

# UNDERSTANDING HYPERTENSION

## Burden of disease

Hypertension is one of the most important preventable causes of death globally and represents a growing public health concern.<sup>1</sup> According to the World Health Organisation, it is estimated that hypertension causes 7.5 million deaths worldwide, accounting for 12.8% of the total of all deaths annually.<sup>2</sup>

Hypertension is responsible for at least 45% of deaths due to heart disease and 51% of deaths due to stroke.<sup>2</sup> In addition, it increases the risk of heart failure, peripheral arterial disease, renal impairment, and visual impairment (Figure 1).<sup>1,2</sup>

## Global trends in Hypertension

With population growth and an ageing society, the number of people with uncontrolled hypertension rose from 600 million in 1980 to nearly 1 billion in 2008.<sup>2</sup> It is estimated that by 2025, 1.56 billion people, equating to one-third of the world's population, will be affected by hypertension.<sup>3</sup>

## Hypertension in Singapore

Hypertension is prevalent in Singapore. One in 4 people aged 30-69 years is hypertensive and 1 in 2 of those aged 60-69 years.<sup>4,5</sup> In addition, Singapore is an ageing society. Currently, 10% Singaporeans are 60 years or older, with an expectation for this age group to double by 2030.<sup>6</sup> The prevalence of hypertension is higher in older individuals (>40 years) due to the reduced elasticity of the blood vessels.<sup>7</sup> In the 2010 National Health Survey, it was reported that the highest prevalence of hypertension among Singapore residents aged 30-69 years was in Malay women (29.8%), followed by Chinese men (27.2%) and Malay men (26.0%).<sup>5</sup>

## Risk factors of hypertension

Anyone can have hypertension; however, certain factors have been known to increase the risk of developing hypertension (Table 1).<sup>5,8</sup>

## Diagnosis

Hypertension is diagnosed when blood pressure (BP) readings in the clinic is at 140/90 mmHg or higher (Table 2).<sup>9</sup> The Singapore Ministry of Health Clinical Practice Guidelines recommend ambulatory blood pressure monitoring (ABPM) whenever there is doubt about the diagnosis. ABPM is recommended because it measures the BP throughout the day and in relation to sleep and activity. Moreover, ABPM has provided a large body of BP information across different patient subsets, across different countries.<sup>9</sup> However, ABPM may be limited in its availability in the clinic.

## Monitoring

Blood pressure varies in response to physical activity and emotional stimuli.<sup>10</sup> However, large variability in blood pressure [BP variability (BPV)] has been associated with an increased risk of cardiovascular and renal damage.<sup>11</sup> Patients need to be advised on the importance of regular or weekly home BP monitoring (HBPM). There is increasing evidence from different medical societies regarding the

Table 1. Risk factors of hypertension<sup>5,8</sup>







	<b>Age</b> Blood pressure tends to rise with age due to the reduced elasticity of blood vessels. The prevalence for hypertension rises markedly from age 40 years (23.5%) as compared to those aged 30-39 years (7.6%). This more than doubles (53.4%) amongst those aged 60-69 years.
	<b>Race/ethnicity</b> High blood pressure is more common in Malays (28%) compared to Chinese (23.4%) and Indians (19.3%).
	<b>Overweight/obesity</b> The terms "overweight" and "obese" refer to body weight that's greater than what is considered healthy for a certain height.
	<b>Gender</b> Males have a higher prevalence of hypertension (26.4%) compared to women (20.7%). Before age 55, men are more likely than women to develop high blood pressure. After age 55, women are more likely than men to develop high blood pressure.
	<b>Lifestyle habits</b> • Diet with high salt (sodium) content • Lack of physical activity • Drinking too much alcohol • Stress
	<b>Family history</b> A family history of high blood pressure raises the risk of developing prehypertension or high blood pressure. Some people have a high sensitivity to sodium and salt, which may increase their risk for high blood pressure and may run in families.

Table 2. Classification of hypertension for adults age 18 years and older (as per Singapore Ministry of Health)<sup>9</sup>

Category	Systolic BP (mmHg)	Diastolic BP (mmHg)
Normal BP	<130	<85
High-normal BP	130 – 139	85-89
Grade 1 hypertension	140 – 159*	90-99
Grade 2 hypertension	160 – 179*	100-109
Grade 3 hypertension	≥180*	≥110
Isolated systolic hypertension (ISH)	≥140*	<90

\*ISH is graded according to the same level of systolic BP

use of out-of-office BP monitoring. One of its main advantages is that it can provide a large number of BP measurements, away from the medical environment, which could allow for a more reliable assessment.<sup>12</sup>

## Management

Experts from all over the world convene regularly to review clinical trials and changing trends and how these may impact current BP thresholds and targets. The need to treat hypertension cannot be emphasised enough not only to the general population but also, and perhaps more importantly, to patients with relevant pre-existing conditions.

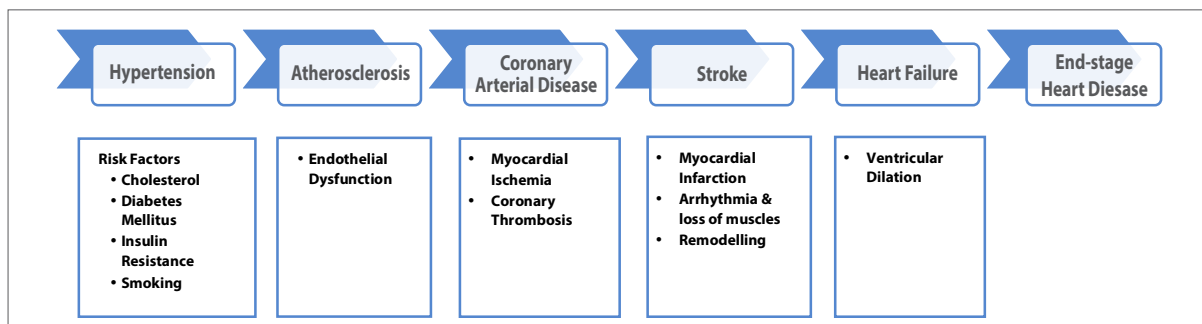


Figure 1. Complications and Consequences of Uncontrolled Hypertension

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