



Hypertension

An overview

For Healthcare Professionals only



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Learning objectives



At the end of this session, you will be able to learn the following:

01

Overview of hypertension (prevalence, diagnosis and evaluation).

02

The link between hypertension and CVD.

03

Management of hypertension.

CVD, cardiovascular disease



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Overview of hypertension

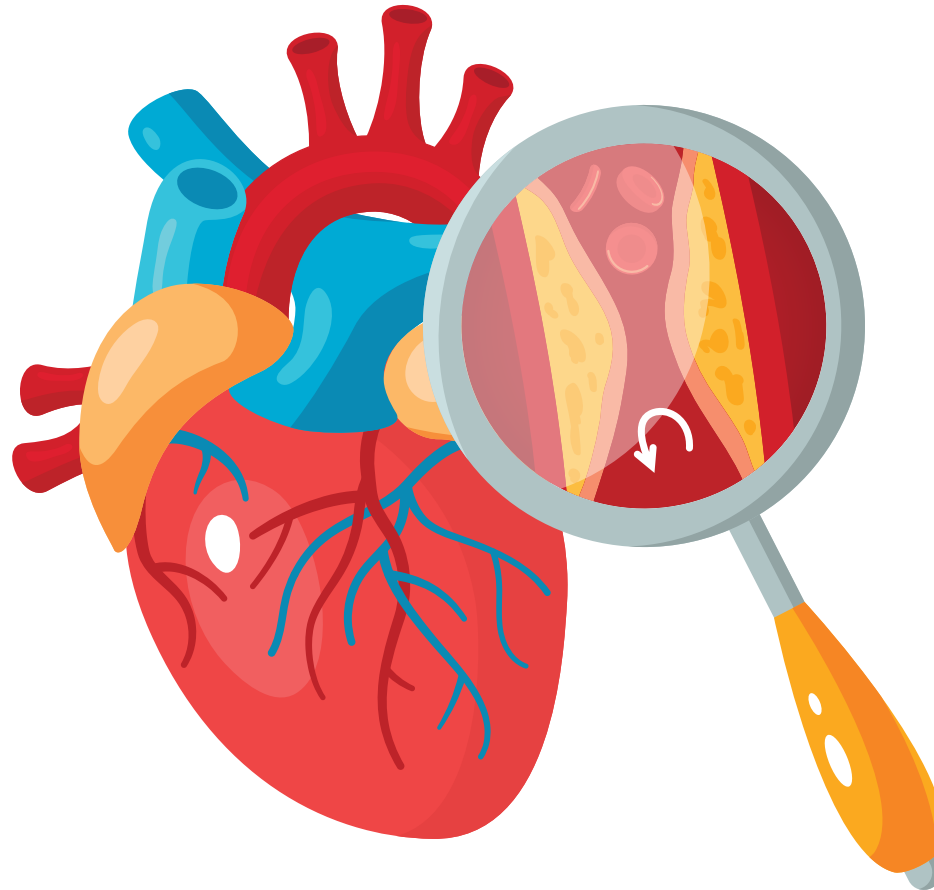


Image adapted from Shutterstock

CVD, cardiovascular disease



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Definition



Hypertension is defined as persistent elevation of systolic BP of ≥ 140 mmHg and/or diastolic BP ≥ 90 mmHg, taken at least twice on two separate occasions.¹

Classification of BP levels in adults

BP category	SBP (mmHg)		DBP (mmHg)
Optimal	<120	and	<80
Normal	120–129	and/or	80–84
At risk	130–139	and/or	85–89
<i>Hypertension</i>			
Stage I (Mild)	140–159	and/or	90–99
Stage II (Moderate)	160–179	and/or	100–109
Stage III (Severe)	≥ 180	and/or	≥ 110

Adapted from the Malaysian CPG on Management of Hypertension (5th Edition), 2018.

BP, blood pressure; SBP, systolic blood pressure; DBP, diastolic blood pressure



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Signs & symptoms

Hypertension is a 'silent killer'.²

It may not have any obvious signs & symptoms.



However, people with severe hypertension may have non-specific symptoms like headache, dizziness and lethargy.¹

BP, blood pressure; SBP, systolic blood pressure; DBP, diastolic blood pressure



Hypertension by the numbers



Cause of premature deaths worldwide in 2015

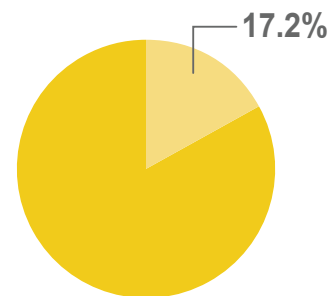
About 10 million deaths and over 200 million disability adjusted life years.³



1.13 billion people have hypertension globally in 2015.³



About 1 in 3 or 6.1 million Malaysian adults* have hypertension.⁴



17.2% of Malaysian adults* have undiagnosed hypertension.⁴

*Aged 18 years and above

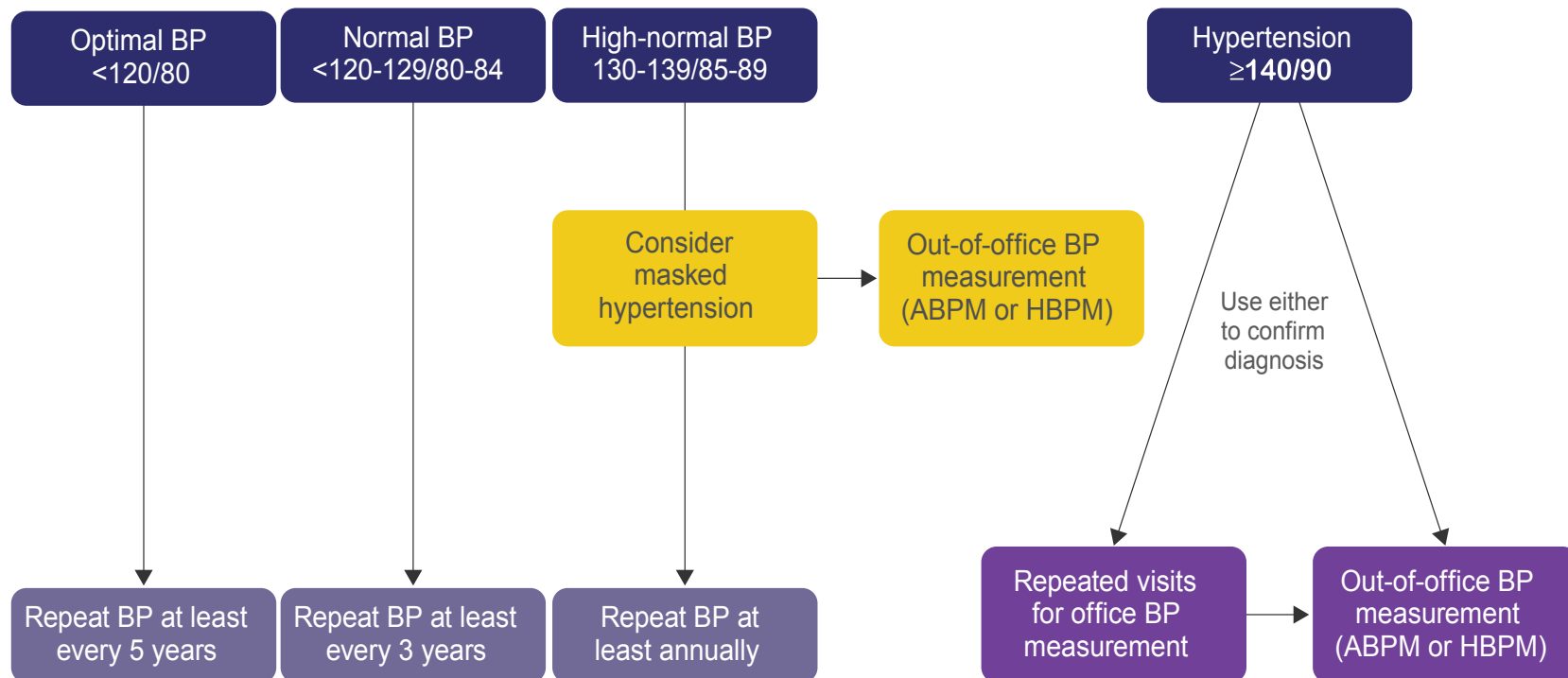


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Blood pressure measurement for the diagnosis of hypertension.

- Out-of-office BP measurements, including HBPM and ABPM are increasingly utilized as compared to office BP measurements to confirm the diagnosis of hypertension.^{1,3}
- Out-of-office BP measurements are used as an alternative strategy to repeated office BP measurements.³



Adapted from Williams B, et al. Eur Heart J 2018;00:1–98.






BP, blood pressure; HBPM, home BP measurement; ABPM, ambulatory BP measurement



Screening and evaluation of hypertension



The purpose of screening and evaluation of hypertension include^{1,3}:

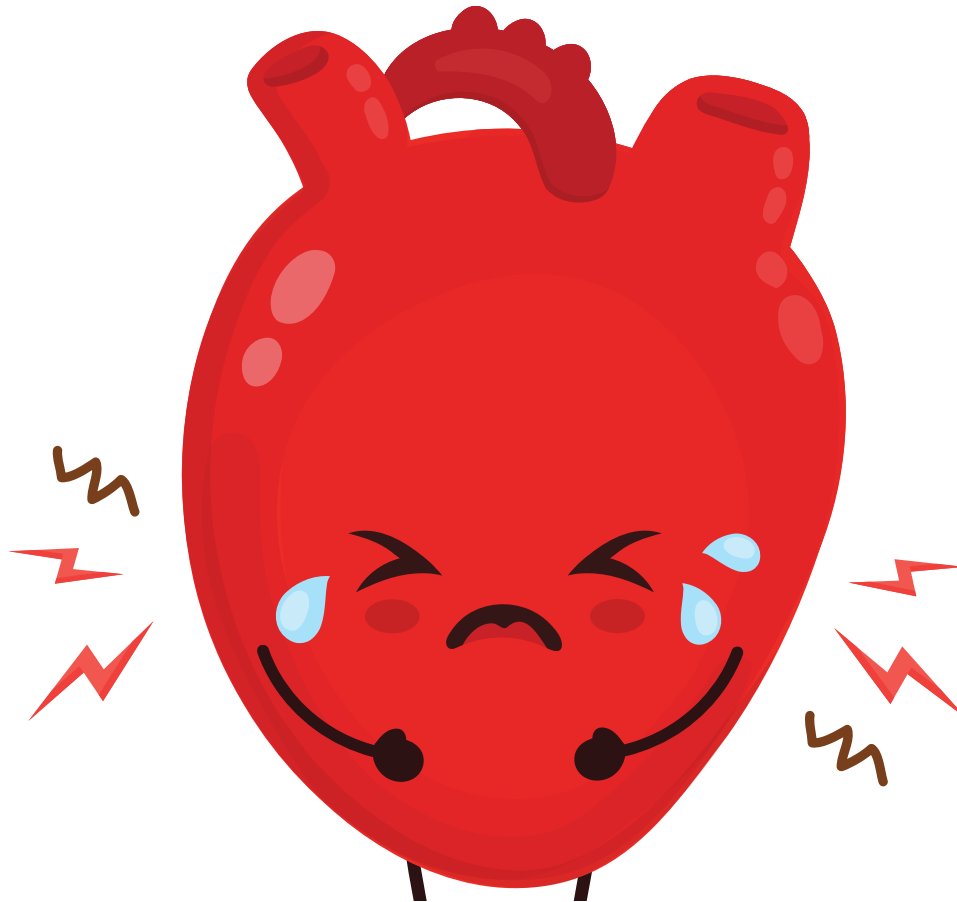
-  To establish the diagnosis and grade of hypertension.
-  To screen for potential secondary causes of hypertension.
-  To identify factors that are potentially contributing to the development of hypertension (eg, smoking, sedentary lifestyle, alcohol consumption and family history).
-  To identify concomitant CV risk factors.
-  To identify concomitant diseases (eg, heart failure and renal disease).

CV, cardiovascular



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Hypertension and CVD



CVD, cardiovascular disease



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About **54%** of stroke and CHD were attributable to hypertension, according to the Global Burden of Disease 2015.⁵



In Malaysia, about **54%** of patients with essential hypertension did not have their CV risks adequately assessed.¹

Risk stratification based on different stages of hypertension is important to determine the risk of developing major CV events.¹

BP Levels (mmHg) \ Co-Existing Condition	No RF No TOD No TOC	TOD or RF (1-2) No TOC	TOC or RF (≥3) or Clinical atherosclerosis or CKD	Previous MI / IHD, Previous stroke or Diabetes or CKD
SBP 130 - 139 and/or DBP 80 - 89	Low	Intermediate	High	Very High
SBP 140 - 159 and/or DBP 90 - 99	Low	Medium	High	Very High
SBP 160 - 179 and/or DBP 100 - 109	Medium	High	Very High	Very High
SBP >180 and/or DBP >110	High	Very High	Very High	Very High

Risk Level	Risk of Major CV Event in 10 years
Low-Intermediate	<10%
Medium	10 - 20%
High	20 - 30%
Very high	>30%

CHD, coronary heart disease; CV, cardiovascular; BP, blood pressure; RF, additional risk factors (smoking, total cholesterol >6.5 mmol/L, family history of premature vascular disease); TOD, target organ damage (left ventricular hypertrophy, retinopathy, proteinuria); TOC, target organ complication (heart failure, renal failure)



Management of hypertension

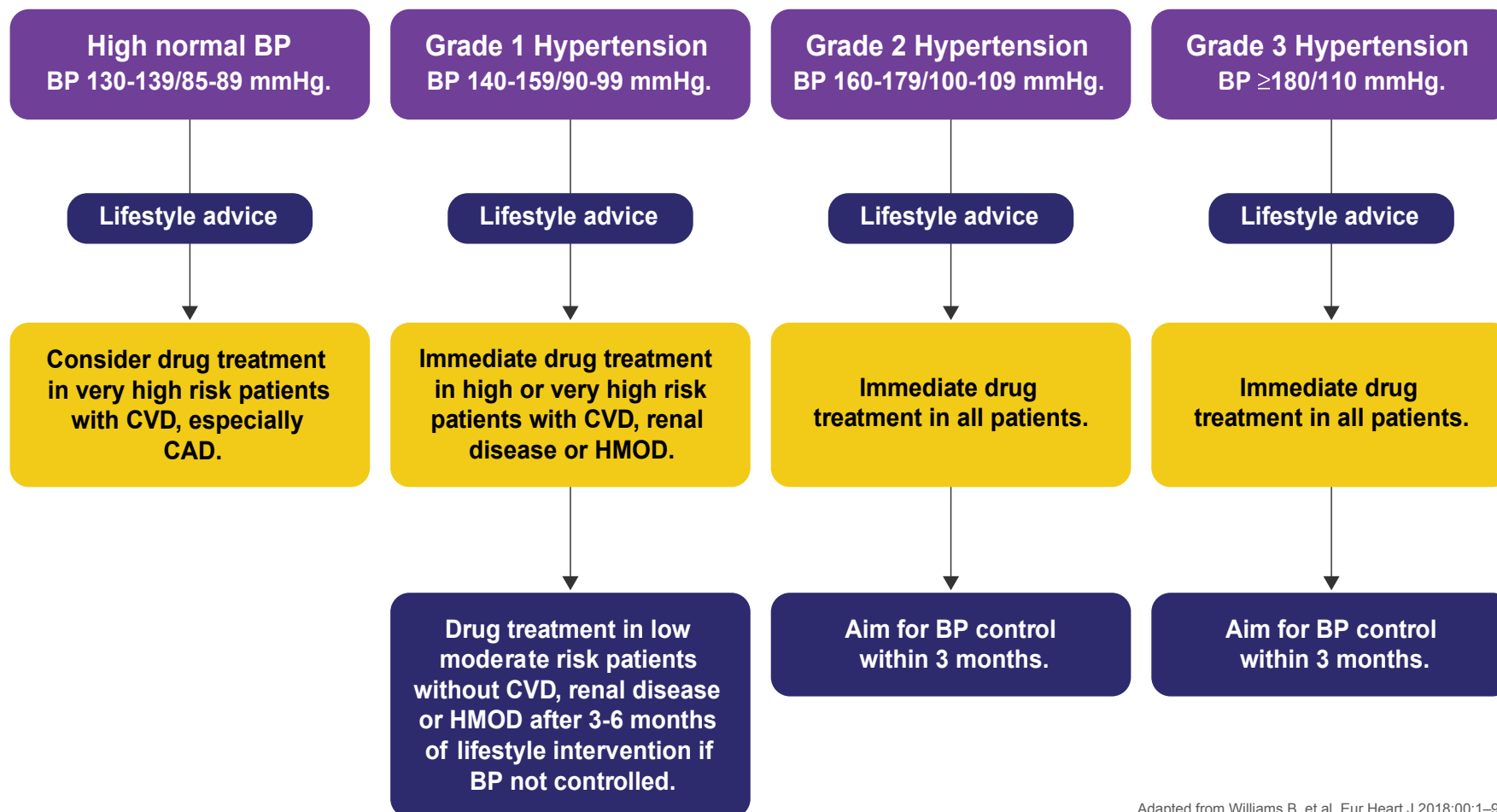


CV, cardiovascular



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BP-lowering drug treatment should be initiated simultaneously with lifestyle interventions.³



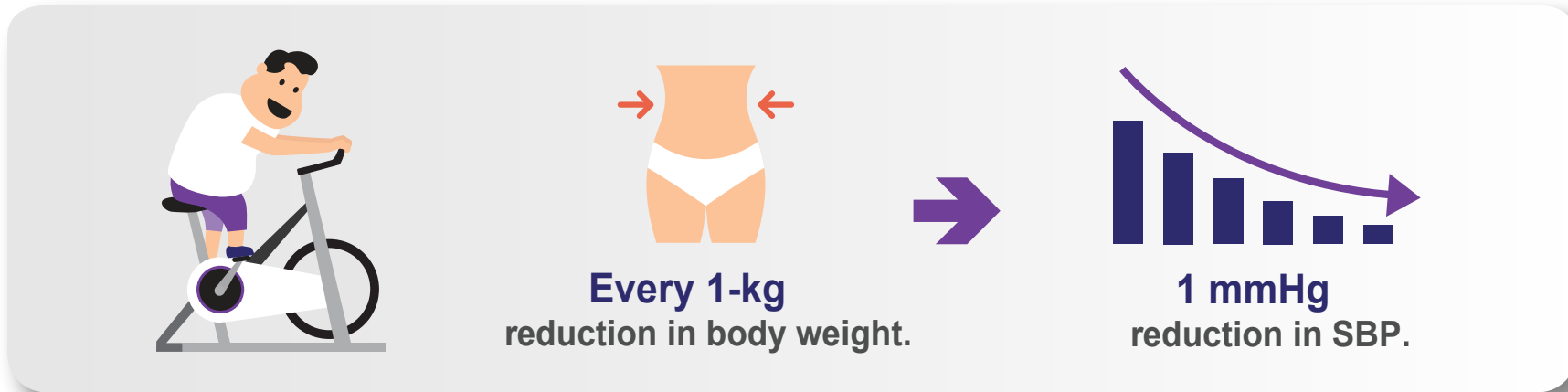
Adapted from Williams B, et al. Eur Heart J 2018;00:1-98.

BP, blood pressure; CVD, cardiovascular disease; CAD, coronary artery disease; HMOD, hypertension-mediated organ damage



Weight reduction.^{1,3}

- Recommended for overweight people with mild hypertension.¹



Dietary sodium restriction.^{1,3}



SBP, systolic blood pressure; DBP, diastolic blood pressure



Moderation in alcohol consumption.^{1,3}



Limit alcohol
consumption
 ≤ 2 drinks
per day.



Alcohol free-days
during the week.

Regular physical exercise.⁶

Exercise prescription for adults ≥ 65 years old

Frequency (How often?)	Most, preferably all days of the week
Intensity (How hard?)	Moderate*
Time (How long?)	At least 30 mins/day
Type (What kind?)	Aerobic exercises such as walking, jogging and cycling

*Moderate intensity is defined as 5 to 6 on a scale of 0 (sitting) to 10 (all-out effort) of level of physical exertion.



Smoking cessation.^{1,3,5}

Referral to MQuit smoking clinics



(More information available at
www.jomquit.moh.gov.my)

Psychosocial counselling



Pharmacotherapy such as nicotine replacement therapy



Pharmacological intervention.¹

- **Stage 1 hypertension:** Treatment should be initiated with monotherapy at low dose¹
*Monotherapy can lower BP to <140/90 mmHg in about 20-50% of patients with mild to moderate hypertension.¹
- **If BP is not controlled after 6 weeks despite monotherapy, consider to¹:**
 - increase the dose of the initial drug;
 - substitute with another class of drug;
 - add a second drug.



Antihypertensive class type	Drug type
Diuretics (thiazide/thiazide-like)	Chlorothiazide, hydrochlorothiazide, frusemide, spironolactone, indapamide
Beta-blockers	Metoprolol, propranolol, atenolol, acebutolol, betaxolol, bisoprolol, nebivolol
Calcium channel blockers (CCBs)	Amlodipine, nifedipine, felodipine, isradipine, lercanidipine, diltiazem, verapamil
Angiotensin-converting enzyme (ACE) inhibitors	Captopril, enalapril, lisinopril, perindopril, ramipril, imidapril
Angiotensin receptor blocker (ARB)	Irbesartan, losartan, valsartan, candesartan, olmesartan



Summary



1. Screening and evaluation of hypertension aim to establish the diagnosis and grade of hypertension and identify the concomitant CV risk factors.
2. Hypertension is a major CV risk factor. If left untreated, it may lead to major CV events.
3. Antihypertensive drug therapy should be initiated with lifestyle changes to achieve optimal BP control.

CV, cardiovascular; BP, blood pressure



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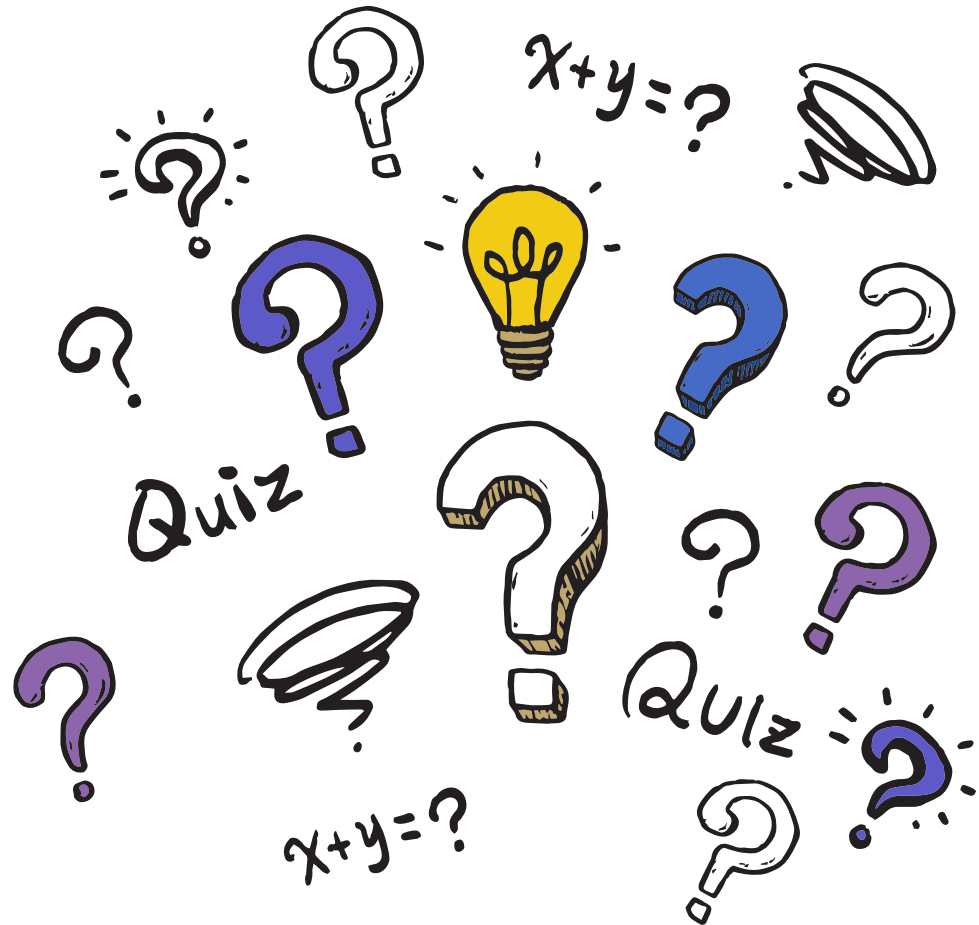


Q & A

1. Unless it is severe, hypertension may have no obvious signs and symptoms.

TRUE or FALSE?

- A. TRUE
- B. FALSE



Answer:

A



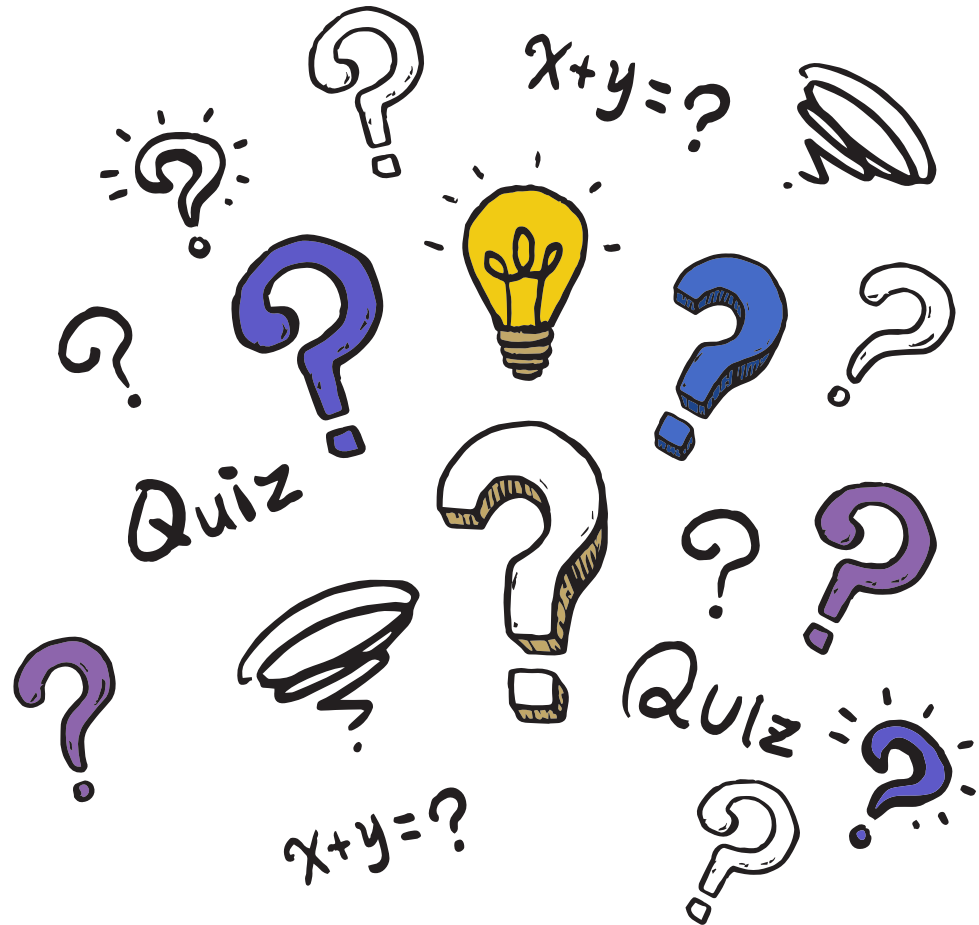
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Available at: <https://www.heart.org/en/health-topics/high-blood-pressure/why-high-blood-pressure-is-a-silent-killer/what-are-the-symptoms-of-high-blood-pressure>. Accessed 18 February 2023.



Q & A

2. Which of the following is NOT a lifestyle intervention in the management of hypertension?

- A. Reduce sodium intake
- B. Limit alcohol consumption to drinks per day
- C. Exercise regularly to lose weight
- D. Quit smoking



Answer:

B



Reference: Ministry of Health Malaysia. Clinical Practice Guidelines on Management of Hypertension 5th Edition.
Available at: http://www.acadmed.org.my/view_file.cfm?fileid=894. Accessed 18 February 2023.





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Reg. No: 201801018158 (1280174-H)
15-03 & 15-04, Level 15, Imazium,
No. 8, Jalan SS 21/37, Damansara Uptown,
47400, Petaling Jaya, Selangor, Malaysia.
Tel: 603-7733 8005

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