**RECOMMENDED RESPONSE WHEN HYPERTENSION IS SUSPECTED**

**DIAGNOSIS OF HYPERTENSION**

- **Normal BP**: <130/80:
  - Recheck every year if the age is more than 40

- **Prehypertension**: SBP 130---139 and/or DBP 80---89
  - Recheck every 6 months (treat if DM or CKD)

- **STAGE 1**:
  - SBP 140---159 and/or DBP 90---99
  - Check every week for one month (treat if DM or CKD)

- **STAGE 2**:
  - SBP 160---179 and/or DBP 100---119
  - Confirm with two readings every week for two weeks (treat if DM or CKD)

- **Severe hypertension**: SPB ≥ 180 and/or DBP ≥ 120
  - Confirm if urgency or emergency. Treat accordingly

- If 24 hours B.P. monitor is used hypertension is diagnosed if:
  - Daytime ambulatory measurements ≥ 135/85 mm Hg
  - Nocturnal measurements of ≥ 120/70 mm Hg
Assess the risk  The risk of developing CVD in the coming 10 years (fatal or nonfatal major cardiovascular event (myocardial infarction or stroke) according to

A- Age > 55 years 2-level of B.P 3-smoking 4-DM 5-Abdominal obesity (Waist circumference > 102 cm (Male), > 88 cm (Female) 6-Family history of premature CVD 7-Hypercholesterolaemia (if cholesterol level measurement is available) or

B- Use the WHO risk prediction chart

Risk factor and disease history

Stage 1: SBP 140-159 And/or DBP 90-99

Sever hypertension: SPB ≥ 180 AND/ OR DBP ≥ 120

Stage 2: SBP 160 – 179 DBP 100 - 109

No risk factors, no T.O.D Or WHO chart risk < 10%

Low risk

Medium risk

High risk

1-2 risk factors

Or WHO chart risk 10-20%

Medium risk

High risk

High risk

3 or more risk factors or T.O.D or WHO chart risk > 20%

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Plan of management after confirmation of pre hypertension and hypertension

Goal: BP <140/90 for all people

Measure the blood pressure for all adults: Exclude secondary causes if age <40.

Risk assessment by using the table above + the WHO risk charts

Low risk: no risk factor or < 10%
- Lifestyle change
  - No intervention
  - Recheck every 6 months

Medium risk
1-2 Risk factors or 10-20%
- Lifestyle change
  - No intervention
  - Recheck every 3 months

High risk
≥ 3 risk factors or risk > 20%
- Lifestyle change
  - No intervention
  - Recheck every 6 weeks

Symptomatic CVD, CKD stage ≥ 4, or diabetes with OD/RF
- Lifestyle change
  - No BP intervention

Prehypertension
SBP 130 - 139
DBP 85 - 89
- Lifestyle change
  - Add BP drugs if persistently high over two weeks

Stage 1 HT
SBP 140 – 159
and/or
DBP 90 - 99
- Lifestyle change
  - Add BP drugs if persistently high over two weeks

Stage 2 HT
SBP 160 - 179
DBP 100 - 109
- Lifestyle change
  - Add BP drugs immediately

Severe HT
SBP ≥ 180 and/or DBP ≥ 120

- Lifestyle change
  - Add BP drugs

BP = Blood pressure; SBP = Systolic blood pressure; DBP = Diastolic blood pressure; HT = Hypertension; RF = Risk Factor
OD = Organ Damage; CKD = Chronic Kidney Disease; CV = Cardiovascular; CVD = Cardiovascular Disease

NON-PHARMACOLOGICAL therapy:
Lifestyle modifications: weight reduction, diet rich in vegetables, fruits, low-fat, Reduce dietary sodium intake, regular aerobic physical activity
**Pharmacological therapy:** initiate the treatment with Thiazide diuretics or long acting calcium channel blockers, Choice of other drugs according to compelling indications

<table>
<thead>
<tr>
<th>Class of drug</th>
<th>Alpha-blockers</th>
<th>ACE inhibitors</th>
<th>Beta-blockers</th>
<th>CCBs (rate limiting)</th>
<th>ARBs</th>
</tr>
</thead>
</table>

**Start** with low dose of a single drug aiming for a reduction of 5 to 10 mm Hg in blood pressure at each step. In order to avoid symptoms related to overly aggressive blood pressure reduction. Patients with resistant hypt or type 2 diabetes mellitus should be monitored with Ambulatory BPM if they are at high risk for cardiovascular complications.

**Decide** whether to continue the same management plan or to modify it. If adequate response is not achieved as follow:

--- Thiazide Diuretics: after one month

--- ACEIs, CCBs, ARBs: 2 weeks to 1 month

Better to choose long acting preparations.
**Combination therapy:** *when blood pressure is >20/10 mmHg above the goals*

Steps of combining the drugs are:
1-Use of two drugs at low dose 2-Use of the two drugs at full dose 3-Use previous combination at full dose in addition to a third drug (low – max.) dose 4-Use of the three drug combination at full dose.

<table>
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<tr>
<th>First Step: Thiazide Diuretic or CCBS + ACEI/ARB (low dose of 2nd drug)</th>
<th>Second Step: Thiazide or CCBS + ACEI / ARB (max. dose of 2nd drug)</th>
</tr>
</thead>
</table>

**Other Drugs:**

- **Aspirin:** Unless contraindicated, low-dose aspirin (75 -150mg/ day) is recommended for all people needing secondary prevention of ischemic CVD, and primary prevention in people with hypertension over the age of 50 years who have a high CVD risk > 30% (*AFTER THE BP IS CONTROLLED*)

- **Statin:** Therapy is recommended for all people with high BP complicated by CVD and for primary prevention in people with high BP who more than 65 years or have a moderate CVD risk >20%
Frequency of the follow-up visits at PHC level

All patients with hypertension should be provide with regular follow-up, the follow up intervals can vary from one week to one year according to patient’s condition. Arrange follow-up visits as follows:

- **STAGE 1**: Monthly until goal blood pressure is achieved, then every 3 to 6 months.
- **STAGE 2**: every 2 weeks until goal blood pressure achieved then every 3 months.
- **SEVER HYPERTENSION**: refer and then F.U. weekly until the goal blood pressure achieved then every 3 months.
- In the presence of co-morbidity as DM or heart disease might increase the follow up frequency.

What to do during the follow-up visit:

1. Check the blood pressure
2. Check adherence to medication
3. Advice and educate on lifestyle modification
4. Inquire about symptoms that indicate the presence of target organ damage (complication) e.g. breathlessness, chest pain
5. Investigate as required:
   - One week after initiating ACEIs: Serum creatinine and electrolytes
   - Annual routine investigations: Lipid profile, renal function test and electrolytes
   - **Resistant hypertension** (Office blood pressure >140/90 or >130/90 in patients with diabetes or chronic kidney disease And Patient prescribed 3 or more antihypertensive in full doses including diuretics if possible)