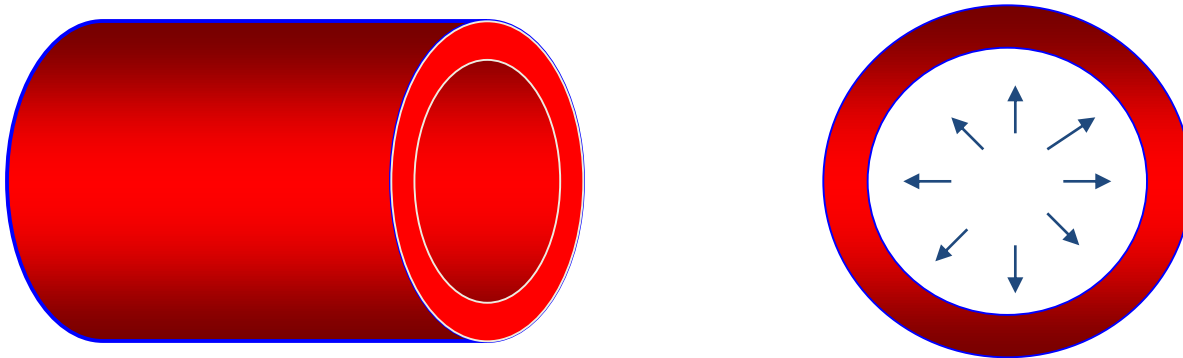


# High Blood Pressure Hypertension

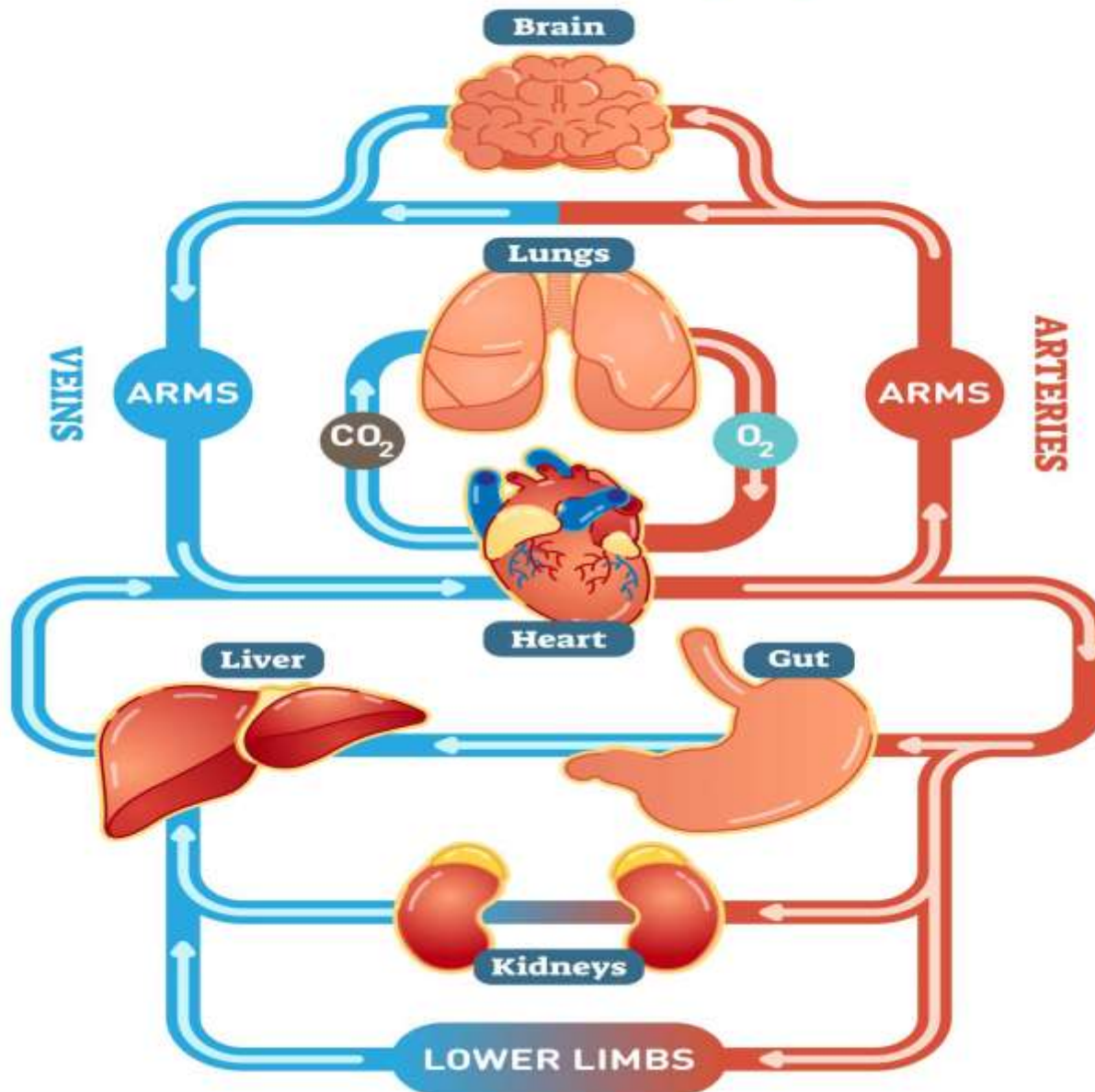
Dr Arundika Senaratne  
Consultant Community Physician  
Directorate of NCD

# What Is Blood pressure?

- Blood pressure is the amount of force on the walls of the arteries as the blood circulates around the body.



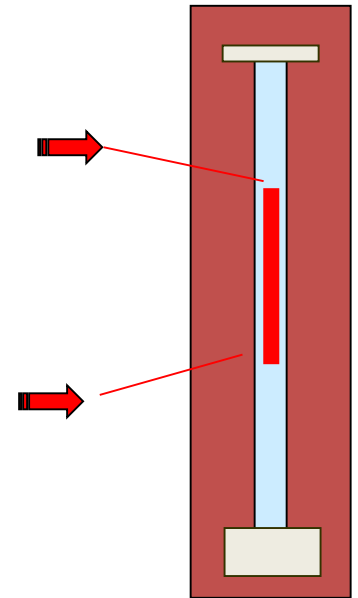
# Human Circulatory System



# What Do The Numbers Mean?

The upper number is when the heart beats (Systolic Blood Pressure SBP)

The lower number is when the heart relaxes (Diastolic Blood Pressure DBP)



# Definition of Hypertension

- Hypertension is defined as systolic blood pressure (SBP) of  $\geq 140$  mmHg and /or diastolic blood pressure (DBP) of  $\geq 90$  mmHg following repeated BP measurements
- Hypertension is a major risk factor for ischemic and hemorrhagic stroke, myocardial infarction, heart failure, chronic kidney disease, cognitive decline and premature death

# Blood Pressure Categories

CATEGORY	SYSTOLIC		DIASTOLIC
NORMAL	LESS THAN 120	AND	LESS THAN 80
AT RISK	120-139	OR	80-89
HIGH BLOOD PRESSURE	140 OR HIGHER	OR	90 OR HIGHER

# Grading of Hypertension

Category	Systolic (mmHg)		Diastolic (mmHg)
Normal BP	<130	and	<85
High-normal BP	130–139	and/or	85–89
Grade 1 hypertension	140–159	and/or	90–99
Grade 2 hypertension	≥160	and/or	≥100
Isolated systolic hypertension	≥ 140	and	<90

# Risk factors for Hypertension

- Age
- Unhealthy diet, high salt intake
- Tobacco use
- Heavy alcohol consumption
- Obesity
- Family history



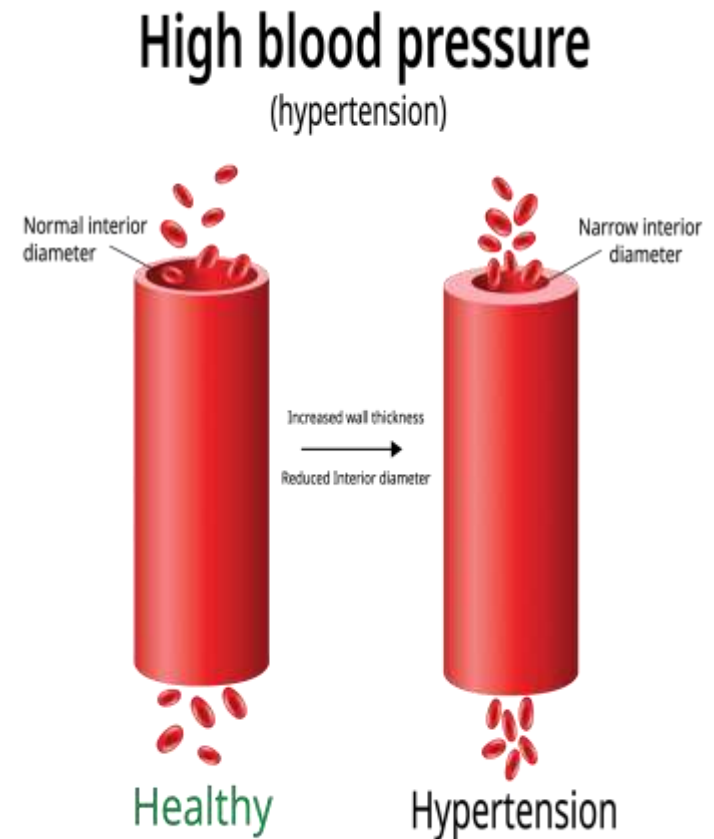


# Hypertension “the silent killer”

- Hypertension itself typically does not cause any symptoms
- Symptoms/signs of hypertension  
Chest pain, shortness of breath, palpitations, claudication, peripheral edema, headaches, blurred vision, nocturia, haematuria, dizziness.

# Hypertension-Damage to arteries

- Excessive pressure on arterial walls due to hypertension can damage blood vessels.
- Damage to the arteries that supply the heart -heart attack.
- Damage to the arteries feeding the brain with blood -stroke
- Damage to the arteries in the kidneys -kidney disease.



# Why is Hypertension Important?

## *Atherosclerosis*

- Strokes
- Dementia
- Heart failure
- Kidney failure
- Poor circulation – impotence, leg cramps when walking
- Premature death

## *Pressure related damage*

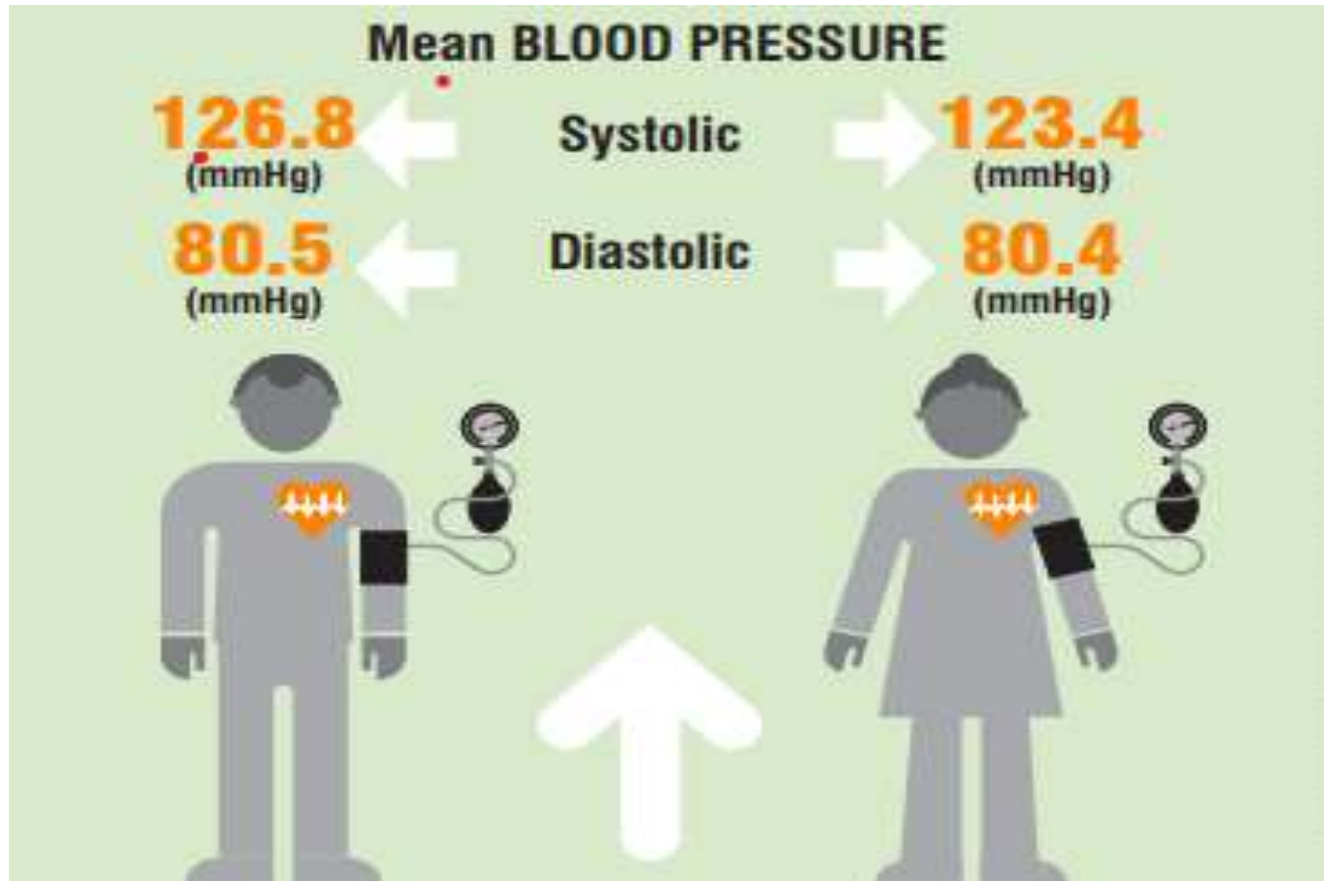
- Strokes
- Dementia
- Heart failure
- Kidney failure
- Confusion
- Premature death



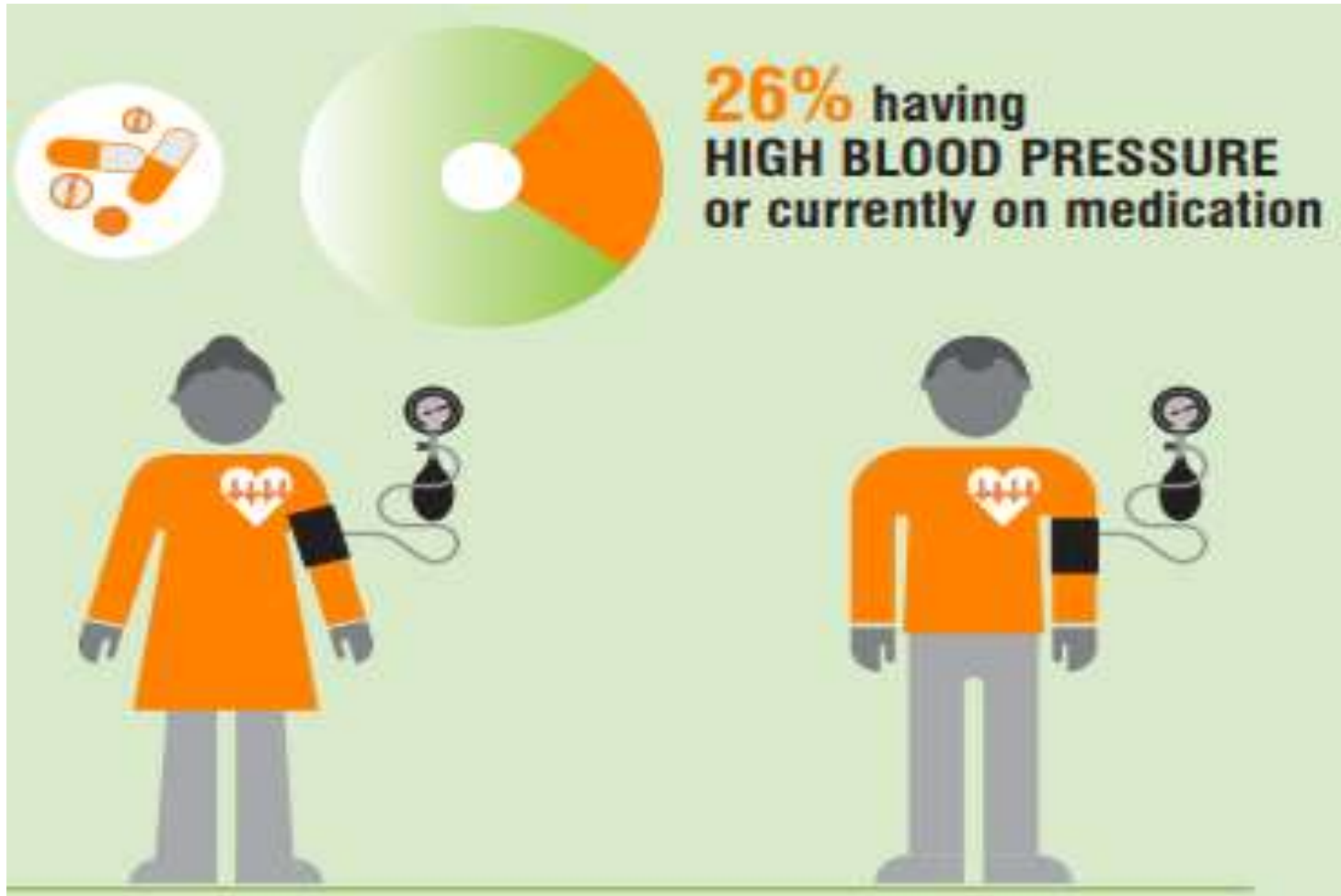
# Hypertension- Global Burden

- 30% of adults in the world have hypertension
- 1 in every 3 adults have hypertension worldwide
- Hypertension is the leading risk factor for death and disability worldwide.
- Globally, cardiovascular disease accounts for approximately 17 million deaths each year  
nearly one-third of total deaths.  
Of these, hypertension accounts for 10.4 million deaths worldwide every year.

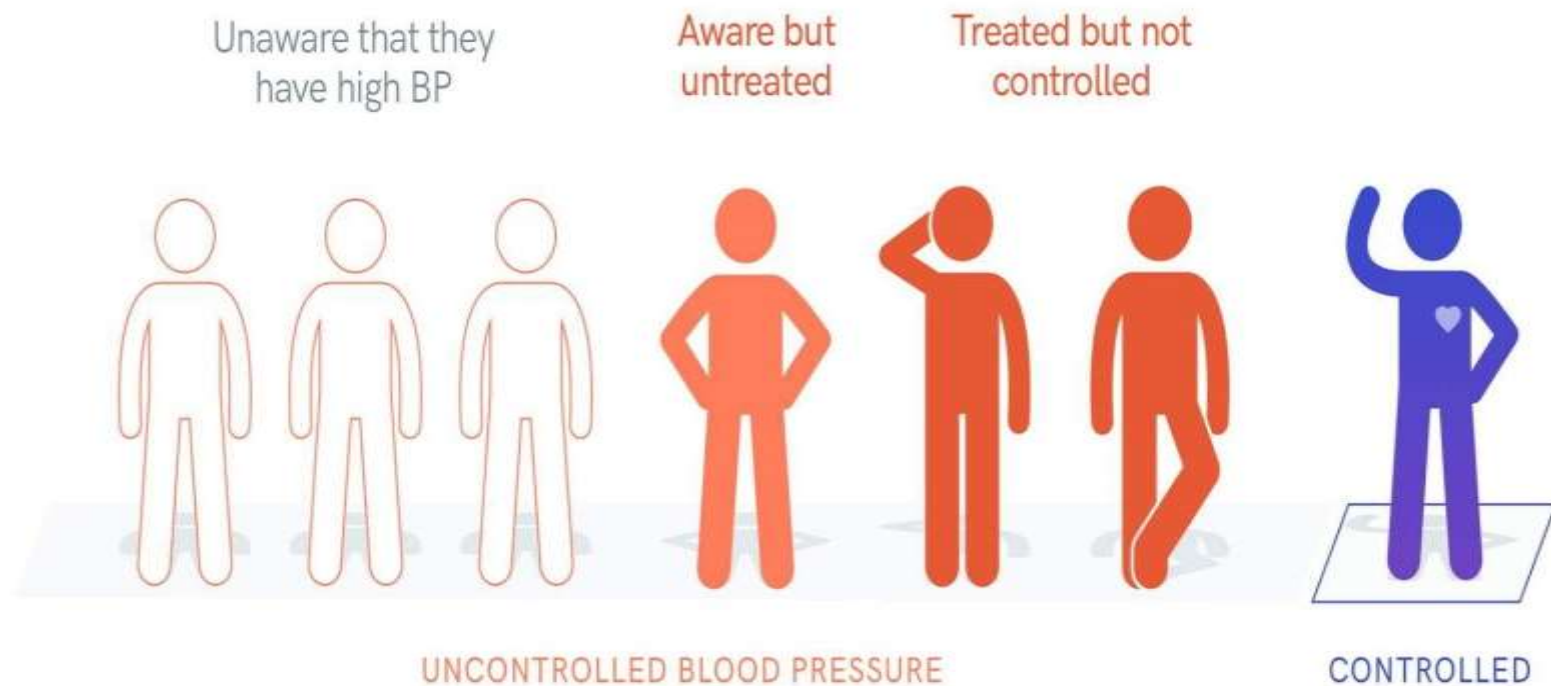
# High blood pressure – Sri Lanka STEPS survey 2015



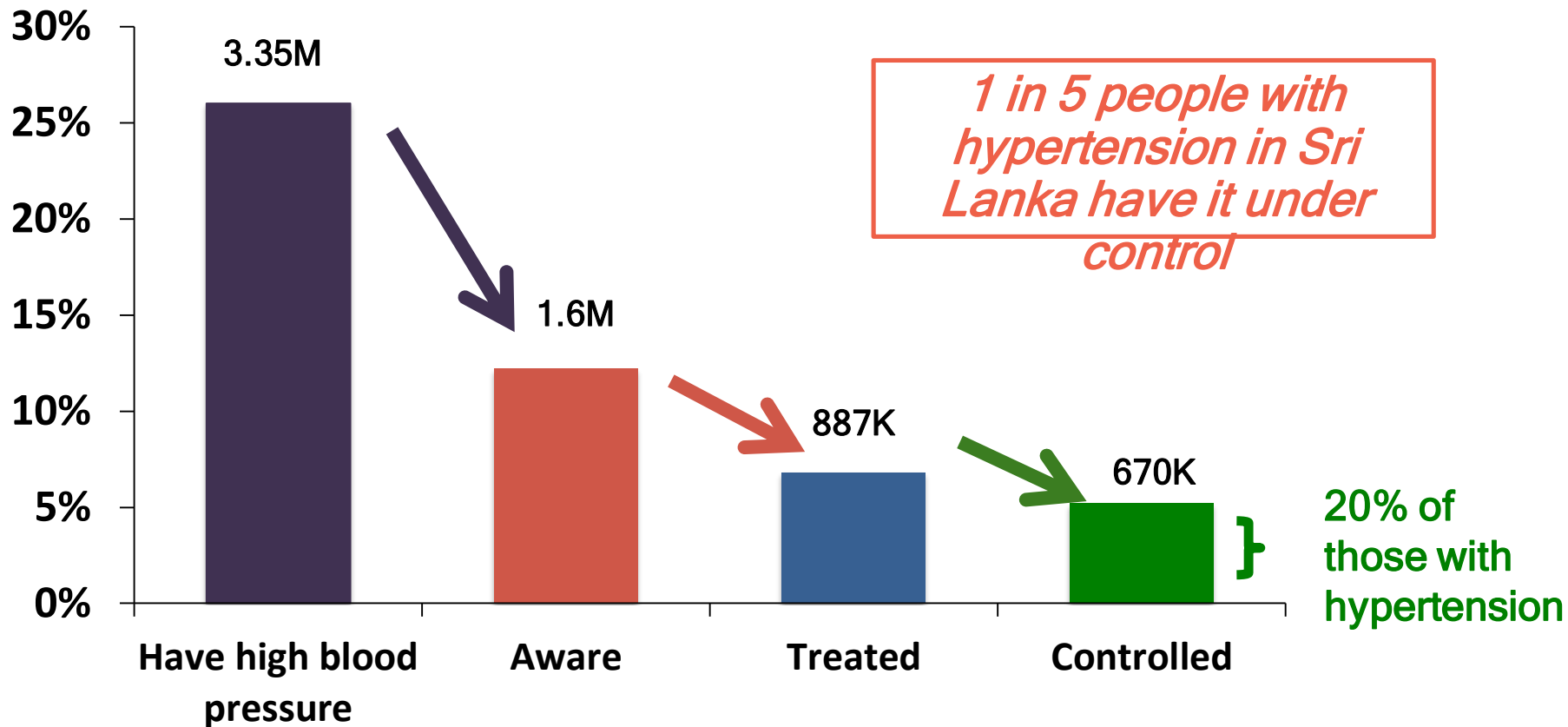
# High blood pressure – Sri Lanka STEPS survey 2015



Globally, only 1 of every 7 people has their hypertension under control



# Most Adults With Hypertension in Sri Lanka Do Not Have It Under Control





# Why hypertension Control is urgent and important

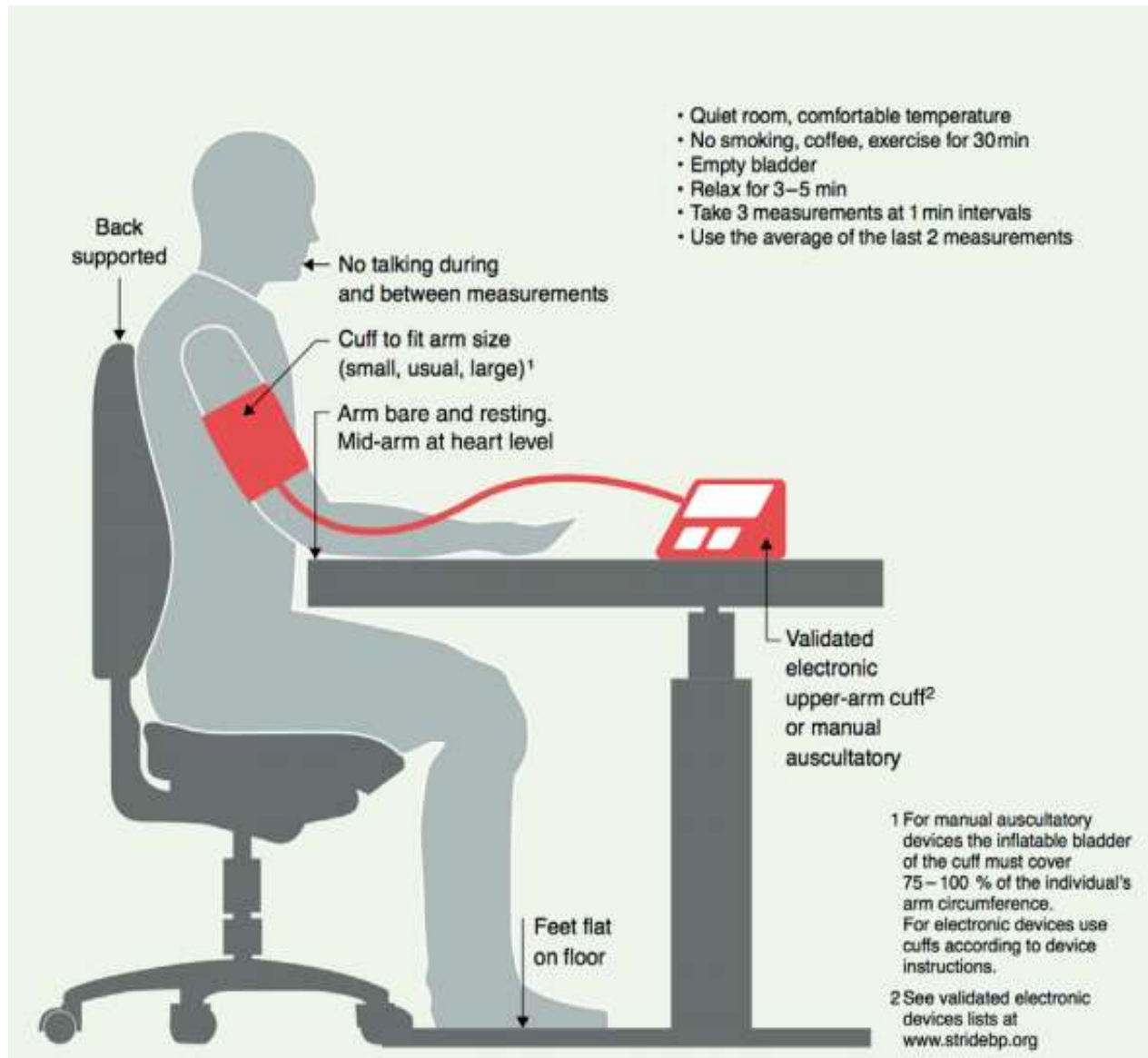
- Very high burden of disease associated with hypertension.
- Treatment will greatly reduce the disease burden.
- Treatment is, in general, highly cost effective and can be cost saving. There is a good return on investment.
- Hypertension detection, treatment and control rates are low in most settings
- Very high levels of hypertension control can be achieved and are associated with marked improvements in outcomes.

# The impact of treating hypertension on heart disease and stroke

A 10 mm Hg reduction in blood pressure (about 1 drug) reduces chances of

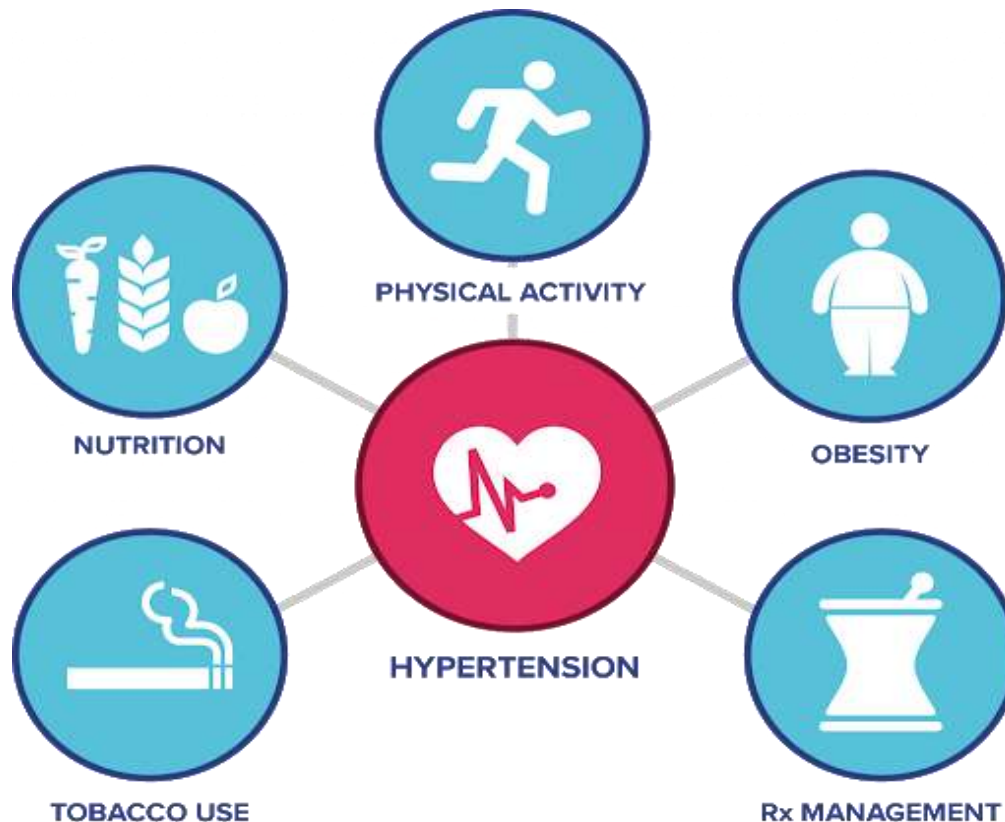
- Stroke 27%
- Heart failure 28%
- Coronary heart disease 17%
- Premature death 13%

# Measuring Blood pressure



# Management of Hypertension

- Lifestyle modifications
- Blood pressure-lowering medications.



# Lifestyle modification

- Maintain optimum BMI & waist circumference
- Diet
  - Low salt (sodium) < 5g/day
  - Restrict sugar intake
  - Limit fat intake (saturated)
  - Take recommended amount of vegetables and fruits
- Engage in physical activity (30 minutes per day at least 5 days per week moderate physical activity)
- Quit tobacco and alcohol intake

# DASH (Dietary Approaches to Stop Hypertension) Diet

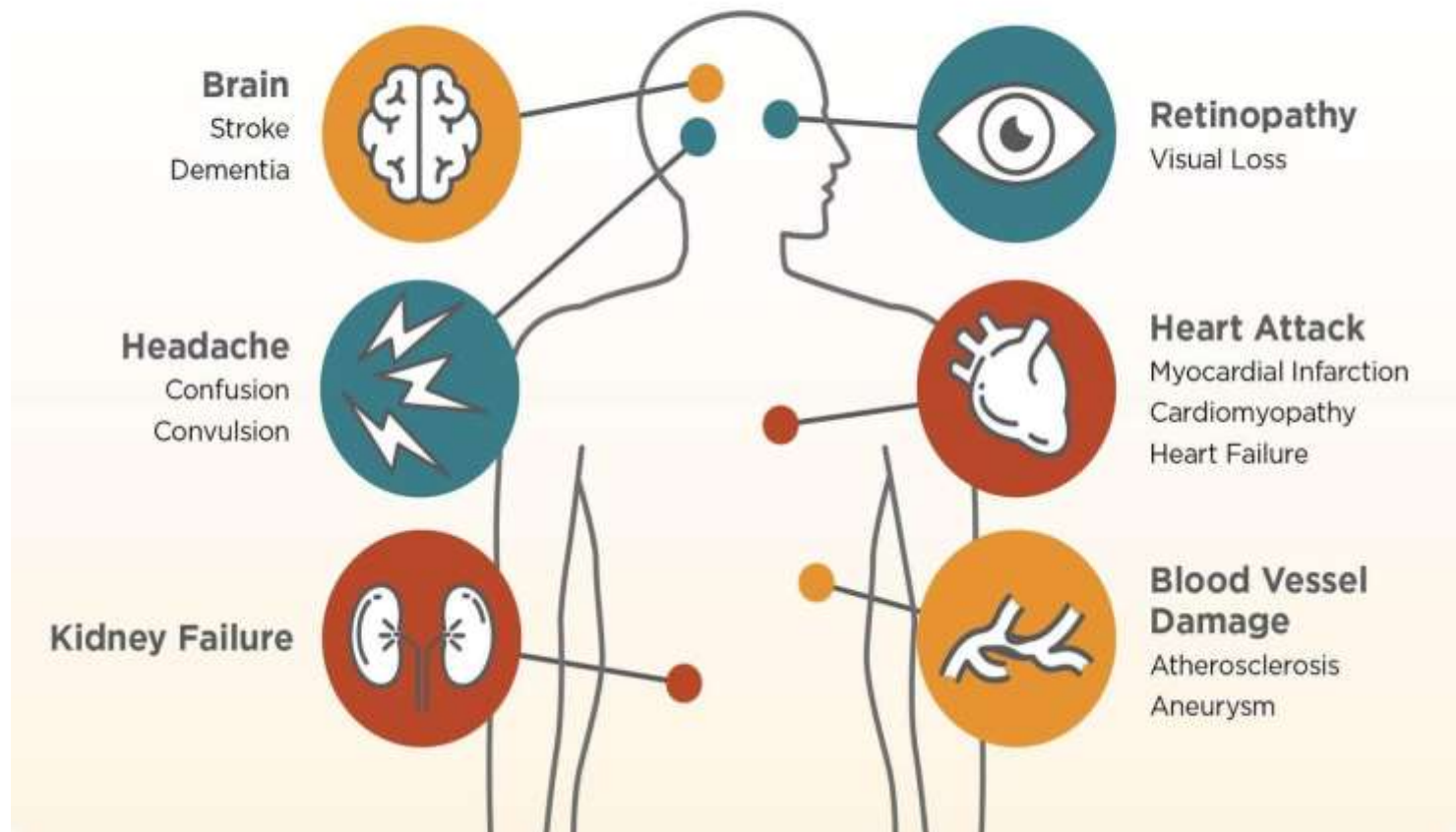
- The **DASH diet** is one of the most well-known healthy diet options that is proven to reduce blood pressure.
- The DASH diet emphasizes
  - fruits, vegetables
  - low-fat dairy products
  - limits foods that are high in saturated fat, total fat, and cholesterol
  - It includes nuts, whole grains, poultry, and fish
  - limits red meats, sweets, and sugar-containing beverages.

# Laboratory Investigations

- Blood tests: Sodium, potassium, serum creatinine and estimated glomerular filtration rate (eGFR). If available, lipid profile and fasting glucose.
- • Urine test: Dipstick urine test.
- • 12-lead ECG: Detection of atrial fibrillation, left ventricular hypertrophy (LVH), ischemic heart disease.

# Complications of Hypertension

## Complications of Hypertension





# Secondary Hypertension

## Common causes

- Renal parenchymal disease
- Renovascular hypertension (Renal artery stenosis),
- Primary aldosteronism,
- Chronic sleep apnea
- Substance/drug-induced
- Pheochromocytoma
- Cushing's syndrome
- Coarctation of the aorta

## Consider screening for secondary hypertension

- patients with early onset hypertension <30 years
- resistant hypertension
- sudden deterioration in BP control,

# Role of NO in hypertension management

- Screening for hypertension
  - HLC
- Offer life style modifications
- Patient follow up & monitor compliance of drugs and lifestyle modifications
- Identification and referral for complications
- Care giver advices

# Patient information

- Explain the diagnosis of hypertension and reasons for prescribing medicines.
- Discuss the asymptomatic nature of hypertension and explain that medications must be taken even if there are no symptoms.
- Inform patient of the complications of untreated hypertension, including stroke, heart attack and kidney failure.
- Explain the disability, economic and family burden these preventable complications cause.
- Warn about side effects of drugs that may occur and reassure that they are manageable.

# Patient information

- Explain the importance of adherence to treatment to achieve control levels and reporting of any side effects.
- Explain that normal blood pressure, blood sugar and lipid levels achieved after medication is not an indication for stopping or scaling down medications without medical advice.
- Explain the advantages of being followed up at PMCI and obtaining all the prescribed drugs free of charge.
- The importance of continuing life style modifications and often long-term medication should be stressed