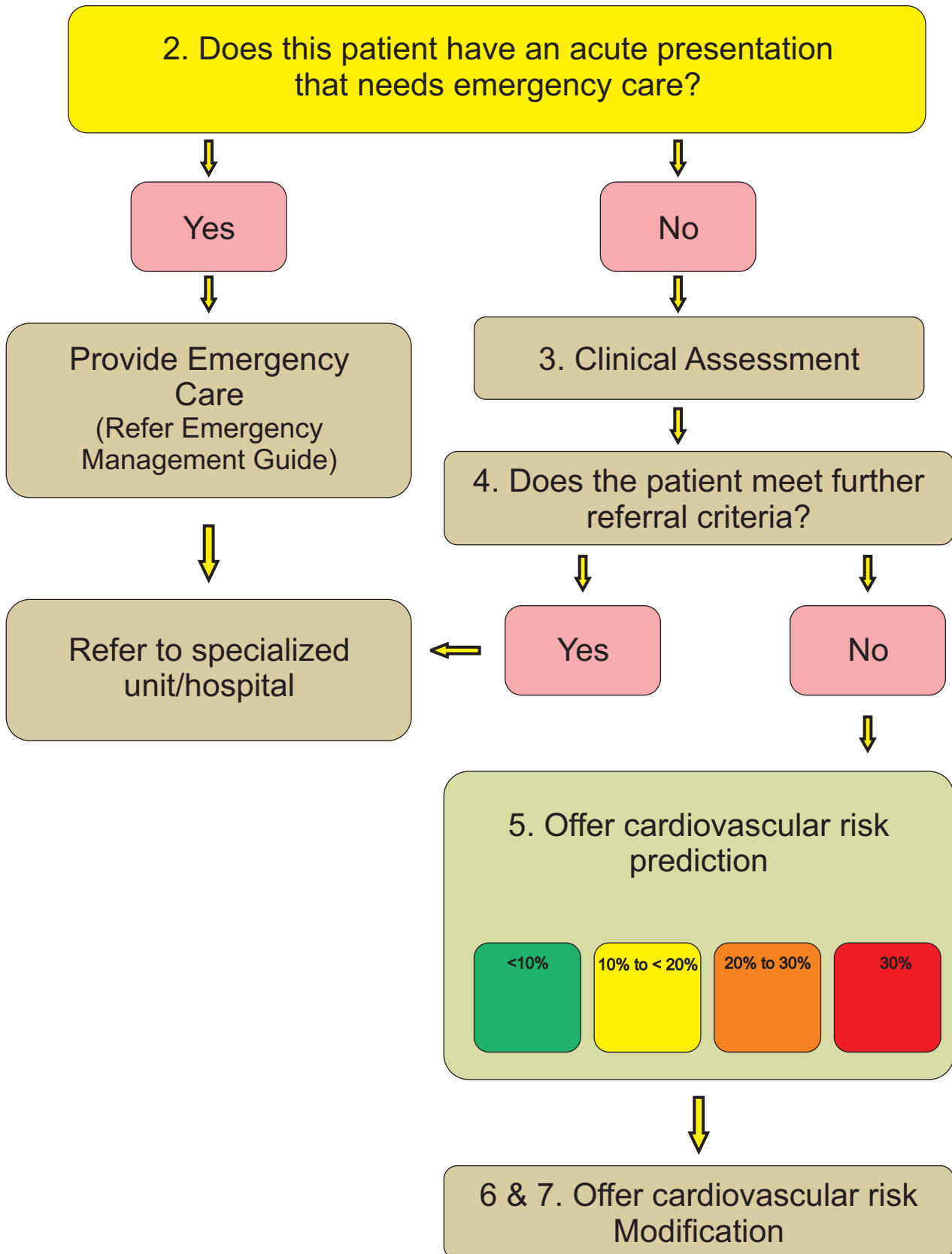
Tobacco cessation

Stop using all forms of tobacco (smoking and chewing tobacco)

Alcohol Intake

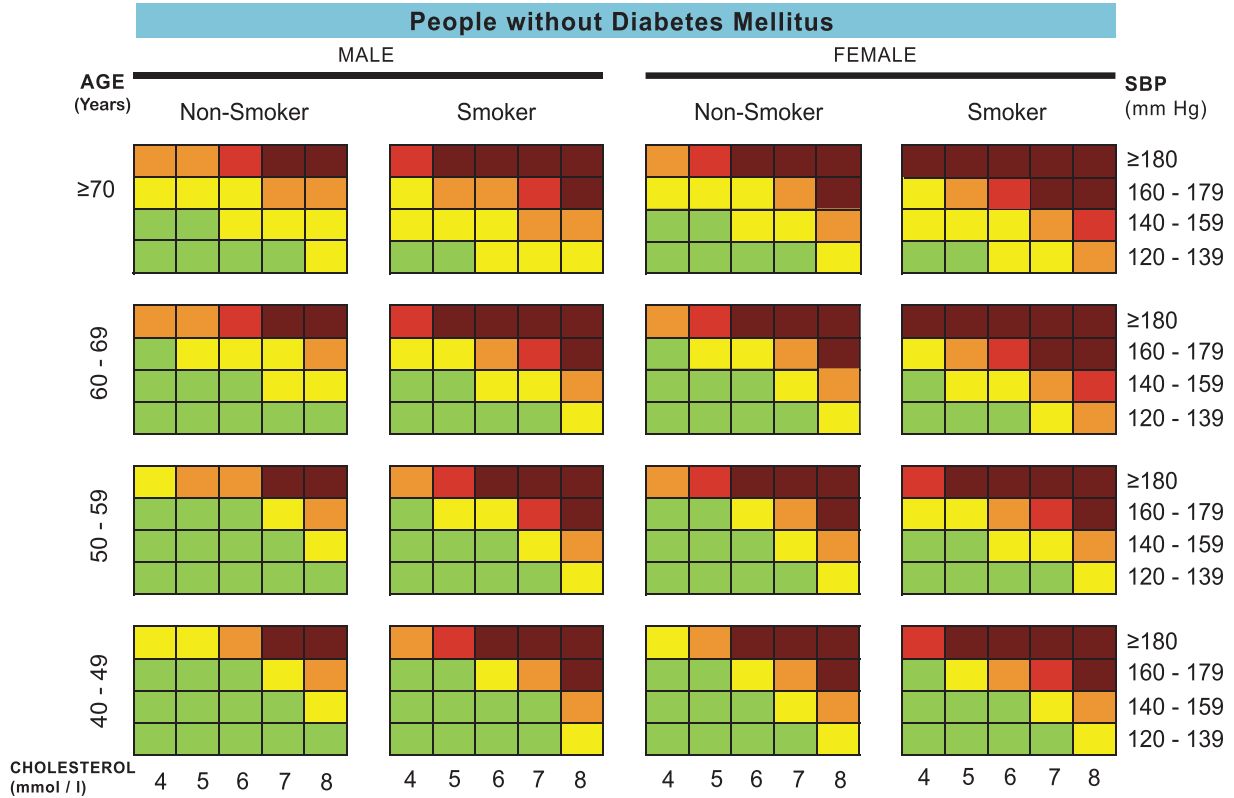
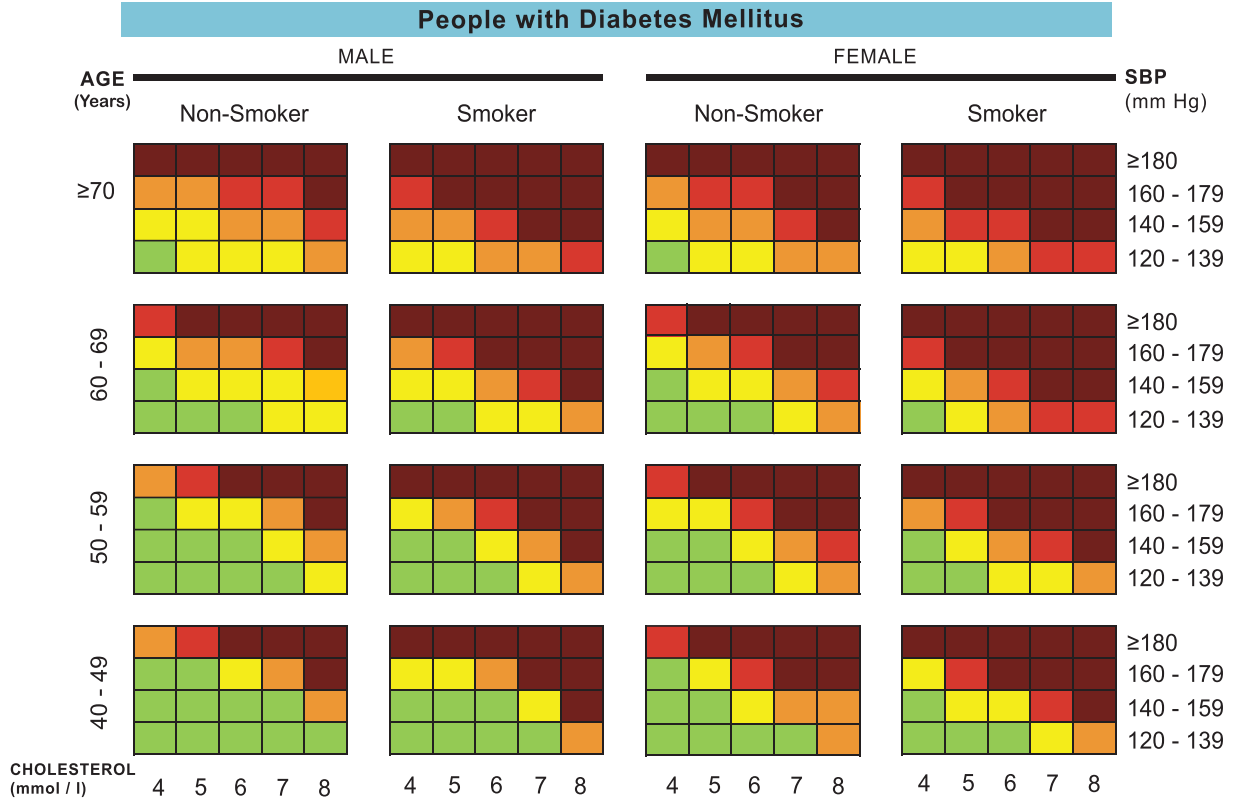
- Alcohol abstinence should be reinforced
- People should not be advised to start taking alcohol for health reasons
- Individuals who take more than 3 units of alcohol per day should be advised to reduce alcohol consumption

OVERVIEW



WHO/ISH RISK PREDICTION CHART

■ < 10%
 ■ 10% to < 20%
 ■ 20% to < 30%
 ■ 30% to < 40%
 ■ ≥ 40%



Guidelines for Risk Prediction Chart

► How do you use the charts to assess cardiovascular risk?

Before applying the chart to estimate the 10 year cardiovascular risk of an individual, the following information is necessary

- Presence or absence of diabetes¹
- Gender
- Smoker or non-smoker²
- Age
- Systolic blood pressure (SBP)³
- Total blood cholesterol⁴

mmol/l	mg/dl
8	≥ 304
7	266 - 303
6	228 - 265
5	190 - 227
4	≤ 189

(if in mg/dl divide by 38 to convert to mmol/l)

Estimate the 10-year cardiovascular risk as follows;

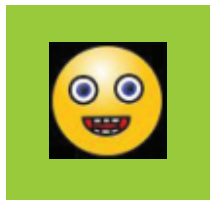
Step 1 - Select the appropriate chart depending on the presence or absence of diabetes

Step 2 - Select male or female tables

Step 3 - Select smoker or non-smoker boxes

Step 4 - Select age group box (if age is 55; select 50 — 59 , if age is 60; select 60 — 69)

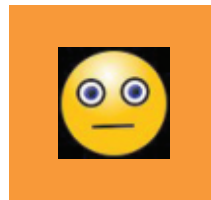
Step 5 - Within this box find the nearest cell where the individuals systolic blood pressure (mmHg) and total blood cholesterol level (mmol/l) cross. The colour of this cell determines the 10 year cardiovascular risk.



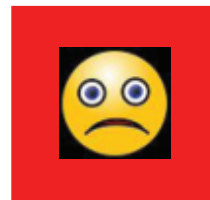
< 10%



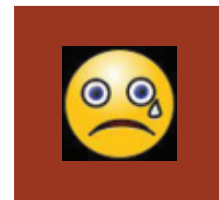
10% to < 20%



20% to < 30%



30% to < 40%



≥ 40%

¹ A person who has diabetes is defined as someone taking insulin or oral hypoglycemic drugs, or with a fasting plasma glucose concentration above 7.0 mmol/l (126 mg/dl) or a postprandial (approximately 2 hours after a main meal) plasma glucose concentration above 11.0 mmol/l (200mg/l) on two separate occasions. For very low resource settings urine sugar test may be used to screen for diabetes if blood glucose assay is not feasible. If urine sugar test is positive a confirmatory blood glucose test need to be arranged to diagnose diabetes mellitus

² All current smokers and those who quit smoking less than year before the assessment are considered smokers for assessing cardiovascular risk.

³ Systolic blood pressure, taken as the mean of two readings on each of two occasions, is sufficient for assessing risk but not for establishing a pretreatment baseline.

⁴ The mean of non-fasting measurements of serum cholesterol by dry chemistry, or one non-fasting laboratory measurement, is sufficient for assessing risk. If Serum Cholesterol value is not available, use a mean value of 5 mmol/dl

Guideline has been prepared by the Ministry of Health in collaboration with the Ceylon College of Physicians, College of Community Physicians of Sri Lanka, College of General Practitioners, WHO and JICA.

Ministry of Health

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