



# ASTHMA IN CHILDREN

## What Parents Should Know

# Asthma: A Global Issue

World Asthma Day is held on the first Tuesday in May every year. For many families with a child with asthma and organisations championing their cause, the day is significant because of their on-going efforts to raise public awareness of the condition.

Asthma is the most common chronic respiratory illness among children worldwide. It is a cause of substantial burden to both child and family, in terms of reduced quality of life, its impact on daily activities and school attendance, as well as the significant economic burden it poses. In some countries, including Malaysia, asthma remains under-recognised and under-treated due to various factors.

The proper management of the child with asthma improves the quality of life, prevents asthma-related events, morbidity and death. With this booklet, Positive Parenting hopes to provide parents and caregivers of children with asthma with the right knowledge to safeguard their children's health and well-being. A child with asthma deserves to lead a normal life.

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#### **Disclaimer:**

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## Contents

What is Asthma? .....	3
Asthma Symptoms .....	4-5
Classification & Risk Factors.....	6
Types of Asthma in Children .....	7
Causes & Triggers.....	8
Diagnosis & Treatment .....	9-11
Living with Asthma.....	12-13
Asthma Emergency! .....	14

# WHAT IS ASTHMA?

If you are holding this booklet, you are probably a concerned parent or family member of a child with asthma. You may be able to tell that asthma is related to breathing difficulty, but do you know exactly what it is?

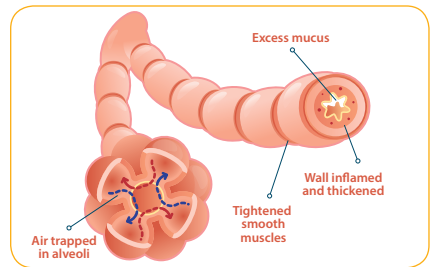
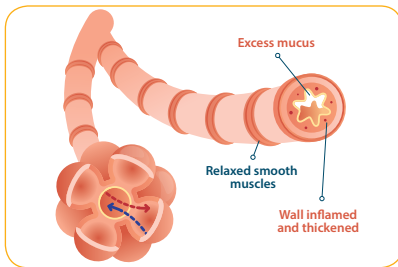
Asthma is a chronic or long-term illness of the lungs and the respiratory system. Here are the **main components of asthma** and how the condition affects the airways and lungs.

## Chronic airway inflammation:

Inflammation damages the breathing airways and causes bronchial tubes to become swollen and produce excessive mucus.

## Reversible airflow obstruction:

Asthma causes the muscles surrounding the airways to tighten, obstructing airflow into the lungs.



## Enhanced bronchial reactivity:

The airways in asthma patients are sensitive and tend to overreact to triggers, like viruses, dust, air pollutants and cigarette smoke, leading to airway narrowing and causing cough, shortness of breath and wheeze.



## Asthma in numbers

More than

**339** million people worldwide are affected<sup>1</sup>

Cause of total burden\* in 2014, aged 5-14 years old<sup>2</sup>

1<sup>st</sup> leading cause in females

2<sup>nd</sup> leading cause in males

\* Refers to the leading cause of poor health, disability and premature death in a specific population.

<sup>1</sup> Global Asthma Report 2018, Global Asthma Network.

<sup>2</sup> Institute for Public Health (IPH) 2017. Malaysian Burden of Disease and Injury Study 2009- 2014.

# ASTHMA SYMPTOMS

## Major symptoms

Asthma symptoms may vary from person to person. Main symptoms of asthma include:

- Persistent cough (usually dry).
- Wheeze (whistling sound when breathing).
- Nocturnal cough or wheeze.
- Cough and wheeze on exertion.
- Chest tightness, heaviness or discomfort.
- Shortness of breath.



## What is an asthma attack?



An **asthma attack** (also referred to as exacerbation) happens when asthma symptoms suddenly worsen. Mild asthma attacks are usually more common and treatment will relieve the symptoms within a few minutes up to a few hours. Severe asthma attacks last longer and require immediate medical attention. Proper identification and treatment of an asthma attack can help prevent it from becoming life-threatening.

The following symptoms indicate **poor asthma** control and increase the risk of an acute asthma attack

- Losing your breath easily or shortness of breath.
- Wheezing or coughing after exercise.
- Feeling very tired or weak when exercising.
- Frequent cough, especially at night.
- Trouble sleeping.
- Feeling tired, easily upset, grouchy, or moody.
- Decreases or changes in lung function as measured by a peak flow meter.
- Signs of a cold or allergies (sneezing, runny nose, cough, nasal congestion, sore throat, and headache).



The following symptoms indicate an **acute asthma attack**



- Coughing that won't stop.
- Very rapid breathing.
- Severe wheezing when breathing both in and out.
- Tightened neck and chest muscles, called retractions.
- Pale, sweaty face.
- Blue lips or fingernails.
- Difficulty talking.
- Drowsiness.
- Worsening symptoms despite use of your medications.

# CLASSIFICATION & RISK FACTORS

## Asthma classification

The severity of asthma is classified by its symptoms.

Asthma severity	Daytime symptoms	Nighttime symptoms	Severity of attacks
<b>Mild intermittent</b>	< once a week	None	Brief, do not affect activities
<b>Mild persistent</b>	≥ once a week	1 - 2 times/month	Affect activities once a month
<b>Moderate persistent</b>	Daily	3 - 4 times/month	Affect activities ≥ twice a month
<b>Severe persistent</b>	Daily	> once a week	Frequently affect activities

## Risk factors

Children are more likely to develop asthma if they have the following risk factors.



Have a blood relative (parents or sibling) with asthma.



Have another allergic condition, such as atopic eczema or food allergy.



Overweight or obese.

Exposure to cigarette smoke.



Exposure to air pollution or chemicals.

# TYPES OF ASTHMA IN CHILDREN

Anyone can get asthma, including adults and the elderly, but here are some types of asthma that occur in children.



## Allergic asthma

Triggered by allergens such as respiratory viruses, dust, pollen or pet dander. Your child may also have other atopic diseases such as eczema and allergic rhinitis.

## Exercise-induced asthma

Triggered by strenuous physical activity. Symptoms appear within a few minutes of exercise and worsen even after your child stops exercising.

## Non-allergic asthma

Triggered by non-allergens such as extreme weather, stress or irritants such as tobacco smoke or other air pollutants.

# CAUSES & TRIGGERS

## Causes

Asthma can be caused by genetic or environmental factors and is not contagious. Allergic asthma begins in childhood and the risk of developing asthma runs in families. A child has a higher chance to develop asthma if both parents suffer from asthma or other atopic diseases. Many children with asthma also have eczema and hay fever.



## Triggers

Exposure to various irritants or allergens, as well as certain factors, e.g. respiratory viruses, can trigger asthma attacks. Different people have different triggers, which include:



- **Allergenic airborne substances**, e.g. pollen, dust mites, mould, pet dander, cockroach waste.



- **Air pollutants and irritants**, e.g. tobacco smoke, perfume, cleaning solutions.



- **Sulphite food additives and preservatives** added to dried fruit, shrimp, or other foods.



- **Respiratory viral infections**, e.g. common cold.



- **Extreme weather** (hot or cold).

● **Physical activity** (exercise-induced asthma).

● **Strong emotions**, e.g. laughter, crying, anxiety, stress.



# DIAGNOSIS & TREATMENT

## Diagnosis

Before a child is diagnosed with asthma, the doctor will eliminate other medical reasons or conditions with similar symptoms. Do note that chronic cough and wheezing may also be due to other conditions.

Diagnosis is based on medical history and a physical examination; diagnostic tests are rarely required. A history of asthma symptoms will help the doctor to determine the severity of the condition and prescribe the appropriate treatment.

Lung tests are done to measure the narrowing and size of the airways.



- **Spirometry** involves breathing in and out through a tube connected to a computer and measures how much and how fast the air moves when breathing with maximum effort.



- **Peak flow** measures how well the lungs push out air using a device called a peak flow meter. It may be less accurate than spirometry, but can be a good way to monitor asthma at home.

- **Broncho-provocation tests** measure how the airways react to specific exposures. Patients will inhale different concentrations of allergens or medicines that may trigger an asthma attack.
- **Exhaled nitric oxide test** measures the amount of nitric oxide in the breath. The level may be higher than normal if the airways are inflamed.

Other tests, if indicated, include chest X-Ray and allergy tests.

## Treatment

**Long-term preventer medications** are the most important part of asthma treatment and need to be taken regularly to keep asthma symptoms under control and reduce the probability of an asthma attack. These medications include:

- **Inhaled corticosteroids** are anti-inflammatory medications used to prevent swelling and narrowing of the airways and reduce mucus production. They are the most effective long-term preventer medicines and need to be taken every day to keep asthma under control.



*An inhaler with a spacer and various forms of preventive inhalers*

- **Long-acting beta agonists (LABAs)** keep the airways open by relaxing the muscles around them. LABAs must be taken in combination with inhaled corticosteroids to reduce narrowing and inflammation of the airways.
- **Leukotriene modifiers** block the effects of leukotrienes, which are released as part of the response to allergens, causing the airway muscles to tighten, hence narrowing the airway. These oral medications can be used to control mild persistent asthma.

- **Biologics** are antibodies used for severe asthma that does not respond to preventer medications. They target cells or proteins in the body to alter the immune system. They are given via injection every two to four weeks.



**Quick-relief medications** are used as needed to relieve an asthma attack or as a preventive measure before exercise. These medications include:



- **Short-acting beta agonists (SABAs)** are the first choice to quickly alleviate symptoms during an asthma attack. SABA relieves the asthma symptoms by reducing airway muscle spasm, airway swelling and mucus production. A hand-held SABA inhaler with a spacer device or a nebuliser, a machine that converts medications into a fine mist, can be used to inhale SABAs.

- **Oral and intravenous corticosteroids** are used to relieve airway inflammation caused by severe asthma. They are only used on a short-term basis for more severe acute asthma attacks.



# LIVING WITH ASTHMA

## Complications

Asthma can disrupt sleep, work, and other daily activities. Your child may have to skip school during asthma attacks, especially due to emergency room visits and hospitalisations for severe attacks, which can be life-threatening.

Improper management of asthma, such as over-reliance on reliever medications, may deteriorate the condition. Asthma may also lead to permanent narrowing of the bronchial tubes, which affects breathing in the long term. Fortunately, deaths due to asthma are rare and preventable with the correct preventive management.

## Managing and preventing asthma attacks

To prevent complications, proper management of the condition is crucial. Here are the things you can do with help from the doctor:



- **Have an asthma action plan.** Work with the doctor to prepare a detailed plan to guide on when to take which medicines, how to identify and avoid triggers, how to recognise and manage asthma attacks, and when to go to the emergency room. Share the plan with your child's caregivers and school staff.



- **Identify and avoid triggers.** Testing your child for allergies may help identify his triggers. Meanwhile, some things you can do at home include: **avoid cigarette smoke, keep the house free from mould and dust, avoid pets with fur or feathers**, etc.



- **Take medicines as prescribed.** Your child's compliance with the treatment plays a vital role in controlling the condition. Follow the doctor's instructions on which medicines are needed and how to take them. Do clearly indicate preventer medicines for long-term use and quick-relief medicines for asthma attacks.



- **Use tools to monitor.** Keep an **asthma diary** to track your child's symptoms to recognise his early warning signs and observe how well the treatment is working. Use the **peak flow meter** to measure your child's airway narrowing. If the reading is lower than the normal reading, your child may be at risk of an asthma attack.



- **Know the warning signs & symptoms.** Symptoms of poor asthma control (refer to page 4-5) may manifest hours or a day before an asthma attack. Your child may look, act or breathe differently, or complain of feeling uncomfortable. Prompt treatment can help avoid a severe attack. Get medical attention if his condition does not improve.



- **Get vaccinated.** It is recommended that children with asthma get flu and pneumococcal vaccines to prevent respiratory infections, which can trigger asthma attacks.



# ASTHMA EMERGENCY!

Parents of asthmatic children need to be aware of severe or life-threatening acute asthma attacks. **See a doctor, go to the emergency room or call an ambulance immediately** if your child shows any of these signs and symptoms:

- Constant wheezing and breathlessness, despite repeated use of quick-relief medications.
- Retraction or tightening of the rib, chest and neck muscles during inhalation.
- Persistent cough that does not respond to quick-relief medicines.
- Has trouble talking and can't speak in full sentences.
- Bluish or grey lips and fingernails.
- Drowsiness and looking tired.



## Take-home message

- Asthma can develop at any age but often starts in childhood.
- Asthma may be mild in most cases, but for those with more severe asthma, it has a significant impact on the quality of life and can be life threatening.
- Recognising the diagnosis of asthma allows the correct treatment to be administered.
- Recognising risk factors and trigger factors are important in the recognition and treatment of childhood asthma.
- Preventive medical treatment is the cornerstone of asthma control and will result in a normal childhood.





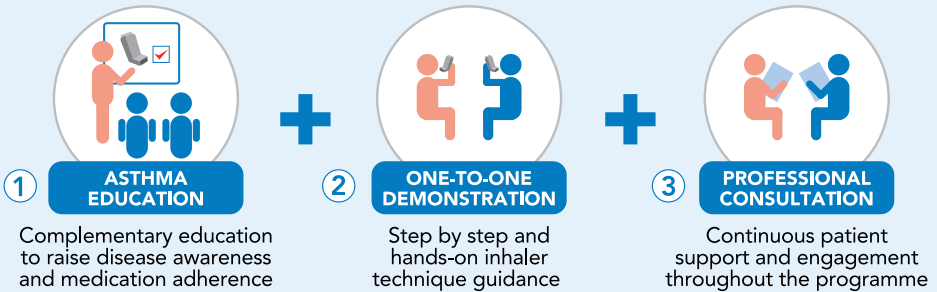
## Educating and empowering asthma patients for optimum management and outcomes

### Breathe EaSY and keep Asthma at bay.

Keeping your asthma under control is not always easy - but if you Breathe EaSY it can be! Professional Respiratory Nurse Educators will share and guide you in the active steps to manage asthma.

Breathe EaSY in ① - ② - ③

Our Nurse Educators are available to provide



Contact our Nurse Educator



Breathe EaSY Facebook

We are with you every step of the way

**Disclaimer:** This Programme is focused on asthma and device education only. No medical advice will be provided by the Nurse Educators but will be directed to the treating physician.



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# Positive Parenting

Malaysia

Malaysia's  
Pioneer  
Expert Driven  
Educational  
Programme

Initiated in the year 2000 by the Malaysian Paediatric Association (MPA), the Positive Parenting programme offers expert advice and guidance by key healthcare professionals from various Professional Bodies in the field of maternal, family wellness, child health, development, nutrition and teen issues.

We understand the challenges parents face in raising a child, and it is our vision to bridge the gap between the healthcare professionals and parents to empower you with unbiased, accurate and practical information. Together, we can give our children the best start in life to ensure a brighter future.

## Key Activities

### Positive Parenting Guide



Published quarterly, it is distributed through healthcare professionals in private and government clinics, hospital and selected kindergartens nationwide, and selected retail partners in Klang Valley.

### Website



Our one-stop digital portal with hundreds of articles, recipes and our E-Guide version.

### Social Media

Follow us on Facebook and Instagram to gain access to the latest parenting tips and updates.



### Talks and Seminars

Join us in our Positive Parenting seminars featuring some of the nation's top Parenting Experts!



### Educational Press Articles

Look out for our Positive Parenting columns every fortnight and monthly in Malaysia's leading English, Bahasa Malaysia and Chinese newspapers.



### ~ Our Collaborating Expert Partners ~



Nutrition Society of Malaysia



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Malaysian Psychiatric Association



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National Population and Family Development Board Malaysia



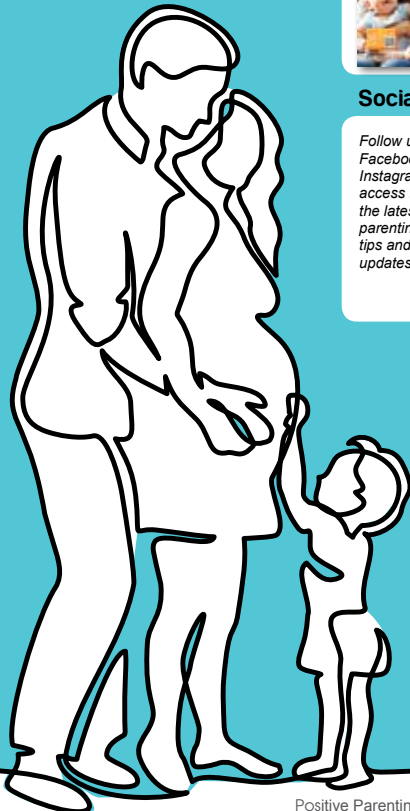
Malaysian Association of Kindergartens



Association of Registered Childcare Providers Malaysia



Malaysian Association of Paediatric Dentistry



Positive Parenting is a non-profit community education initiative. Companies wishing to support or wish to collaborate with the programme are welcome to contact the Programme Secretariat.

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