

# Hong Kong Reference Framework for Hypertension Care for Adults in Primary Care Settings 【Patient Version】

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基層醫療  
PRIMARY CARE

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# Introduction

The ‘Hong Kong Reference Framework for Hypertension Care for Adults in Primary Care Settings’ was prepared by the Task Force on Conceptual Model and Preventive Protocols of the Working Group on Primary Care, which was set up by the Food and Health Bureau. This reference framework aims to provide a common reference for healthcare professionals across different sectors for the provision of continuing, comprehensive and evidence-based care for hypertension in the community. This reference framework also serves as a reference to adults at risk of developing or with hypertension and their carers, to empower patients to take care of themselves and to raise public’s awareness on the importance of preventing and properly managing hypertension. This patient version is simple and easy to understand. It is hoped that patients are able to learn and practise the recommendations as laid down in this reference framework.

# What is hypertension?

Blood pressure is the pressure exerted by circulating blood upon the walls of blood vessels. ‘Systolic blood pressure’ is the pressure exerted upon the walls of blood vessels when the heart contracts, while ‘diastolic blood pressure’ is one when the heart relaxes. Blood pressure is usually measured in millimeters of mercury (mmHg).

Hypertension is a condition in which the systolic blood pressure is persistently higher than or equal to 140 mmHg or diastolic blood pressure is persistently higher than or equal to 90 mmHg.

Hypertension can be divided into ‘primary (essential) hypertension’ and ‘secondary hypertension’ based on different causes:

- Primary (essential) hypertension: the cause of high blood pressure is unknown, generally related to the risk factors described below (see item 3 on Page 2)
- Secondary hypertension: mainly caused by identifiable underlying secondary causes, such as kidney diseases or endocrine disorders

It is estimated that around 27% of the population aged 15 or above in Hong Kong suffer from hypertension.

# Risk factors for hypertension

There are different risk factors for developing hypertension at various stages of life, such as

- aging
- overweight and obesity<sup>NOTE 1</sup>
- unhealthy eating habits and excessive salt intake
- physically inactive
- excessive alcohol intake
- smoking
- family history of hypertension, particularly in first degree relatives

## Impact of hypertension on health

Poorly controlled hypertension may lead to heart failure, coronary heart disease, stroke and kidney failure etc.

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Note 1:

- According to the BMI classification for Chinese adults adopted by the Department of Health, overweight is defined as BMI from 23.0 kg/m<sup>2</sup> to less than 25.0 kg/m<sup>2</sup>, while obesity is defined as BMI 25.0 kg/m<sup>2</sup> or above.
- BMI is measured as weight in kg/height in m<sup>2</sup>.
- Central obesity is defined as waist circumference  $\geq 90$  cm and  $\geq 80$  cm in male and female respectively for the Chinese population.

## Regular monitoring of blood pressure

Most patients with hypertension have no obvious symptoms. They are only found when blood pressure is measured. Therefore, adults are advised to have regular measurement of blood pressure according to the following blood pressure categories:

### Blood pressure level (mmHg)

Blood pressure categories	Systolic blood pressure	Diastolic blood pressure	Recommendations
<b>Optimal</b>	lower than 120	lower than 80	Recheck in 2 years (Once a year for people aged over 75)
<b>Normal</b>	120 to 129	80 to 84	Recheck in 1 year
<b>High normal</b>	130 to 139	85 to 89	Recheck in 6 months
<b>Hypertension</b>	higher than or equal to 140	higher than or equal to 90	Consult your family doctor as soon as possible for advice

## How is hypertension diagnosed?

The simplest way is to measure your blood pressure by using a sphygmomanometer. The doctor will also ask questions about your past medical history and conduct a comprehensive health check. If indicated, further tests such as blood tests, urine tests, electrocardiogram, chest x-ray and retinal examination will be arranged to identify the causes of hypertension and detect complications.

## How to live with hypertension?

There is no proven cure for hypertension. Therefore, in order to control hypertension and prevent its complications, you should adhere to the treatment plan:

- You should have knowledge about the risk factors of hypertension and check your blood pressure regularly. Report the result to your doctor during follow-up consultation
- Your family doctor and other healthcare professionals can provide you with person-centred, continuing and comprehensive treatment and healthcare service. Therefore, you should develop a close partnership with them for early diagnosis and treatment
- You should also enhance your self-care ability for the effective control of hypertension

## How to control hypertension?

Your participation and self-monitoring is crucial to the effective control of hypertension. Enhance your knowledge and skills on the management of hypertension could enable you to better control your own health. Therefore, you should-

- understand the nature of hypertension
- maintain a healthy lifestyle
- keep optimal body weight
- understand that undesirable blood pressure control may lead to complications such as stroke
- take medication(s) according to doctor's prescription
- consult your doctor about the different treatment options and the possible side effects of medication(s)
- develop a close partnership with your family doctor and other healthcare professionals so as to design a treatment plan that best suits your needs

Action	Recommendation
<b>Follow up regularly with your family doctor</b>	<ul style="list-style-type: none"><li>• Work with your family doctor to set targets for blood pressure level, blood lipid level and BMI</li><li>• Conduct health assessment annually. Observe your health status to see whether complications such as stroke occur. Recommended items for assessment include:<ul style="list-style-type: none"><li>» BMI and waist circumference</li><li>» blood glucose</li><li>» blood pressure</li><li>» blood lipid</li><li>» kidney function test (including urine protein)</li></ul></li></ul>



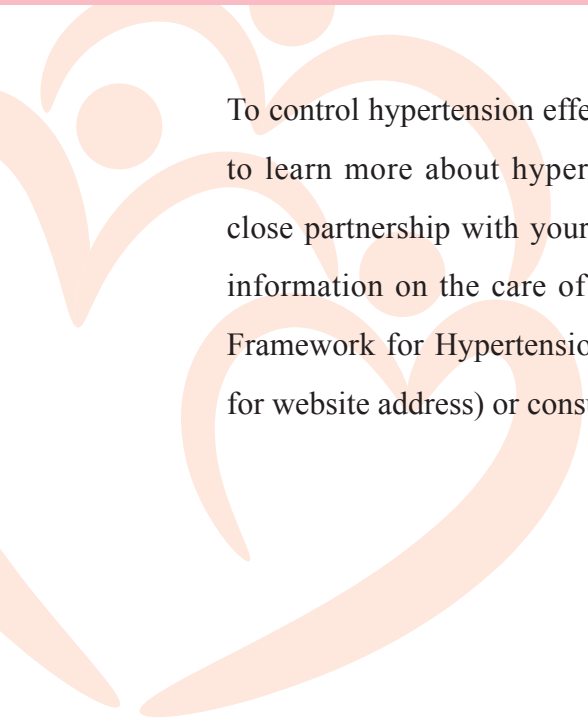
Action	Recommendation
<p><b>Develop healthy eating habit and avoid excessive salt intake</b></p>	<ul style="list-style-type: none"> <li>● Frequent intake of vegetables and fruits. Eat at least two medium fruits such as orange, apple plus one and half bowl* of vegetables such as boiled choi sum and gai lan a day</li> <li>● Choose fresh meat and vegetables; avoid processed or preserved food products and food high in salt such as preserved mustard cabbage, fermented bean curd, ham and sausage</li> <li>● Avoid excessive salt intake; no more than 1 teaspoon (around 5g) a day is recommended</li> <li>● Cut down on the use of soy sauce, oyster sauce, soy bean paste, fermented bean curd, ketchup and salt</li> <li>● Use natural seasoning such as green onion, garlic, onion, cilantro, pepper powder and lemon juice to enhance the colour, smell and taste of food</li> <li>● Cut down on food high in fat such as high-fat meat, fried food, whole milk, cake and coconut milk</li> <li>● Choose low-fat food such as lean meat and skimmed milk</li> <li>● Pay attention to the content of fats, sodium (or salt) and sugar on nutrition labels. Choose food lower in fats, sodium (or salt) and sugar</li> </ul> <p>* Volume of one bowl = 240ml</p>
<p><b>Perform physical activities regularly</b></p>	<ul style="list-style-type: none"> <li>● Perform 30 minutes per day of aerobic exercise at moderate (e.g. brisk walking) or high intensity. Aerobic exercise can be performed accumulatively in bouts of at least 10 minutes each time</li> <li>● Perform muscle strengthening activities at least twice weekly (on non-consecutive days)</li> <li>● For more advice and information on exercise, please consult professionals or visit the Exercise Prescription website of the Department of Health (see appendix for website address)</li> </ul>

Action	Recommendation
<p><b>Avoid alcohol intake</b></p>	<p>Avoid alcohol drinking because alcohol causes a wide range of diseases. Excessive use of alcohol not only adversely affects physical health, it also influences psycho-social health and work performance. If you choose to drink alcoholic beverages, you should limit the amount to minimise alcohol-related harm. Suggestions:</p> <ul style="list-style-type: none"> <li>● No more than 2 standard drinks daily for male</li> <li>● No more than 1 standard drink daily for female</li> <li>● A standard drink (note 1) equals to:                             <ul style="list-style-type: none"> <li>» 250 ml of beer (5% alcohol)</li> <li>» 1 small glass (100 ml) of wine (12% alcohol)</li> <li>» 1 pub measure (30 ml) of spirits (40% alcohol)</li> </ul> </li> </ul>
<p><b>Avoid smoking</b></p>	<ul style="list-style-type: none"> <li>● Non-smokers should not try smoking and smokers should quit immediately</li> <li>● If you need help to quit smoking, please see appendix</li> </ul>
<p><b>Relax your body and mind</b></p>	<ul style="list-style-type: none"> <li>● Learn to relax yourself. Stay positive. Cope with stress actively</li> <li>● For more advice on coping with stress, please visit the Health Zone website of the Department of Health. See appendix for website address</li> </ul>
<p><b>Self-monitoring of blood pressure</b></p>	<ul style="list-style-type: none"> <li>● You should know the meaning of blood pressure readings and the skills for measuring blood pressure accurately (see appendix)</li> <li>● Measure blood pressure regularly and report the result to your doctor during follow-up appointment so that healthcare professionals can learn about the effect of the anti-hypertensive drugs on you and make reference to it for treatment</li> <li>● For patients with uncomplicated hypertension, keep blood pressure below 140/90 mmHg or target to 130/80 mmHg or below if tolerable</li> <li>● For patients with other chronic diseases such as diabetes, keep blood pressure below 130/80 mmHg</li> </ul>

Note 1: A standard drink contains 10g of pure alcohol.

Action	Recommendation
<p><b>Control blood lipid</b></p>	<ul style="list-style-type: none"> <li>● Blood lipids are mainly made up of triglyceride and cholesterol. Dyslipidaemia means abnormal high level of triglyceride or lipoprotein in the blood. It is a major risk factor for developing cardiovascular diseases</li> <li>● Optimal blood lipid control can be achieved by maintaining healthy eating habit, performing exercise regularly and starting medications when indicated</li> </ul>
<p><b>Take medication(s) according to healthcare professionals' advice</b></p>	<ul style="list-style-type: none"> <li>● Understand clearly the medication(s) you take. The doctor will prescribe appropriate anti-hypertensive medication(s) according to patients' conditions. Patients should take the medication(s) regularly as instructed by the doctor. Take the medication(s) at the same fixed time every day for the best possible effect</li> <li>● Understand why you are given the medication(s), how to take it and the possible side-effects. Consult your doctor as early as possible to assess whether there is a need to change to other anti-hypertensive medication(s) if you do not feel well after taking the medication(s). Never adjust the amount of medication(s) on your own or stop taking the medication(s)</li> <li>● Keep on taking the medication(s) to prevent your blood pressure from rising again. You should not stop taking the medication(s) even if your blood pressure returns to the normal; otherwise, your blood pressure will go up to a dangerous level without any symptoms which may cause complications such as stroke</li> </ul>
<p><b>Receive influenza vaccination</b></p>	<ul style="list-style-type: none"> <li>● Receive influenza vaccination annually to prevent its complications. Seasonal influenza vaccination is recommended for persons with chronic medical problems due to their increased risk of complications and death associated with influenza infection.</li> </ul>

## Conclusion



To control hypertension effectively and prevent complications, you are strongly advised to learn more about hypertension and its management. You should also develop a close partnership with your family doctor for active disease management. For further information on the care of hypertension, please refer to the ‘Hong Kong Reference Framework for Hypertension Care for Adults in Primary Care Settings’ (see appendix for website address) or consult your family doctor.

# Appendix

## Reference websites

<b>Hong Kong Reference Framework for Hypertension Care for Adults in Primary Care Settings</b>	<a href="https://www.healthbureau.gov.hk/pho/rfs/english/reference_framework/hypertension_care.html">https://www.healthbureau.gov.hk/pho/rfs/english/reference_framework/hypertension_care.html</a>
<b>Exercise Prescription website of the Department of Health</b>	<a href="http://exerciserx.cheu.gov.hk/en/index.asp">exerciserx.cheu.gov.hk/en/index.asp</a>
<b>Joyful@HK website of the Department of Health</b>	<a href="http://www.joyfulathk.hk/en/index.asp">www.joyfulathk.hk/en/index.asp</a>
<b>Smart Patient website of the Hospital Authority – hypertension</b>	<a href="https://www21.ha.org.hk/smartpatient/SPW/en-us/Disease-Information/Disease/?guid=d41c67f5-f6f6-4d12-a1e4-b659ef2fbe43">https://www21.ha.org.hk/smartpatient/SPW/en-us/Disease-Information/Disease/?guid=d41c67f5-f6f6-4d12-a1e4-b659ef2fbe43</a>

**Smoking Cessation Service**

<b>Service</b>	<b>Organisation</b>	<b>Telephone number</b>
<b>Integrated Smoking Cessation Hotline of the Department of Health</b>	Department of Health	1833 183 (press 1)
<b>Hospital Authority Quitline</b>	Hospital Authority	1833 183 (press 3), 2300 7272
<b>Tung Wah Group of Hospitals Smoking Cessation Hotline</b>	Tung Wah Group of Hospitals	1833 183 (Press 2), 2332 8977
<b>Pok Oi Smoking Cessation Service using Traditional Chinese Medicine</b>	Pok Oi Hospital	1833 183 (Press 4), 2607 1222
<b>HKU Youth Quitline</b>	The University of Hong Kong	1833 183 (Press 5), 2855 9557

## **How to measure blood pressure using digital monitors**

### **What is high blood pressure ?**

- Blood pressure is the pressure exerted by circulating blood upon the walls of blood vessels. “Systolic pressure” is the blood pressure when the heart contracts. “Diastolic pressure” is the pressure when the heart relaxes
- Hypertension (high blood pressure) is a chronic disease. An adult is said to have hypertension if his systolic blood pressure (SBP) is persistently above or equal to 140 mmHg or diastolic blood pressure (DBP) is persistently above or equal to 90 mmHg. Generally, an adult should keep his SBP below 120 and DBP below 80 mmHg
- Checking blood pressure regularly and accurately helps early detection and management of hypertension. Adults 18 years or above should have their blood pressure checked at least once every two years (Once a year for people aged over 75)
- The frequency of blood pressure monitoring may need to be adjusted depending on the individual’s blood pressure level, age, overall cardiovascular risk profile and doctor’s advice

### **How to monitor blood pressure at home?**

- Easy-to-use digital blood pressure monitors are now available. Users can measure blood pressure themselves for self-monitoring of blood pressure at home

- It is important that blood pressure is measured properly. Otherwise, the readings may be inaccurate, leading to inappropriate treatment
- Here are some tips on choosing an appropriate blood pressure monitor and getting accurate measurements:

### **How to choose an appropriate blood pressure monitor:**

#### ***Design of blood pressure monitor:***

- ◆ The common digital monitors can measure blood pressure on the upper arm or the wrist. Upper arm devices are preferred as they are more accurate. Devices that measure blood pressure at the finger are not recommended

#### ***Cuff size:***

- ◆ Blood pressure cuffs come in different sizes. Make sure the cuff size fits your arm as using an incorrect cuff may give inaccurate results
- ◆ The width of the cuff should cover two-thirds of the upper arm. The cuff should be long enough to encircle the whole arm. People with brawnier arm or who are overweight may need bigger cuffs
- ◆ You can consult your doctor or the supplier on the appropriate type of blood pressure monitor and cuff size



***Validation of monitor:***

- ♦ Choose blood pressure monitors that are clinically validated. Read the manual carefully before operating the device, and follow the manufacturer's instructions
- ♦ The blood pressure monitor should have regular maintenance and periodic calibration
- ♦ Blood pressure readings taken at home may differ from those taken at your doctor's office. If you have any doubts, bring your blood pressure monitor along to your doctor's appointment. Your doctor can help validate your blood pressure readings

**How to get accurate readings:*****Consider the following when measuring blood pressure:***

- ♦ Measure blood pressure at around the same time each day
- ♦ Measure blood pressure in a quiet environment
- ♦ Do not measure blood pressure when you feel unwell, cold, anxious, stressed, in pain, or have a full bladder

***Before taking measurements:***

- ♦ Do not exercise, smoke or consume foods or drinks containing caffeine (such as tea or coffee) at least 30 minutes before measurement
- ♦ Wear loose-fitting and comfortable clothes
- ♦ Rest and relax for 5 minutes without any distractions (such as watching television)

***Measuring blood pressure:***

- ◆ Choose a stable table and chair of appropriate height
- ◆ Sit comfortably and relaxed with your back supported
- ◆ Make sure your arm is supported on a tabletop at an even level with your heart
- ◆ Keep your feet on the floor and do not cross the legs
- ◆ Roll up the sleeve to expose your upper arm and wrap the cuff around it
- ◆ Place the cuff on your exposed arm 2cm (approximately two finger-breadths) above the elbow. Make sure the tubing is placed at the centre of your arm facing the front, and that the sensor is correctly placed. Pull the end of the cuff so that it is wrapped evenly and firmly around your arm. Check that the tightness of the cuff is appropriate: you should be able to just slip two fingertips beneath the cuff, near its edge at the top end. When the cuff inflates it should not cause any painful sensation
- ◆ Before starting, wait and relax for a few moments. Press the “start” button. During measurement, stay relaxed, keeping still and quiet
- ◆ The cuff will inflate, then slowly deflate. When the measurement is complete, readings of your systolic and diastolic blood pressures and your pulse rate will be displayed on the digital panel
- ◆ Record the reading of the first measurement

- ◆ After completing the first measurement, release cuff pressure completely
- ◆ Obtain another reading of blood pressure after resting. Allow an interval of at least 1 minute between the two measurements

***Recording the BP readings:***

- ◆ Take the average value of the two readings. If the two readings differ by more than 5 mmHg, one additional reading should be obtained before taking the average
- ◆ Record the readings for ongoing monitoring of blood pressure
- ◆ Bring your blood pressure readings at your next follow-up appointment, for your doctor's reference
- ◆ Consult a doctor or a nurse if you have any concerns

**Further Information**

- Youtube Channel: How to measure blood pressure using digital monitors  
[www.youtube.com/watch?v=fvBVONRkAgo&feature=youtu.be](http://www.youtube.com/watch?v=fvBVONRkAgo&feature=youtu.be)

### **Myths about hypertension**

**1. Hypertension cannot be prevented.**

Fact: The risk of hypertension can be reduced by having a healthy lifestyle, in particular reduced salt intake.

**2. Patients with hypertension experience headache and fatigue.**

Fact: Most patients with hypertension have no symptom at all. Therefore, it is not reliable to only look out for symptoms. Regular check of the blood pressure is needed.

**3. Only overweight or anxious people get hypertension.**

Fact: The risk of having hypertension increases with age. Therefore, everybody should watch their blood pressure, and seek medical advice if in doubt.

**4. I have hypertension. My doctor told me that if I start taking medication, I need to take it for life. So I'd better not start taking it.**

Fact: Avoiding drug use will not change the fact that you have hypertension. But if you don't take medication as directed, you run a much higher chance of having complications and a shorter life.

**5. There is no need to continue taking medicine after the blood pressure returns to normal.**

Fact: Hypertension is a chronic disease. It can be controlled with medication, but it cannot be cured. Therefore, patients need to continue with the treatment and lifestyle modifications as advised by their doctor, and attend regular medical follow up, usually for life.

Source: Centre for Health Protection website, Department of Health – Hypertension – the Preventable and Treatable Silent Killer

[www.chp.gov.hk/en/view\\_content/28272.html](http://www.chp.gov.hk/en/view_content/28272.html)