



## **ASTHMA IN INFANTS AND YOUNG CHILDREN**

### **What is Asthma?**

Asthma is a chronic inflammatory disease of the airways. Symptoms of asthma are variable. That means that they can be mild to severe, intermittent to chronic. The one point to remember is that even when symptoms are mild, asthma should not be ignored. Untreated or under treated, asthma can lead to severe respiratory distress and in rare cases, sudden death. Asthma is the most common chronic disease of childhood affecting 12.5 % of children.

There are two types of triggers: allergic and non-allergic. Triggers are things in your environment that cause the inflammation and afterwards, tightening of the airway muscles. Triggers are everywhere. Triggers can be allergic such as dust mites or non allergic such as exercise, viral infections, smoke or other irritants. It is important to identify both allergic and non-allergic triggers and develop avoidance/control strategies. Only those with allergic asthma have symptoms triggered by allergens such a pet dander, pollen and dust mites. About 80- 90 % of adults with asthma have allergic triggers.

### **Our immune system is designed to defend against invasions of bacteria and viruses.**

Asthma is often caused by an allergic reaction to foreign substances that affect the respiratory tract. When individuals who are allergic come into contact with an allergen to which they are sensitive, their immune system then responds by releasing several chemicals including histamines, causing sneezing, runny noses, watery eyes and broncho-constriction. This is the way the body attempts to expel the allergen/s. Histamines have several effects, one of which is to cause bronchial smooth muscles to contract which in turn, makes exhaling more difficult. In a child with asthma, histamine can also trigger asthma symptoms.

Even when the primary triggers are colds or exercise, allergies may play a role in aggravating the condition.

## **What are the risk factors for developing asthma?**

- A family history of allergy, eczema and asthma. Researchers believe that we inherit a tendency to be allergic from one or both of our parents. We do not inherit a tendency to be allergic to any **specific** allergen. Also, a mother with eczema may have a child who develops hay fever not eczema. A positive family history of physician diagnosed allergies, eczema or asthma in parents is probably the most important factor in determining if a child is more likely than another to develop asthma. Allergies and asthma tend to run in families and we know that if one parent has been physician diagnosed with allergies or asthma the risk of the child developing asthma is approximately 50%, while if both parents have physician diagnosed allergies and or asthma the risk of the child developing asthma climbs to 75%. The highest risk is if the mother has asthma.
- Smoking in the home increases the risk of asthma. Declare your home and car smoke free zones
- House dust and dust mites are also risk factors. There is evidence that early exposure to large amounts of house dust and dust mites increases the risk for asthma
- Premature Births. Asthma is also more prevalent in premature infants, those born at less than 36 weeks of gestation
- Pets should be avoided in families where allergic disease such as hay fever and eczema exist

## **How is Asthma Diagnosed?**

Diagnosing asthma in young children is difficult because children often cough and wheeze with colds and chest infections but this is not necessarily asthma. Young children have very small, narrow airways and on average have a 6 -8 colds per year, usually between September and March.

Some physicians are reluctant to give a diagnosis of asthma to young infants as other conditions can be responsible for the asthma like symptoms. Children and toddlers can wheeze when they have a viral infections. Bronchiolitis is another very common cause of wheeze in children. First episodes of cough, runny nose and fever that happen in cold/flu season- fall/winter/early spring is likely not asthma. If your child has several more episodes of wheeze and cough, it is likely to be asthma. The common cold triggers 90% of asthma attacks in children, compared to 40% in adults.

Since there is no diagnostic test available for children younger than 6 years of age, making a diagnosis in this age group is more difficult than in older children. Over the age of about 6 years it is possible for a child to have a spirometry test. This is a simple test that measures a child's airflow through the large and small airways. Results reveal if the child's airflow can be improved with medication. Reversibility of

airway obstruction is a key feature of asthma. If administering a bronchodilator reverses airway narrowing significantly, the diagnosis is probably asthma.

### **Physical Examination**

- The physician will conduct a physical exam and *may* order some tests – x ray, blood tests, allergy skin tests and pulmonary function tests (PFTs).

### **History:**

The physician will take a detailed history of:

- Family allergy/ asthma with emphasis on parents
- Child's Allergy history- e.g. eczema
- Child's history of illness to date e.g. frequency of colds
- Child's symptoms: Severity, frequency and duration of symptoms. What brings an end to the symptoms for example if the child has a cold, do the symptoms disappear when the cold is over?
- Child's triggers: what have the parents observed with respect to exposures to allergens or irritants, such as smoke, perfume, infection or emotions
- This information helps the physician understand a child's pattern of symptoms.

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

The sensitive airway linings react by becoming inflamed, swollen, and mucus filled. The muscles surrounding the airways tighten causing narrowing and this blocks the airways even more. Exhaling becomes more difficult than inhaling. Symptoms become quite visible, and children may experience coughing, wheezing, tightness of the chest, increased heart rate, perspiration, and shortness of breath

### **What are the symptoms of asthma in infants and toddlers?**

In general asthma symptoms include coughing wheezing and shortness of breath. Asthma symptoms vary widely with some children. Some cough all night but are symptom free during the day, while others seem to get frequent chest colds that won't go away. Cough is often the only symptom in young children.

### **What can you do?**

If your child has just been diagnosed with asthma;

- Learn as much about the condition by asking questions and working closely with your child's physicians to monitor asthma symptoms and keep attacks under control.
- Identify triggers and develop strategies to avoid them.
- Understand your child's medications and how to use them.
- Ask your child's doctor for a written asthma action plan.
- Visit our websites [www.asthma.ca](http://www.asthma.ca) and [www.4seasonsofasthma.ca](http://www.4seasonsofasthma.ca) for information
- Call our toll free number 1 866 787 4050 Ext. 100 to speak with a Certified Asthma Educator

### **How do you know if your **infant's** asthma is SEVERE?**

**Observe your infant for any of the following indicators of severe Asthma:**

- **Sits up, refuses to lie down**
- **Stops feeding**
- **Audible wheezing**
- **Pale or bluish looking skin –anywhere**
- **Irritable**
- **Rapid breathing**
- **Using accessory muscles of breathing- in-drawing of muscles at the neck when breathing – it may look like the skin is being tugged in. If you see this, your child must be assessed by a doctor.**

### **How do you know if your **child's** asthma is SEVERE?**

**Observe your child for any of the following indicators of severe Asthma:**

- **Pale looking or bluish looking skin- anywhere**
- **Breathless**
- **Cannot walk or talk**
- **Wheezing**
- **Looks exhausted**
- **Rapid breathing**
- **Irritable**
- **Peak flow less than 50% of personal best**
- **Using accessory muscles of breathing in-drawing of muscles at the neck when breathing – it may look like the skin is being tugged in. If you see this then your child must be assessed by a doctor.**

When you are worried about your child's asthma, it is best to see or talk to his/her doctor about your concerns.

Keeping a diary can help you figure out what non-allergic triggers affect your child's asthma.

### **Action Plans**

Action Plans monitor symptoms and have a written plan to follow when symptoms change. Ask your child's doctor for a written asthma action plan.

Take the team approach to controlling asthma. This includes:

- Trigger Avoidance
- Education
- Action plan
- Medical Management

### **Frequently asked questions**

**Q.** My baby is wheezing and was put on puffers; does that mean she has asthma?

**A.** Children are put on puffers when the physician has reason to believe their airways are inflamed and or congested. Putting a baby suspected of having asthma on a trial of medication is one way to determine if the child has asthma. If the symptoms repeatedly improve it is likely asthma and a treatment plan can be followed to keep the infant well controlled.

**Q. What is the most common cause of asthma in infants and children?**

**A.** The most common cause of asthma in children under the age of three years is a cold. Even after the cold is gone, asthma symptoms along with airway swelling can last for several weeks.

**Q. How can the doctor know it is asthma when she is only two months old?**

**A.** The diagnosis is based on the baby's allergy and health history, physical exam and the parents' history of allergy and asthma. A child with recurring bouts of coughing and wheezing with lingering symptoms is likely to have Asthma. Again, if the child responds well to a trial of asthma medications, this is also indicative of asthma.

**Q. I stopped giving the medication because the baby seems better is that OK?**

**A.** Please talk to your child's doctor before stopping any medication. The baby may seem fine to you but there may still be airway inflammation and premature discontinuing of medication can have an adverse effect on the child's recovery.

**Q. Do I have to use steroids? Isn't there another kind of medication I can use instead?**

**A. Steroids** are known as “Preventer” or “Controller” medications and are the Gold Standard or treatment of choice for asthma. Steroids treat inflammation in the lungs, preventing asthma attacks and reducing symptoms. They are both safe and effective.

**Anti-leukotrine Medications-** (LTRA’s) are classified as non-steroidal preventer medications, designed to reduce inflammation in the lungs, improving asthma control and preventing asthma attacks. They are often combined with an inhaled steroid to treat children with more severe chronic or intermittent asthma. Used together, this combination may result in fewer symptoms and it may be possible for your doctor to reduce the amount of inhaled steroid required for good control of asthma symptoms.

**Short Acting Bronchodilators** are called “Reliever” medications and are used to treat the bronchospasm in the airways bringing quick relief for shortness of breath. These bronchodilators do not treat the underlying inflammation.

**Q. What about alternative medicines?**

**A.** There are no regulations, dosing standards, or large clinical studies with alternative medicines. Using them is therefore not without risk.

**Q. Will she/he out grow asthma?**

**A.** The answer is maybe. Evidence shows that in approximately two-thirds of children diagnosed with asthma, the asthma will “quiet down” by puberty. However, one-third of these who were asthma free at puberty have asthma symptoms in their mid- twenties.

**Q. What is exercise induced asthma?**

**A.** Children who have exercise-induced asthma (EIA) develop asthma symptoms **after** activity such as running, swimming, or biking. The time varies from 5-20 minutes post exercise before symptoms appear. With the proper medications, kids with EIA can usually play sports without a problem. If exercise is the only asthma trigger, a medication that the child takes prior to exercising to prevent the airways from constricting may be prescribed, but usually exercise induced asthma is a sign of poorly controlled asthma.