# NURSING MANAGEMENT OF ASTHMA IN THE SCHOOL SETTING

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Texas Children's Hospital
The Woodlands

# 41st Annual Belle Blackwell School Nurse Conference

Provided by Texas Children's Hospital

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7.24.2019 | Cypress, TX | 7a – 5:30p

**CONTINUING NURSING EDUCATION**

Texas Children's Hospital is an approved provider with commendation of continuing nursing education by the Texas Nurses Association - Approver, an accredited approver with distinction, by the American Nurses Credentialing Center's Commission on Accreditation.

**REQUIREMENTS FOR SUCCESSFUL COMPLETION**

To receive contact hours for this continuing education activity, the participant must:

- Sign in to the activity
- Attend the entire activity
- Complete a participant evaluation online

Once successful completion has been verified, a "Certificate of Successful Completion" will be awarded for 6.0 contact hour(s). For web link issues, email cne@texaschildrens.org

**LEARNING OUTCOME**

At the conclusion of this continuing nursing education activity, the participant will be able to improve nursing management, care coordination and resources for school age children.

**CONFLICTS OF INTEREST**

Explanation: A conflict of interest occurs when an individual has an opportunity to affect or impact educational content with which he or she may have a commercial interest or a potentially biasing relationship of a financial nature. All planners and presenters/authors/content reviewers must disclose the presence or absence of a conflict of interest relative to this activity. All potential conflicts are resolved prior to the planning, implementation, or evaluation of the continuing nursing education activity. All activity planning committee members and presenters/authors/content reviewers have submitted Conflict of Interest Disclosure forms.

The activity's Nurse Planner has determined that no one who has the ability to control the content of this CNE activity – planning committee members and presenters/authors/content reviewers – has a conflict of interest.

**COMMERCIAL SUPPORT**

This CNE activity has not received commercial support.

**JOINT PROVIDER STATEMENT**

This CME/CNE activity has been jointly provided by Texas Children's Hospital collaboratively with Texas School Nurses Organization Region IV.

# OBJECTIVES:

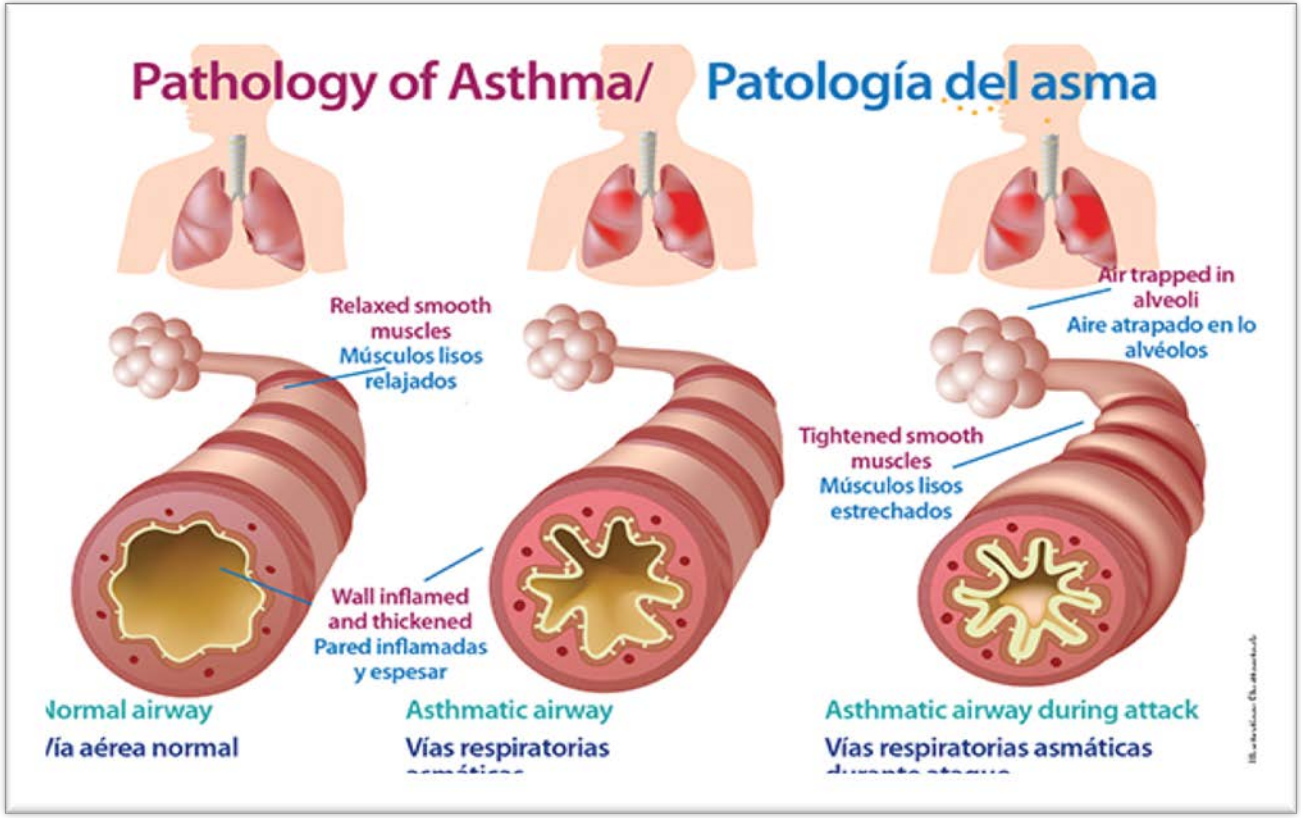
1. The learner will have a better understanding of pathophysiology, treatment, and control for children diagnosed with Asthma.
2. The learner will be able to guide children in proper use of their inhaler with a spacer, track triggers, and use an Asthma Action Plan.

# ASTHMA

# DEFINING ASTHMA

"Asthma is a chronic pulmonary inflammatory disease wherein the innate and adaptive immune systems cooperate with epithelial cells to cause airway hyper responsiveness (AHR), mucus overproduction, airway wall remodeling, and bronchoconstriction. Clinically, it is characterized by recurrent episodes of wheezing, breathlessness, and chest tightness."

*Guibas GV, Mathioudakis AG, Tsoumani M, Tsabouri S. Relationship of Allergy with Asthma: There Are More Than the Allergy "Eggs" in the Asthma "Basket". Front Pediatr. 2017;5:92. Published 2017 Apr 28. doi:10.3389/fped.2017.00092*




https://medlineplus.gov/spanish/magazine/issues/winter13/articles/winter13pg12-13.html

# ASTHMA STATISTICS

- Number of children under age 18 years who currently have asthma: 6.2 million
- Percent of children under age 18 years who currently have asthma: 8.4%
- Affects more than 10% of the population in many westernized countries
- More than 300 million people worldwide
- The leading cause of school absenteeism in the United States, causing approximately 50% of children to miss at least one school day yearly

*Summary Health Statistics Tables for U.S. Children: National Health Interview Survey, 2017, tables C-1b, C-1c pdf icon*

*Guibas GV, Mathioudakis AG, Tsoumani M, Tsabouri S. Relationship of Allergy with Asthma: There Are More Than the Allergy "Eggs" in the Asthma "Basket". Front Pediatr. 2017;5:92. Published 2017 Apr 28. doi:10.3389/fped.2017.00092*

# ASTHMA OR ALLERGY

“Asthma is seen as an allergic disease; this assertion, although well documented, is probably an oversimplification. In fact, up to the last decade, our view of asthma as a single disease was likely oversimplified. Although main characteristics of asthma are airflow obstruction, bronchial hyper responsiveness, and underlying inflammation, it is rare that all these characteristics can be found in all patients.”

“Asthma recently started to be recognized as a “syndrome,” a complex condition with variability in its pathophysiology, severity, natural history, comorbidities, and treatment response.”

( Guibas GV, Mathioudakis AG, Tsoumani M, Tsabouri S. Relationship of Allergy with Asthma: There Are More Than the Allergy "Eggs" in the Asthma "Basket". *Front Pediatr*. 2017;5:92. Published 2017 Apr 28. doi:10.3389/fped.2017.00092)

# ASTHMA DIAGNOSED

There are different types of asthma diagnoses;

- Acute or intermittent, which indicates the airways remain normal between asthma episodes and symptoms occur less than two times per week.
- Chronic or persistent, which indicates the airways have narrowing on a continuous basis.

*Subcategories:*

- ❑ Mild Persistent- symptoms occur more than twice a week
- ❑ Moderate Persistent- symptoms occur almost daily
- ❑ Severe Persistent- symptoms are daily and occur many times throughout the day

# ASTHMA SYMPTOMS

Children are not always able to express exactly what they are feeling, so it is important to know what to watch for, especially when there is a severe acute exacerbation.

- Wheezing, or whistling sounds when forced exhalation
- Coughing, usually a dry or hacky cough not wet or productive
- Tightness in chest/ complaining of shortness of breath

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# Clinical Respiratory Score (CRS)

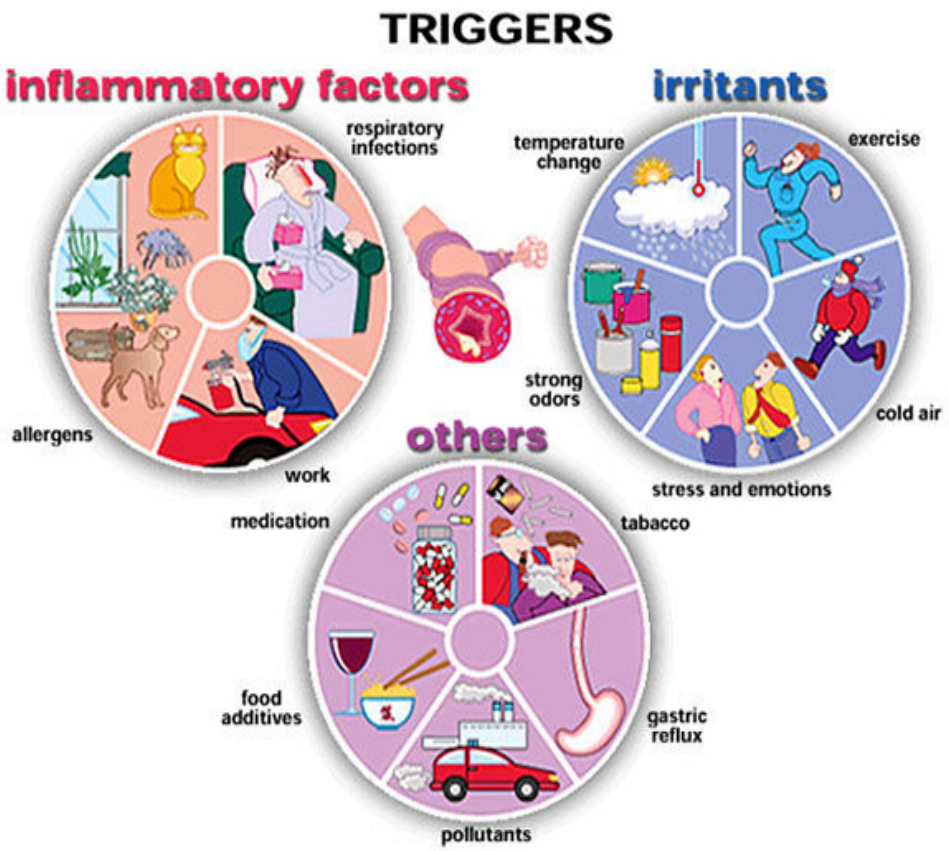
| | Assess | Score 0 | Score 1 | Score 2 |
|---|---|---|---|---|
| **A** | RR | <2 months <50<br>2-12 months <40<br>1-5 years <30<br>>5 years <20 | <2 months 50-60<br>2-12 months 40-50<br>1-5 years 30-40<br>>5 years 20-30 | <2 months >60<br>2-12 months >50<br>1-5 years >40<br>>5 years >30 |
| **B** | Auscultation | Good air movement, expiratory scattered wheezing **or** loose rales/crackles | Depressed air movement, inspiratory and expiratory wheezes **or** rales/crackles. | Diminished **or** absent breath sounds, severe wheezing, **or** rales/ crackles **or** marked prolonged expiration. |
| **C** | Use of Accessory Muscles | Mild to no use of accessory muscles. Mild to no retractions **or** nasal flaring on inspiration. | Moderate intercostals retractions, mild to moderate use of accessory muscles, nasal flaring. | Severe intercostals and substernal retractions, nasal flaring |
| **D** | Mental Status | Normal to mildly irritable | Irritable, agitated, restless | Lethargic |
| **E** | Room Air SpO2 | > 95% | 90-95% | <90% |
| **F** | Color | Normal | Pale to normal | Cyanotic, dusky |

# ASTHMA?
# WHAT TO AVOID…

Everything! Oh NO!

With severe asthma there may be many things that triggers an asthma episode.

Some patients with asthma may have identified triggers that are discovered through extensive testing and thorough background screening from a Pediatrician or Pulmonologist.



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# TRACKING AND AVOIDING TRIGGERS

- Keeping a daily diary of symptoms is important to identify what triggers asthma symptoms
- Watching the weather report daily to be aware of ozone issues can help an asthmatic avoid outside activities, which can cause an asthma exacerbation
- Following up regularly with pediatrician, pulmonary medicine, ENT, or allergy specialist
- Having an up to date Asthma Action Plan

# Asthma Symptom Diary

Doctor: _____ Preventer: _____ Reliever: _____

If you are frightened at any stage call 111.

Refer to the symptoms key to help you fill in the symptom diary chart below. Use this Symptom Diary along side your Asthma Action Plan.

**Well** → **Worse** → **Worried** → **Asthma Emergency**

If you have ticked only the green boxes, things are going really well.

If you have ticked any of the yellow boxes, increase your treatment in line with your action plan. If you're not getting better see your doctor today.

If you have ticked any of the orange boxes, see a doctor today.

If you have ticked any of the red boxes, you need to dial 111 and ask for an ambulance.

| Date | Did you cough today? | Did you wheeze today? | Did your asthma affect your normal activity? | Did your asthma wake you up in the night? | How many doses of reliever did you take today? | Comments |
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# Asthma Action Plan

## Green Zone Plan

**In the Green Zone I have:**
- No cough
- No wheeze
- No chest tightness

**GREEN ZONE MEDICATIONS**

**I should take my CONTROLLER MEDICINE(S) EVERY DAY to help me stay well:**

**beclomethasone**

Call my doctor if having regular symptoms or need quick relief medicine more frequently.

## Yellow Zone Plan

**In the Yellow Zone I have:**
- Early asthma symptoms
- A slight cough or wheeze
- The start of a cold

**YELLOW ZONE MEDICATIONS**

**Take QUICK RELIEF Medicine:**

**Inhaler:** albuterol (ProAir/Ventolin/Proventil) or levalbuterol (Xopenex) inhaler with a spacer 2-4 inhalations every 4 hours

**Continue taking my GREEN ZONE controller medicine(s)**

**CALL MY DOCTOR** if I don't get to the **GREEN ZONE** after **24 hours.**

## Red Zone Plan

**In the Red Zone I have:**
- An increasing cough
- Continued or increasing wheeze
- Fast breathing

**RED ZONE MEDICATIONS**

**TAKE NOW QUICK RELIEF medicine in YELLOW ZONE or increase to:**

**Inhaler:** albuterol (ProAir/Ventolin/Proventil) or levalbuterol (Xopenex) inhaler with a spacer 6 inhalations every 2-3 hours

**Oral steroid (if prescribed)**

**Continue taking my GREEN ZONE controller medicine(s)**

**CALL MY DOCTOR NOW.** Go to the **HOSPITAL** if I cannot reach my doctor.

**DANGER ZONE**

**I NEED IMMEDIATE HELP**

**CALL 911 or go to nearest Emergency Room if:**

- *Breathing very hard or fast*
- *Breathing so hard I can't walk or talk*
- *Using neck or stomach muscles to breath*
- *Chest is sucking in between ribs*
- *QUICK RELIEF medications are NOT WORKING*
- *Lips or fingertips look blue*
- *Nose opens wide with breathing.*

***CONTINUE QUICK RELIEF medicine in RED ZONE***

**My Doctor is**: Test, Tcpa, MD, MD **Phone Number:** Dept: 281-496-9700
**Even if I'm feeling healthy, I should follow-up at least every six months with my PCP for a re-evaluation.**

# ASTHMA MEDICATIONS

There are two main categories of medication for asthma

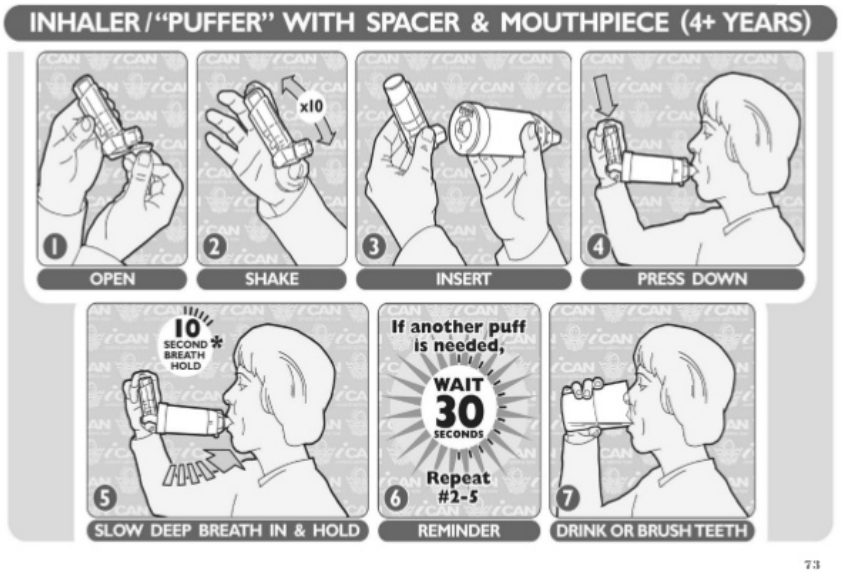
1) Controllers and preventers, which are long acting medications to relax the smooth muscles and reduce swelling. These are the most important to take as prescribed and to keep taking even when asymptomatic.

2) Relievers, which are quick and short acting smooth muscle relaxers that relieve swelling. These should be kept close at hand always, and technique for delivery is key.

3) Is nebulizer better or MDI??

# MDI WITH SPACER

# MDI DELIVERY IS KEY



https://www.aerochambervhc.com/instructions-for-use



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# RESOURCES FOR ASTHMA EDUCATION

The Environmental Protection Agency offers many child friendly educational resources for caregivers, parents, and children.

Education and consistency are key to controlling asthma.

https://www.epa.gov/asthma/publications-about-asthma#tab-1

https://www.epa.gov/sites/production/files/2013-08/documents/ll_asthma_brochure.pdf

**Help Your Child Gain Control Over Asthma**
This brochure offers tips on how to manage asthma and follow simple steps to minimize exposure to asthma triggers found indoors and out.
Help Your Child Gain Control Over Asthma [EPA 402-F-04-021]

**Asthma Prevention Tri-fold**
This brochure offers actions you can take to help manage your child's asthma and prevent attacks before they happen. Learn how managing your child's indoor environment is an important step in reducing exposure to the things that can trigger asthma attacks.
How to Manage Your Child's Indoor Environment

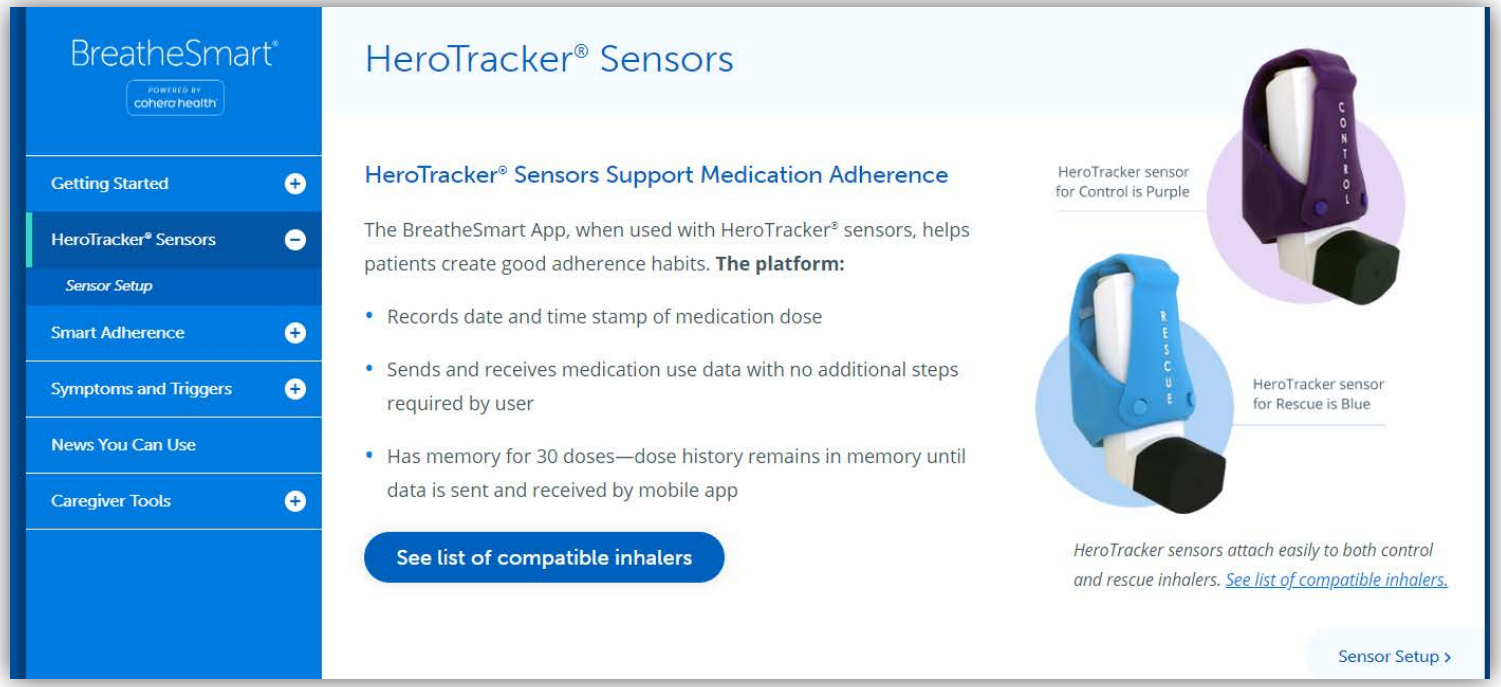
**Clearing the Air: 10 Steps to Making Your Home Asthma-Friendly**
This one page, simple to follow guidance document lists recommended actions to help control asthma triggers in the home. Clearing the Air: 10 Steps to Making Your Home Asthma-Friendly [EPA 402-F-04-017].

**Dusty The Asthma Goldfish and His Asthma Triggers Funbook**
This educational activity book helps children learn more about asthma triggers.
Dusty The Asthma Goldfish and His Asthma Triggers Funbook [EPA 402-F-04-008]

**Why is Coco Orange?**
Coco the chameleon can't change colors, and his asthma is acting up. Read how Coco and his friends at Lizard Lick Elementary solve this mystery as they learn about air quality and how to stay healthy when the air quality is bad. This picture book is for all children, especially those with asthma, and their caregivers.
Why is Coco Orange?

Professionals
Schools
Factsheets & Reports
Other EPA Publications
Asian Language Publications

# NEW DEVELOPMENTS IN ASTHMA CONTROL




https://d9hhrg4mnvzow.cloudfront.net/breathesmart.coherohealth.com/1/c6556006-schermafbeelding-2019-04-01-om-11-21-38_0i809y0i809y000000001.png

Any
Questions

thank
you!

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# AFFILIATION STATEMENT

*Texas Children's Hospital is affiliated with Baylor College of Medicine in the areas of pediatrics, pediatric surgery, and obstetrics and gynecology. Currently and throughout the 60-year partnership, Texas Children's serves as Baylor's primary pediatric training site, and more than 1,500 Baylor faculty are the division chiefs and staff physicians of Texas Children's patient care centers.*

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# COMMENTS/QUESTIONS?