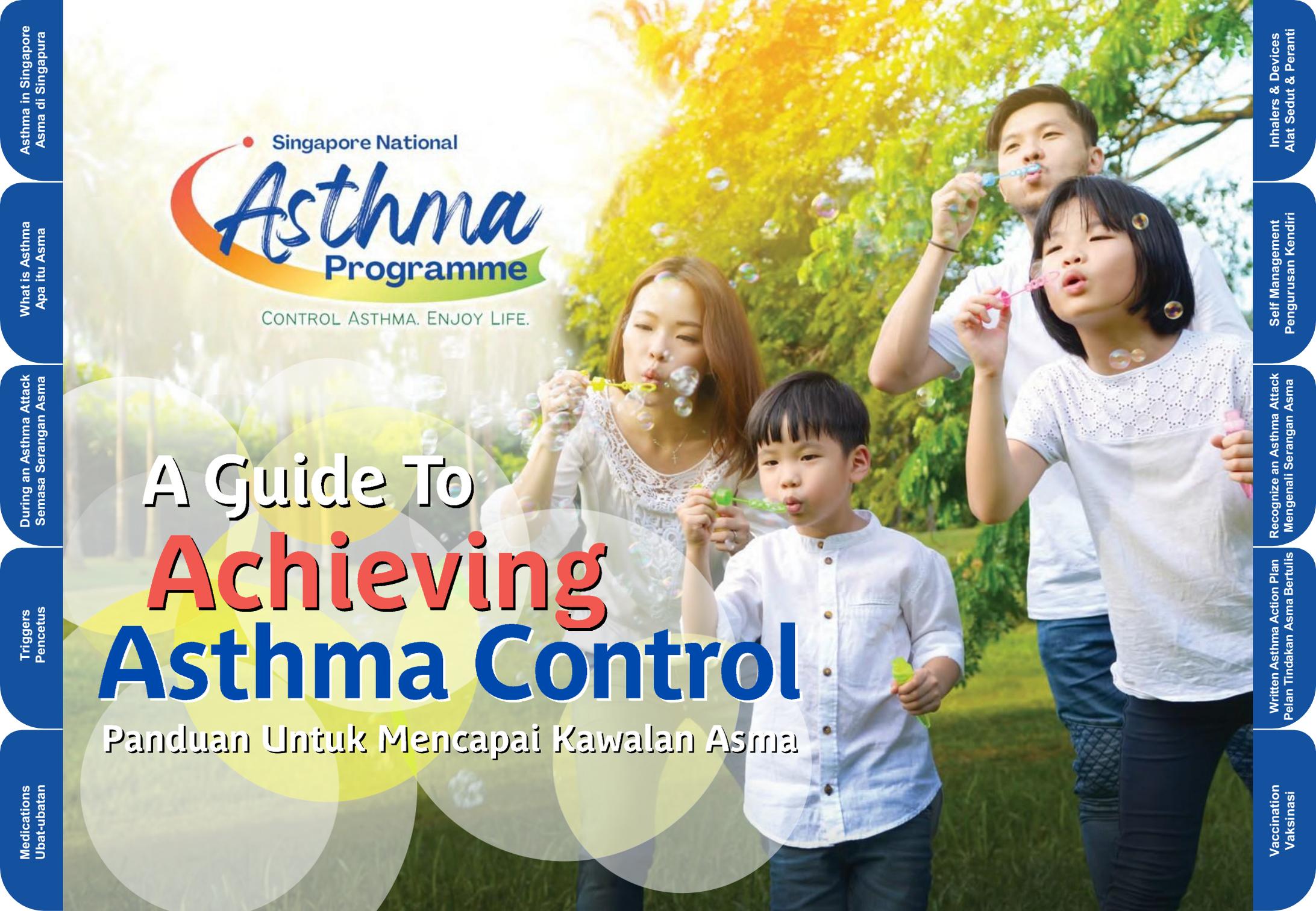




CONTROL ASTHMA. ENJOY LIFE.

# A Guide To **Achieving** **Asthma Control**

Panduan Untuk Mencapai Kawalan Asma



## ***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.**

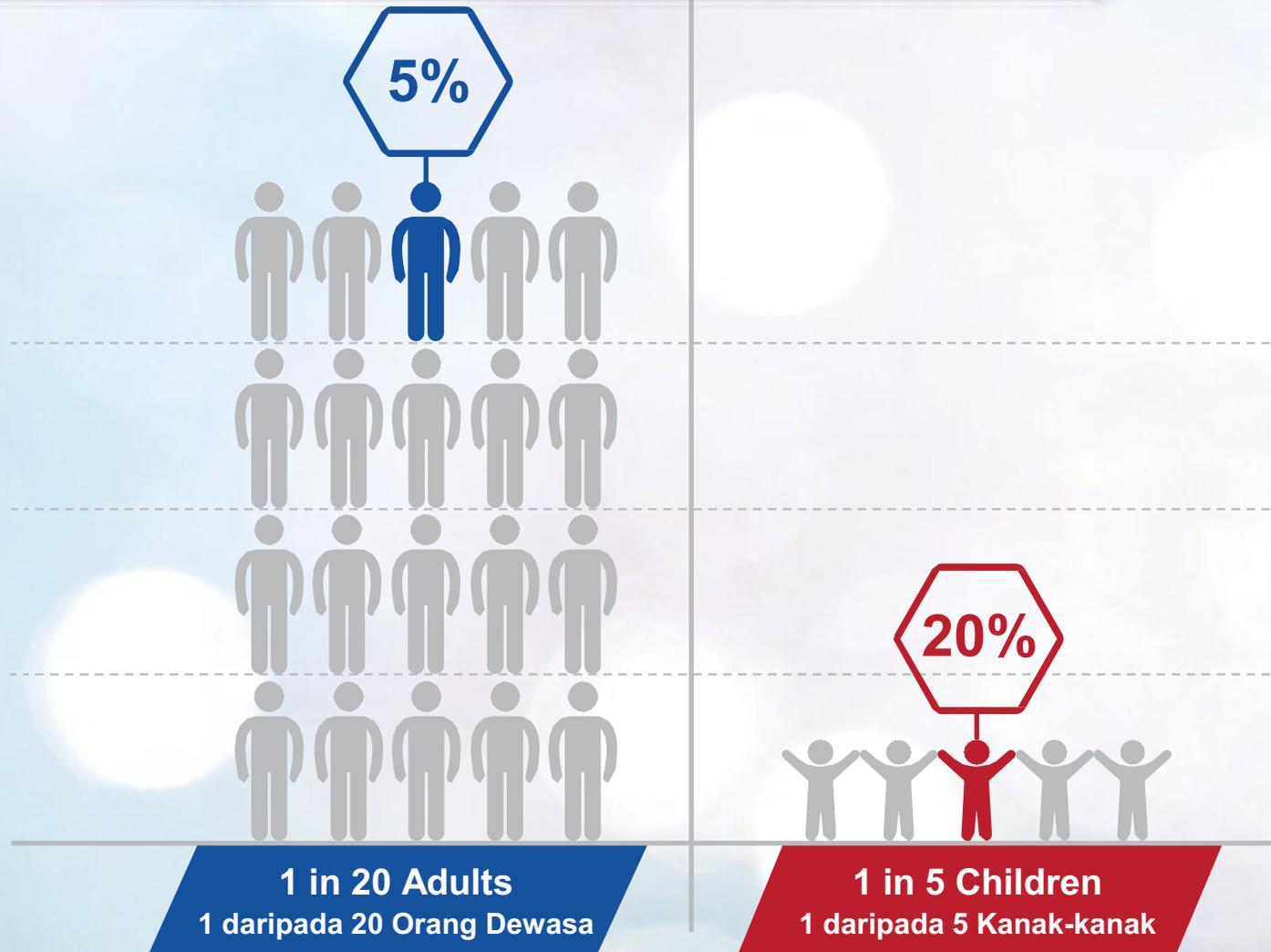
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# How common is Asthma in Singapore?

## Sejauh manakah kelaziman Asma di Singapura?



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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? Apa itu Asma?

**Normal Airway**  
Saluran Pernafasan Normal

**During Asthma Attack**  
Semasa Serangan Asma

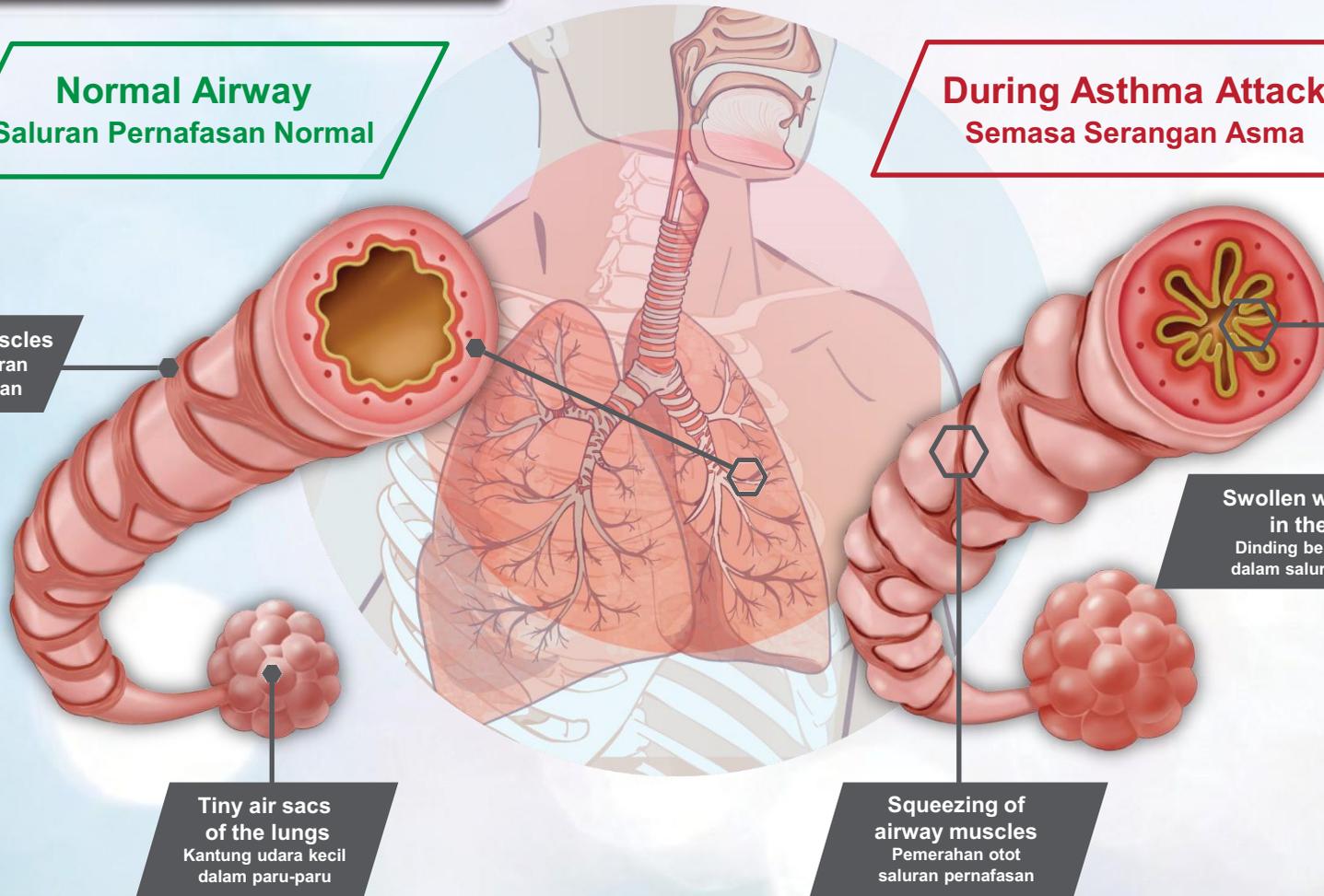
Airway muscles  
Otot saluran  
pernafasan

Swollen walls, mucus  
in the airway  
Dinding bengkak, mukus  
dalam saluran pernafasan

Tiny air sacs  
of the lungs  
Kantung udara kecil  
dalam paru-paru

Squeezing of  
airway muscles  
Pemerahan otot  
saluran pernafasan

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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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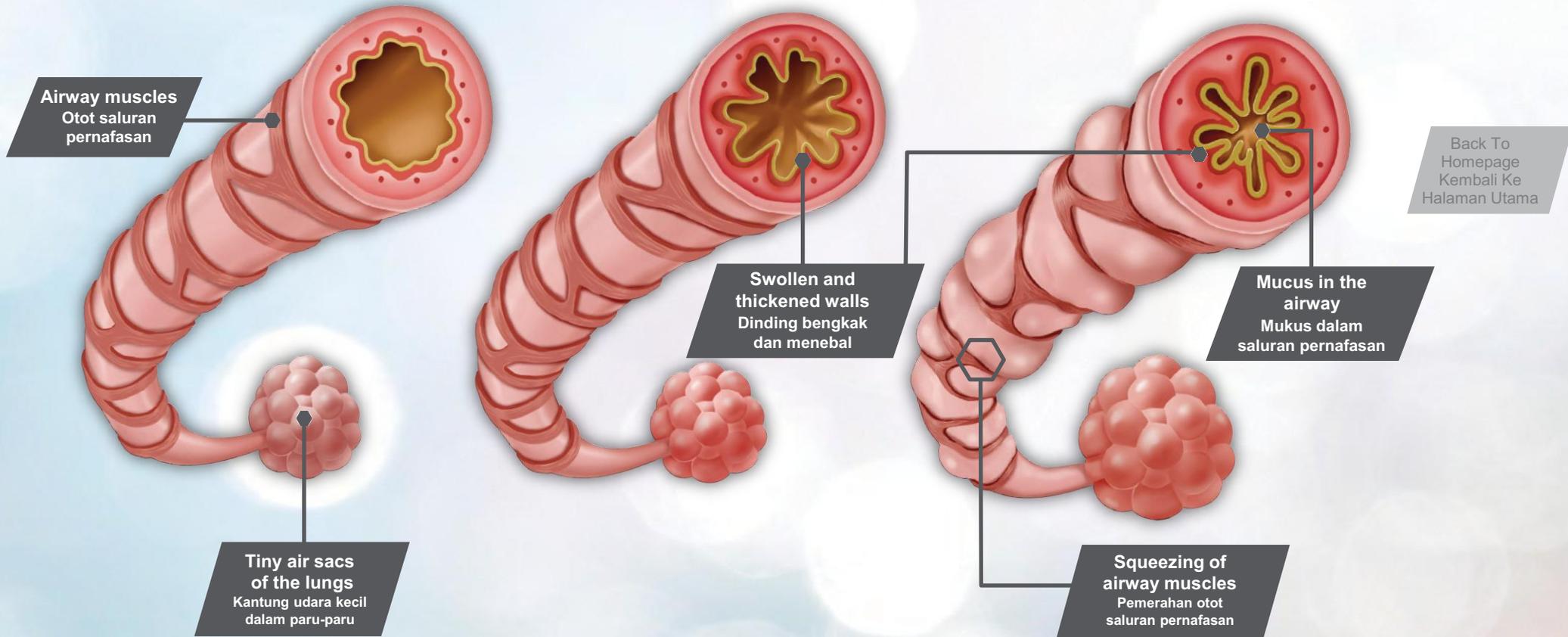
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# What happens during an asthma attack? Apakah yang berlaku semasa serangan asma?

**Normal Airway**  
Saluran Pernafasan Normal

**Asthmatic Airway**  
Saluran Pernafasan Asma

**During Asthma Attack**  
Semasa Serangan Asma



## ***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?*** ***Apakah gejala serangan asma?***



**Chest Tightness**  
**Sesak Dada**



**Shortness of Breath**  
**Sesak Nafas**



**Cough**  
**Batuk**



**Wheeze - a high pitch whistling sound  
made while breathing with difficulty**  
**Berdehit - bunyi siulan bernada tinggi yang  
dihasilkan semasa sukar bernafas**

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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 Pencetus



**Cold, Flu, or Other Airway Infections**  
Selsema, Influenza atau Jangkitan  
Saluran Pernafasan yang Lain



**Smoking or Environment**  
Merokok atau Persekitaran



**Chemicals**  
Bahan Kimia



**Emotions**  
Emosi



**Allergies or Intolerances**  
Alahan atau Intoleransi



**Exercise**  
Senaman

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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**

**Pencetus: Selsema, Influenza atau Jangkitan Saluran Pernafasan yang Lain**



**Cold  
Selesema**



**Cough  
Batuk**

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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

Pencetus: Merokok atau Pencemaran Persekitaran



Active or passive smoking  
Merokok secara aktif atau pasif



Temperature or humidity changes  
Perubahan suhu atau kelembapan



Haze  
Jerebu

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## Smoking cessation resources: Sumber berhenti merokok:



[healthhub.sg/IQuit](https://www.healthhub.sg/IQuit)



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

Pencetus: Bahan Kimia



**Powder | Flour**  
Serbuk | Tepung



**Emulsion Paint**  
Cat Emulsi



**Perfume**  
Minyak Wangi



**Cleansing Liquid**  
Cecair Pencuci



**Fogging Smoke**  
Asap Semburan

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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**

**Pencetus: Alahan atau Intoleransi**



**Dust mites**  
Habuk hama



**Mould**  
Kulapuk



**Animal fur or dander from pets**  
Bulu atau sisik haiwan daripada haiwan peliharaan



**Certain Additives in Food & Beverages**  
Bahan Tambahan Tertentu dalam Makanan & Minuman



**Certain Medications**  
Ubat-ubatan Tertentu

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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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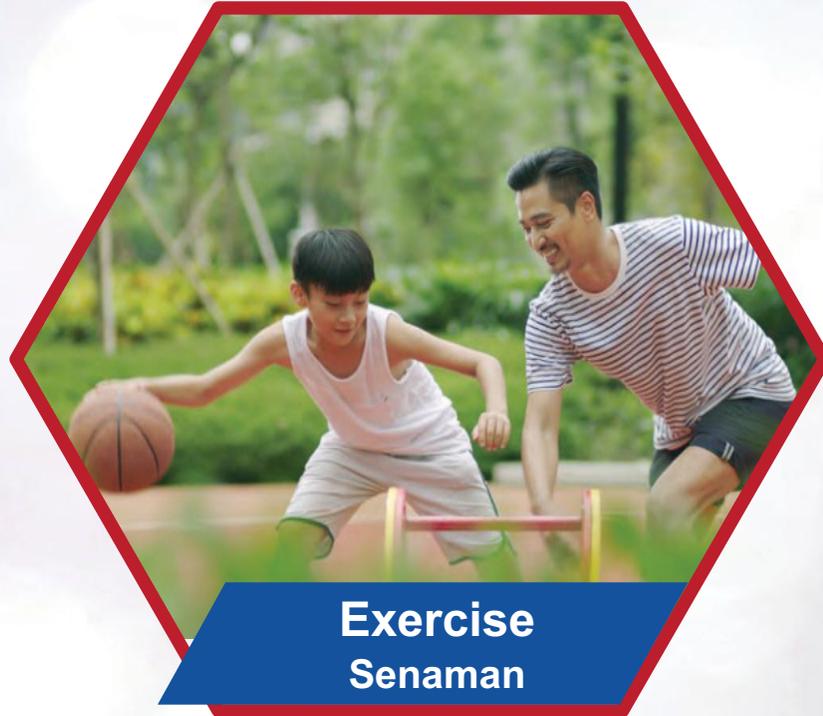
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# *Triggers: Emotions and Exercise*

*Pencetus: Emosi dan Senaman*



**Emotions**  
Emosi



**Exercise**  
Senaman

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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

## Ubat-ubatan Asma

### Preventer Medication Ubat Pencegah



### Reliever Medication Ubat Pelega



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- \* Symbicort may also be used as a reliever too
- \* Symbicort juga boleh digunakan sebagai ubat pelega

## ***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**

### **Ubat Pencegah**

**Use preventer medications daily.**  
**Do not stop using preventer medications even if you are feeling well.**  
**Gunakan ubat pencegah setiap hari.**  
**Jangan berhenti menggunakan ubat pencegah walaupun anda berasa sihat.**



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\* Symbicort may also be used as a reliever too

\* Symbicort juga boleh digunakan sebagai ubat pelega

## ***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 Ubat Pelega



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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

## Jenis-jenis Alat Sedut



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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

## Teknik Alat Sedut

Inhaler techniques resources:  
Sumber teknik alat sedut:



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

English  
Bahasa Inggeris



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

Malay  
Bahasa Melayu



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

Mandarin  
Bahasa Mandarin



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

Tamil  
Bahasa Tamil

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More information on inhaler devices and administration techniques in HealthHub (<https://www.healthhub.sg/a-z/>)  
Maklumat lanjut tentang peranti alat sedut dan teknik pengambilan ubat dalam 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? Mengapakah kita perlu menggunakan Peranti Spacer?*



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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?*

## *Mengapakah kita perlu menggunakan Meter Aliran Puncak?*



**Adult Peak Flow meter**  
**Meter Aliran Puncak**  
**Orang Dewasa**



**Child Peak Flow meter**  
**Meter Aliran Puncak**  
**Kanak-kanak**

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## ***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 Pengurusan Kendiri

- ◆ **Develop an Asthma Action Plan.  
Buat Pelan Tindakan Asma.**
- ◆ **Base your action plan on your symptoms or peak flow readings.  
Buat pelan tindakan anda berdasarkan pada gejala atau bacaan aliran puncak anda.**

## **Important:**

## **Penting:**

- ◆ **Use your preventer medication daily.  
Gunakan ubat pencegah anda setiap hari.**
- ◆ **Know and recognize your triggers.  
Avoid if possible.  
Ketahui dan kenali pencetus asma anda.  
Elakkan jika boleh.**

 **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  
Borang Pelan Tindakan Asma**

## *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?*** ***Bagaimanakah cara untuk mengenali serangan asma?***

**Symptoms experienced during an asthma attack:**  
**Gejala yang dialami semasa serangan asma:**



**Chest Tightness**  
**Sesak Dada**



**Shortness of Breath**  
**Sesak Nafas**



**Cough**  
**Batuk**



**Wheeze - a high pitch whistling sound made while breathing with difficulty**  
**Berdehit - bunyi siulan bernada tinggi yang dihasilkan semasa sukar bernafas**

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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?*** ***Apakah Pelan Tindakan Asma Bertulis?***

The components of the action plan are:  
Komponen pelan tindakan tersebut ialah:

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

**ZON HIJAU (Aliran puncak 80% hingga 100% daripada paras terbaik peribadi anda)**

- Signals all clear  
Menandakan tiada masalah
- No asthma symptoms  
Tiada gejala asma
- Continue regular preventer medication  
Teruskan pengambilan ubat pencegah secara berkala

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

**ZON KUNING (Aliran puncak 50% hingga 80% daripada paras terbaik peribadi anda)**

- Signals caution  
Menandakan amaran
- You may be having an asthmatic attack that requires an increase in medication  
Anda mungkin mengalami serangan asma yang memerlukan penambahan ubat
- You need to follow the medication plan set by your doctor  
Anda perlu mengikuti pelan ubat yang ditetapkan oleh doktor anda

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

**ZON MERAH (Aliran puncak di bawah 50% daripada paras terbaik peribadi anda)**

- Signals a medical alert  
Menandakan amaran perubatan
- Start prednisolone as ordered  
Mulakan prednisolon seperti yang diarahkan
- Take reliever medication immediately and seek medical attention quickly  
Ambil ubat pelega dengan segera dan dapatkan rawatan perubatan dengan segera

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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 Vaksinasi



**Annual Flu Vaccination  
Vaksinasi Selesema Tahunan**

**Pneumococcal Vaccination  
Vaksinasi Pneumokokal**

**Vaccination resources:  
Sumber vaksinasi:**



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



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

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