HYPERTENSION

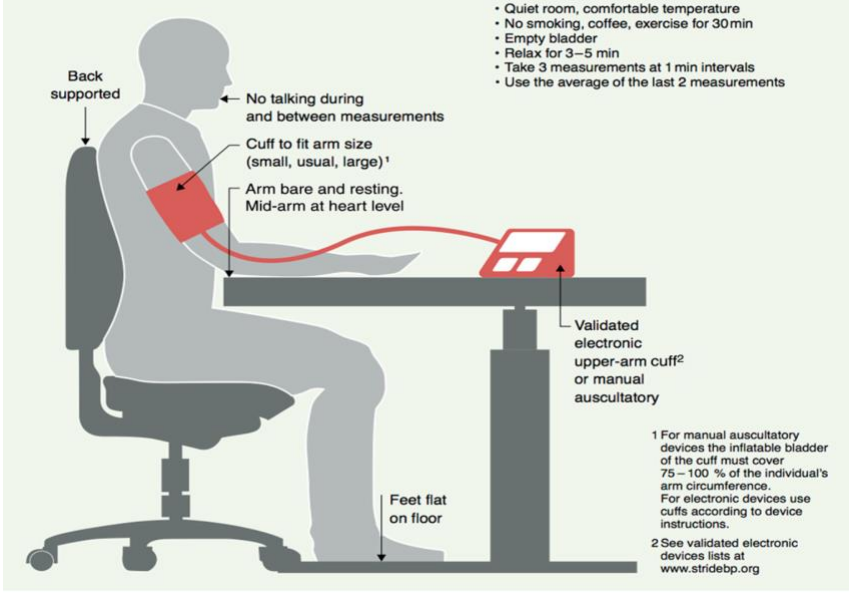
Community Medicine University Exam Oriented Handout for MBBS Students

Definition

Hypertension is a **chronic medical condition characterized by persistently elevated arterial blood pressure.**

Diagnosis should be confirmed using **multiple readings on different occasions.**

How to measure blood pressure



Source: International Society of Hypertension Global Hypertension Practice Guidelines

Dr Rahul Gupta
MD Community Medicine

Classification of Hypertension

Based on Etiology

Primary (Essential) Hypertension

- No identifiable cause
- Accounts for **90–95% of cases**

Secondary Hypertension

Occurs due to identifiable causes such as:

- Renal diseases
- Endocrine disorders
- Coarctation of aorta
- Certain drugs (e.g., oral contraceptives, steroids)

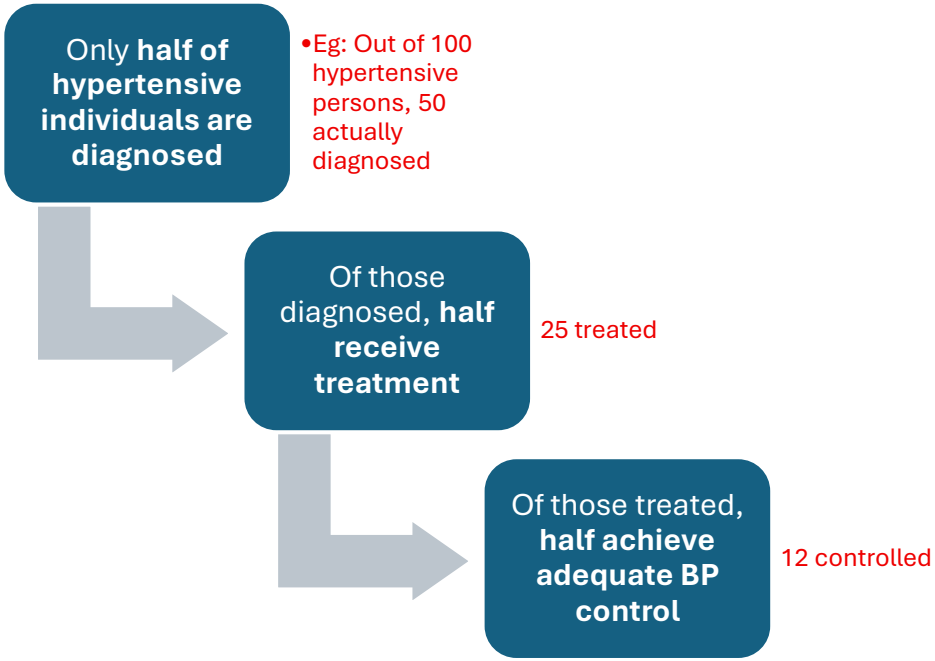
Based on Blood Pressure Level (JNC-8)

Category	Systolic BP (mmHg)	Diastolic BP (mmHg)
Normal	<120	AND <80
Pre-Hypertension	120–139	OR 80–89
Stage 1 Hypertension	140–159	OR 90–99
Stage 2 Hypertension	≥160	OR ≥100

Normal BP
↓
Pre-Hypertension
↓
Stage 1 Hypertension
↓
Stage 2 Hypertension

This progression reflects **increasing cardiovascular risk**.

Dr Rahul Gupta
MD Community Medicine

Rule of Halves	Tracking Phenomenon in Blood Pressure
	**Tendency of individuals to maintain their relative blood pressure level over time.** Individuals with **higher BP during childhood or adolescence are more likely to develop hypertension in adulthood.** Public Health Significance • Helps identify **high-risk individuals early** • **Supports** early lifestyle intervention
The **Rule of Halves** describes the typical pattern of hypertension detection and treatment in a community.	

Risk Factors of Hypertension

Non-Modifiable Risk Factors	Modifiable Risk Factors
• Increasing age • Genetic predisposition • Family history of hypertension • Sex: Male >Female	• High salt intake • Obesity • Sedentary lifestyle • Smoking • Excess alcohol consumption • High-fat diet • Stress

Dr Rahul Gupta
MD Community Medicine

Prevention of Hypertension (Levels of Prevention)

Level of Prevention	Interventions
Primordial Prevention Aim: **Prevent the emergence of risk factors in the population.**	• Health education regarding healthy lifestyle • Promotion of balanced diet in childhood • Encouraging regular physical activity • Reduction of salt intake at community level
Primary Prevention Aim: **Prevent development of hypertension among individuals with risk factors.**	A. Population Strategy **reduce blood pressure levels in the entire population.** • Reduction of salt consumption in the population • Health promotion campaigns • Encouraging physical activity • Promoting healthy diet rich in fruits and vegetables • Tobacco and alcohol control policies
	B. High-Risk Strategy focus on **individuals who have higher risk of developing hypertension.** Target Groups • Individuals with **family history of hypertension** • **Overweight or obese individuals** • Persons with **pre-hypertension** • Individuals with **sedentary lifestyle**
	Measures • Lifestyle counselling • Weight reduction • Regular BP monitoring • Dietary modification

Dr Rahul Gupta
MD Community Medicine

Secondary Prevention Aim: **Early detection and treatment to prevent complications.**	A. Non-Pharmacological Treatment Lifestyle modifications include with reduction in Systolic BP • Salt restriction (<5 g/day) (2-8 mm Hg) • Weight reduction (5-20 mm Hg/10 kg wt Loss) • Regular physical activity (5-10 mm Hg) • Smoking cessation • Reduction of alcohol intake (2-4 mm Hg) • Stress management • Healthy diet (8-14 mm Hg) B. Pharmacological Treatment (BP ≥140/90 mmHg) Drug therapy may include: • **Diuretics** • **ACE inhibitors** • **Angiotensin receptor blockers (ARBs)** • **Calcium channel blockers** • **Beta blockers**
Tertiary Prevention **Aim:** Reduce complications and disability due to hypertension.	• Management of complications such as stroke, heart disease, and renal failure • Long-term medication adherence • Rehabilitation and follow-up care

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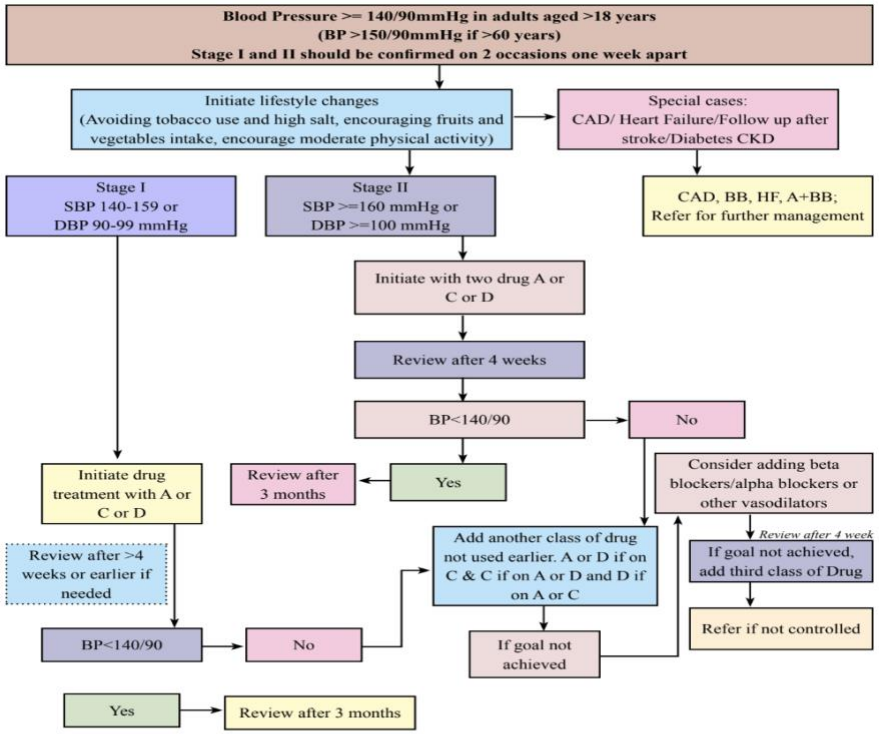
Treatment Algorithm for Hypertension



⇒ ASCVD: Atherosclerotic CVD (CAD, CVA,PAD)

- CAD Coronary Artery Disease
- CKD Chronic Kidney Disease
- PAD Peripheral Artery Disease

⇒ RF Risk factor: Age (> 55 years in men, 65 years in women), Dyslipidemia (Total Cholesterol> 200 mg%), Smoking, Family history of Premature CAD (<55 years in men, < 65 years in women)

A - ACE Inhibitor/ Angiotensin Receptor Blocker Choices as in Table
C - Calcium channel blocker # Choices as in Table
D - Diuretic * Choices as in Table

Source: MOHFW, GOI

Dr Rahul Gupta
MD Community Medicine