

# HYPERTENSION MANAGEMENT ALGORITHM FOR NURSE PRACTITIONERS

## Step 1 Assess

### Major risk factors

- Levels of systolic and diastolic BP
- Smoking
- Dyslipidaemia:
  - total cholesterol > 5.1 mmol/L, OR
  - LDL > 3 mmol/L, OR
  - HDL men < 1 and women < 1.2 mmol/L
- Diabetes mellitus
- Men > 55 years
- Women > 65 years
- Family history of early onset of CVD:
  - Men aged < 55 years
  - Women aged < 65 years
- Waist circumference- abdominal obesity:
  - Men ≥ 94 cm
  - Women ≥ 80 cm

## Step 2

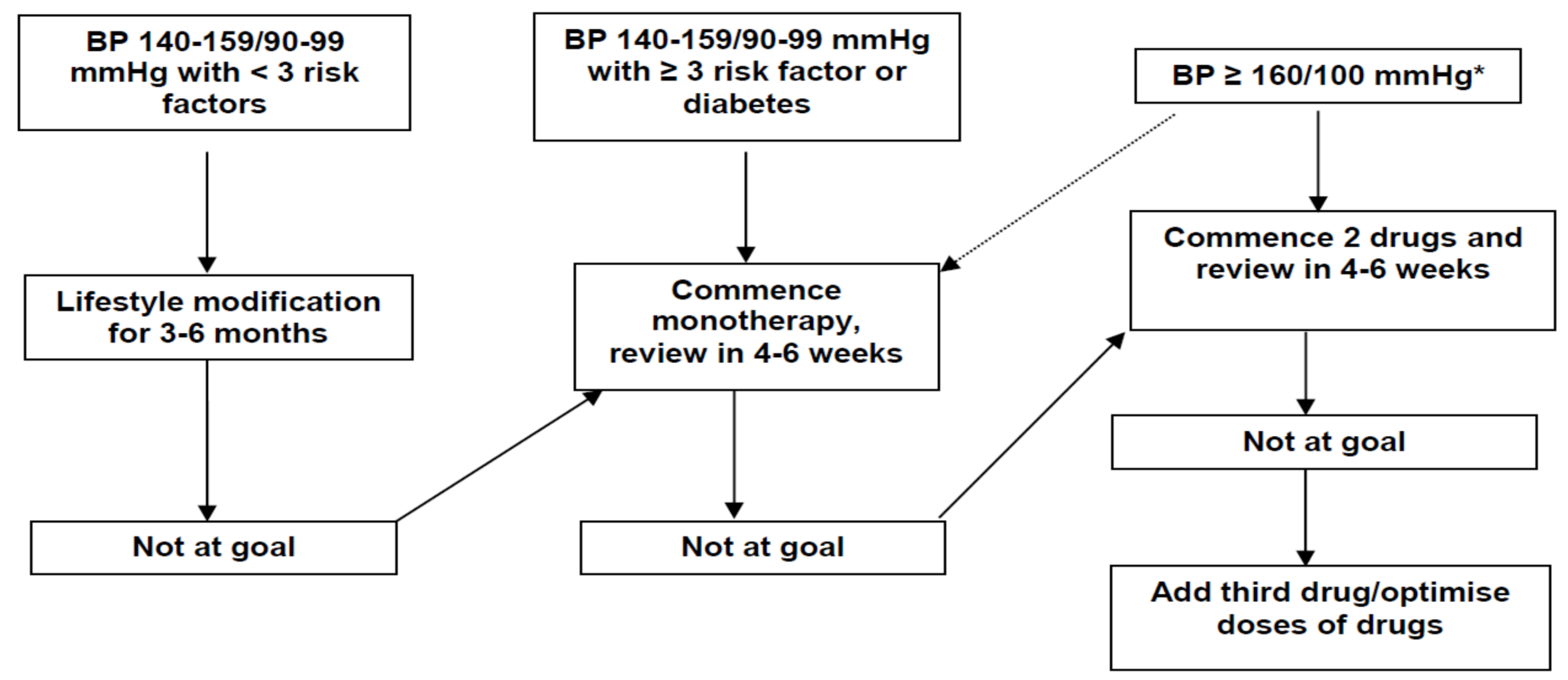
### Measure Blood Pressure according to SAHS guidelines\*

## Step 3

### Lifestyle changes

- Weight reduction
- Restrict salt, dietary sugars, and saturated fat
- Limit alcohol consumption
- Increase fruit and vegetables
- Increase physical activity
- Stop all tobacco products

## Step 4



## Step 8

### BP TARGETS

- < 140/90 mmHg
- < 150/90 mmHg if > 80 years

## Step 7

### Routine Management

**Step 1: Choose any of the following:**

- Hydrochlorothiazide 12.5 -25 mg
- Amlodipine 5-10mg daily
- Enalapril 10mg b.d. or losartan 100mg daily
- If 20/10mmHg above goal proceed directly to step 2

**Step 2**

1. Combine any 2 of the above
2. Combine all 3 of above
3. Maximize doses of individual agents

**Step 3**

- Check adherence, lifestyle, and refer

\* CCBs/diuretics preferred in Blacks/Elderly

### \*BP Measurement

- Allow patient to sit for 3-5 min before commencing measurement
- The SBP should be first estimated by palpation to avoid missing the auscultatory gap
- Take 2 readings 1-2 minutes apart. If consecutive readings differ by > 5 mm, take additional readings and average the last 2 stable readings
- At initial consultation measure BP in both arms, and if discrepant use the higher arm for future estimations
- The patient should be seated, back supported, arm bared and arm supported at heart level
- Patients should not have smoked, ingested caffeine containing beverages or food in previous 30 min
- An appropriate size cuff should be used: a standard cuff (12 cm) for a normal arm and a larger cuff (15 cm) for an arm with a mid-upper circumference > 33cm (the bladder within the cuff should encircle 80% of the arm).
- Measure BP after 1 and 3 minutes of standing at first consultation in the elderly, diabetics and in patients where orthostatic hypotension is common
- When adopting the auscultatory measurement use Korotkoff 1 and V to identify SBP and DBP respectively
- Take repeated measurements in patients with atrial fibrillation and other arrhythmias to improve accuracy

## Step 5

### BP > 180/110 mmHg

Yes  
Refer, if no doctor available proceed to step 2 of routine management

## Step 6

### #Are there compelling contraindications

- ### Abbreviations
- eGFR = estimated glomerular filtration rate
  - ACE-I = angiotensin converting enzyme inhibitor
  - ARB = angiotensin receptor blocker
  - CCB = calcium channel blocker
  - HF = heart failure
  - TIA = transient ischaemic attack

### Routine Tests and Measurements

TEST	FREQUENCY	COMMENT
<b>ANTHROPOMETRY</b>		
• Body weight	Every visit	
• Height	First visit	
• BMI	Every visit	< 25 for men and women
• Waist circumference	Every visit	Men < 94 cm; Women < 80 cm*
<b>URINE DIPSTICK ROUTINE</b>		
• Protein.	• First visit	<b>ABNORMAL DIPSTICK</b> Any one of the following: • Proteinuria ≥ 2+; • Haematuria ≥ 1+. Refer for further investigation
• Blood.	• Yearly if normal	
• Glucose	• Repeat at next visit if abnormal on first visit	
<b>BLOOD TESTS</b>		
• Creatinine	Yearly if normal	Use eGFR in ml/min/ 1.73m <sup>2</sup> Refer if < 60ml/min
• Sodium/Potassium		
Fasting glucose	Yearly if normal	GTT/HBA <sub>1c</sub> in patients with impaired fasting glucose.
Random total cholesterol	Yearly if normal	Measure fasting lipogram if cholesterol > 5.1 mmol/L or in high risk groups
HBA <sub>1c</sub>	6 monthly	Diabetics only

### #Compelling contraindications

CLASS	CONTRAINDICATIONS	
	COMPELLING	POSSIBLE
<b>DIURETICS</b> Hydrochlorothiazide	• Gout	• Pregnancy • β blockers (especially atenolol)
<b>CCB</b> Amlodipine or nifedipine		• Tachyarrhythmias • HF
<b>ACE-I</b> Enalapril	• Pregnancy; • Hyperkalaemia; • Bilateral renal artery stenosis	• Angioneurotic oedema (more common in blacks than in Caucasians)
<b>ARB</b> Losartan	• Pregnancy; • Hyperkalaemia	• Bilateral renal artery stenosis.

### Referral

- Resistant hypertension
- Labile hypertension
- Secondary causes suspected
- Comorbidities - heart disease, eGFR < 60ml/min, abnormal dipsticks, TIA or stroke
- BP > 180/110