

Asthma in Singapore  
哮喘病在新加坡

What is Asthma  
什么是哮喘病

During an Asthma Attack  
哮喘发作

Triggers  
触发因素

Medications  
药物

Singapore National  
**Asthma**  
Programme

CONTROL ASTHMA. ENJOY LIFE.

A Guide To  
**Achieving**  
**Asthma Control**  
哮喘病控制指南

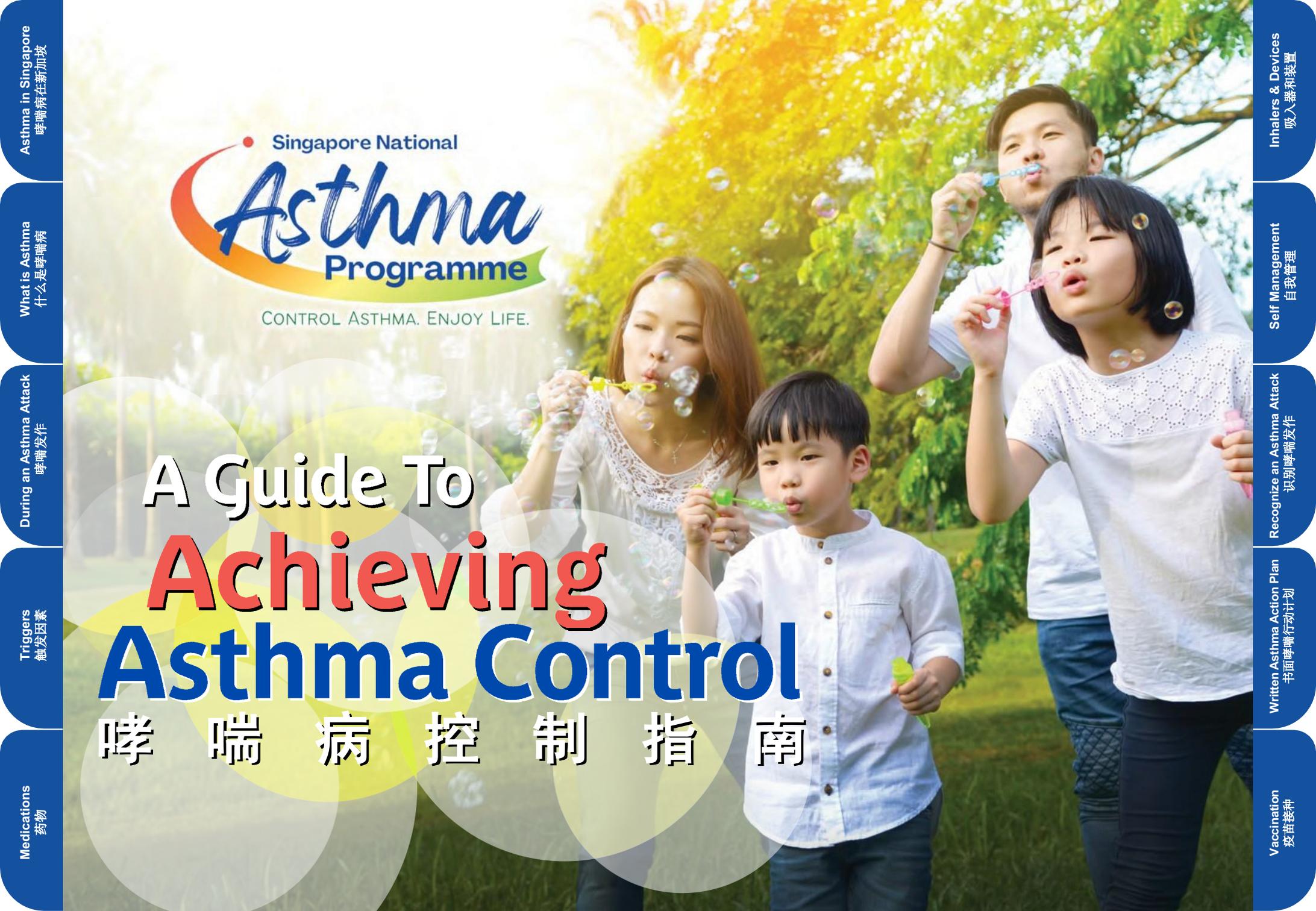
Inhalers & Devices  
吸入器和装置

Self Management  
自我管理

Recognize an Asthma Attack  
识别哮喘发作

Written Asthma Action Plan  
书面哮喘行动计划

Vaccination  
疫苗接种



## ***How common is Asthma in Singapore?***

- ◆ **Asthma is the most common chronic lung condition in Singapore.**
- ◆ **About 5% of adults and 20% of school-going children in Singapore, have asthma.**

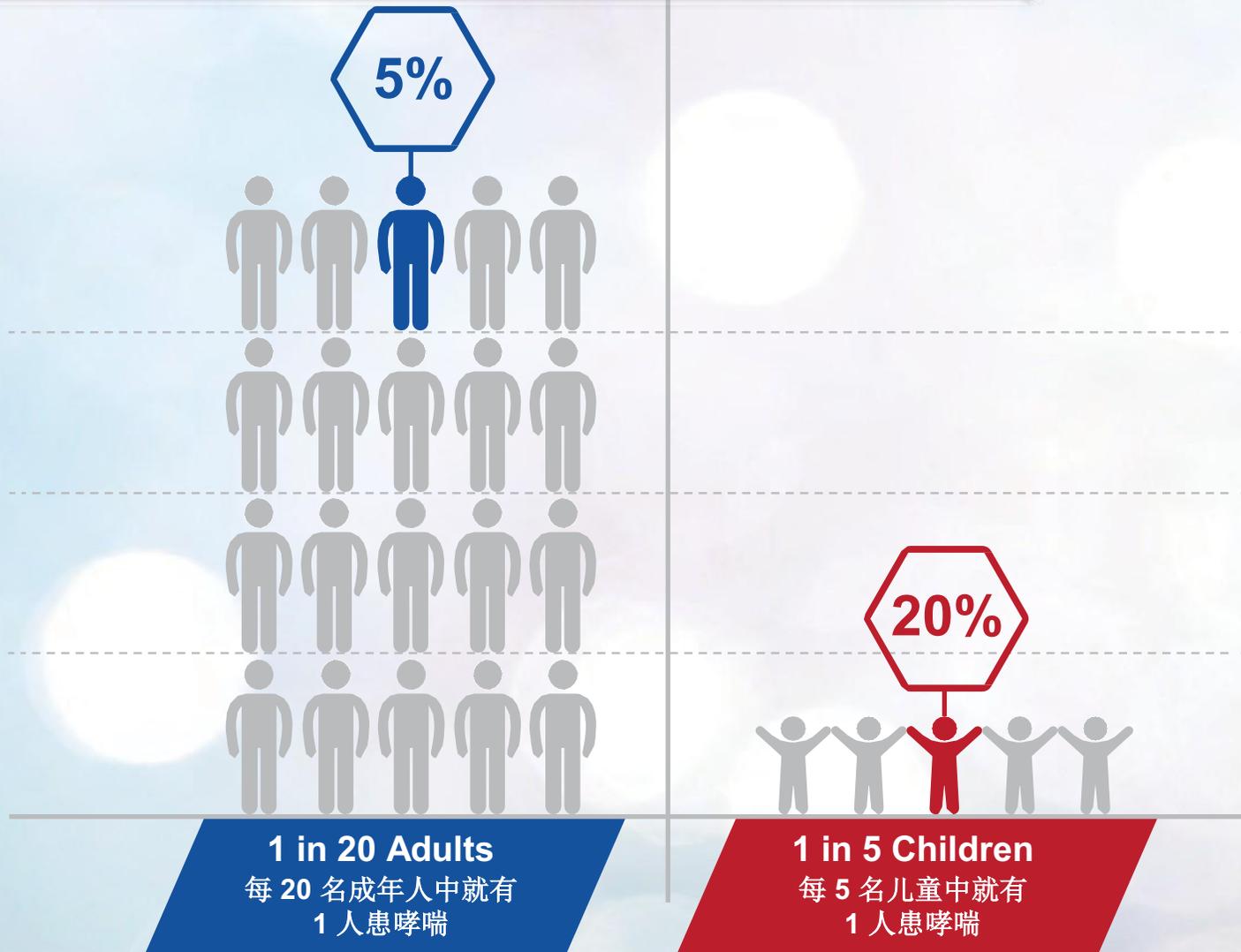
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# How common is Asthma in Singapore?

在新加坡，哮喘有多常见？



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## ***What is Asthma?***

- ◆ **Asthma is a chronic (long-term) condition of the airways (air pipes in the lungs).**
- ◆ **When exposed to certain triggers, the airways become swollen and narrow, making breathing difficult.**
- ◆ **Asthma cannot be cured but can be controlled in most people.**

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# What is Asthma? 什么是哮喘病?

Normal Airway  
正常呼吸道

During Asthma Attack  
哮喘发作期间

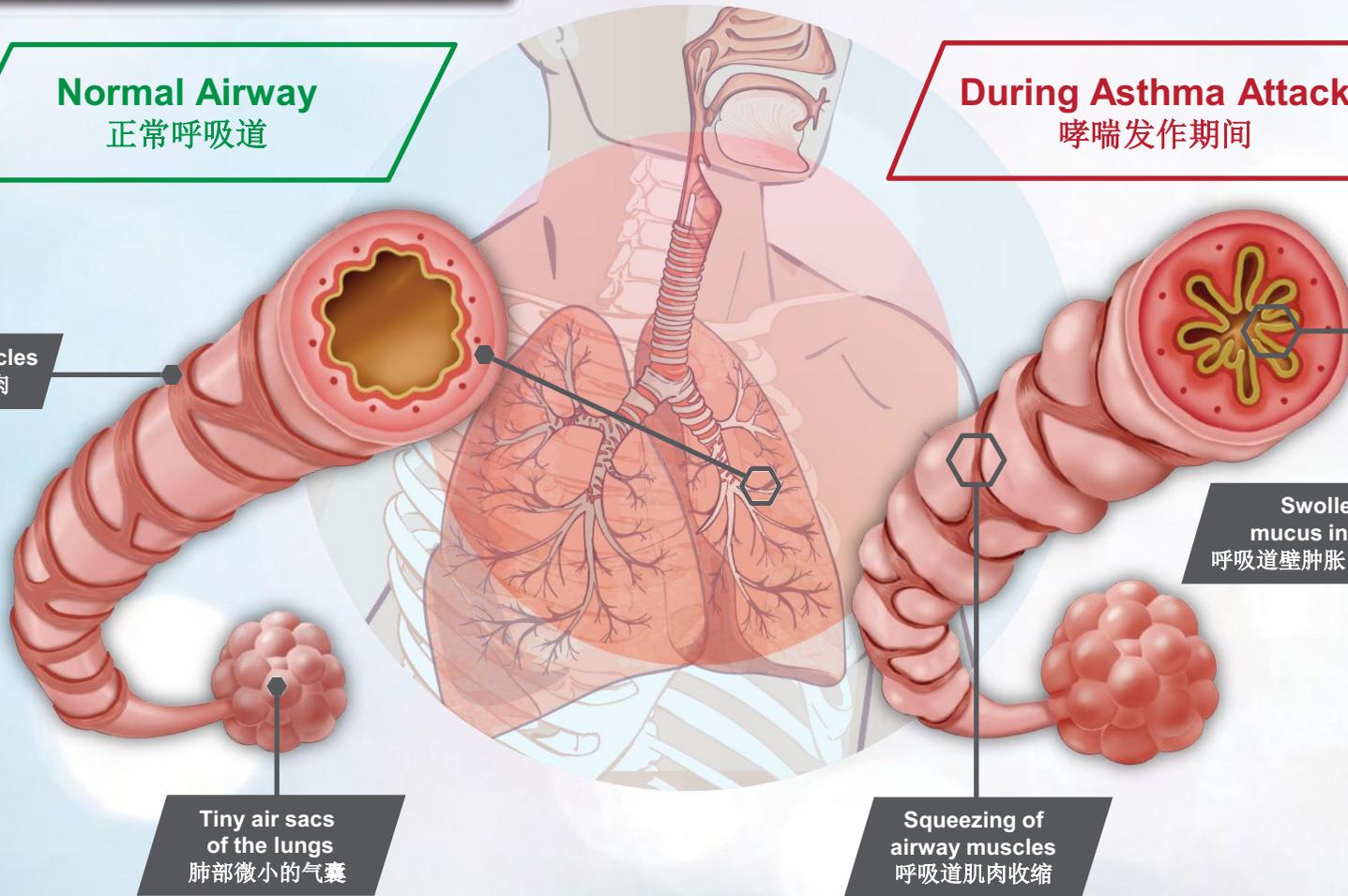
Airway muscles  
呼吸道肌肉

Swollen walls,  
mucus in the airway  
呼吸道壁肿胀, 气道内有黏液

Tiny air sacs  
of the lungs  
肺部微小的气囊

Squeezing of  
airway muscles  
呼吸道肌肉收缩

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## ***What happens during an asthma attack?***

People with asthma have sensitive airways. When exposed to trigger factors, it causes:

- ◆ **Narrowing of the airways**  
Muscles surrounding the airways squeeze and tighten.
- ◆ **Swelling of the airways**  
The lining of the airways swells and fills with excessive mucus, making breathing difficult, and causing a person to cough and have sputum.

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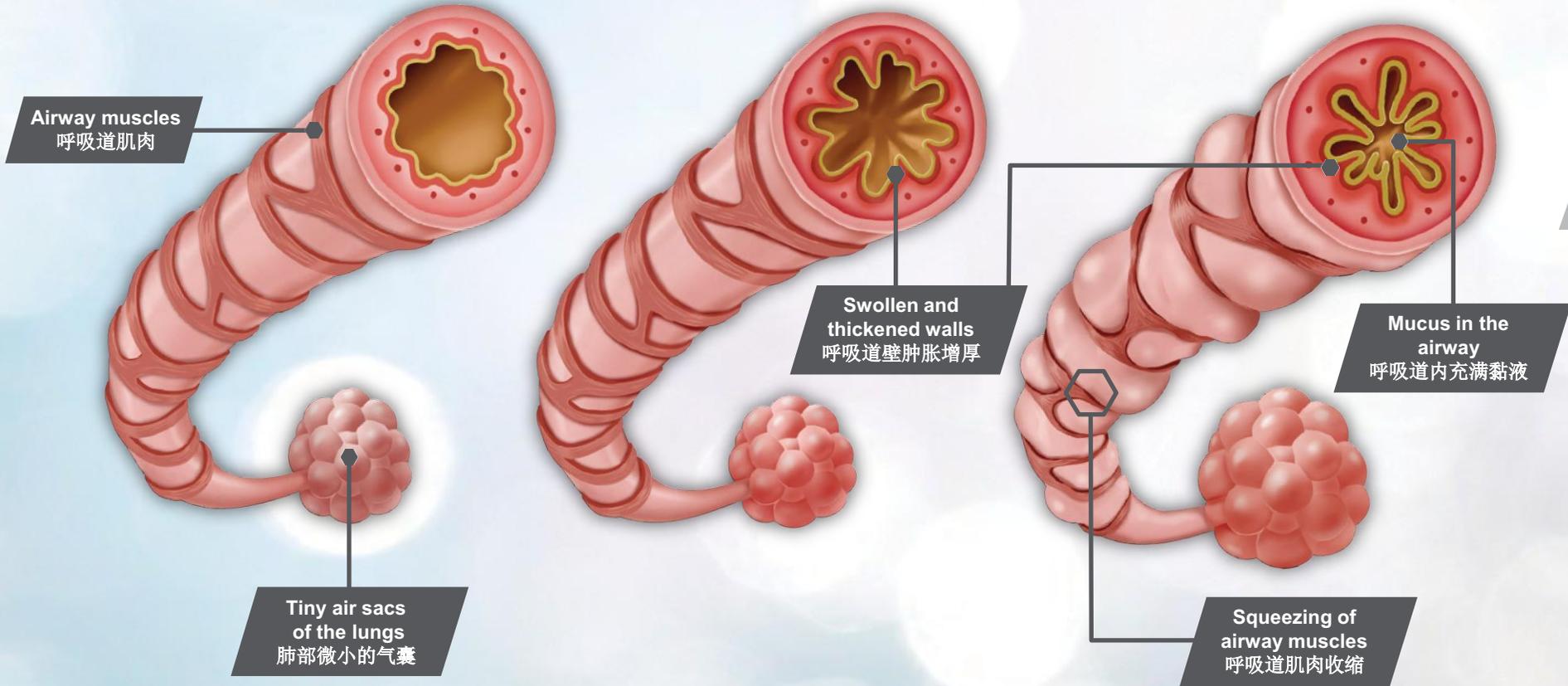
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# What happens during an asthma attack? 哮喘病发作时会出现什么状况?

**Normal Airway**  
正常呼吸道

**Asthmatic Airway**  
哮喘气道

**During Asthma Attack**  
哮喘发作期间



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## ***What are the symptoms of an asthma attack?***

**You may experience:**

- ◆ **Coughing**
- ◆ **Shortness of breath due to narrowed breathing tubes**
- ◆ **Chest tightness**
- ◆ **Noisy breathing (wheeze)**

**You may experience asthma symptoms more often:**

- ◆ **At night**
- ◆ **When waking up in the early morning**
- ◆ **During and after exercise**

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# What are the symptoms of an asthma attack? 哮喘病发作的症状有哪些?



**Chest Tightness**  
胸闷



**Shortness of Breath**  
呼吸急促



**Cough**  
咳嗽



**Wheeze - a high pitch whistling sound  
made while breathing with difficulty**  
喘鸣 - 呼吸困难时发出的高音调哨音

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## **Triggers**

- ◆ **Triggers are factors that may lead to an asthma attack.**
- ◆ **People with asthma have extra-sensitive airways. When exposed to certain triggers, the airways become swollen and narrow, causing difficulty in breathing.**
- ◆ **Asthma triggers include dust and dust mites, upper respiratory tract infection (URTI), cigarette smoke, pet dander (e.g. from cats and dogs), pollution in the air, moulds, emotions, exercise, strong smells or chemicals like certain detergents, perfumes or paint.**
- ◆ **To keep your asthma under control, learn to identify what your asthma triggers are and avoid them where possible.**

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# Triggers

触发因素



**Cold, Flu, or Other Airway Infections**  
感冒、流感或其他呼吸道感染



**Smoking or Environment**  
吸烟或环境的变化



**Chemicals**  
化学物质



**Emotions**  
情绪



**Allergies or Intolerances**  
过敏或不耐受



**Exercise**  
运动

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## ***Triggers: Cold, Flu, or Other Airway Infections***

- ◆ **Asthma is often triggered by a cold, flu or other lung infections.**
- ◆ **It may start with what seems to be a mild cold (runny nose, scratchy throat).**
- ◆ **Then over hours or days, asthma symptoms (such as cough, wheezing, chest tightness, breathlessness) start to appear.**
- ◆ **The asthma symptoms can persist for 1 to 2 weeks.**

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## Triggers: Cold, Flu, or Other Airway Infections

触发因素：感冒、流感或其他呼吸道感染



**Cold**  
感冒



**Cough**  
咳嗽

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## **Triggers: Smoking or Environment Pollution**

- ◆ **Asthma can also be triggered by the irritants and chemicals in cigarettes or environmental pollutants.**
- ◆ **Avoid smoking or exposure to cigarette smoke and environments which are polluted (where possible).**
- ◆ **Close windows during haze or when the environment outside is polluted.**

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### **Smoking cessation resources:**

- I Quit 28-Day Countdown ([www.healthhub.sg/IQuit](http://www.healthhub.sg/IQuit))
- START to S.T.O.P (Speak To Our Pharmacists programme) ([www.pss.org.sg/start-stop](http://www.pss.org.sg/start-stop))

### **Haze health advisory (National Environment Agency and Ministry of Health)**

- PSI 101-200: avoid prolonged or strenuous outdoor physical exertion.
- PSI >200: avoid outdoor activity.

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# Triggers: Smoking or Environment Pollution

触发因素：吸烟或环境污染



Active or passive smoking  
吸烟或被动吸烟（二手烟）



Temperature or humidity changes  
温度或湿度变化



Haze  
雾霾

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## Smoking cessation resources: 戒烟资源:



[healthhub.sg/lquit](https://healthhub.sg/lquit)



[pss.org.sg/start-stop](https://pss.org.sg/start-stop)

## ***Triggers: Chemicals***

- ◆ **Some people are sensitive to certain chemicals used at work or at home and these may trigger their asthma.**
- ◆ **Look out for any correlation between exposure to chemicals and asthma symptoms.**
- ◆ **Avoid these chemicals if you find that you are sensitive to them.**

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## Triggers: Chemicals

触发因素：化学物质



**Powder | Flour**  
粉末 | 面粉



**Emulsion Paint**  
乳胶漆



**Perfume**  
香水



**Cleansing Liquid**  
清洁液



**Fogging Smoke**  
烟雾

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## ***Triggers: Allergies or Intolerances***

- ◆ **Animal fur or dander from pets**
  - If having a pet makes your asthma worse, avoid having a pet/ exposure to pets; if you are unable to avoid having a pet at home, keep pets away from your bedroom, keep your house clean and wash pets regularly.
- ◆ **Dust mites, mould**
  - Avoid carpets, dust and clean your house regularly, reduce dampness indoors.
- ◆ **Certain Additives in Food and Medications**
  - Food, drinks or additives may contain monosodium glutamate (MSG), food preservatives (containing metabisulfite) or some food colouring agents that can trigger asthma.
  - Certain medications may also trigger asthma, e.g. Aspirin, NSAIDS, Beta Blockers.
  - Identify your individual triggers and avoid them.

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## Triggers: Allergies or Intolerances

触发因素：过敏或不耐受



**Dust mites**  
尘螨



**Mould**  
霉菌



**Animal fur or dander  
from pets**  
宠物毛发或皮屑



**Certain Additives in Food &  
Beverages**  
食品和饮料中的某些添加剂



**Certain Medications**  
某些药物

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## ***Triggers: Emotions and Exercise***

### ◆ **Emotions**

- **Stress and other psychological factors can trigger asthma symptoms.**
- **Early identification and taking steps to manage your stress and emotions can help to reduce asthma symptoms.**

### ◆ **Exercise**

- **Don't let asthma hold you back from physical activity.**
- **If exercise triggers your asthma, use a quick relief inhaler (e.g. salbutamol inhaler) 5 to 10 minutes before you start exercising.**
- **Allow 10 to 15 minutes for warm up and cool down before/after exercise.**
- **If you start having asthma symptoms during exercise, stop and use your quick relief inhaler (e.g. salbutamol inhaler) immediately.**
- **Avoid exercising if you have asthma symptoms.**

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## Triggers: Emotions and Exercise

触发因素：情绪和运动



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## Asthma Medications

- The main goals in the medical treatment of asthma are to prevent asthma attacks and to relieve the symptoms during an attack.
- Many asthma medications are given by inhaler devices.
- Most people with asthma take two kinds of medicine:

	Preventer Medication	Reliever Medication
What it does	Contains corticosteroids to control airway inflammation and prevent asthma attacks	Relaxes tight airway muscles fast, relieving symptoms
When to take it	<ul style="list-style-type: none"><li>- Take it every day as prescribed</li><li>- Do not stop taking even if you feel better</li><li>- See your doctor first before stopping your medication</li></ul>	<ul style="list-style-type: none"><li>- Only when you have symptoms</li><li>- During an Asthma attack</li><li>- Before exercise, as advised by your doctor</li></ul>
Additional Tips	Rinse your mouth after every use to prevent side effects such as oral thrush	Keep it within reach and carry it with you at all times

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# Asthma Medications

## 哮喘药物

### Preventer Medication

#### 预防性药物



### Reliever Medication

#### 缓解性药物



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\* Symbicort may also be used as a reliever too  
\* Symbicort 也可用作缓解药物

## ***Preventer Medication***

- **Preventer medications, also known as controllers, contain Inhaled Corticosteroids (ICS), and are the main type of medications used in the treatment of asthma.**
- **They prevent and reduce swelling (inflammation) in the airways, reduce airway sensitivity, mucus production and the frequency of asthma attacks.**
- **They are inhaled, and therefore, have less side-effects compared to oral steroids.**
- **These medications should be used regularly, every day, even when you do not have asthma symptoms.**
- **Research has shown that daily use of preventer medications reduces the chance of dying from asthma, reduces asthma attacks, improves day-to-day symptom control, prevents lung function decline and improves overall quality of life.**

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## Preventer Medication 预防性药物

Use preventer medications daily.  
Do not stop using preventer medications even if you are feeling well.  
每天服用预防性药物。  
即使没有任何症状，也不要停止服用预防性药物。



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\* Symbicort may also be used as a reliever too  
\* Symbicort 也可用作缓解药物

## ***Reliever Medication***

- ◆ **Reliever medications, also known as bronchodilators, relax the muscles in the airways, opening the airways wider, relieving asthma symptoms.**
- ◆ **Reliever medications may cause hand tremors (shaking of the hands), and increased heart rate (sensation of heart racing). This usually subsides with time.**
- ◆ **If you need to use your reliever frequently, more than twice a week, consult your doctor, you may require a higher dose or a change in your preventer medication.**

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# Reliever Medication 缓解性药物



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## ***Types of Inhalers***

- ◆ **Asthma medicine can be taken in different ways.**
- ◆ **Inhalers for asthma come in different devices.**
- ◆ **Some inhalers deliver the medication via spray (e.g. metered dose inhaler), others deliver the medication in powder form (e.g. dry powder inhaler).**
- ◆ **Children should always use a spacer (with or without mask) with a metered-dose inhalers (MDIs), as they may not be able to coordinate the inhalation process properly.**

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# Types of Inhalers

吸入器类型



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## ***Inhaler Techniques***

- ◆ **For asthma treatment to be effective, good adherence to your prescribed inhaler as well as the correct inhalation technique is important.**
- ◆ **Your inhalation technique can significantly affect the amount of medication delivered to the lungs; the correct inhalation technique will ensure that more asthma medication reaches the lung instead of being deposited in the mouth.**
- ◆ **Using an inhaler is a skill that must be learnt and maintained in order for the medication to be delivered effectively.**
- ◆ **Check your inhaler technique with your healthcare provider at every visit or at least once a year.**

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# Inhaler Techniques

## 吸入器使用技巧

Inhaler techniques resources:  
吸入器使用技巧资源:



<https://for.sg/inhaler-technique-english>

English  
英语



<https://for.sg/inhaler-technique-malay>

Malay  
马来语



<https://for.sg/inhaler-technique-mandarin>

Mandarin  
华语



<https://for.sg/inhaler-technique-tamil>

Tamil  
淡米尔语

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More information on inhaler devices and administration techniques in HealthHub (<https://www.healthhub.sg/a-z/>):

有关吸入器设备及使用方法的更多信息, 请访问 HealthHub。

(<https://www.healthhub.sg/a-z/>)



<https://for.sg/healthhub-a-z>

## ***Why do we need to use Spacer Devices?***

- **A spacer is used when you find it difficult to use a Metered Dose Inhaler (MDI) directly. The spacer makes it easier to get the medicines into your lungs.**
- **An inhaler is fitted to the end of the spacer device, and the other end has a face-mask or a mouthpiece.**
- **The medicine is sprayed into the spacer device and you can breathe the medication in slowly through the spacer, without the need to coordinate your inhalation with the pressing down of the inhaler canister.**

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# Why do we need to use Spacer Devices? 为什么我们需要使用储雾器?



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## ***Why we need to use a Peak Flow Meter?***

- ◆ **The peak flow meter measures how well you can blow air out of your lungs.**
- ◆ **It can be used to find out if you are about to get an attack.**
- ◆ **It can help you and your doctor decide how to adjust your asthma medications.**
- ◆ **It can be used to monitor the severity of your asthma.**

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### **Recommendation:**

**It is advisable to encourage monitoring for 2 to 3 weeks to determine personal best.**

**The highest number obtained during the 2 to 3 weeks is the personal best.**

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# Why we need to use a Peak Flow Meter? 为什么需要使用峰值流量计?



**Adult Peak Flow meter**  
成人峰值流量计



**Child Peak Flow meter**  
儿童峰值流量计

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Why we need to  
use a Peak Flow  
Meter?

## ***Self Management***

**It is important that you learn to manage your asthma.**

**To do so, you need to:**

- ◆ **Work with your doctor/ asthma nurse to develop an individualized asthma plan i.e. asthma action plan.**
- ◆ **Follow your asthma action plan and consult your doctor immediately for any worsening symptoms at any time.**

**Some of the important things you need to do in managing your asthma are:**

- ◆ **Use your preventer medication daily.**
- ◆ **Top up your asthma medications regularly before they run out.**
- ◆ **Know and recognize your triggers and avoid them where possible.**
- ◆ **Make sure you know how to use your inhaler correctly.**
- ◆ **Attend your regular reviews as advised by your doctor or at least once a year, even if your asthma is well controlled.**
- ◆ **Ensure you book your next asthma review appointment at each visit.**

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# Self Management 自我管理

- ◆ **Develop an Asthma Action Plan.**  
制定哮喘行动计划。
- ◆ **Base your action plan on your symptoms or peak flow readings.**  
根据你的症状或峰值流速读数制定行动计划。

## Important: 重要提示:

- ◆ **Use your preventer medication daily.**  
每天服用预防性药物。
- ◆ **Know and recognize your triggers.**  
**Avoid if possible.**  
了解并识别你的触发因素, 尽可能避免接触它们。



**WRITTEN ASTHMA ACTION PLAN (WAAP)**  
*Bring your inhaler device, spacer and WAAP at every asthma visit to clinic or hospital.*

Name: \_\_\_\_\_

**GREEN ZONE: YOUR ASTHMA IS WELL CONTROLLED** Use a spacer with your inhaler medication if available.

- Need your reliever inhaler less than 3 times per week.
- Do not wake up with asthma symptoms such as wheezing, coughing, shortness of breath
- Your asthma does not limit your activities (including exercise)

Preventer medication: \_\_\_\_\_  
Take \_\_\_ puff \_\_\_ times EVERY DAY

Reliever medication: \_\_\_\_\_  
Take \_\_\_ puff \_\_\_ times/day, ONLY IF NEEDED to relieve asthma symptoms like wheezing, coughing, shortness of breath.

Other medication: \_\_\_\_\_ Take \_\_\_ puff/tablet \_\_\_ times/day  
Other medication: \_\_\_\_\_ Take \_\_\_ puff/tablet \_\_\_ times/day  
Before exercise take: \_\_\_\_\_ Take \_\_\_ puff/tablet \_\_\_ times/day

**YELLOW ZONE: YOUR ASTHMA IS GETTING WORSE** Take the following medicine for next 14 days. If improved, go back to the Green Zone.

- Need your reliever more often than usual
- Wake up with asthma symptoms such as wheezing, coughing, shortness of breath
- Cannot do normal activities (inclusive of exercise) because of your asthma

Preventer medication: \_\_\_\_\_  
Take \_\_\_ puff \_\_\_ times EVERY DAY

Reliever medication: \_\_\_\_\_  
Take \_\_\_ puff \_\_\_ times/day, ONLY IF NEEDED to relieve asthma symptoms like wheezing, coughing, shortness of breath.

Other medication: \_\_\_\_\_ Take \_\_\_ puff/tablet \_\_\_ times/day

**RED ZONE: YOUR ASTHMA SYMPTOMS ARE SEVERE** Use a spacer with your inhaler medication if available.

- Need your reliever again more often than every 3-4 hours
- Your breathing is difficult
- You often wake up with asthma symptoms such as wheezing, coughing, shortness of breath

Reliever medication: \_\_\_\_\_  
Take \_\_\_ puff \_\_\_ times/day

Prednisolone: \_\_\_\_\_  
Take \_\_\_ tablet \_\_\_\_\_

**Do Not Wait. Consult your doctor today or call 995 for an ambulance if needed.**

Additional Comments: \_\_\_\_\_

Healthcare Provider's Name & Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Disclaimer: All information contained herein is intended for your general information only and is not a substitute for treatment of asthma. If you have specific questions or medical care, consult your doctor.

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**Asthma Action Plan form**  
哮喘行动计划表

## *How to recognize an asthma attack?*

- ◆ An asthma attack can be sudden. It can develop in a few minutes or over a few days after exposure to a trigger.
- ◆ During an asthma attack, chest tightness, coughing, wheezing and shortness of breath can quickly worsen.
- ◆ If this happens, follow your asthma action plan and act accordingly.

### This is how you can assess the severity of your attack:

- **Moderate attack:** Have persistent cough, wheeze, breathless, can speak only in short sentences; your peak flow is between 50% to 80% of your usual best; **follow your asthma action plan as advised by your doctor/ nurse.**
- **Severe attack:** Feeling very distressed and anxious, gasping for breath, bluish around the lips, pale and sweaty, unable to speak or only a few words in a breath; your peak flow is <50% of usual best. **Call for an ambulance straight away.**

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# How to recognize an asthma attack? 如何识别哮喘病发作?

Symptoms experienced during an asthma attack:  
哮喘病发作期间出现的症状:



**Chest Tightness**  
胸闷



**Shortness of Breath**  
呼吸急促



**Cough**  
咳嗽



**Wheeze - a high pitch whistling sound made while breathing with difficulty**  
喘鸣 - 呼吸困难时发出的高音调哨音

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## ***What is a Written Asthma Action Plan?***

**A Written Asthma Action Plan (WAAP) is:**

- A written summary of how you should be managing your asthma.
- A source of reference to reinforce the advice given by your doctor during consultation.

### **Recommendation:**

- Issue an individualised WAAP for patient if he/she does not have one.
- Go through each zone of the action plan with the patient.
- Check the patient's understanding using Teach-Back technique.

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# What is a Written Asthma Action Plan?

## 什么是书面哮喘行动计划?

The components of the action plan are:  
行动计划的组成部分包括:

### GREEN ZONE (Peak flow 80% to 100% of your personal best)

绿色区域 (峰值流速达到你个人最佳值的80%至100%)

- Signals all clear  
表示一切正常
- No asthma symptoms  
无哮喘症状
- Continue regular preventer medication  
继续定期服用预防性药物

### YELLOW ZONE (Peak flow 50% to 80% of your personal best)

黄色区域 (峰值流速为个人最佳值的50%至80%)

- Signals caution  
表示需要注意
- You may be having an asthmatic attack that requires an increase in medication  
你可能正在经历哮喘发作, 需要增加药物剂量
- You need to follow the medication plan set by your doctor  
你需要遵循医生制定的用药方案

### RED ZONE (Peak flow below 50% of your personal best)

红色区域 (峰值流速低于个人最佳值的50%)

- Signals a medical alert  
表示需要医疗警报
- Start prednisolone as ordered  
按照医嘱开始服用类固醇 (Prednisolone)
- Take reliever medication immediately and seek medical attention quickly  
立即服用缓解性药物并尽快就医

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## ***Vaccination***

- ◆ **Respiratory infections such as influenza (Flu) and pneumonia may trigger asthma attack and lead to serious complications.**
- ◆ **It is recommended for you to get an annual influenza (Flu) vaccination and the pneumococcal vaccination based on the National Adult Immunization programme.**

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# Vaccination

## 疫苗接种



**Annual Flu Vaccination**  
年度流感疫苗接种

**Pneumococcal Vaccination**  
肺炎球菌疫苗接种

**Vaccination resources:**  
疫苗接种资源:



[for.sg/healthhub-vaccination](https://for.sg/healthhub-vaccination)

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[book.health.gov.sg](https://book.health.gov.sg)