

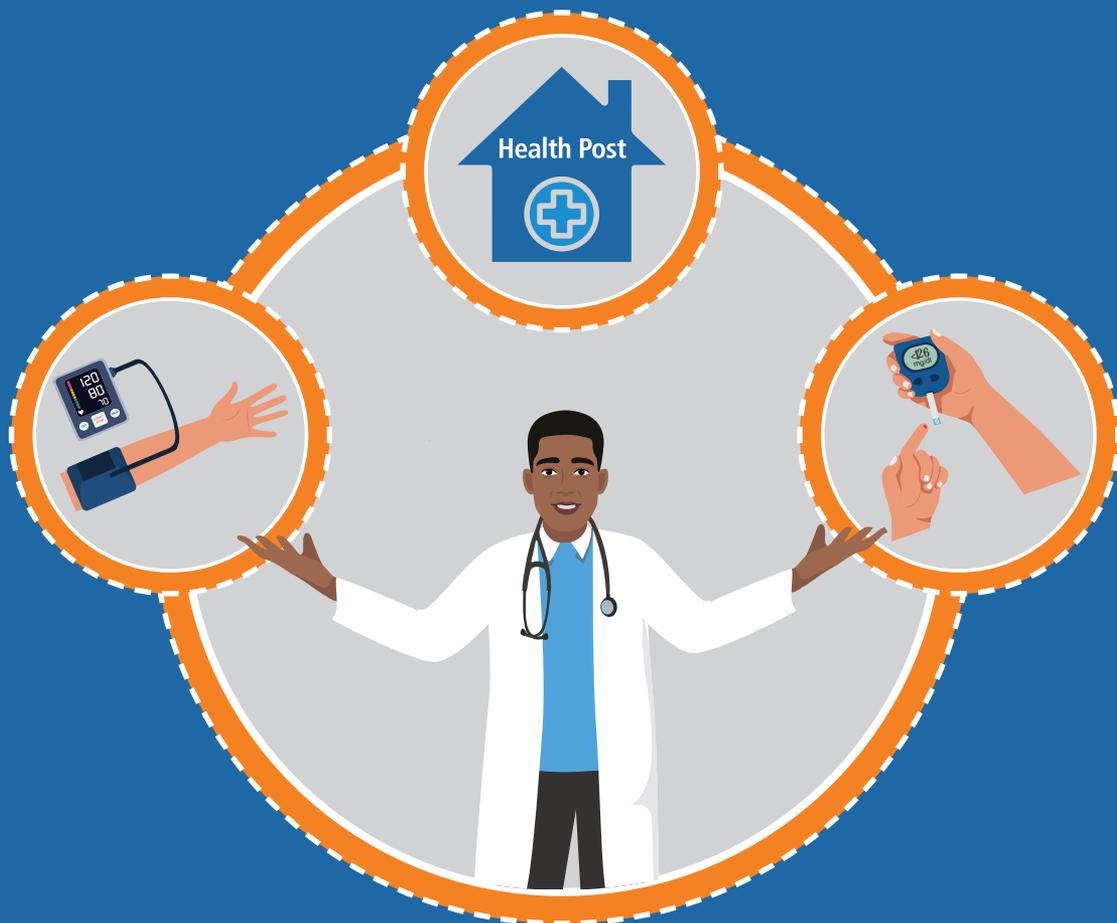
# Operational manual

to accelerate prevention and control of **Diabetes**  
**Hypertension** at primary health care

## Facility level

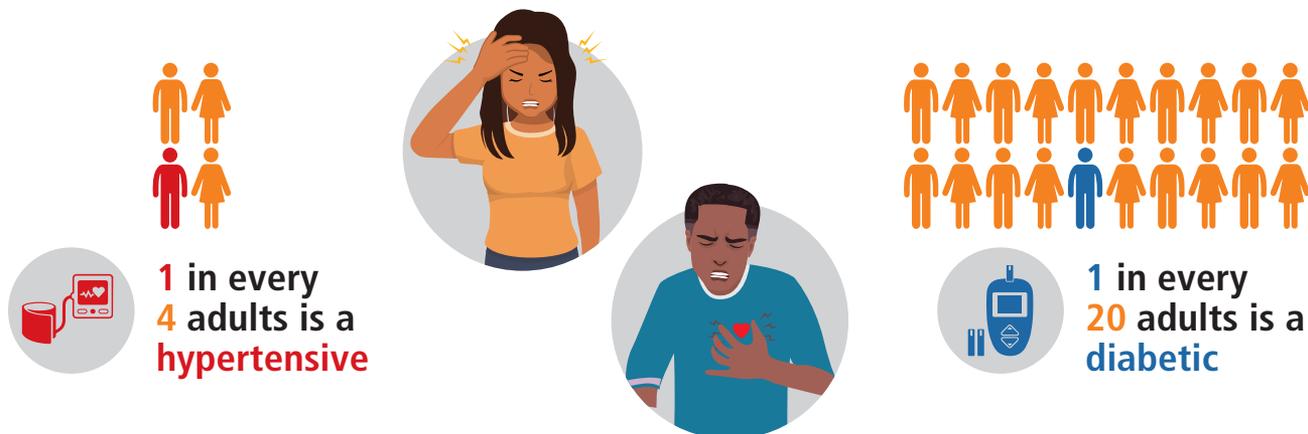
Health Post  
without Doctor

Treatment Post  
without doctor



Prevention and Diseases Control National Directorate  
Primary Health Care General Directorate

# Why is prevention and management of diabetes and hypertension important?



**Hypertension, diabetes**  
and its complications (heart attacks, stroke,  
are the leading causes of deaths in the country

## WHAT IS HYPERTENSION



A condition in which the blood vessels have persistently raised pressure.



**Normal** adult blood pressure - systolic blood pressure (SBP) of 120 mmHg and diastolic blood pressure (DBP) of 80 mm Hg.



**Diagnosis:** Persistently raised pressure - SBP  $\geq 140$  mm Hg and or  $\geq 90$  mm Hg, taken on 2 or more separate days.



**Risk factors:** Excessive salt consumption, diet high in saturated fat and trans fats, low intake of fruits and vegetables, physical inactivity, consumption of tobacco and alcohol, overweight or obese, mental stress, family history of hypertension, > 65 years.



**Symptoms:** Most people will have no signs and symptoms. Common sign and symptoms includes severe headaches, chest pain, dizziness, nausea, vomiting, blurred vision, nose bleeding.



**Complications:** Uncontrolled hypertension causes heart attacks, heart failure, stroke and kidney disease.

## WHAT IS DIABETES\* (TYPE 2 DIABETES)



It is a chronic, metabolic disease characterized by elevated levels of blood glucose (or blood sugar).



**Normal** Fasting venous or capillary plasma glucose:  $< 126$ mg/dl or Random blood glucose  $< 200$ mg/dl.



**Diagnosis:** Fasting venous or capillary plasma glucose:  $\geq 126$ mg/dl or Random blood glucose  $\geq 200$ mg/dl.



**Risk factors:** Overweight and obesity, physical inactivity, diabetes in first degree relatives, history of gestational diabetes, cardiovascular disease.



**Symptoms:** Most people will have no signs and symptoms. Common sign and symptoms includes frequent urination, excessive thirst, tiredness, weight loss, excessive hunger, non-healing wounds.



**Complications:** Uncontrolled diabetes, over time lead to serious damage to the heart, blood vessels, eyes, kidneys, and nerves.

\* This module addresses only Type 2 Diabetes. Other types of diabetes – Type 1, Gestational are mentioned in Implementation guide manual

# Services and resources availability checklist

## Organization of services for hypertension and diabetes management at health facility

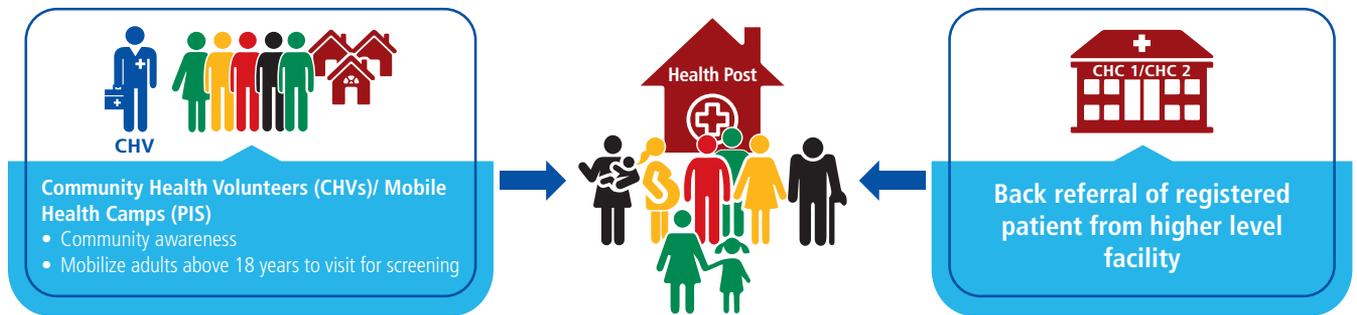
Health Services	
Community mobilization	Medicines and diagnostics stock management
Opportunistic screening (triage) for hypertension and diabetes	Longitudinal monitoring of records
Healthy lifestyle counselling	Utilization of mobile health teams
Annual referral for screening of complications	Supportive supervision
Follow up of missed visits and lost to follow up	
Drug dispensing	

## Services and resources availability in different types of health facility

 MEDICINES	 DIAGNOSTICS	 RECORDING AND REPORTING TOOLS	 JOB AIDS
Enalapril	Digital BP apparatus	NCD OPD triage register	How to measure Blood Pressure and blood sugar
Amlodipine	Glucometer	NCD passport	Information brochure for patient and relatives
Metformin	Glucose test strips	NCD facility register	CVD risk assessment Chart (non-lab based)
Sulfonylureas (Glibenclamide/Glicazide)	Weighing and Height measuring equipment	NCD patient follow-up register	Dashboard to monitor progress
Low dose Aspirin	Urine albumin strips/Urine glucose strips	Patient treatment and follow-up card	CVD risk assessment Chart (lab based)
Statin	Lancets	Monthly Municipality facility-based reporting	Management protocol for hypertension and type 2 diabetes
			Management protocol for type 2 diabetes
			Drug forecasting tool

# Service delivery Model for hypertension and diabetes management

## Health posts without doctors



### ALL OPD ATTENDEES



**WHERE:** Triage counter  
**WHO:** All OPD attendees aged 18 years and above who have not had their blood pressure and blood sugar measured in the past year  
**WHAT:** Nurse measures random blood sugar ( $\geq 30$  years) and blood pressure ( $\geq 18$  years)

### CLINIC ATTENDEE



**WHERE:** Triage counter  
**WHO:** Registered Clinic attendee coming for follow-up of treatment  
**WHAT:** Nurse measure fasting blood sugar ( $\geq 30$  years) and blood pressure ( $\geq 18$  years)

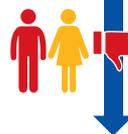


TRIAGE COUNTER



- Enter details in NCD OPD triage register
- Motivate to recheck the blood pressure and blood sugar at least once a year
- Give counselling for risk factors and to maintain healthy lifestyle
- Motivate person to maintain normal blood pressure ( $< 120/80$  mmHg)

- Enter details in NCD OPD triage register
- If RBS  $\geq 200$ mg/dl ( $\geq 11$  mmol/l), ask to come on next day in fasting stage for confirmation (label as suspected person)
- If BP  $\geq 140$  and /or  $\geq 90$  mmHg, ask to come next day for confirmation (label as suspected person)
- Give counselling for risk factors and health lifestyle
- Nurse fill the referral form and send patient to nearest CHC for treatment
- Nurse inform the facility about referral



TRIAGE COUNTER



- Follow-up patient**
- Nurse assess whether patient is taking regular medicines
  - Nurse enter details in NCD passport and NCD facility register
  - Nurse fill the referral form and send patient to nearest CHC for further evaluation or discuss with treating doctor on phone about management
  - Nurse inform the facility about referral

- Follow up patient**
- Nurse enter details in NCD passport and NCD facility register
  - Nurse gives follow-up date after counselling



**Follow-up of missed visits by CHVs/Mobile Health Team (PIS)**

- Suspected person not confirmed
- Registered patient not attended clinic on due date



Patient collect medicine from Nurse

After one year of registration & annually

**1 YEAR**

Refer for screening of complications and HbA1c testing to RH/HNGV

**Black :** normal person  
**Red:** undetected  
**Yellow:** Detected but uncontrolled  
**Green:** Detected and controlled

# Roles and responsibility of health staff

## CATEGORY OF HEALTH CARE WORKERS

## TASKS



Nurse

1. Conduct BP and Blood sugar measurement at triage desk (pre assessment area) and update dashboard at health facility.
2. Dispense drugs as per the treatment card and maintain and update records - OPD triage register, NCD facility register, treatment cards, follow up register. Ensure longitudinal records of registered patients
3. Provide NCD passport to new patient
4. Participate in outreach camps and maintain due list and track missed visits and lost to follow up
5. Counsel patient for drug adherence and ensure patient has properly understand the treatment .
6. Update all the NCD data in HMIS/NCD dashboard on a monthly basis.



Mid wife

1. Counsel patient for drug adherence and support in follow –up of defaulters
2. Facilitate nurse in triage desk and help in community mobilization
3. Help medical officer and nurse in display of IEC materials
4. Explain referral slip
5. Participate in outreach camps



Pharmacist

1. Dispense drugs according to NCD passport and treatment care
2. Advice on the importance of having to take complete course of medicines as prescribed and any expected side effects and how to deal with them
3. Ensures adequate stock of essential medicines and remind about the next refill date and place for medicines if relevant
4. Use minimum maximum inventory method/drug forecasting tool to manage stocks and timely drug indenting



Community health volunteers

1. Raise community awareness
2. Mobilize eligible people for screening
3. Track defaulted patient
4. Provide counselling for drug adherence and follow –ups







## 4. NCD facility Register

S.Nú.	Data Issue Pasaporte MLH	Naran	ID úniku pasiente (Nú.Kartaun Eleitoral)	Hela Fatin ho Nú. Kontaktu	Idade/ Sexu	Diagnóstiku (Marka iha neébé mak relevante)					Iha Rejistru						
						Ipertensaan	Diabetes	Moras Pulmonar	Obstrutiva Kronika	Asma	Seluk (espesitika)	Aas (m)	Todan (kg)	IMK: T/(A*A) (kg/m <sup>2</sup> )	T	A	B
1	28.08.2024	Mrs. Ana	1234567	Fomento, Dom Aleixo, Dili, 778877	40/F	yes	No	no	no	no	1.5	55	24.4	N	N	N	2

Data Inisiu Tratamentu	V1					V2					V3					V4					V5					V6					V7					V8					V9					V10					V11					V12					Avaliasaun Anual
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	
28.08.2024	1 28.08.2024	2 145/85	3 105 mg/dl	4 72CYD -2	5 Enalapril 5mg OD for 30 days	1 29.10.2024	2 120/85	3	4 72CYD -2	5 Enalapril 5mg OD for 30 days	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	HbA1c: Total Chol. KFT. Mattan.					



# Dashboard



## NCD Dashboard indicators for each facility

Effective monitoring is important for the success of hypertension and diabetes prevention and control. Tracking the progress at regular interval ensures adherence to treatment protocols, timely follow-up of patients, and overall quality of care. The NCD dashboard at the health facility will help the care providers to assess the progress on target and take appropriate measure to rectify it:

Indicators (Monthly Report)	Where the information will come from	January	February	March
Total no. of $\geq 18$ years OPD visits	Adult OPD registration/Registration OPD/ NCD OPD Triage Register			
Total no. of $\geq 18$ years screened for hypertension	Adult OPD registration/Registration OPD/ NCD OPD Triage Register			
Total new hypertension cases diagnosed	NCD facility Register			
Total no. of $\geq 30$ years screened for diabetes	Adult OPD registration/Registration OPD/ NCD OPD Triage Register			
Total new diabetes cases diagnosed	NCD facility Register			
Total number of Hypertensive cases on protocol based management	NCD Treatment and follow-up card			
Total number of diabetes cases on protocol based management	NCD Treatment and follow-up card			
Total HTN +DM patients referred for annual screening	NCD facility Register			
Total number of lost to follow up patients for hypertension and diabetes	NCD patient follow-up register			
Stock of drugs on the last day of month <ul style="list-style-type: none"> <li>• Enalapril</li> <li>• Amlodipine</li> <li>• Metformin</li> <li>• Glibenclamide</li> </ul>	Drugs Stock register			
Stock of Glucose testing strips on the last day of month	Drugs Stock register			
Total no. of NCDs related outreach community services by facility staff member	Xefe CHC			
Total patients screened for 10-year CVD risks	NCD Treatment and follow-up card			
Number of patients with greater than 20% CVD risk	NCD Treatment and follow-up card			
Hypertension control rate (%)				
Diabetes Control rate (%)				

## Drug and diagnostic stock management



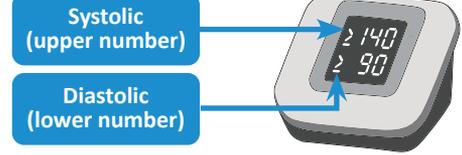
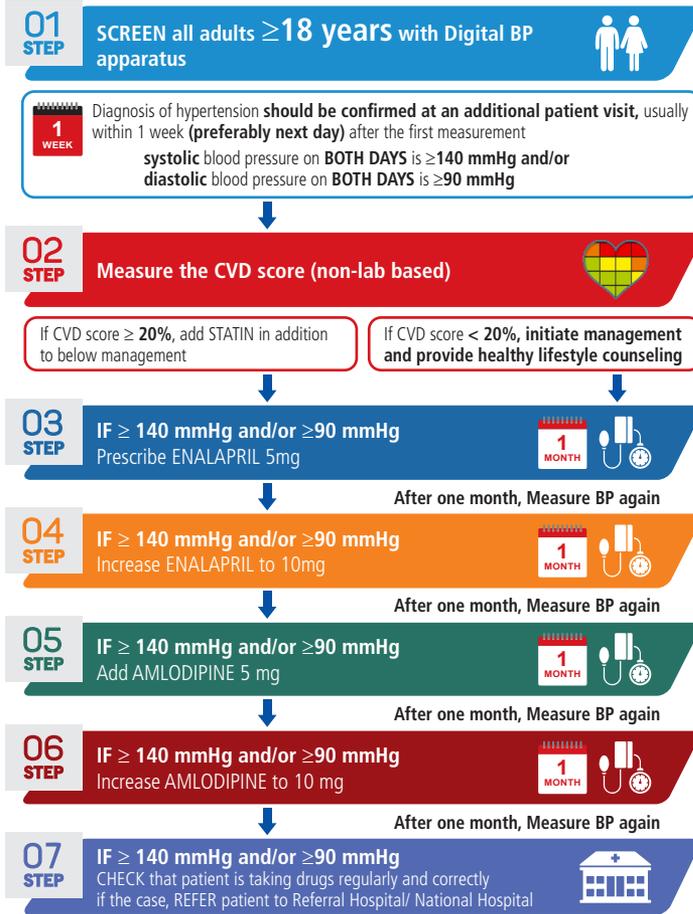
### Indenting Process

- For maintaining the drug stock at facility level, all the Municipality store and facility store pharmacists are trained/ will be trained on calculation method based on morbidity method, mixed method rather than consumption method. All the facilities are having the list of confirmed NCD patients in the register. Training of pharmacists conducted for annual indenting and monthly indenting based on actual requirement as per patient load.

### Minimum and maximum stock requirements based on frequency of supply

Frequency of supply	Buffer stock	Minimum stock	Maximum stock
Monthly	1 month	2 months	3 months
Two monthly	1 month	3 months	5 months
Quarterly	<b>1 month</b>	<b>4 month</b>	<b>7 months</b>

# Hypertension Management Protocol



**THIS PROTOCOL IS CONTRAINDICATED FOR WOMEN who are PREGNANT OR could become PREGNANT.**

Manage diabetes with hypertension as indicated by national standard management guideline. If patient is below 30 years, initiate management, and arrange for specialist consultation to rule out secondary hypertension

**TARGET BP:  $< 140/90$  mmHg and or  $< 90$  mmHg**  
**Aim for BP:  $< 130/80$  for people at high risk, such as individuals with diabetes, CAD, stroke, or CKD**

- Check for **Drug compliance** at each visit
- Dispense drugs for 30 days and give appointment after 4 weeks**
- Advise patient to come to health facility 3 days prior to due date for drugs**
- Medications should be taken **at the same time each day**

**Signs and symptoms of Hypotension:**  
 SBP  $< 90$  mmHg and DBP  $< 60$  mmHg  
 dizziness, fainting, trouble in concentration and blurred vision

**If SBP  $\geq 160$  mmHg or DBP  $\geq 100$  mmHg, start treatment on the same day.** Advised weekly follow up until their SBP  $< 160$  and DBP  $< 100$

**If SBP  $\geq 180$  mmHg or DBP  $\geq 110$  mmHg, administer Enalapril 10 mg and refer to National Hospital.**

**CVD Risk Score  $\geq 20\%$ , add STATIN (Simvastatin 20mg), STATIN is contraindicated in women who is pregnant or may become pregnant**

**HEART ATTACK or STROKE, ever**  
 Add low dose Aspirin (75 mg) and STATIN (Simvastatin 20 mg)

**HEART ATTACK in previous three years**  
 Add Beta blocker

**Recommended investigations at initiation of therapy**  
 Haemoglobin, blood sugar, lipid profile, urine analysis for proteinuria, serum creatinine

## Lifestyle advice for all patients



**Advantages of ACB (Enalapril)**

- Benefits some patients with kidney disease, prior myocardial infarction, and low ejection fraction

**Disadvantage of ACB (Enalapril)**

- A persistent cough is experienced by up to 10% of patients treated
- Small risk of angioedema
- Risk of hyperkalemia, especially if patient has Chronic Kidney Disease

**Advantages of CCB (Amlodipine)**

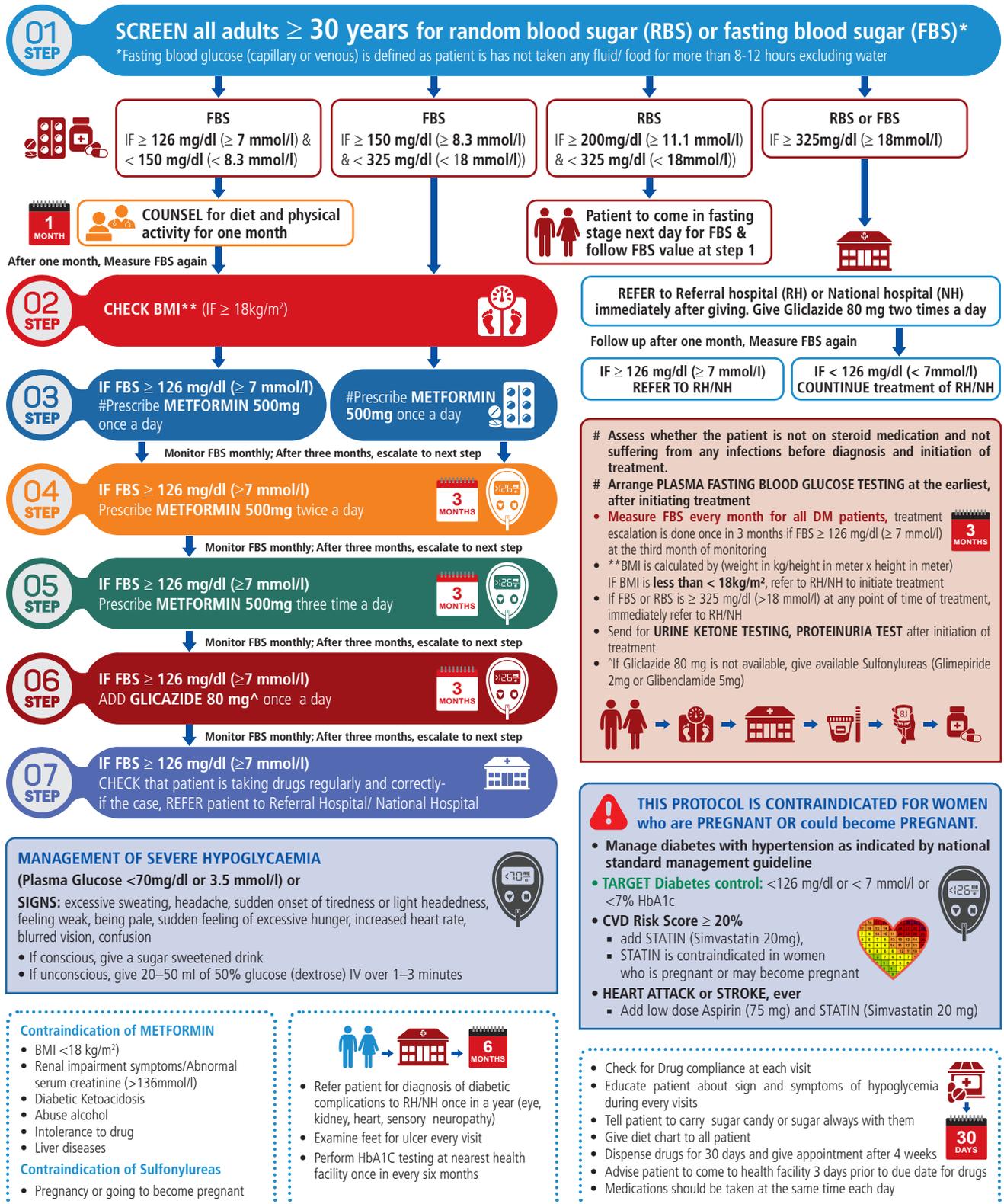
- Reduces need for monitoring of electrolytes and renal function;
- Avoids need for different treatment for women of childbearing age who may become pregnant

**Disadvantage of CCB (Amlodipine)**

- Ankle edema may occur in up to 10% of patients, particularly with intensification dose in the absence of an ACE inhibitor

- Eat 5 servings of fruits and vegetables per day
- Limit consumption of foods containing high amounts of saturated fats.
- Reduce weight if overweight.
- Reduce fat intake by changing how you cook:
  - Remove the fatty part of meat
  - Use vegetable oil
  - Boil, steam, or bake instead of fry
  - Limit reuse of oil for frying
- Avoid processed foods containing trans fats.
- Avoid added sugar.

# Type 2 Diabetes Management Protocol



# Assess whether the patient is not on steroid medication and not suffering from any infections before diagnosis and initiation of treatment.

# Arrange **PLASMA FASTING BLOOD GLUCOSE TESTING** at the earliest, after initiating treatment

- Measure **FBS every month** for all DM patients, treatment escalation is done once in 3 months if FBS ≥ 126 mg/dl (≥ 7 mmol/l) at the third month of monitoring
- \*\*BMI is calculated by (weight in kg/height in meter x height in meter)
- IF BMI is **less than < 18kg/m<sup>2</sup>**, refer to RH/NH to initiate treatment
- If FBS or RBS is ≥ 325 mg/dl (>18 mmol/l) at any point of time of treatment, immediately refer to RH/NH
- Send for **URINE KETONE TESTING, PROTEINURIA TEST** after initiation of treatment
- <sup>^</sup>If Gliclazide 80 mg is not available, give available Sulfonylureas (Glimepiride 2mg or Glibenclamide 5mg)

**THIS PROTOCOL IS CONTRAINDICATED FOR WOMEN who are PREGNANT OR could become PREGNANT.**

- Manage diabetes with hypertension as indicated by national standard management guideline
- **TARGET Diabetes control:** <126 mg/dl or < 7 mmol/l or <7% HbA1c
- **CVD Risk Score ≥ 20%**
  - add STATIN (Simvastatin 20mg),
  - STATIN is contraindicated in women who is pregnant or may become pregnant
- **HEART ATTACK or STROKE, ever**
  - Add low dose Aspirin (75 mg) and STATIN (Simvastatin 20 mg)

**MANAGEMENT OF SEVERE HYPOGLYCAEMIA**  
 (Plasma Glucose <70mg/dl or 3.5 mmol/l) or

**SIGNS:** excessive sweating, headache, sudden onset of tiredness or light headedness, feeling weak, being pale, sudden feeling of excessive hunger, increased heart rate, blurred vision, confusion

- If conscious, give a sugar sweetened drink
- If unconscious, give 20–50 ml of 50% glucose (dextrose) IV over 1–3 minutes

**Contraindication of METFORMIN**

- BMI <18 kg/m<sup>2</sup>)
- Renal impairment symptoms/Abnormal serum creatinine (>136mmol/l)
- Diabetic Ketoacidosis
- Abuse alcohol
- Intolerance to drug
- Liver diseases

**Contraindication of Sulfonylureas**

- Pregnancy or going to become pregnant

**6 MONTHS**

- Refer patient for diagnosis of diabetic complications to RH/NH once in a year (eye, kidney, heart, sensory neuropathy)
- Examine feet for ulcer every visit
- Perform HbA1C testing at nearest health facility once in every six months

**30 DAYS**

- Check for Drug compliance at each visit
- Educate patient about sign and symptoms of hypoglycemia during every visits
- Tell patient to carry sugar candy or sugar always with them
- Give diet chart to all patient
- Dispense drugs for 30 days and give appointment after 4 weeks
- Advise patient to come to health facility 3 days prior to due date for drugs
- Medications should be taken at the same time each day

**Lifestyle advice for all patients**

**Avoid tobacco and alcohol**

**Exercise 60 mins every day**

**Reduce weight, if overweight**

**Reduce salt, under 1 tsp day**

**Eat less fried foods**

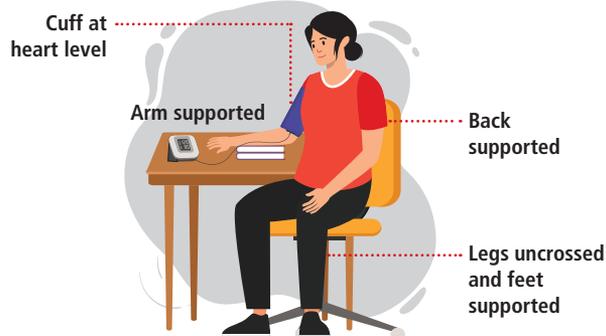
## How to measure BP



Periodic self checking using an automated **digital blood pressure monitor** is a first step towards getting to know your blood pressure status. Remember following before starting BP measurement:

- Rest comfortably and quietly for 5 minutes before measuring blood pressure
- Ensure you have not exercised, had tea/coffee, or used tobacco in the last 30 minutes
- Put your back, arm and feet supported (as shown in picture)

### Correct posture and positioning is important



## How to measure Blood sugar

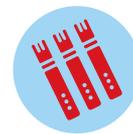
### Requirements for testing



Blood glucose meter



Lancet



Test strips

### How to use blood glucose meter



## Addressing missed visits and lost to follow up

### Missed visits



Those who did not return to care at least once in a quarter following registration.



Assess the details of missed visit form the follow up register.

### Missed visits can be reduced by



Friendly staff that make patients comfortable ensures that patients will want to come regularly for visits.



Patient reminders through messages/ phone calls/ home visits



Phone number of relatives or neighbors if the patient does not have his/her own phone

### Loss to follow up



Patients who did not return to care for 12 months.

## Healthy Lifestyle counseling to all suspected person with risk factors and registered patients



Advise all patients against tobacco use and alcohol intake.



Structured counselling of people with NCD risk factors (use of Integrated counselling/ interventions for lifestyle related risk factors 5As and 5Rs approach, brief intervention etc.



Suggest ways to increase their physical activity, to improve overall health and weight control.



Adopt a healthy diet – reduce salt intake (less than 5 g salt per day)



Increase fruit and vegetable intake,



Eat nuts, peas, whole grains and foods rich in potassium like spinach, watermelon, yogurt.



Limit red meat, prefer fish and foods rich in omega-3 fatty acids,



Limit consumption of fried foods, processed foods and foods high in saturated fat.



Avoid added sugar from cakes, cookies, sweets, fizzy drinks



Use healthy oils like olive, safflower, sunflower.

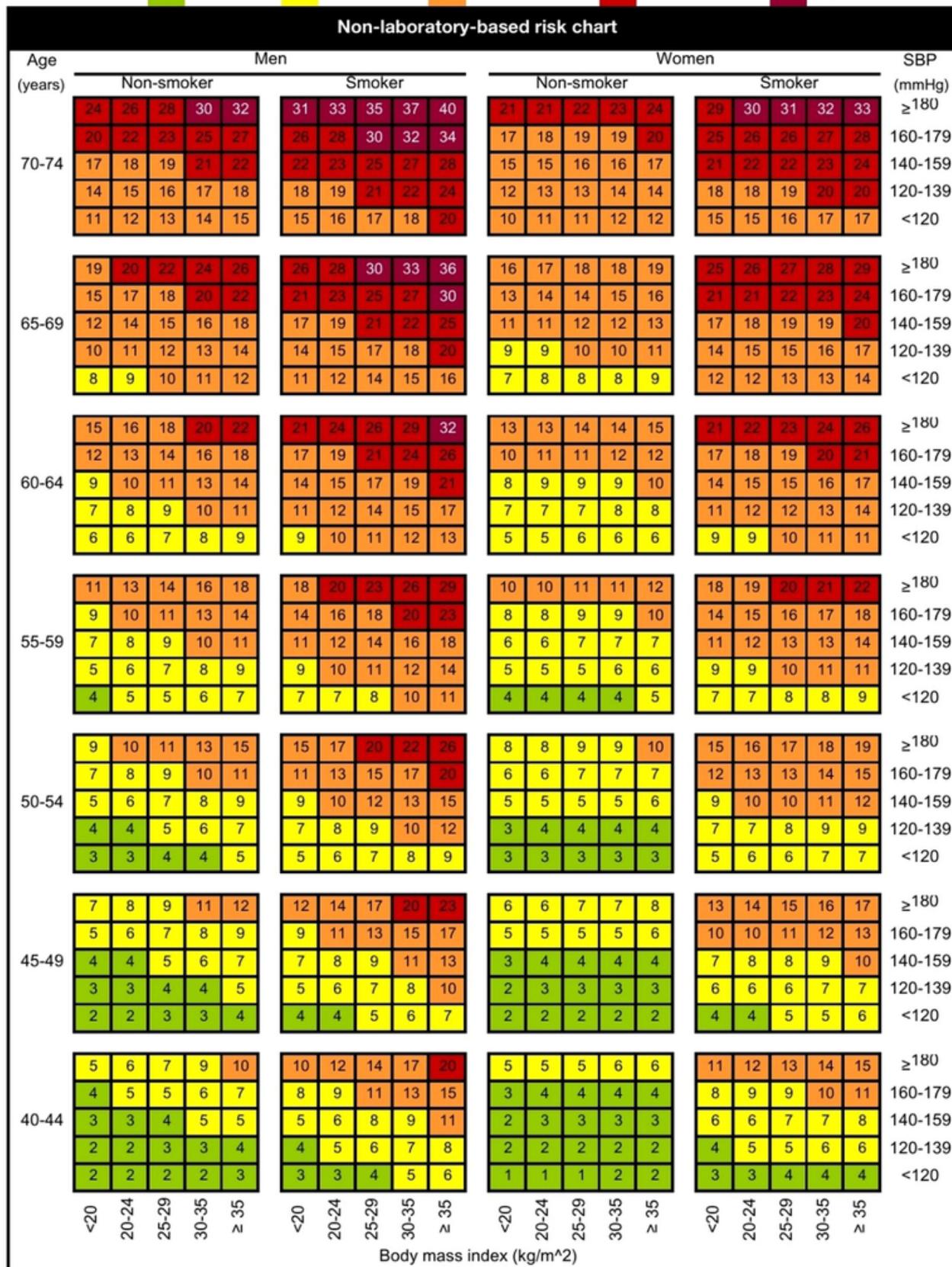


Patients must come at least 3-4 days before the medicines are going to be finished

# CVD risk charts non-laboratory based

Timor Leste

Risk Level ■ <5% ■ 5% to <10% ■ 10% to <20% ■ 20% to <30% ■ ≥30%



# CVD risk charts laboratory based

Timor Leste

