**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

**STAGE 1:**
- SBP 140—159 and/or DBP 90—99: Check every week for one month

**STAGE 2:**
- SBP 160—179 and/or DBP 100—119: Confirm with two readings every week for two weeks

**Sever hypertension:** SBP ≥ 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 of ≥135/85 m Hg
  - Nocturnal measurements of ≥120/70 mm Hg

**Asses 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 SB.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

Stage 2:
SBP 160 – 179
DBP 100 - 109

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

No risk factors, no TOD
Or WHO chart risk < 10%

1-2 risk factors
Or WHO chart risk 10-20%

3 or more risk factors or TOD or WHO chart risk > 20%

Low risk
Medium risk
High risk

High risk
High risk
High risk

High risk
High risk
High risk
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 or the WHO risk

- 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 DM with TOD/RF
  - Lifestyle change
  - No BP intervention

- Prehypertension
  SBP 130 - 139
  DBP 85 - 89
  - Lifestyle change
  - No intervention
  - Recheck every 6 months

- Stage 1 HT
  SBP140 – 159 and/or DBP 90 - 99
  - Lifestyle change
  - Add BP drugs if persistently high over one month

- Stage 2 HT
  SBP 160 - 179 and/or DBP 100 - 109
  - Lifestyle change
  - Add BP drugs if persistently high over two weeks month

- Sever HT
  SBP ≥ 180 and/or DBP ≥ 120

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.

Give the dose if missed or TREAT with short acting oral drug AND REFER TO SPECIALIST.

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.
**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 in blood pressure at each step In.

Patients with resistant HTN or type 2 diabetes mellitus should be monitored with Ambulatory OR HOME BP 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 dose  
4-Use of the three drug combination at full dose.

<table>
<thead>
<tr>
<th><strong>First Step:</strong> Thiazide diuretic or CCBS + ACEI/ARB (low dose of 2\textsuperscript{nd} drug)</th>
<th><strong>Second Step:</strong> Thiazide or CCBS + ACEI/ARB (max. dose of 2\textsuperscript{nd} drug)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Third Step:</strong> Thiazide + CCBS + ACEI / ARB (low-max. dose of 3\textsuperscript{rd} drug)</td>
<td><strong>Fourth Step:</strong> Thiazide + CCBS + ACEI / ARB (max. doses) + {B- Blocker OR (\alpha)– Blockers OR Spironolactone OR Other Diuretics OR Centrally Acting Drugs}.</td>
</tr>
</tbody>
</table>

Screen for secondary causes if still not controlled. Consider ambulatory BP monitoring.

**Other Drugs:** *Aspirin:* Unless contraindicated, low-dose aspirin (50 -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\%
All patients with hypertension should be provided 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.

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 And Patient prescribed 3 or more antihypertensive in full doses including diuretics if possible)