


Diagnosis and management

for patients with hypertension

A noncommunicable disease education manual for primary health care professionals and patients





Diagnosis and management

for patients with hypertension

A noncommunicable disease education manual for primary health care professionals and patients



The Noncommunicable Disease Education Manual for Primary Health Care Professionals and Patients results from the contributions and hard work of many people. Its development was led by Dr Hai-Rim Shin, Coordinator, and Dr Warrick Junsuk Kim, Medical Officer, of the Noncommunicable Diseases and Health Promotion unit at the WHO Regional Office for the Western Pacific (WHO/WPRO/NCD) in Manila, Philippines.

WHO graciously acknowledges the intellectual contributions of Dr Jung-jin Cho, Co-director, Community-based Primary Care Project Committee and Professor, Department of Family Medicine, Hallym University Sacred Heart Dongtan Hospital, Republic of Korea; Dr Hyejin Lee, Volunteer, WHO/WPRO/NCD (currently PhD candidate, Department of Family Medicine, Seoul National University, Republic of Korea); Ms Saki Narita, Volunteer, WHO/WPRO/NCD (currently PhD candidate, Department of Global Health Policy, Graduate School of Medicine, University of Tokyo, Japan); and Mr Byung Ki Kwon, Technical Officer, WHO/WPRO/NCD (currently Director, Division of Health Promotion, Ministry of Health and Welfare, Republic of Korea).

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Noncommunicable disease education manual for primary health care professionals and patients

Part 1 Prevention and management of hypertension

 **Module 1 Diagnosis and management** ◀ YOU ARE HERE

 Module 2 Healthy lifestyles

 Module 3 Healthy eating habits

 Module 4 Low-salt diet


 Module 5 Physical activity

 Module 6 Medication and management of associated diseases

 Module 7 Complication prevention

Part 2 Prevention and management of diabetes

 Module 1 Diagnosis and management

 Module 2 Healthy lifestyles

 Module 3 Healthy eating habits 1

 Module 4 Healthy eating habits 2

 Module 5 Physical activity

 Module 6 Taking care of yourself in daily life

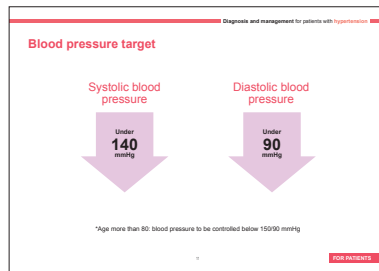
 Module 7 Complication prevention

Part 3 Quit smoking

How to use this manual

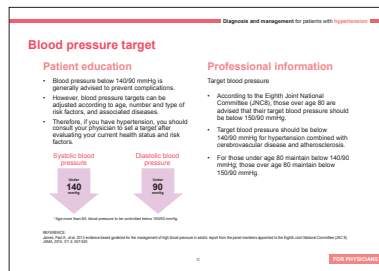
This book is one of fifteen modules of the “Noncommunicable disease education manual for primary health care professionals and patients”. This manual is intended to provide health information on the prevention and control of hypertension and diabetes.

This will be used in the form of a flip chart for health professionals to educate their patients with either hypertension or diabetes.



FOR PATIENTS

On one side of the flip chart is the ‘**For patients**’ page. This side has simple images and key messages that are easy to understand. However, health professionals may need to provide education for patients to fully understand the content.



FOR PHYSICIANS

On the other side of the flip chart is the ‘**For physicians**’ page. This side includes information that the health professional can read out to the patient during counselling. Professional information is also provided for further understanding. A small image of the ‘For patients’ side is included so that the health professional is aware of what the patient is looking at.

This publication is intended to serve as a template to be adapted to national context. Images and graphs that have been watermarked should be replaced with images or graphs that represent the national situation. If assistance is required, or if you have any questions related to the publication, please contact the Noncommunicable Diseases and Health Promotion unit at WHO Regional Office for the Western Pacific (wproncd@who.int).

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Blood pressure



Blood pressure

Patient education

- Blood pressure is the force of blood against the walls of arteries.
- Systolic blood pressure can be measured when the blood is exported by contraction of the heart.
- Diastolic blood pressure can be measured when the heart relaxes to import blood.

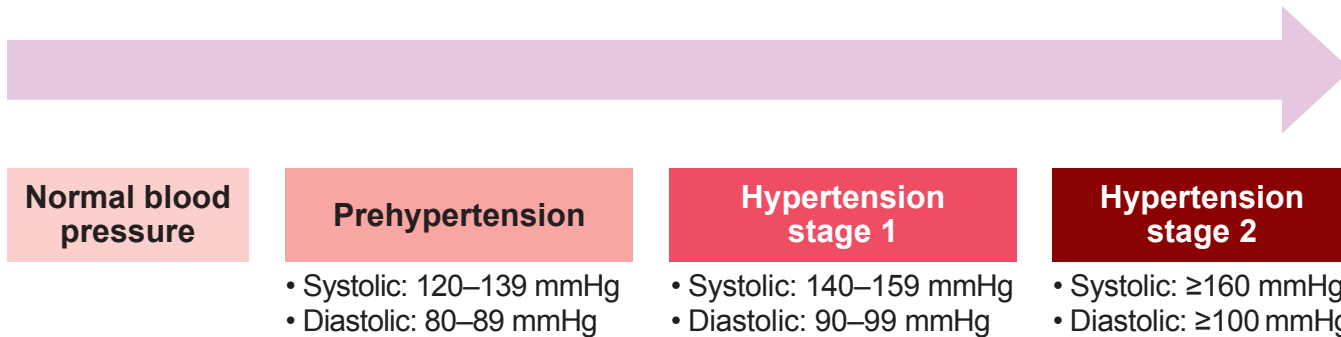


REFERENCES:

National Institutes of Health, and National Heart, Lung, and Blood Institute. Your guide to lowering blood pressure. NIH publication, 2003, 03-5232.
Weber, Michael A., et al. Clinical practice guidelines for the management of hypertension in the community. The Journal of Clinical Hypertension, 2014, 16.1: 14-26.

Diagnostic criteria of hypertension

A standard way to measure blood pressure is to take the average of more than two measurements in separate visits.

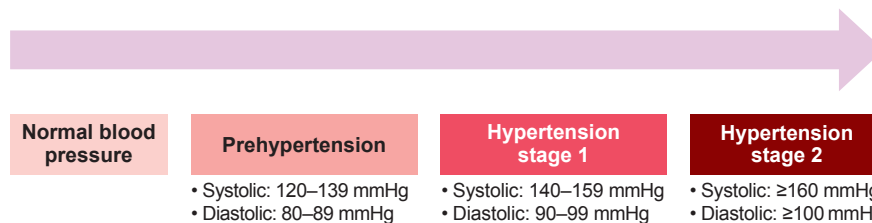


Diagnostic criteria of hypertension

Patient education

- Hypertension is diagnosed when the average systolic blood pressure is 140 mmHg or higher, or when the average diastolic blood pressure is 90 mmHg or higher, taken on two or more separate days.
- Systolic and diastolic blood pressure of less than 120 mmHg and 80 mmHg, respectively, is considered normal.
- Most people who think that their blood pressure is low actually have normal blood pressure.

A standard way to measure blood pressure is to take the average of more than two measurements in separate visits.



REFERENCE:

Weber, Michael A., et al. Clinical practice guidelines for the management of hypertension in the community. The Journal of Clinical Hypertension, 2014, 16.1: 14-26.

Symptoms of hypertension

People with high blood pressure most of the time
DO NOT HAVE ANY SYMPTOMS

Possible symptoms include:

- headache
- palpitation
- excess sweating



Symptoms of hypertension

Patient education

- Most people think of a stiff neck, headache, or dizziness as common symptoms of hypertension.
- However, most patients with hypertension have no symptoms unless their blood pressure is very high.
- As such, patients are tempted to skip their regular check-ups or even their medication because they lack symptoms.
- However, untreated hypertension with no symptoms can cause stroke, heart failure, myocardial infarction, or even death.
- This is why hypertension is called a “silent killer” because it can end your life suddenly without warning signs.

Professional information

- It should be emphasized that most patients have no symptoms.
- Secondary hypertension caused by pheochromocytoma or Cushing’s syndrome can be symptomatic.

People with high blood pressure most of the time
DO NOT HAVE ANY SYMPTOMS

Possible symptoms include:

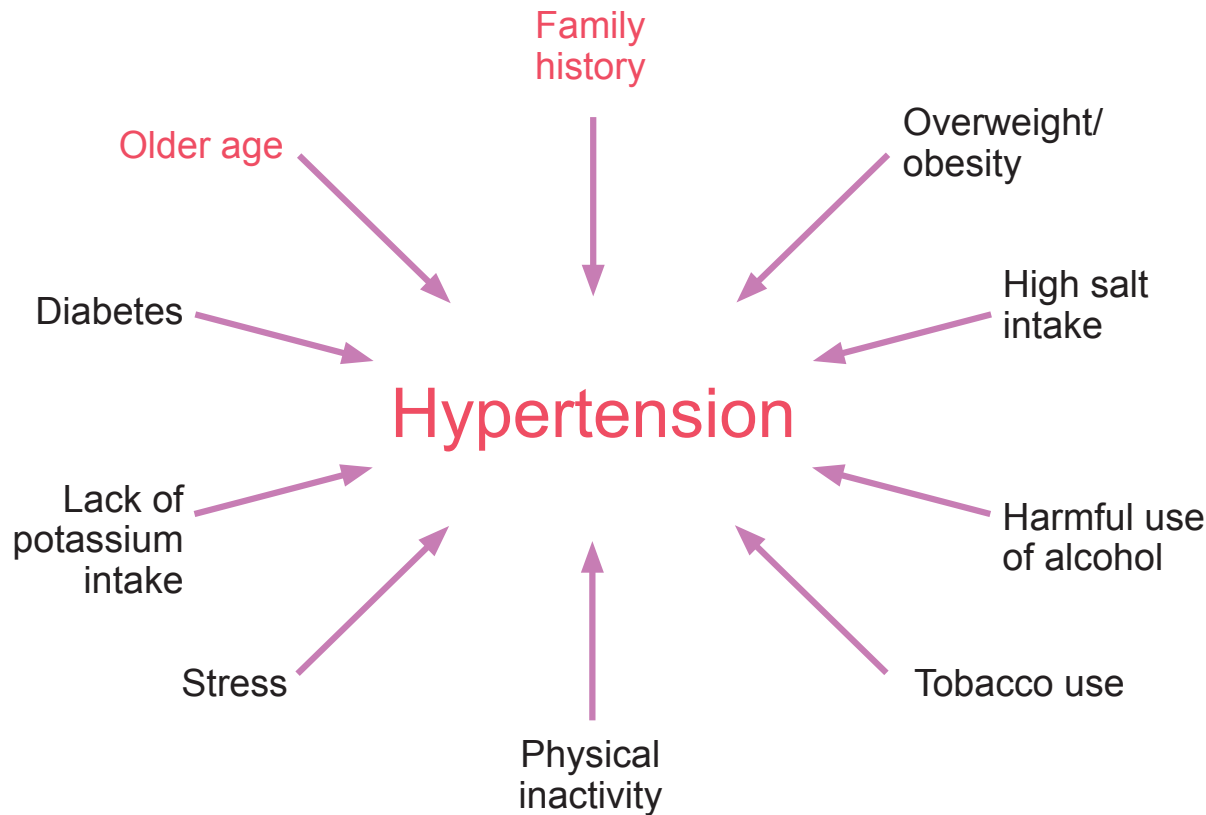
headache
palpitation
excess sweating



REFERENCE:

Evidence-based recommendations for hypertension in primary care. Korean Medical Guideline Information Center. 2014 . (<http://www.guideline.or.kr>, accessed 28 September 2016).

Risk factors of hypertension



Genetic factors
+
Environmental factors

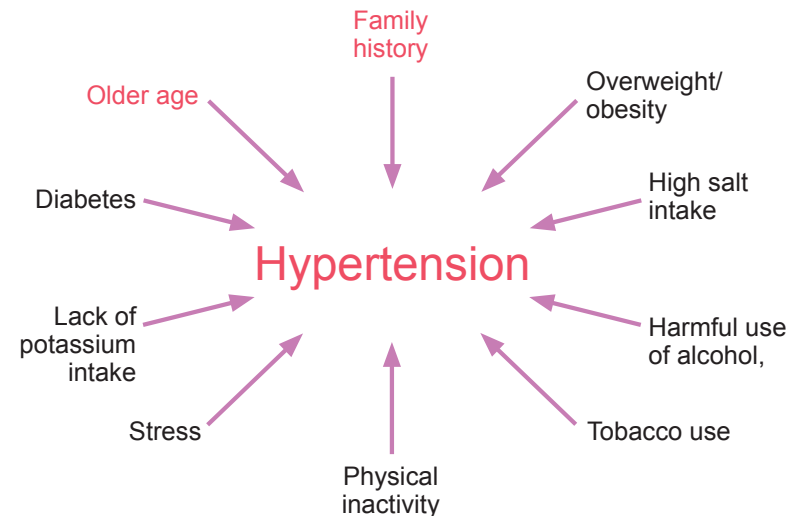
Risk factors of hypertension

Patient education

- Risk factors of hypertension are: advanced age, genetic link (family history), obesity or overweight, high salt intake, harmful use of alcohol, tobacco use, physical inactivity, lack of potassium intake, diabetes and dyslipidaemia.
- If you have any associated conditions, such as diabetes, the risk of hypertension is even higher.
- To prevent hypertension, manage your modifiable risk factors by adopting a healthy lifestyle (weight control, increasing physical activity, eating less salt, quitting smoking, consuming less alcohol, or managing emotional stress).

Professional information

- Black - modifiable risk factors
- Red - non-modifiable risk factors

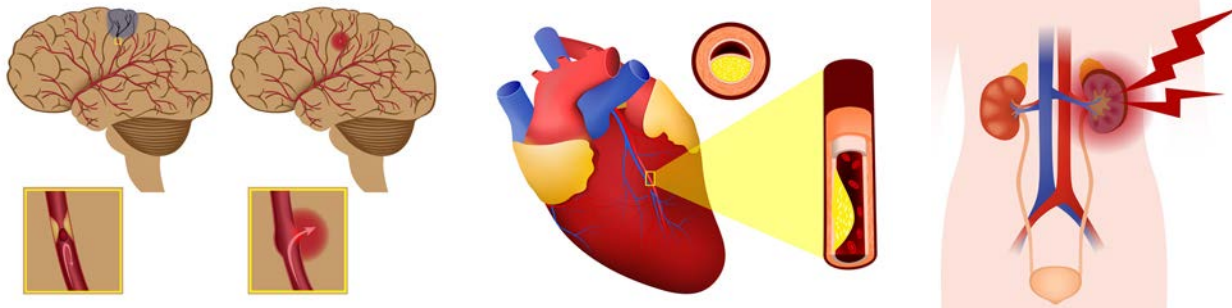


REFERENCE:
Mayo Clinic. 2016. (<http://www.mayoclinic.com>, accessed 28 September 2016).

Importance of blood pressure control: complication prevention

By controlling blood pressure:

Cut the risk of {
stroke by 30%
myocardial infarction by 25%
chronic kidney diseases by 23%



Importance of blood pressure control: complication prevention

Patient education

- Patients with hypertension often skip their medication or regular check-ups because they have no symptoms. If hypertension is neglected, it can lead to more severe diseases or complications, such as stroke, myocardial infarction and chronic kidney disease.
- Continuous blood pressure control is recommended to prevent these complications.

By controlling blood pressure:

Cut the risk of

- stroke by 30%
- myocardial infarction by 25%
- chronic kidney diseases by 23%



REFERENCES:

Hypertension basic theory course. Centers for Disease Control and Prevention, Republic of Korea. 2016. (http://www.kncd.org/down/sub09/01/9_1_1_1.pdf, accessed 28 September 2016).
 Haroun, Melanie K., et al. Risk factors for chronic kidney disease: a prospective study of 23,534 men and women in Washington County, Maryland. *Journal of the American Society of Nephrology*, 2003, 14.11: 2934-2941.

Blood pressure target

Systolic blood pressure



Diastolic blood pressure



*Age more than 80: blood pressure to be controlled below 150/90 mmHg

Blood pressure target

Patient education

- Blood pressure below 140/90 mmHg is generally advised to prevent complications.
- However, blood pressure targets can be adjusted according to age, number and type of risk factors, and associated diseases.
- Therefore, if you have hypertension, you should consult your physician to set a target after evaluating your current health status and risk factors.

Systolic blood pressure



Diastolic blood pressure



*Age more than 80: blood pressure to be controlled below 150/90 mmHg

Professional information

Target blood pressure

- According to the Eighth Joint National Committee (JNC8), those over age 80 are advised that their target blood pressure should be below 150/90 mmHg.
- Target blood pressure should be below 140/90 mmHg for hypertension combined with cerebrovascular disease and atherosclerosis.
- For those under age 80 maintain below 140/90 mmHg; those over age 80 maintain below 150/90 mmHg.

REFERENCE:

James, Paul A., et al. 2014 evidence-based guideline for the management of high blood pressure in adults: report from the panel members appointed to the Eighth Joint National Committee (JNC 8). JAMA, 2014, 311.5: 507-520.

Managing hypertension

Healthy
lifestyle



Medication



Managing hypertension

Patient education

- There are two ways to manage hypertension: practicing a healthy lifestyle and taking your medication regularly.
- The aim of a healthy lifestyle is to control risk factors such as tobacco use, harmful use of alcohol, physical inactivity and high salt intake.
- If your blood pressure is very high, then your doctor may recommend that you start taking drugs right away, but you need to continue pursuing a healthy lifestyle.

Healthy
lifestyle



Medication



REFERENCES:

Weber, Michael A., et al. Clinical practice guidelines for the management of hypertension in the community. *The Journal of Clinical Hypertension*, 2014, 16.1: 14-26.

James, Paul A., et al. 2014 Evidence-based guideline for the management of high blood pressure in adults: report from the panel members appointed to the Eighth Joint National Committee (JNC 8). *JAMA*, 2014, 311.5: 507-520.

Healthy lifestyles



Increase fruit and vegetable consumption



Maintain healthy/ appropriate weight



Reduce salt and fat intake



Healthy lifestyles

Patient education

- Managing your diet is very important in controlling hypertension.
- It includes reducing salt, cholesterol and unsaturated fat intake and consuming adequate amounts of vegetables and fruit.
- More specific nutrition information will be introduced in a separate section.



Increase fruit
and vegetable
consumption



Maintain healthy/
appropriate
weight



Reduce
salt and fat
intake



Professional information

- If a patient with hypertension eats food high in salt, the sodium in the salt increases blood volume, resulting in higher blood pressure.
- It is very important to reduce salt – cutting salt intake from the estimated global level of 9–12 grams per day (g/day) to the recommended World Health Organization (WHO) maximum target of 5 g/day has demonstrated the potential to reduce the global cardiovascular disease rate by 17% and the global stroke rate by 23%.

REFERENCE:

World Health Organization. Salt matters for Pacific island countries: mobilizing for effective action to reduce population salt intake in the Pacific island countries. 2014.

Healthy lifestyles: physical activity

Aerobic exercise is recommended

more than 150 minutes a week,
or 30 minutes a day, 5–7 days a week.



Walking



Running



Swimming



Cycling

* Combining muscle strengthening exercises are recommended.

Healthy lifestyles: physical activity

Patient education

- Physical activity directly reduces blood pressure, but it also has indirect effects through controlling body weight.
- It also helps to manage emotional stress which is crucial in hypertension care.
- However, you need to consult your doctor before initiating any new physical activity as it can transiently increase blood pressure or aggravate existing cardiac problems.
- Aerobic exercises such as brisk walking are recommended for controlling blood pressure, and combined with muscle strengthening exercises, is even more beneficial.
- It is recommended to exercise 5–7 times a week and more than 30 minutes each day.

Professional information

- WHO recommends more than 150 minutes of moderate intensity physical activity a week, which aligns with the advice of the American College of Sports Medicine.
- The European Society of Cardiology recommends exercise five times weekly for 30 minutes at a time.
- It has been proven that dividing exercise into bouts of at least 10 minutes is also effective.

Aerobic exercise is recommended

more than 150 minutes a week,
or 30 minutes a day, 5–7 days a week.



Walking



Running



Swimming



Cycling

* Combining muscle strengthening exercises are recommended.

REFERENCE:

World Health Organization. Global recommendations on physical activity for health. 2010.

Healthy lifestyles: quit smoking



Healthy lifestyles: quit smoking

Patient education

- Smoking is a risk factor for hypertension.
- If you are currently a smoker, you are advised to quit.
- There are numerous toxins in cigarettes which cause cancer, chronic obstructive pulmonary disease, cerebral ischaemia, myocardial ischaemia, or peripheral arterial diseases.
- If you are ready to quit smoking, ask your doctor for advice.

Professional information

- If you have failed to quit smoking or are highly dependent on nicotine, you can consider starting drug therapy.
- Quitting smoking can prevent 55% of myocardial ischaemia recurrence which is more effective than preventive drug therapy.
- Smokers have 2.2 times the risk of death from stroke.



REFERENCES:

Khang, Young-Ho, et al. Explaining age specific inequalities in mortality from all causes, cardiovascular disease and ischaemic heart disease among South Korean male public servants: relative and absolute perspectives. *Heart*, 2007.

Weber, Michael A., et al. Clinical practice guidelines for the management of hypertension in the community. *The Journal of Clinical Hypertension*, 2014, 16.1: 14-26.

Healthy lifestyles: reducing harmful use of alcohol

Maximum recommended daily amount of alcohol consumption

250 ml of
beer



INSERT PHOTO:
examples of frequently
consumed alcoholic
beverage; also state
name of alcohol and
amount(ml) in one
standard drink (10g)



100 ml of
wine



INSERT PHOTO:
examples of frequently
consumed alcoholic
beverage; also state
name of alcohol and
amount(ml) in one
standard drink (10g)



25 ml of
whisky



INSERT PHOTO:
examples of frequently
consumed alcoholic
beverage; also state
name of alcohol and
amount(ml) in one
standard drink (10g)

**Male:
2 glasses or
less**

**Female:
1 glass or less**

One “standard drink” = 10 grams of pure alcohol

Healthy lifestyles: reducing harmful use of alcohol

Patient education

- The recommended limit of alcohol consumption is half of that recommended for people without hypertension
- For men, daily alcohol consumption should be less than two glasses of alcohol.
- For women, consumption should be limited to under one glass per day.

Professional information

- Men are recommended to limit consumption to less than two drinks (20 grams) of alcohol and women less than one drink (10 grams) of alcohol per day.

Maximum recommended daily amount of alcohol consumption



One "standard drink" = 10 grams of pure alcohol

REFERENCE:

Weber, Michael A., et al. Clinical practice guidelines for the management of hypertension in the community. The Journal of Clinical Hypertension, 2014, 16.1: 14-26.

Benefits of healthy lifestyles



Daily medication

Maintain target BP



Salt intake reduction

2–8 mmHg ↓



Physical activity

4–9 mmHg ↓



10 kg weight loss in obese person

5–20 mmHg ↓



Avoid harmful use of alcohol

2–4 mmHg ↓



Quit smoking

overall cardiovascular risk reduction

Benefits of healthy lifestyles

Patient education

- Controlling high blood pressure involves not only drug therapy, but also practicing a healthy lifestyle.
- Taking medication daily is key to maintaining stable blood pressure in the target range.
- Healthy lifestyle including salt intake reduction, physical activity, weight control, lower alcohol consumption and eating more fruits and vegetables helps maintain or decrease blood pressure.
- It is more effective if these lifestyle factors are controlled together.
- Smokers can reduce overall cardiovascular disease risk if they quit smoking.



REFERENCE:

Chobanian, Aram V., et al. Seventh report of the joint national committee on prevention, detection, evaluation, and treatment of high blood pressure. *Hypertension*, 2003, 42.6: 1206-1252.

Measuring your blood pressure

- Avoid **smoking and alcohol or coffee consumption** 30 minutes before measuring your blood pressure.
- Rest for **five minutes** before measurement.
- Lean back and sit comfortably.
- Maintain arm at the **level of your heart**.



Measuring your blood pressure

Patient education

- Before measuring your blood pressure, try to sit comfortably without drinking coffee, alcohol or smoking for at least 30 minutes.
- Caffeine, alcohol and nicotine can cause adrenaline secretions which raise your blood pressure and pulse rate.
- Lean back and rest for five minutes before measuring your blood pressure.

Professional information

- Caffeine, alcohol and nicotine can activate the sympathetic nervous system, causing adrenaline secretion. This causes vascular contraction, higher pulse rate and increased blood pressure.

- Avoid **smoking and alcohol or coffee consumption** 30 minutes before measuring your blood pressure.
- Rest for **five minutes** before measurement.
- Lean back and sit comfortably.
- Maintain arm at the **level of your heart**.



REFERENCE:

James, Paul A., et al. 2014 evidence-based guideline for the management of high blood pressure in adults: report from the panel members appointed to the Eighth Joint National Committee (JNC 8). JAMA, 2014, 311.5: 507-520.

Drug therapy

- Hypertension is manageable and controllable, but not curable.
- You need to take your medication as prescribed, **every day, regularly**.
- **Practicing a healthy lifestyle** should be combined with taking medication.
- Consult your physician if you have any side-effects from the medication.



Drug therapy

Patient education

- Although a healthy lifestyle helps control blood pressure, most patients still need to take medication.
- The effect of antihypertensive medication is gradual, so it may take time to see results.
- Combining a healthy diet and physical activity with daily medication is important.
- Different antihypertensive medications have different side-effects and it is important to know the most common side-effects of the medication you are taking.
- If you think you are experiencing side-effects, consult your doctor.

- Hypertension is manageable and controllable, but not curable.
- You need to take your medication as prescribed, **every day, regularly**.
- **Practicing a healthy lifestyle** should be combined with taking medication.
- Consult your physician if you have any side-effects from the medication.



REFERENCE:

National Institutes of Health, and National Heart, Lung, and Blood Institute. Your guide to lowering blood pressure. NIH publication, 2003, 03-5232

Take-home message

Diagnosis and management

- Hypertension is mostly **asymptomatic**.
- Hypertension management **prevents complications**.
- **Healthy lifestyle** is crucial in managing high blood pressure.
- Take your medication as prescribed, **every day, regularly**.
- Patients should **consult their physician** before starting or discontinuing medication.

