Guideline for Management of NCDs in Primary Health Care

(The integrated multifactorial risk approach)

Contents

I.Introduction

This guideline will also be used for screening of those who are eligible in townships of implementing the "The Myanmar National PEN Scale-up Project Plan" and applies to primary health care at all health care centers and hospital. According to this guideline, management of an individual is determined by total risk score/category based on individual risk factors detected during screening. Guideline would not only guide the medical officer but also basic health staff to make the best therapeutic option. The indication for referral to a specialist clinic or secondary level health center are also mentioned. Health education and screening for lifestyle modification should be carried out following screening. The Personal Medical record book for participant and record chart for health care provider should be used as document.

This guideline should be briefly shown as the Flow chart "Overview" at annex1.

1	Indicated conditions for usage of this guideline

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 , ≥ 130mmHg in diabetics)
- Diabetes or symptoms suggestive of diabetes
- History of premature cardiovascular disease in first degree relatives (male relative < 55 years, female relatives < 65 years)
- History of diabetes Or Kidney disease in first degree relatives

2	Checking an acute presentation.

If yes, Refer the patient to a specialized until if needed after stabilization

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History taking,Clinical examination and simple investigation

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

History	Documentation
What is the gender of the patient?	Record under personal details
What is the occupation?	Record under personal details
Does the patient have chest pain and or /breathless on exertion , pain in calf on walking?	Record under medical history
Does the patient have 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 ?	Record under medical history
What are the medicines that the patient is currently taking?	Record under current medication section
What is the age of the patient?	Record under medical examination section
Has the patient smoked during the last year?	Record under medical examination section
Does the patient currently consume alcohol?	Record under medical examination section
Is the patient engaged in regular physical activity (≥ 30 minutes per day at least 5 days a week)?	Ask the person and recorded

Examinations	Documentation
What is the waist circumference ? What is the BMI?	Record under medical examination section
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.	Record under medical examination section

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

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

4	Referral criteria of the patient to a specialist clinic .

if the history and examination reveal any one of the following:

■ Agent

■ Any proteinuria

■ Newly diagnosed DM with urine ketones 2+ or in lean persons of <30 years

■ Total cholesterol >8mmol/l

■ DM with blood glucose >14mmol/l despite maximal metformin with or without Sulphonylurea

■ DM with severe infection and/or foot ulcers

■ DM with recent deterioration of vision or no eye exam in 2 years

■ High cardiovascular risk(>20% the exact level)

■ BP >200/>120 mm Hg (urgent referral)

■ BP ≥140 or ≥ 90 mmHg in people < 40 yrs (to exclude secondary hypertension)

■ Known heart disease, stroke, transient ischemic

attack, DM, kidney disease (for assessment, if this has not been done)

■ New chest pain or change in severity of angina or symptoms of transient ischemic attack or stroke

■ Target organ damage (e.g. angina, claudication, haeving apex, cardiac failure)

■ Cardiac murmurs

■ Raised BP ≥140/90 (in DM above 130/ 80mmHg) while on treatment with 2 or 3 agents

- DM with two consecutive fasting blood glucose > 7.2 MMOL/L (130MG/DL)despite good compliance with life style modification and drug therapy with maximum tolerated doses of metformin + sulpyonylurea

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 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 5.2 mmol/l
  - ✓ For ages 35-40 use the age box 40 -49

1) Communicate to the patient the benefits of minimizing the risk and what could be done to minimize the risk.

6	0ffering drug treatment to the following patients regardless of their risk category

HYPERTENSION

Individual with raised BP > 140/90 mmHg (5 minutes apart, sitting position)

Treatment

<u>If BP > 140/90 ---------- <160/100 mmHg</u>

Start with mono therapy and life style modification

Amlodipine 5 mg at night time OD---- can increase to 10 mg OD

If not controlled --- add enalapril 5 mg OD (can increase to 10 mg OD)

<u>If BP > 160/100 mmHg</u>

Start with combination therapy

Amlodipine 5 mg OD (morning) + Enalapril 5 mg OD (Evening)

Maximum----- Amlodipine 10 mg + Enalapril 10 mg BD

Target Blood Pressure

< 60 yrs -----<140/90 mmHg

>60 yrs---- <150/90 mmHg

In DM or Hypertension Patient, 10 year Cardiovascular risk must be calculated.

If 10 year Cardiovascular risk > 30 %---- Add Aspirin 75mg OD and Atovastatin 10 mg OD

RENAL DISEASE

Oedema/ puffy face

Urine albumin (++)

Serum creatinine – increased

Caution to use Metformin and Enalapril

DIABETES MELLITUS DIAGNOSIS

Clinical symptoms

- Polyuria
- Polydipsia
- Weight loss

- FBS > 126 mg%
- RBS > 200 mg%
- HbA1C > 6.5 %

If symptoms (+) -----one time-----Diagnosis

If symptoms (-) ------2 times-------Diagnosis

TREATMENT

Monotherapy if RBS < 250 mg%

Start Metformin 500 mg (1)-------(1)

Wait for 1 week to get "Target"

If not reach "Target"

Increase up to---

- 3 times per day
- Maximum dose 3000 mg/day
- Maintainance 2000mg/day

If metformin cannot tolerate or contraindicated ----start with Gliclazide 80 mg OD or BD

---- Maximum 2 BD (320 mg)

Combination therapy if RBS 250-350 mg%

Metformin 500 mg (1)-----(1)

Gliclazide80 mg (1)------(1)

Depend on blood sugar level

If not reach "Target" after 1 week, can increase up to--

- Maximum ---Metformin 500mg (2)---(2)---(2)

  ---Gliclazide 80 mg (2)------(2)

Treatment Algorithm

Metformin or Gliclazide

↓ Not well controlled

Metformin + Gliclazide

↓ Not well controlled

Metformin + Gliclazide + Pioglitazone

Or

Metformin + Gliclazide + Sitagliptin

↓ Not well controlled

Oral triple therapy + Basal insulin

Warning about Oral Hypoglycaemic Agent(OHA)

Metformin ---Side Effects--- Nausea , Vomiting, Diarrhoea

Contraindication---- if serum Creatinine>1.5 mg%----Omit metformin

Gliclazide --- Side Effect--- Weight gain , hypoglycemia

Pioglitazone---Side Effect—Oedema (Can exacerbate Congestive heart failure and avoid in symptomatic heart failure patient)

Target blood sugar

- Fasting blood sugar - 80-130 mg%
- Premeal RBS - < 140 mg%
- 2 hour post parandial - < 180 mg%
- Random blood sugar - < 200 mg%
- HbA1C (3 monthly) - <7%

7	*Providing 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 ≥ 140mmHg** but **< 160/100 mmHg**, 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 1 year.
Review cardiovascular risk of this patient according to the guideline every 1 year.

Risk 10 %to20%

Risk 10%to <20% denotes yellow areas of the WHO/ISH Risk Prediction Chart.
Level of risk:MODERATE
Those who have **BP≥ 140/90 mmHg** but **<160/100mmHg** should be offered **lifestyle modifications.**
Repeat BP measurements every 6 months 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 the 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 3-6 months** with lifestyle modifications start them on one of the following drugs: thiazide –like diuretic, ACE inhibitor, calcium channel blocker or beta blocker. (Calcium 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 3-6 months.
If serum cholesterol is persistently> 5mmol/l (200mg/dl)despite lifestyle modifications start on a stain (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, 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 inhibitors should be advised to consult a doctor and discontinue it if planning for pregnancy.

8 In addition to the above interventions ,applying the following to the individuals with diabetes mellitus;

Goals for Glycaemic Control

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

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

Treatment:

Prescribe metformin and lifestyle 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 glucose ≥ 7 mmol /l (126mg/dl) in asymptomatic individuals

Titrate treatment according to blood glucose control.

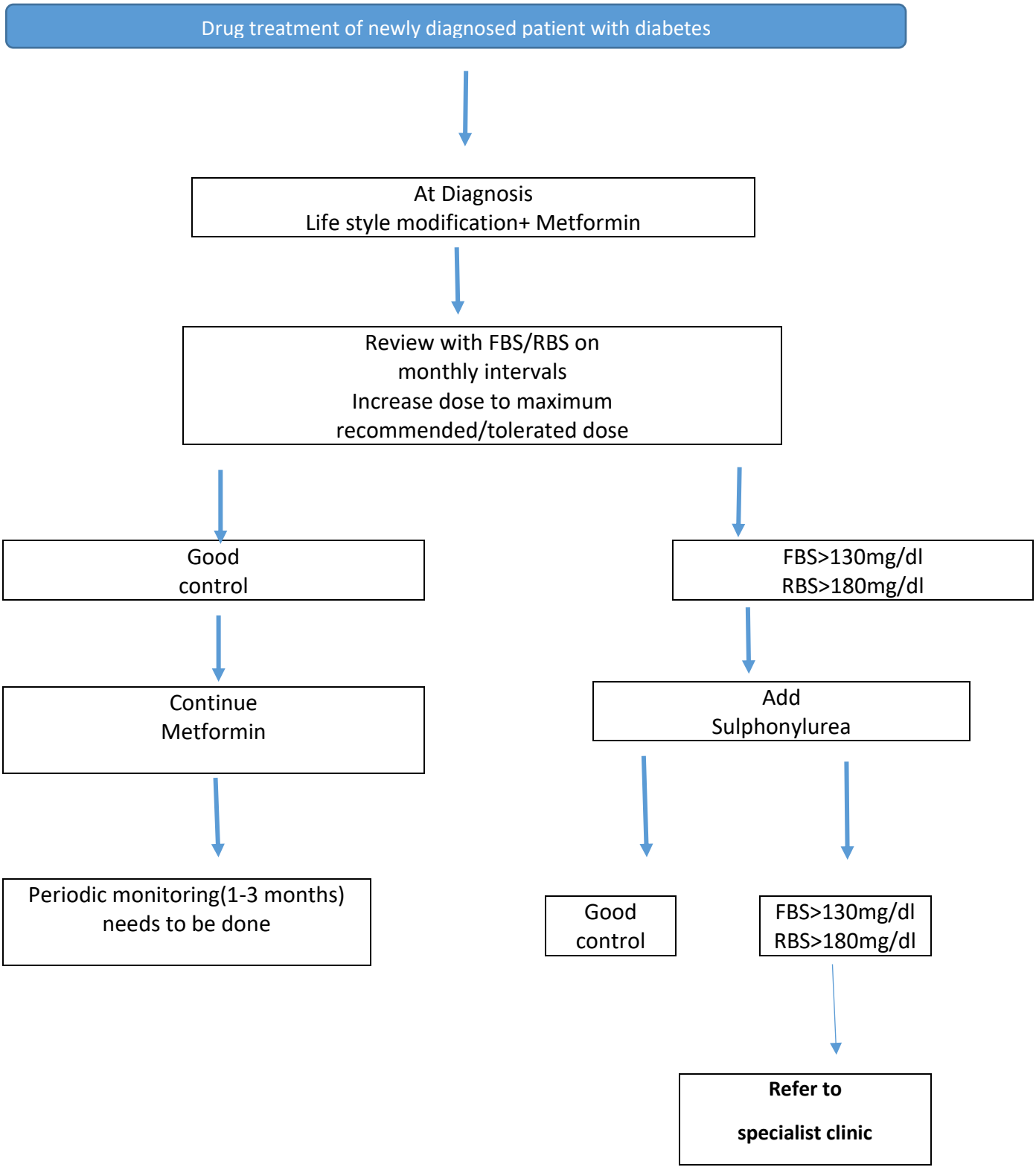
If unable to control despite life style modifications and maximum tolerated doses of metformin and a sulphonylurea, refer to a specialist hospital.

Decide the need for anti-hypertensive and statin therapy based on the risk category

Give advice on foot care

Follow up a t1-3 months

Use flow sheet for follow up


Drug treatment of newly diagnosed patient with diabetes
At Diagnosis
Life style modification+ Metformin
Review with FBS/RBS on
monthly intervals
Increase dose to maximum
recommended/tolerated dose
Good
control
FBS>130mg/dl
RBS>180mg/dl
Continue
Metformin
Add
Sulphonylurea
Periodic monitoring(1-3 months)
needs to be done
Good
control
FBS>130mg/dl
RBS>180mg/dl
Refer to
specialist clinic

9	Giving advice to 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.Guideline for Health Education and Counselling to be Healthy Behavior

Advise to patients and family
■ Avoid table salt and reduce salty foods such as pickles, salty fish, fast food, processed food, canned food and stock cubes ■Have your blood glucose level, blood pressure and urine checked regularly

Advice specific for diabetes
■ Advise overweight patients to reduce weight by reducing their food intake. ■ Advise all patients to give preference to low glycaemic-index foods (e.g.beans, lentils, oats and unsweetened fruit) as the source of carbohydrates in their diet ■ If you are on any DM medication that may cause your blood glucose to go down too low carry sugar or sweets with you ■ If you have DM, eyes should be screened for eye disease (diabetic retinopathy) by an ophthalmologist at the time of diagnosis and every two years thereafter, or as recommended by the ophthalmologist ■ Avoid walking barefoot or without socks ■Wash feet in lukewarm water and dry well especially between the toes ■ Do not cut calluses or corns, and do not use chemical agents on them ■ Look at your feet every day and if you see a problem or an injury, go to your health Worker
Educate your patient to
■ Take regular physical activity ■ Eat a “heart healthy” diet ■ Stop tobacco and avoid harmful use of alcohol ■ Attend regular medical follow-up

Take regular physical exercise

■Progressively increase physical activity to moderate levels(such as brisk walking);at least 30 minutes per day on 5 days of the week

■Control the body weight and avoid overweight by reducing high calories food and taking adequate physical activity

Eat a heart healthy diet

Salt (sodium chloride)

■ Restrict to less than 5 grams (1 teaspoon) per day

■ Reduce salt when cooking, limit processed and fast foods

Fruits and vegetables

■ 5 servings (400-500 grams) of fruits and vegetable per day

(1 serving is equivalent to 1 orange, apple, mango, banana or 3 tablespoons of cooked vegetables)

Fatty food

■ Limit fatty meat, dairy fat and cooking oil

(less than two tablespoons per day)

■ Replace palm and coconut oil with olive, soya, corn, rapeseed or safflower oil

■ Replace other meat with chicken (without Skin)

■ Fish

Eat fish at least 3 times per week, preferably oily fish such as tuna. mackerel, salmon

■Sugar

Reduce sugar/ sweet consumption

■Alcohol abstinence should be reinforced.

■People should not be advised to stark taking alcohol for health reasons

■Those men who take>2 drinks per day and women who take>1 drink per day

■Should be advised to reduce one unit=half pint of beer/lager(5%alcohol)100ml of wine(10%alcohol),spirits25mls(40% alcohol)

■Advise patients not to use alcohol when additional risks are present,such as driving or operating machinery

■Pregnant or breast feeding

■Taking medications that with alcohol

■Having medical conditions made worse by alcohol

■Having difficulties in controlling drinking

Stop tobacco and harmful use of alcohol

■ Encourage all non-smokers not to start smoking

■ Strongly advise all smokers to stop smoking and support them in their efforts

■ Individuals who use other forms of tobacco should be advised to quit

10	Counselling for Lifestyle modification

Weight control

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

BMI <18.5kg/m² - underweight

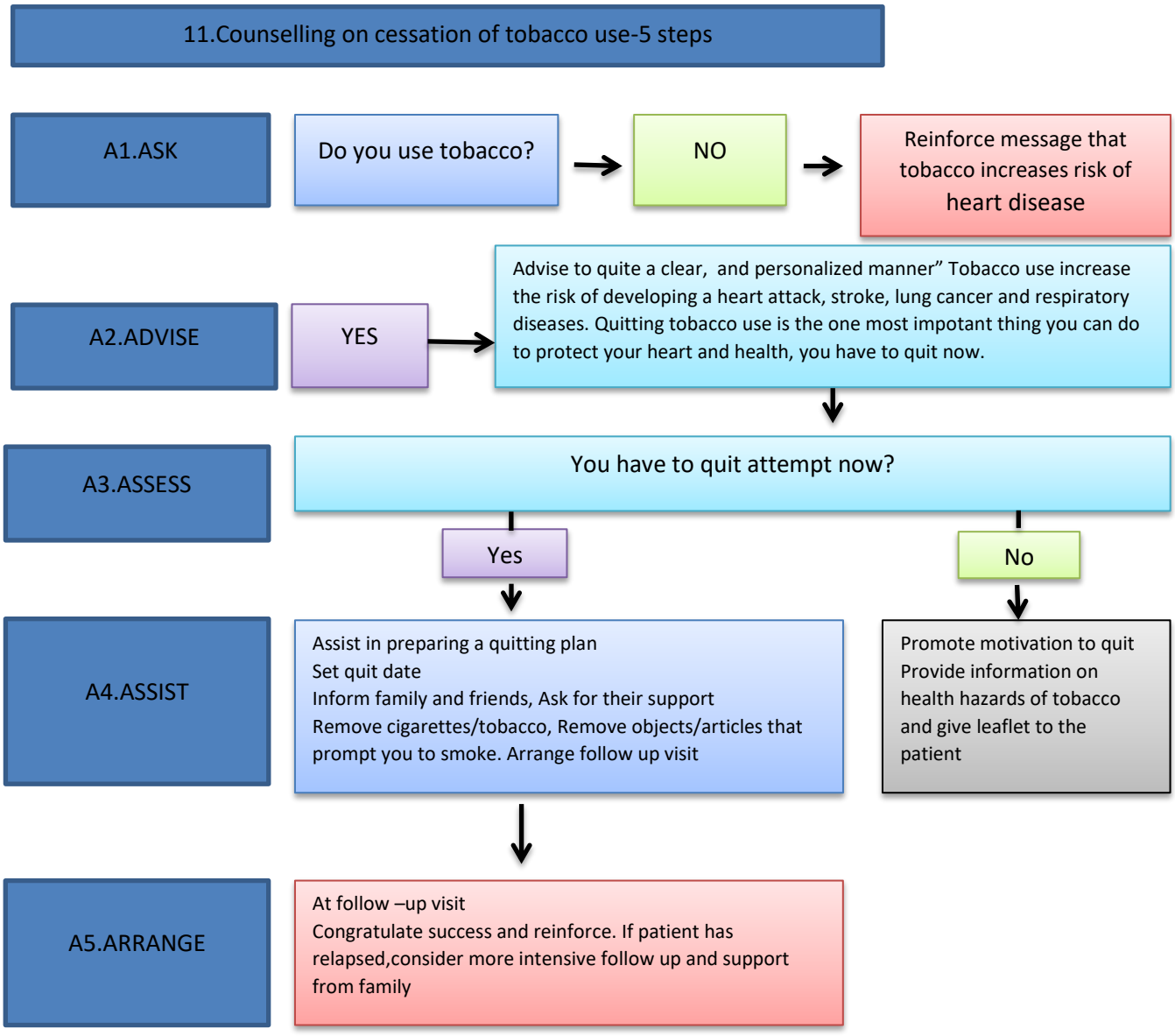
18.5-24.9kg/m² - Normal

25-29.9kg/m² -Overweight

≥30kg/m² -Obese

WAIST CIRCUMFERENCE Males: ≥ 90 cm (36")

Females: ≥ 80 cm (32")



12.Guideline for adherence to treatment

■ If the patient is prescribed a medicine/s:
■ teach the patient how to take it at home:
■ explain the difference between medicines or long- term control (e.g. blood pressure) and medicines for quick relief (e.g. for wheezing)
■ tell the patient the reason for prescribing the medicine/s
■ Show the patient the appropriate dose
■ Explain how many times a day to take the medicine
■ Label and package the tablets
■ Check the patient's understanding before the patient leaves the health centre
■ Explain the importance of:
■ keeping an adequate supply of the medications
■ the need to take the medicines regularly as advised even if there are no symptoms

13. Medicines used in diabetes and hypertension

Glicazide(Sulphonyl ureas)

Indication

Used for the treatment of type 2 diabetes mellitus.

Contraindication

Contraindicated in the presence of Ketoacidosis.

Should be advoided in

-Actue porphyria

-Pregnancy

-Breast feeding

Side effect

GI disturbance(nausea ,vomiting, diarrhea ,and constipation)

hypoglycemia, weight gain.

Disturbance in liver function(Cholestatisc, hepatitis and hepatic failure)

Rarely allergic skin reaction

Dosage

Initially 40-80 mg daily, adjusted according to response, up to 160 mg as a single dose ,with break fast, higher dose divided;maximun320 mg daily.

Glicazide MR 30-60 mg, maximum dose 120mg,,

Metformin(bigunanides)

Indication

Used in type 2 diabetes mellitus with obese patient

Contraindication

Contraindicated in

-Keto acidosis

-Plan for Iodine containing X ray contrast media

Should be avoided in renal Impairment ,severe heart failure and liver failure.

Side Effect

-Anorexia, nausea, vomiting, diarrhea, abdominal pain, taste disturbance

Dosage

Adult and Child over 10 years initially 500mg with breakfast for at least 1 week then 500 mg with breakfast and evening meal for at least 1 week then 500 mg with breakfast ,lunch and evening meal, usual maximum 2g daily in divided doses.

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Amlodipine

Indication

Hypertension, prophylaxis of angina

Contraindication

Cardiogenic shock, unstable angina, significant aortic stenosis.

Side effect

GI disturbance(abdominal pain, nausea) palpitation, Flushing ,oedema, headache, dizziness, sleep disturbance, fatigue.

Dosage

In hypertension and angina

Initially 5mg once daily maximum 10 mg once daily

Atenolol

Indication

Hypertension ,Angina, Arrhythmias.

Contraind0ication

Asthma ,uncontrolled heart failure ,marked bradycardia, hypotension, second or third degree AV block, cardiogenic shock, metabolic acidosis, severe peripheral arterial disease.

Side effect

GI disturbance. Bradycardia ,Heart failure, Hypotension, peripheral vasoconstriction ,bronchospasm, Dyspnea, Headache ,Fatigue, Sleep disturbance ,Paresthesia , Dizziness ,vertigo

Dosage

In hypertension,25 -50 mg daily (high dose rarely necessary)

In angina,100mg daily in 1 or 2 doses

In arrithmias,50 to 100 mg daily

Enalapril

Indication

Hypertension,symptomatic heart failure

Prevention of symptomatic heart failure in patient with asymptomatic left ventricular dysfunction

Contraindication

Patient with ACE inhibitors hypersensitivity

Should be avoided in pregnancy(they are adversely affect fetal and neonatal blood pressure control and renal function ,skull defects and oligohydramnios

Breast feeding

Side effect

Profound hypotension,renal impairment and persistent dry cough.

G.Idisturbance(Nausea,vomiting,dyspeia,diarrhea.constipation,abdominal pain.)

Dosage

In hypertension-used alone ,initially 5 mg once daily. used in addition to diuretic,(a thiazide diuretic or calcium channel blocker) or in renal impairment, lower initial doses may be required .usual maintenance dose 20 mg once daily.maximum-40 mg once daily.

In heart failure and asymptomatic ventricular dysfunction-Initially 2.5 mg once daily under medical supervision, increased gradually over 2-4 weeks to 10-20 mg daily if tolerated.

Asprin

Indication

Secondary prevention of thrombotic cerebrovascular or cardiovascular disease

Contraindication

Contraindicated in

In children and adolescents under 16 years(Reye's syndrome)

Hypersensitivity to asprin and other NSAIDS

Avoided in severe hepatic impairment (increased risk of gastro-intestinal bleeding in severe renal impairment.)

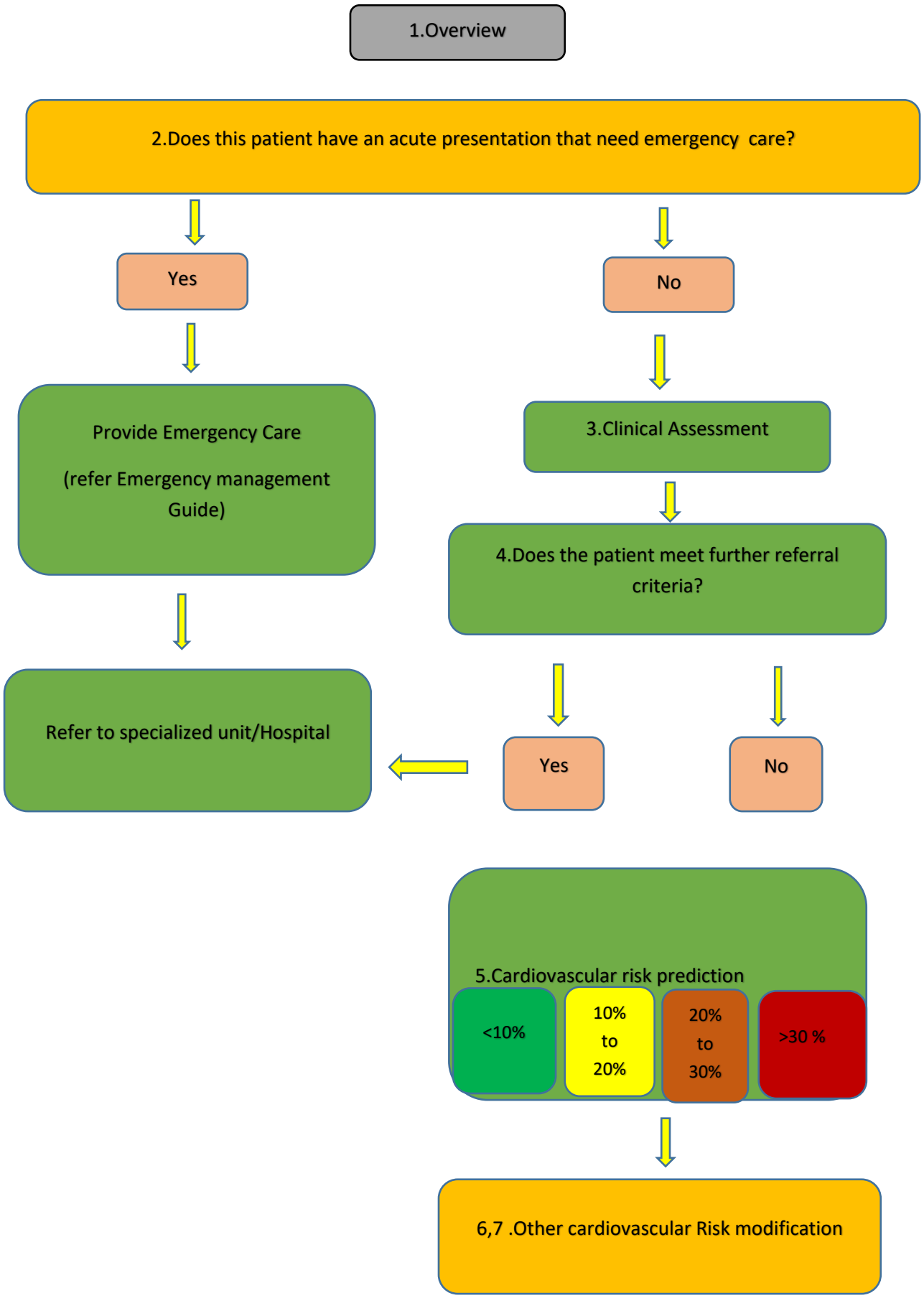
Side effect

Bronchospasm, Gastro-intestinal irritation and gastro-intestinal bleeding.

Dosage

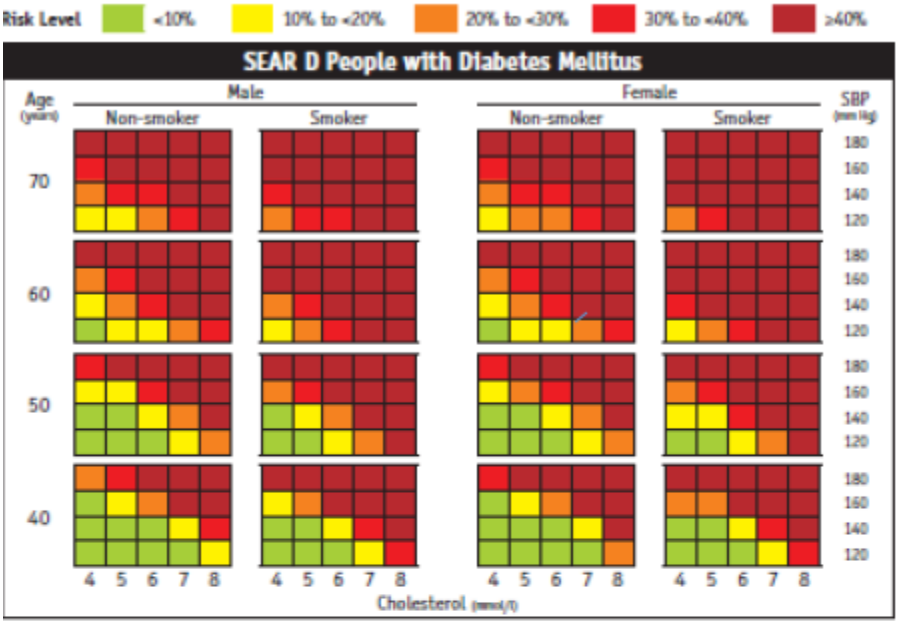
80mg once daily with food

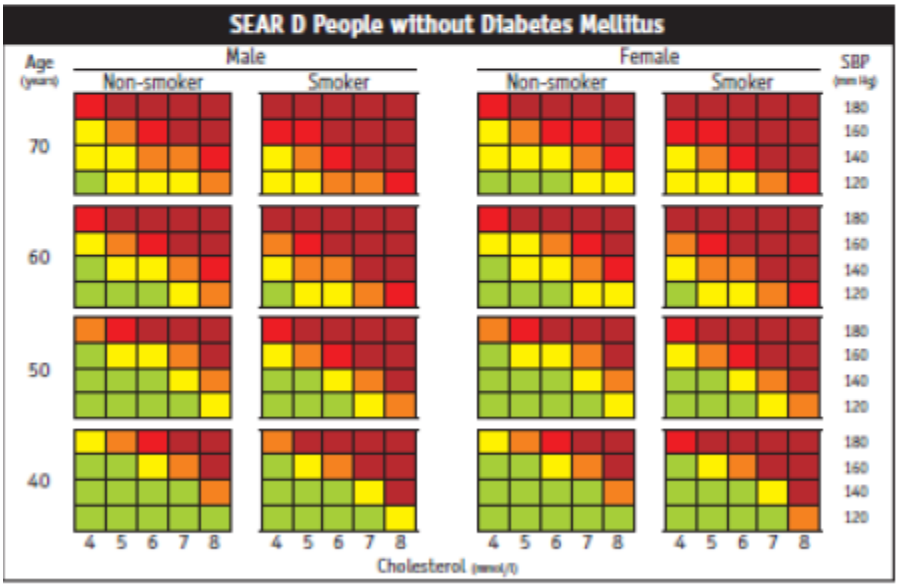
Annex 1.


1.Overview
2.Does this patient have an acute presentation that need emergency care?
Yes
No
Provide Emergency Care
(refer Emergency management Guide)
3.Clinical Assessment
4.Does the patient meet further referral criteria?
Refer to specialized unit/Hospital
Yes
No
5.Cardiovascular risk prediction
<10%
10% to 20%
20% to 30%
>30 %
6,7 .Other cardiovascular Risk modification

Annex 2.Rick prediction Chart(With Cholesterol)

Figure 22. WHO/ISH risk prediction chart for SEAR D. 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.





This chart can only be used for countries of the WHO Region of South-East Asia, sub-region D, in settings where blood cholesterol can be measured (Bangladesh, Bhutan, Republic of Korea, India, Maldives, Myanmar, Nepal).

Annex 3

WHO/ISH RISK PREDICTION CHART(Without cholesterol level)

Figure 24. WHO/ISH risk prediction chart for SEAR D. 10-year risk of a fatal or non-fatal cardiovascular event by gender, age, systolic blood pressure, smoking status and presence or absence of diabetes mellitus.

This chart can only be used for countries of the WHO Region of South-East Asia, sub-region D, in settings where blood cholesterol CANNOT be measured. (Bangladesh, Bhutan, Republic of Korea, India, Maldives, Myanmar, Nepal)

Annex 4.

Guidelines for Risk Prediction Chart

How do use the charts to assess cardiovascular risk ?

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

- Presence or absence of Diabetes
- Gender
- Smoker or Non-Smoke
- Age
- Systolic Blood Pressure(SBP)
- Total blood cholesterol

(If in mg dl divided by 38 to convert to mml/l)

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

Estimate the 10- year cardiovascular risk to follows;

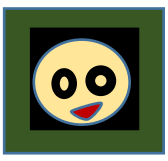
Step 1.Select the appropriate chart depending on the presence or absence of diabetes

Step 2.Select male or female tables

Step 3.Select smoker or non-smoker boxes

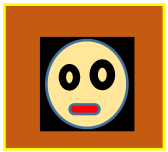
Step 4.Select age group box(if age is 55;select 50-59,if age is 60;select 60-69)

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 color of this cell determines the 10 year cardiovascular risk.



<10%

10% to20%



20% to<30%

30% to<40%

≥ 40%