

A patient's guide to understanding

# Stroke



MINISTRY OF HEALTH  
SINGAPORE



Health  
Promotion  
Board

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This brochure is developed together with the Clinical Practice Guidelines on Stroke and Transient Ischaemic Attacks (TIAs). Clinical Practice Guidelines are recommendations to help doctors and patients make appropriate choices about the patient's illness, based on the best scientific evidence currently available. These guidelines do not replace the judgement of the attending doctor. It is important to remember that each person is different, and the Clinical Practice Guidelines may not always apply to everyone.

This brochure has been written primarily for people with stroke and TIA, but it may also be useful for their family members and care givers. It is hoped that patients would be able to use this brochure as a basis to discuss with their physicians the treatment options available to them.



## What You Need to Know

Stroke is one of the leading causes of death and a major cause of disability in Singapore.

The treatment is costly due to prolonged care, complications and rehabilitation.

After a stroke, about 1 in 10 patients die within the year and many others who survive live with disability.

Once a stroke has occurred, there is a higher risk of having another stroke.

Stroke can occur suddenly to anyone at anytime in their life and its consequences are devastating.

This booklet outlines the signs and symptoms of stroke that can help you to quickly recognise and seek medical intervention if you or someone you know suffers from a stroke.

It also contains information on how strokes are treated, and what can be done to prevent them.

## What is Stroke?

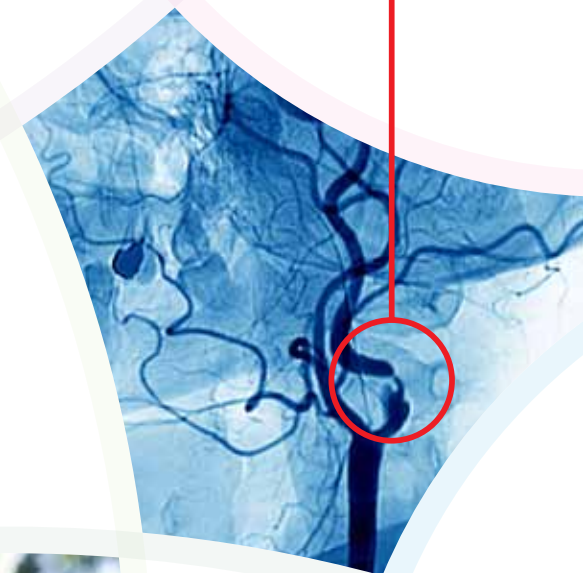
Stroke occurs when a part of the brain is damaged due to lack of blood supply. Blood flow is interrupted when a brain artery (blood vessel carrying blood to the brain) is blocked or bursts.

- A blocked artery causes an **ischaemic stroke**, or infarction
- A burst artery causes a **haemorrhagic stroke**

Bursting of the artery usually occurs at a weakened part of the artery, leading to intra-parenchymal haemorrhage (bleeding into the brain).

After a stroke, about 1 in 10 patients die within the year and many others who survive live with disability.

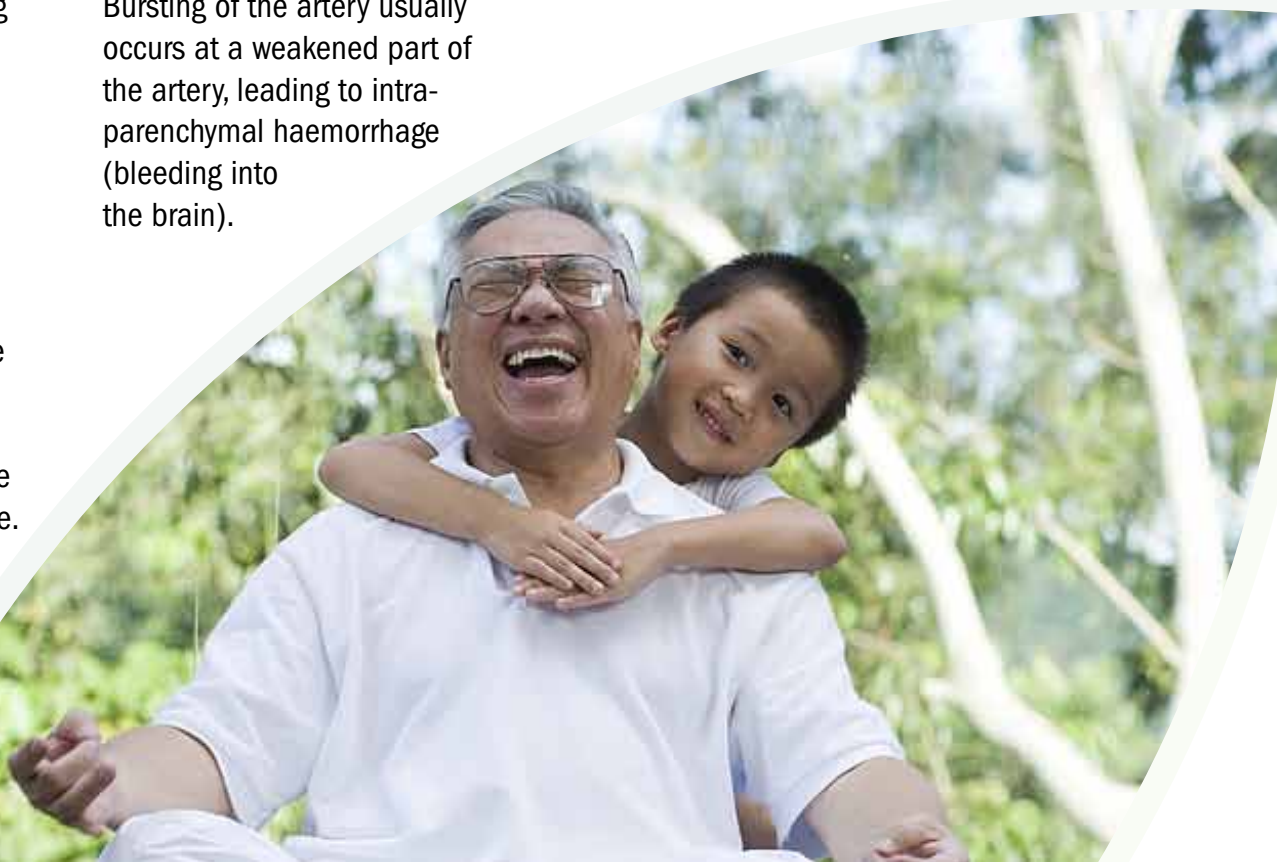
A burst artery causes a haemorrhagic stroke



## What is Transient Ischaemic Attack (TIA)?

A stroke is said to have occurred if the signs and symptoms last more than 24 hours.

However, if the symptoms and signs are transient, and last less than 24 hours, it is called a Transient Ischaemic Attack (TIA).



## What Are the Symptoms of Stroke or TIA?

As each part of the brain performs a different function, the symptoms of stroke or TIA depend on which part of the brain is affected.

Some common stroke symptoms include:

- weakness or numbness of the face, arm and leg on one side of the body
- slurred or unclear speech
- double vision
- difficulty in swallowing
- giddiness together with one of the above symptoms
- loss of consciousness or coma
- severe headache

The symptoms may occur suddenly, or develop over a few minutes to hours. They may be noticed upon awakening from sleep.

If a second stroke or TIA occurs, the symptoms may resemble the first stroke or be completely different.

## What Should I Do If I Suspect I Have a Stroke or TIA?

A stroke is an emergency. You should call for help and get to a doctor as soon as possible.

If you are unable to walk, you or a family member should call for an ambulance in order to get to a hospital immediately.

At the hospital, your condition will be closely monitored.

Very high blood pressure, blood sugar and blood cholesterol will need to be lowered by dietary control and medication.

## What Investigations Will I Undergo?

One or more of the following investigations may be carried out:

### 1. BRAIN SCAN

Computed Tomography (CT) is the most widely-used scan. It can give excellent information regarding the nature and site of the stroke. Sometimes Magnetic Resonance Imaging (MRI) is needed as this may show strokes earlier than CT and can detect very small strokes not seen on CT.

### 2. BLOOD TESTS

These include full blood count, blood electrolytes, blood glucose (sugar) and lipids (cholesterol and other fats) in the blood to determine the underlying cause.

### 3. CHEST X-RAY AND ELECTROCARDIOGRAM (ECG)

These can detect heart disease.

### 4. OTHER INVESTIGATIONS

Some patients may need tests such as Carotid Ultrasound (the neck arteries) and Echocardiogram (ultrasound studies of the heart).



# A stroke is an emergency.

You should call for help and get to a doctor as soon as possible.

## How is Stroke Treated?

# Managing a stroke requires a multi-disciplinary approach.

You will be assessed by a team that comprises doctors, nurses, case managers, dieticians, medical social workers, patient educators, pharmacists and therapists.

The team will help confirm the diagnosis, plan the investigations and administer treatment.

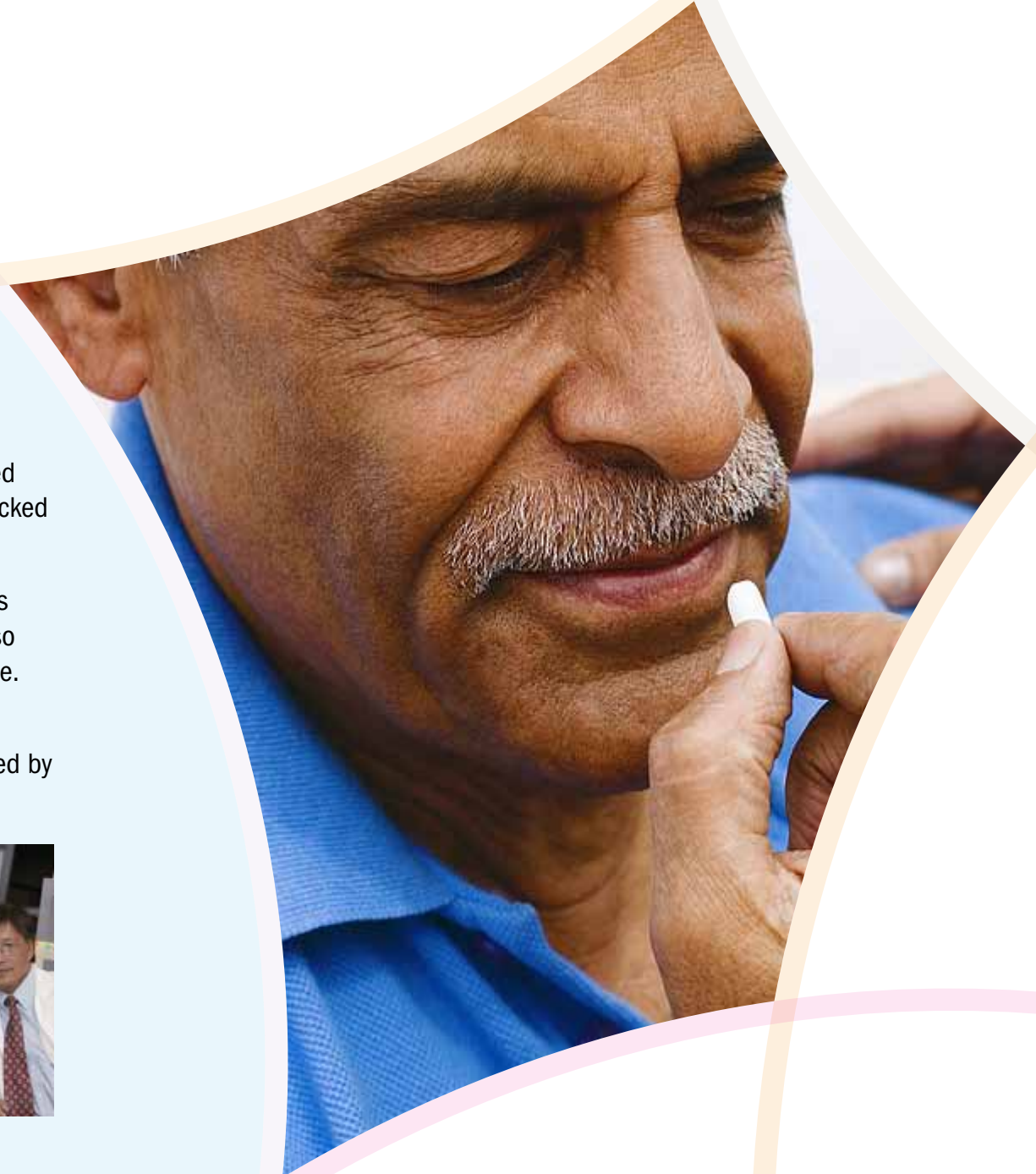
In an **ischaemic stroke**, the use of blood thinners such as antiplatelet and anticoagulant medication improve outcome if patient is treated within 3 hours of onset of stroke.

If there is severe narrowing of an artery in the neck, surgery may be needed to remove that narrowing (carotid endarterectomy) to reduce the risk of another stroke.

If the **haemorrhagic stroke** is due to the rupture of a 'ballooning' in the wall of a blood vessel (aneurysm), the aneurysm can be clipped surgically, or sometimes blocked by specially-inserted coils.

Rupture of an arterio-venous malformation (AVM) can also cause a haemorrhagic stroke.

Accumulation of fluid in the brain may need to be relieved by a surgically-inserted drain.



## How Can a Second Stroke Be Prevented?

After the nature of the stroke has been determined through the relevant investigations, the following measures will be taken:

### FOR ISCHAEMIC STROKE

- a. Antiplatelet medication such as aspirin, ticlopidine, clopidogrel and dipyridamole is used to reduce the ability of blood cells called platelets to stick together.
- b. Anticoagulant therapy such as warfarin is used to reduce the ability of the blood to clot. This is effective to reduce the risks in patients who have had a stroke due to blood clots originating from the heart or artificial heart valves.
- c. Carotid surgery such as carotid endarterectomy (surgery to remove plaques in the carotid artery) may be used if the stroke is due to moderate or severe narrowing of the carotid artery in the neck. Carotid artery stenting (using a stent to open up the narrowed carotid artery) may also be considered.

Your doctor would also help you manage other risk factors, such as lowering blood pressure, blood cholesterol, blood glucose and would advise you to quit smoking if you are a smoker.

### Do I Have to Go for Rehabilitation?

All stroke patients would be assessed so that rehabilitation could be started as soon as the patients' condition permits. Rehabilitation aims to improve functional capacity and to help stroke patients be independent in performing daily activities.



## Where Can I Get More Information?

For information on stroke, you can contact:

**SINGAPORE NATIONAL STROKE ASSOCIATION (SNSA)**  
**26 Dunearn Road, Singapore 309423, Tel: 6358 4138**

Email: [sporensa@singnet.com.sg](mailto:sporensa@singnet.com.sg) Website: [www.snsa.org.sg](http://www.snsa.org.sg)

The aim of SNSA is to provide community support for stroke survivors and their caregivers, and counselling services for post-stroke adjustment.

### HEALTHLINE AT 1800 223 1313

It is a toll-free telephone service manned by experienced Nurse Advisers who can provide you free advice on any health concerns such as stroke, diabetes, high blood pressure, diet, weight management, exercise and more. This service is available in four languages.