

I CAN !

The Childrens Asthma and Allergy Network

@ The Childrens Medical Institute



National
University
Hospital



**THE "I CAN !" PROGRAMME
ASTHMA INFORMATION BOOKLET**

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I CAN!

The Children's Asthma and Allergy Network
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Asthma is an increasingly common problem in Singapore and around the world, especially among children. Childhood asthma can be a significant burden not only in terms of health care costs but also from reduction in participation in activities and school absenteeism, as well as parental loss of work days and anxiety. Allergies can and often do play an important role in childhood asthma. Medical and scientific advancement has also improved our understanding of asthma and allergies and our ability to manage them effectively.

The Childrens Medical Institute@National University Hospital is dedicated to the holistic care of any child with asthma and allergies based on the most current medical knowledge and optimal patient-parent-nurse-doctor cooperation and teamwork through education, monitoring and supervision as well as through group activities.

The name of our programme spells the word CAN which signifies the ability of every child with asthma and allergies to participate in all activities and lead a normal lifestyle while using the least medication necessary. It reaffirms a positive outlook to the condition(s) and reminds us that all children with asthma or allergies CAN do all things like any other child of his/her age.

As part of our overall strategy to improve the management and care of our children with asthma, we have developed a comprehensive range of educational booklets, pamphlets and leaflets for parents and patients or any



care-giver. These are designed specially for simple reading and should stimulate interest in and increase understanding of the care and management of children with asthma and allergies.

We hope that you will make full use of these educational aids and facilities within the programme and look ahead positively towards optimal asthma and allergy control for your child. Thank you for being a member of the I CAN ! programme and we look forward to more contact and interaction with you and your family.

Yours sincerely,

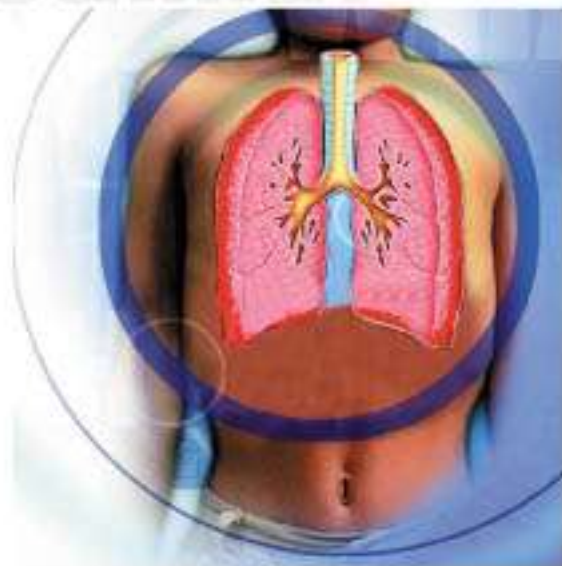
The I CAN ! Programme Committee



What Is Asthma?



Asthma is a chronic (or long-term) disease of the lower airways in the lungs. The most important feature of asthma is the increased sensitivity of the airways to many factors in the environment. These, although variable from patient to patient, include allergens (eg. house dust mites, pollen, pets), pollution and viral infections of the airways (such as common colds). The major consequence of the hypersensitivity of the airways is that they become swollen and narrowed. This is described as inflammation. **Asthma is therefore considered to be a condition of chronic inflammation of the airways induced and maintained by different environmental triggers.** This inflammation and swelling reduces the amount of air that can pass through the airways, making breathing difficult and noisy (wheezing).



How To Recognize Asthma? Signs And Symptoms.

Symptoms of asthma can appear suddenly (attacks) or be chronically present (persistent). Symptoms include: cough (especially chronic cough and dry cough at night or after exercise), wheeze (whistling noise in the chest), shortness of breath and tightness of the chest. Symptoms may be different in different people. In some patients, coughing, especially at night, may be the only symptom of asthma, while in others, asthma may present itself as wheezing, breathlessness or chest tightness. The most typical presentation of asthma is the so-called asthma attack during which the child experiences sudden wheezing, coughing and shortness of breath. These attacks can be mild or severe, and may need emergency treatment.



Asthma can appear at any age. However, the trigger factors can vary according to age: in young children (under the age of 3 years) asthma is usually triggered induced by viral infections, while in older children, allergy becomes more and more important.



Asthma Triggers

Triggers can cause an asthma attack or make your asthma worse.

Controlling your asthma involves *recognising* your own triggers.

Allergy tests can help in *identifying* these triggers.

Work towards *avoiding or controlling* these triggers.



The Common Triggers Include:



- 1) Infections — Especially upper respiratory tract infections (colds or flu)



- 2) Dust and Dust Mite allergens



- 3) Pollen



- 4) Animal Dander (Dogs, Cats and Birds)



- 5) Cold Air
 — However, most children can sleep in air-conditioned rooms without any problems

Common
 Asthma
 Triggers

- 6) Weather changes, including the haze.
- 7) Cigarette smoke
- 8) Exercise — All children with asthma should exercise, as it is good for their general health and for their asthma. However, if the asthma is not well-controlled, they may not be able to exercise and will need to see their doctor for further treatment. Children who have Exercise-Induced Asthma (EIA) can still exercise with proper medications — see chapter on EIA for further information.



Foods (including cold drinks, ice-cream and chocolates) are usually NOT asthma triggers.

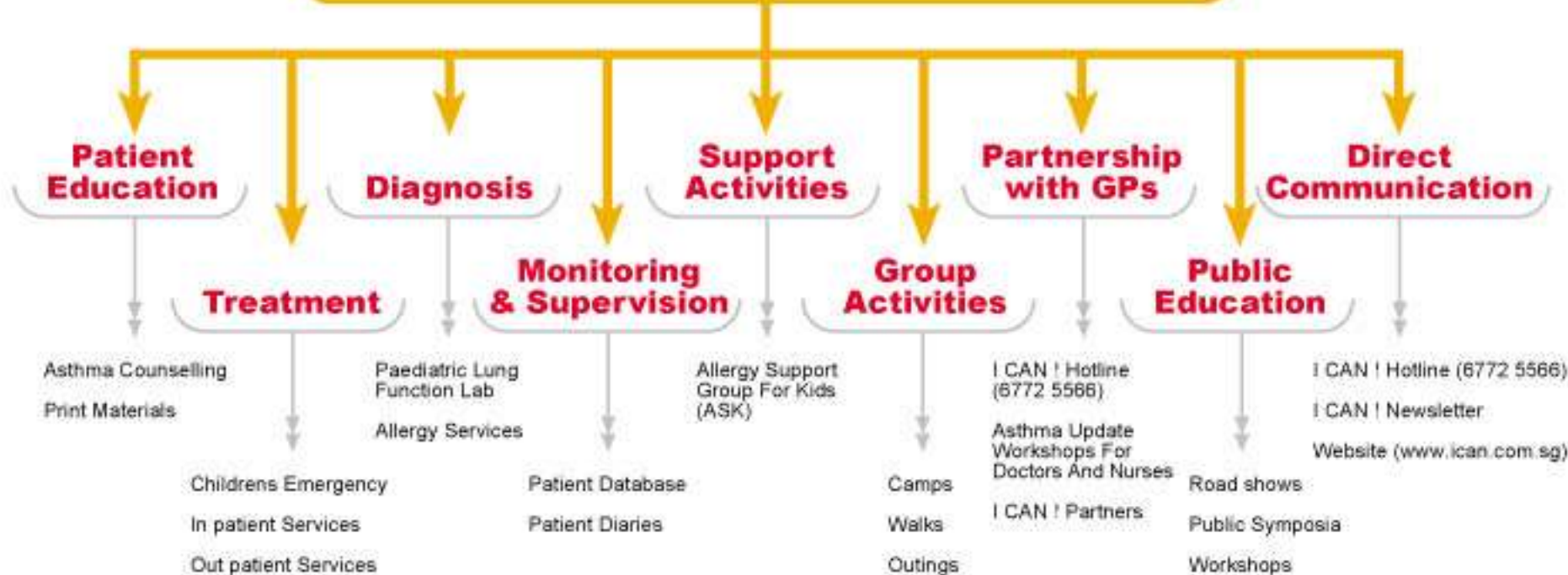


Make a list of your own asthma triggers.

Asthma
Triggers



An Overview Of The Facilities And Services Under The "I CAN !" Programme



Special Tests in the Diagnosis and Management of Asthma

Your child's doctor is usually able to diagnose asthma based on a good history and clinical examination. Special tests may however be needed to help in the further evaluation or management of your child.

1) Spirometry

Spirometry is a lung function test that measures airflow obstruction in asthma. It can be used to support the diagnosis of asthma, assess severity and assess response to treatment. Children above 6 years old are usually able to perform this test reliably.



2) Oscillometry

Oscillometry is a special lung function test that requires minimal patient cooperation. Even children between 2-6 years old can perform this test reliably.



3) Exhaled Nitric Oxide

Exhaled nitric oxide measurements are used to determine the severity of lung inflammation in asthma and to titrate the dose of preventer medication required.



4) Exercise Challenge Tests

Please refer to the section on exercise-induced asthma.

5) Allergy Tests

Allergy tests are useful in detecting the allergens to which your child may be sensitive to. Commonly used allergy tests in asthma include skin prick tests and blood tests. Children of any age (including babies) can undergo allergy testing. Knowing and avoiding the allergens that trigger your child's asthma will help in its control.



For more information about allergy testing for your child, please refer to our pamphlet titled Allergy Testing in Children.

Special
Tests

Exercise-Induced Asthma (EIA) In Children

Does your child experience wheezing or coughing when he/she exercises? If your child has these symptoms, your child may be one of many children with exercise-induced asthma (EIA).

What is EIA?

Children with EIA have airways that are very sensitive to changes in temperature and humidity, especially when breathing cold, dry air. When children with EIA exercise, there is abnormal narrowing of the airways resulting in symptoms.

What are the symptoms of EIA?

Children with EIA usually experience symptoms of wheezing and coughing minutes after exercise. These symptoms usually reach its peak 5-10 min after stopping the activity.

How is EIA diagnosed?

EIA is suspected when there is a suggestive history. EIA is then confirmed with an exercise challenge test.

The child exercises for 6-8 minutes on a tread-mill machine. The child's lung function is assessed before exercise and at various intervals after exercise. A decrease of at least



12-15% in lung function parameters measured is diagnostic of EIA. Children above 5-6 years old are usually able to perform this test reliably.

Exercise-Induced Asthma

How is EIA managed?

Swimming is often considered the sport of choice for children with asthma because of its many positive factors like incorporating deep breathing exercises and also being least likely to trigger asthma symptoms.

Although some sports are better for EIA, children with EIA can and should participate in all physical activities eg. badminton, basketball, soccer and long-distance running with proper control and medications.

A warm-up period of activity before exercise and a warm-down period after exercise can also prevent or lessen EIA symptoms.

Inhaled medications taken prior to exercise are also helpful in preventing and controlling EIA. The medication of choice in preventing EIA symptoms is a short acting bronchodilator inhaler eg. salbutamol or ventolin, used 15 minutes before exercise. These medications can also be used to relieve EIA symptoms after they occur.



Athletes with Asthma

According to a recent study, at least 1 in 6 athletes representing the United States in the 1996 Olympic Games had a history of asthma. The prevalence of asthma amongst the 1996 US Olympians was even higher than that of the general population. The 1996 US Olympians who had asthma or took asthma medications fared as well as athletes without asthma, winning team or individual medals in their Olympic events.

Singapore has many national athletes with asthma. They include Dr. Benedict Tan, our Asian Games gold medalist in Sailing, as well as national swimmers, Leslie Kwok, Gerald Koh and Nicolette Teo, who were SEA Games medallists.



Exercise-Induced

Conclusion

Exercise is a vital part of every growing child. With proper asthma management, all children with EIA can and should exercise and participate in sports like every other child. They can even excel.

Your child CAN!

Treatment And Control Of Asthma



Goals of Asthma Treatment

1. Control of all asthma symptoms
2. Prevent asthma attacks
3. Allow the child to lead a healthy normal life

Control of Asthma

1. Reduce and control the chronic inflammation of the airways
2. Avoid environmental triggers
3. Proper understanding of the condition and its management

Asthma Medications

Preventers or Anti-Inflammatory agents

- ¥ Reduce the chronic inflammation of the airways
- ¥ Required for long term control of asthma and should be taken on a daily basis when prescribed by your doctor
- ¥ Usually in the form of inhaled corticosteroids which are the treatment of choice for most asthmatics
- ¥ Other forms of preventers may be taken orally

Class of Medication	Route of Delivery	Common Examples
Corticosteroids	Inhaled	Beclomethasone, Fluticasone, Budesonide
Leukotriene Modifiers	Oral	Montelukast, Zafirlukast
Long acting beta agonists	Inhaled	Salmeterol, Formoterol

The dosage of some of these medications may be increased during an asthma attack as instructed by your doctor.

Relievers

Used when your child has asthma symptoms or during an asthma attack.

Class of Medication	Route of Delivery	Common Examples
Short acting beta agonists	Inhaled	Salbutamol or Ventolin Terbutaline
	Oral	Salbutamol Terbutaline
Anti-cholinergics	Inhaled	Ipratropium Bromide
Corticosteroids	Oral or Injection	Prednisolone Hydrocortisone

NB: Formoterol, a long acting Beta agonist, has a fast onset of activity and can also be used as a reliever medication.

Inhalation Technique & Devices

Ask your I CAN ! doctor for pamphlets on the device you are using. Ensure that you are familiar with the techniques and are able to use the medications properly. If in doubt, please ask your doctor or nurse.

Conclusion

Good control of asthma will enable your child to lead a healthy and normal life.

You will know that your child's asthma is under control when he/she:

1. does not have chronic or troublesome symptoms.
2. is able to participate in normal activities.
3. does not have recurrent or frequent exacerbations of asthma and does not require emergency visits to the doctor/hospital.
4. has (near) normal lung function.



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