

**Session 25**  
**Update-Emergent Care of Students with Asthma**  
for  
20<sup>th</sup> Annual Missouri Coordinated School Health Coalition  
Conference  
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*St. Louis Regional Asthma Coalition*



St. Louis Regional *Asthma Consortium*

# Today's Agenda

1. Asthma as both a medical and environmental condition
2. Signs and symptoms of an acute asthma attack
3. Assessment and treatment of a child with asthma, including use of a peak flow device and albuterol
4. New legislation (HB 1188) governing the use of rescue medications in schools & Discussion
5. Summary of main points and Q & A

# EPR3 Documents available online

440 pages

74 pages

52 pages

<http://www.nhlbi.nih.gov/guidelines/asthma/asthgdln.htm>

<http://www.nhlbi.nih.gov/guidelines/asthma/asthsumm.htm>

[http://www.nhlbi.nih.gov/guidelines/asthma/gip\\_rpt.pdf](http://www.nhlbi.nih.gov/guidelines/asthma/gip_rpt.pdf)

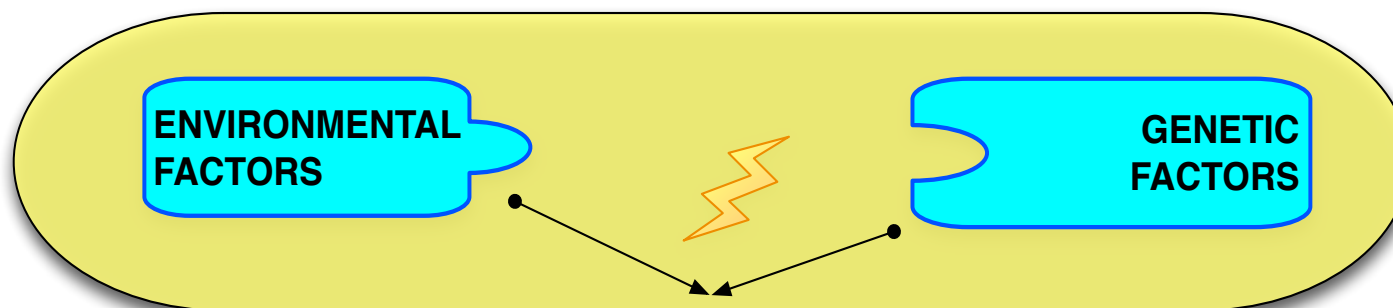
## **Journal of School Health 76(6):201-348 (2006)**

- Supported by CDC and NHBLI
- In the U.S. 5 million school age kids have asthma
- 33 Articles on Asthma in school age children
- Poorly controlled asthma results in
  - ◀ 15 million school absences per year
  - ◀ Compromised academic performance
  - ◀ Limitations on school activities and sports
- Life is tough for kids with asthma
- Life is tougher for school nurses who try to serve them
- Fixing our Health System is imperative
- Broad sweeping changes are needed in our Health System
- Partnering and accountability are critical in this exercise

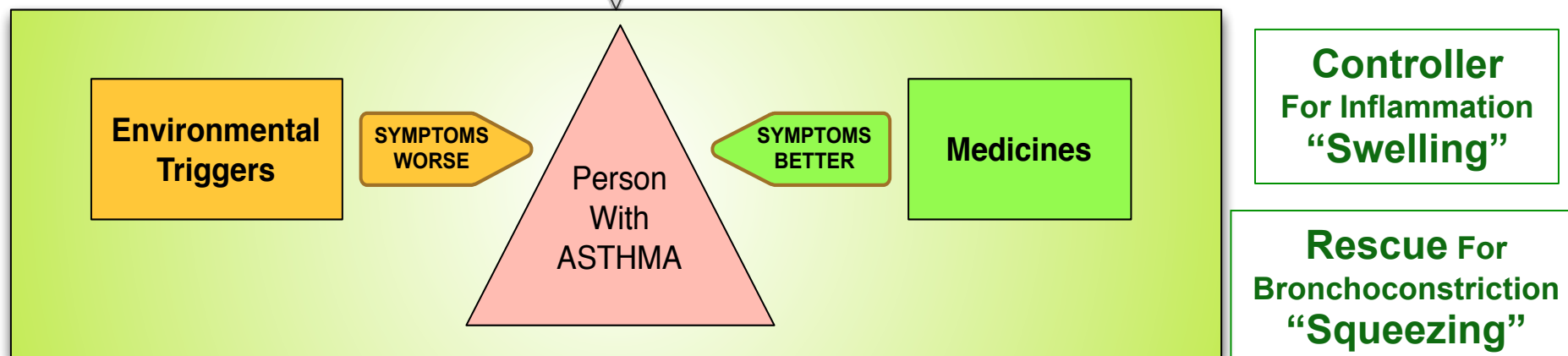


# Causes and Treatments of Asthma

## Causes



## Treatments



# Asthma as Two Conditions:

Moving patients to lower cost, “higher touch” services



# Asthma Action Plan



St. Louis Regional **Asthma Consortium**  
www.asthma-stlouis.org

Name: \_\_\_\_\_  
 Provider: \_\_\_\_\_  
 Date: \_\_\_\_\_  
 Phone for doctor or clinic: \_\_\_\_\_  
 After office hours call: \_\_\_\_\_

## ASTHMA ACTION PLAN

## AUTHORIZATION FOR THE ADMINISTRATION OF MEDICATION AT SCHOOL

Date \_\_\_\_\_

Name of Student \_\_\_\_\_ Date of Birth \_\_\_\_\_

**Albuterol** should be given according to the Action Plan (see back of this form).

He/she should have no restrictions on activity; however, during an asthma exacerbation he/she should not go outside in temperatures less than 32 degrees or engage in strenuous activities.

Relevant side effects:  None Expected  Specify \_\_\_\_\_

Allergies:  No  Yes (specify) \_\_\_\_\_

OFFICE STAMP

Provider's Name/Title \_\_\_\_\_

Phone \_\_\_\_\_

Fax \_\_\_\_\_

Address \_\_\_\_\_

Provider's Signature \_\_\_\_\_ Date \_\_\_\_\_

### GREEN ZONE



- Breathing is good
- No cough or wheeze
- Can work and play

### YOU'RE OK! TAKE ALL OF THESE MEDICATIONS EVERY

Medicine	How much to take	When to take it
_____	_____	_____
_____	_____	_____
_____	_____	_____




20 minutes before physical activity, use this medicine: \_\_\_\_\_

### YELLOW ZONE



- You are feeling sick or it's harder to breathe

### CAUTION! TAKE 2 PUFFS (OR 1 NEBULIZER TREATMENT) OF QUICK RELIEVER MEDICINE NOW: YOU MAY REPEAT THIS EVERY 20 MINUTES FOR 2 MORE TIMES IF YOU ARE NO BETTER CALL YOUR DOCTOR IMMEDIATELY AT \_\_\_\_\_

Medicine	How much to take	When to take it
 Cough	 Wheeze	 Tight chest
_____	_____	_____
_____	_____	_____

Wake up a \_\_\_\_\_

### RED ZONE



- Medicine is not helping
- Breathing is hard and fast
- Nose opens wide
- Can't walk or talk well
- Ribs show

### DANGER! TAKE 4 MORE PUFFS (OR 1 NEBULIZER TREATMENT) OF YOUR QUICK RELIEVER MEDICINE NOW. CALL 9-1-1 OR GO DIRECTLY TO THE NEAREST HOSPIT.

Medicine	How much to take	When to take it
_____	_____	_____
_____	_____	_____

### PARENT/GUARDIAN AUTHORIZATION

I hereby request that school personnel administer the above ordered medication.

Parent/Guardian Signature \_\_\_\_\_ Date \_\_\_\_\_

Home Phone # \_\_\_\_\_ Work Phone # \_\_\_\_\_

### SELF ADMINISTRATION OF MEDICATION AUTHORIZATION

Provider's authorization for self-administration  Yes  No

Signature \_\_\_\_\_ Date \_\_\_\_\_

Parent/Guardian authorization for self-administration  Yes  No

Signature \_\_\_\_\_ Date \_\_\_\_\_

**THIS AUTHORIZATION IS FOR THE CURRENT SCHOOL YEAR**

# Managing Exacerbations of Asthma <sup>(1)</sup>

- Asthma exacerbations are acute or subacute episodes of progressively worsening **shortness of breath, cough, wheezing, and chest tightness, or some combination** of these symptoms.
- Exacerbations are characterized by decreases in expiratory airflow; **objective measures of lung function (spirometry or PEF) are more reliable indicators of severity than symptoms are.**
- Individuals whose asthma is **well controlled with ICSs have decreased risk of exacerbations.** However, these patients can still be vulnerable to exacerbations, for example, when they have viral respiratory infections.

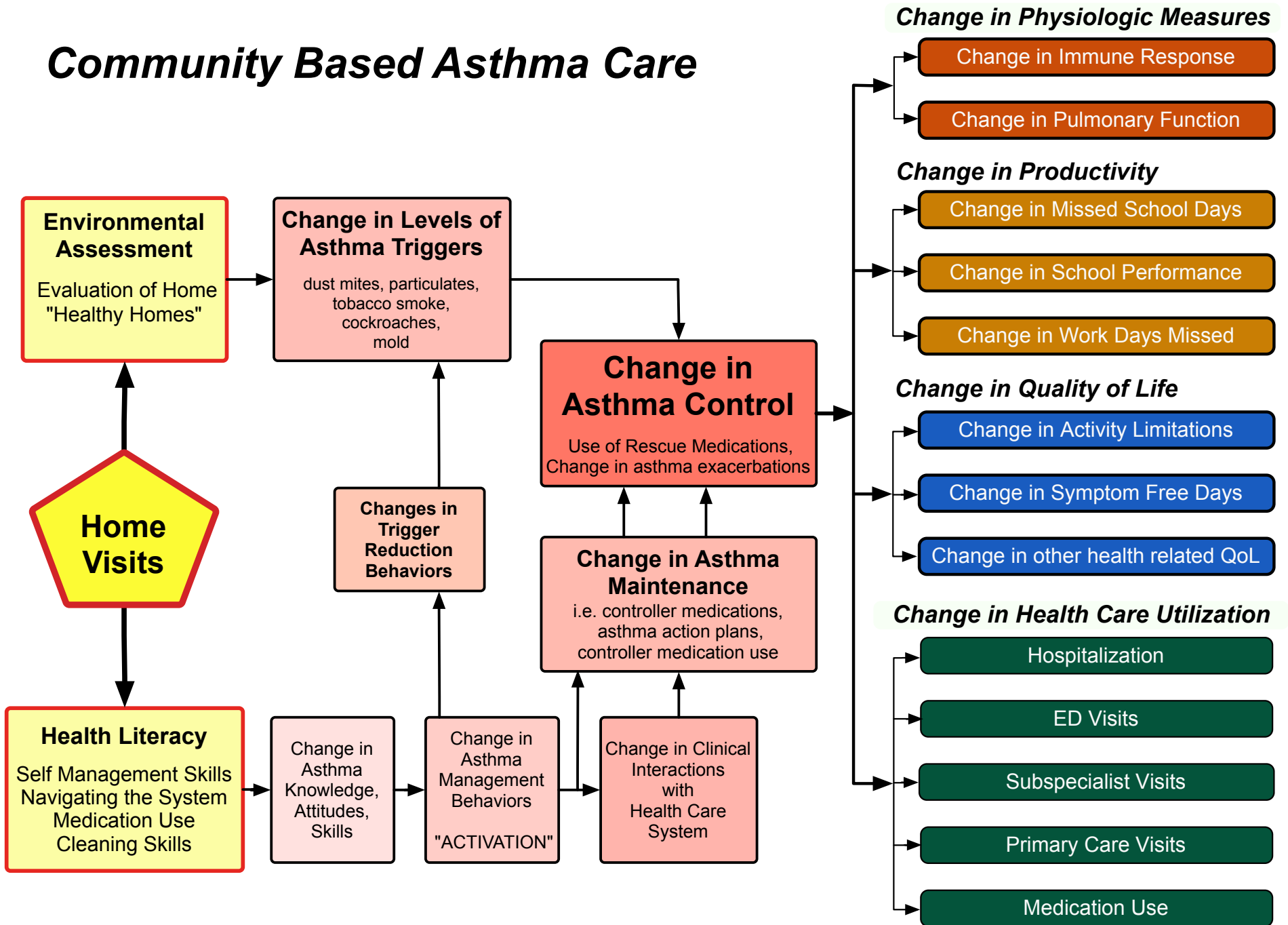


# Managing Exacerbations of Asthma (2)

Effective management of exacerbations incorporates the same four components of asthma management used in managing asthma long term:

- **Assessment and monitoring**
- **Patient education**
- **Environmental control**
- **Medications**

# Community Based Asthma Care



**FIGURE 20. CLASSIFYING SEVERITY OF ASTHMA EXACERBATIONS IN THE URGENT OR EMERGENCY CARE SETTING**

Note: Patients are instructed to use quick-relief medications if symptoms occur or if PEF drops below 80 percent predicted or personal best. If PEF is 50–79 percent, the patient should monitor response to quick-relief medication carefully and consider contacting a clinician. If PEF is below 50 percent, immediate medical care is usually required. In the urgent or emergency care setting, the following parameters describe the severity and likely clinical course of an exacerbation.

	Symptoms and Signs	Initial PEF (or FEV1)	Clinical Course
<b>Mild</b>	Dyspnea only with activity (assess tachypnea in young children)	PEF $\geq$ 70 percent predicted or personal best	<ul style="list-style-type: none"> <li>■ Usually cared for at home</li> <li>■ Prompt relief with inhaled SABA</li> <li>■ Possible short course of oral systemic corticosteroids</li> </ul>
<b>Moderate</b>	Dyspnea interferes with or limits usual activity	PEF 40–69 percent predicted or personal best	<ul style="list-style-type: none"> <li>■ Usually requires office or ED visit</li> <li>■ Relief from frequent inhaled SABA</li> <li>■ Oral systemic corticosteroids; some symptoms last for 1–2 days after treatment is begun</li> </ul>
<b>Severe</b>	Dyspnea at rest; interferes with conversation	PEF $<$ 40 percent predicted or personal best	<ul style="list-style-type: none"> <li>■ Usually requires ED visit and likely hospitalization</li> <li>■ Partial relief from frequent inhaled SABA</li> <li>■ Oral systemic corticosteroids; some symptoms last for <math>&gt;</math>3 days after treatment is begun</li> <li>■ Adjunctive therapies are helpful</li> </ul>
<b>Subset: Life threatening</b>	Too dyspneic to speak; perspiring	PEF $<$ 25 percent predicted or personal best	<ul style="list-style-type: none"> <li>■ Requires ED/hospitalization; possible ICU</li> <li>■ Minimal or no relief from frequent inhaled SABA</li> <li>■ Intravenous corticosteroids</li> <li>■ Adjunctive therapies are helpful</li> </ul>

Key: ED, emergency department; FEV<sub>1</sub>, forced expiratory volume in 1 second; ICU, intensive care unit; PEF, peak expiratory flow; SABA, short-acting beta<sub>2</sub>-agonist

# Additional comments

- **The following home management techniques are not recommended** because no studies demonstrate their effectiveness and they may delay patients from obtaining necessary care:
  - ▶ drinking large volumes of liquids
  - ▶ breathing warm, moist air
  - ▶ using over-the counter products, such as antihistamines or cold remedies
- Pursed-lip and other forms of breathing may help to maintain calm, but these methods do not improve lung function.

## Severe Asthma Attack



**Features common to both extrinsic allergic and intrinsic asthma:**

Respiratory distress, dyspnea, wheezing, flushing, cyanosis, cough, flaring of alae, use of accessory respiratory muscles, apprehension, tachycardia, perspiration, hyperresonance, distant breath sounds and rhonchi, eosinophilia

# Signs of Severe Asthma Attack

- Respiratory Distress
- Dyspnea
- Wheezing
- Cyanosis
- Flushing
- Cough
- Flaring alae
- Difficulty talking
- Use of accessory respiratory muscles
- Apprehension
- Tachycardia
- Perspiration
- Hyperresonance
- Distant breath sounds and rhonchi

## Treatment Options for a Life Threatening Asthma Attack (in a school setting)

Based on similar Missouri law for epinephrine use in anaphylatic reaction

HB 1188 -- SCHOOL NURSE ADMINISTRATION OF ASTHMA RESCUE  
MEDICATION

This bill establishes procedures under which a school nurse may administer asthma-related rescue medications. A school board may authorize a licensed nurse employee to maintain a supply of medication and to recommend to the board the quantity of medication that should be maintained. To obtain medications for a school district, a prescription written by a licensed physician, physician's assistant, or nurse practitioner is required. For prescription purposes, the district must be designated as the patient, the nurse's name must be required, and the prescription must be filled at a licensed pharmacy. The nurse or another employee trained and supervised by the nurse must have the discretion to administer the medication to any student whom the nurse or employee believes is having a life-threatening asthma episode. Existing law providing immunity from civil liability for trained employees administering lifesaving methods must apply to a trained employee administering an asthma medication under these provisions.

Effective Date: 8/28/2012

7/05/2012 - Approved by Governor

Source: <http://www.house.mo.gov/billsummary.aspx?bill=HB1188>

SECOND REGULAR SESSION  
[TRULY AGREED TO AND FINALLY PASSED]  
**HOUSE BILL NO. 1188**  
**96TH GENERAL ASSEMBLY**

4141L.01T

2012

AN ACT

To amend Chapter 167, RSMo, by adding thereto one new section relating to the administration of asthma related rescue medication by school nurses.

*Be it enacted by the General Assembly of the state of Missouri, as follows:*

Section A. Chapter 167, RSMo, is amended by adding thereto one new section, to be known as section 167.635, to read as follows:

167.635. 1. Each school board may authorize a school nurse licensed under chapter 335 who is employed by the school district and for whom the board is responsible to maintain a supply of asthma related rescue medications at the school. The nurse shall recommend to the school board the quantity of medication the school should maintain.

2. To obtain asthma rescue medications for a school district, a prescription written by a licensed physician, a physician's assistant, or nurse practitioner is required. For such prescriptions, the school district shall be designated as the patient, the nurse's name shall be required, and the prescription shall be filled at a licensed pharmacy.

3. A school nurse or other school employee trained by and supervised by the nurse shall have the discretion to use asthma related rescue medications on any student the school nurse or trained employee believes is having a life-threatening asthma episode based on the training in recognizing an acute asthma episode. The provisions of section 167.624 concerning immunity from civil liability for trained employees administering lifesaving methods shall apply to trained employees administering an asthma related rescue medication under this section.



# Section 1

1. Each school board **may** authorize a school nurse licensed under chapter 335 who is **employed** by the school district and **for whom the board is responsible** to **maintain a supply** of asthma related rescue medications at the school.

The nurse shall recommend to the school board the **quantity** of medication the school should maintain.

## Section 2

2. To obtain asthma rescue medications for a school district, a **prescription** written by a **licensed physician, a physician's assistant, or nurse practitioner** is required.

For such prescriptions, the **school district shall be designated as the patient,**  
**the nurse's name shall be required,**  
and the prescription shall be filled at a **licensed pharmacy.**

## Section 3

3. A school nurse or other school employee trained by and supervised by the nurse

shall have the **discretion** to use asthma related rescue medications on any student the school nurse or trained employee believes is having a

**life-threatening asthma episode** based on the **training in recognizing an acute asthma episode**.

The provisions of section 167.624 concerning **immunity from civil liability for trained employees administering lifesaving methods** shall apply to trained employees administering an asthma related rescue medication under this section.

# Albuterol Nebulizer

- Administer albuterol by nebulizer until medication is gone
- Dose according to *EPR-3* guidelines (Refer to Home Treatment of Asthma Exacerbations)
  - Up to 2 treatments, 20 minute apart

**FIGURE 5-5. DOSAGES OF DRUGS FOR ASTHMA EXACERBATIONS**

Medication	Dosages		Comments
	Child Dose*	Adult Dose	
<b>Inhaled Short-Acting Beta<sub>2</sub>-Agonists (SABA)</b>			
Albuterol			
Nebulizer solution (0.63 mg/3 mL, 1.25 mg/3 mL, 2.5 mg/3 mL, 5.0 mg/mL)	0.15 mg/kg (minimum dose 2.5 mg) every 20 minutes for 3 doses then 0.15–0.3 mg/kg up to 10 mg every 1–4 hours as needed, or 0.5 mg/kg/hour by continuous nebulization.	2.5–5 mg every 20 minutes for 3 doses, then 2.5–10 mg every 1–4 hours as needed, or 10–15 mg/hour continuously.	Only selective beta <sub>2</sub> -agonists are recommended. For optimal delivery, dilute aerosols to minimum of 3 mL at gas flow of 6–8 L/min. Use large volume nebulizers for continuous administration. May mix with ipratropium nebulizer solution.
MDI (90 mcg/puff)	4–8 puffs every 20 minutes for 3 doses, then every 1–4 hours inhalation maneuver as needed. Use VHC; add mask in children <4 years.	4–8 puffs every 20 minutes up to 4 hours, then every 1–4 hours as needed.	In mild-to-moderate exacerbations, MDI plus VHC is as effective as nebulized therapy with appropriate administration technique and coaching by trained personnel.



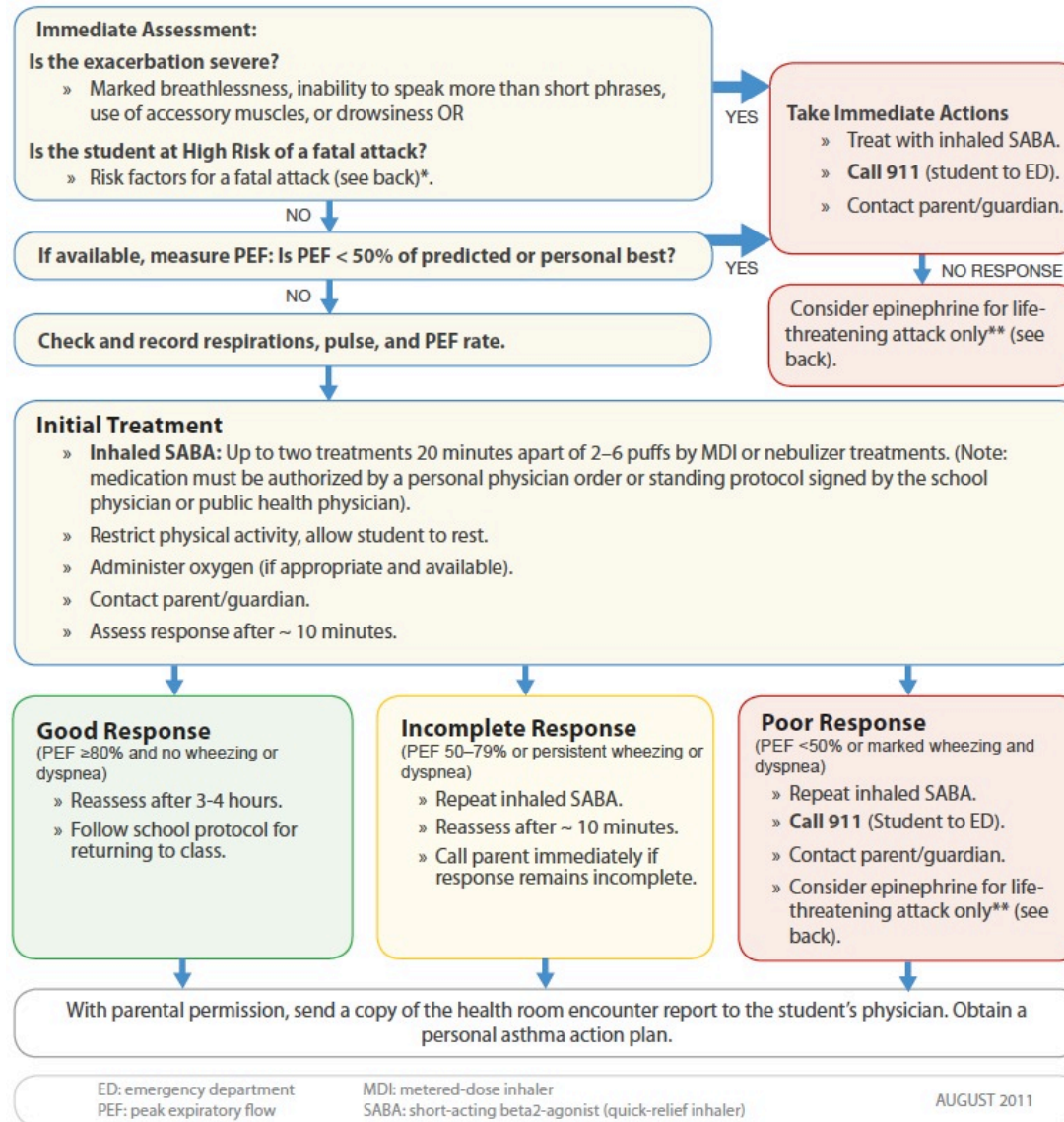
National Asthma Education and Prevention Program

## MANAGEMENT OF ASTHMA EXACERBATIONS: *School Treatment*

Suggested Emergency Nursing Protocol for Students with Asthma Symptoms Who Don't Have a Personal Asthma Action Plan

A student with asthma symptoms should be placed in an area where he/she can be closely observed. Never send a student to the health room alone or leave a student alone. Limit moving a student who is in severe distress. Go to the student instead.

See list of Possible Observations/Symptoms on back.



ED: emergency department  
PEF: peak expiratory flow

MDI: metered-dose inhaler  
SABA: short-acting beta2-agonist (quick-relief inhaler)

AUGUST 2011

<http://www.nhlbi.nih.gov/health/health/prof/lung/asthma/sch-emer-actplan.pdf>

## **Monitor the following Observations & Symptoms**

- Coughing, wheezing, noisy breathing, whistling in the chest.
- Difficulty or discomfort when breathing, tightness in chest, shortness of breath, chest pain, breathing hard and/or fast.
- Nasal flaring (nostril opens wide to get in more air).
- Can only speak in short phrases or not able to speak.
- Blueness around the lips or fingernails.

## **\*Risk Factors for Death from Asthma**

### **Asthma history**

- » Previous severe exacerbation (e.g., intubation or ICU admission for asthma).
- » Two or more hospitalizations for asthma in the past year.
- » Three or more ED visits for asthma in the past year.
- » Hospitalization or ED visit for asthma in the past month.
- » Using >2 canisters of SABA per month.
- » Difficulty perceiving asthma symptoms or severity of exacerbations.
- » Other risk factors: lack of a written asthma action plan, sensitivity to Alternaria.

### **Social history**

- » Low socioeconomic status or inner-city residence.
- » Illicit drug use.
- » Major psychosocial problems.

### **Comorbidities**

- » Cardiovascular disease.
- » Other chronic lung disease.
- » Chronic psychiatric disease.



# Key Points of HB 1188

- School can maintain supply of the life-saving medication, obtained with a *prescription that designates the district as the patient*
- *HB1188 does not dictate a specific medication;* the prescription is what specifies the medication to be stored and used.
- *School board authorizes* school nurse to obtain medication and maintain a supply
- Nurse or trained employee (that is supervised by a nurse for student health matters) may administer if he/she *believes* a student is having a life threatening episode
- Immunity from civil liability for *trained employees*

***Be sure your Policy & Procedure (protocol) includes:***

1. A 911 call
2. Document training of school employees for administration of lifesaving medication
3. Documentation of school board authorization
4. Documentation of medication prescription from a health care provider
5. Medication administration procedure, including dosage

Need to develop a comprehensive model asthma care P&P for school districts in MO

# Other Resources

<http://aafastl.org>

- Joy Krieger, Reagan Nelson (314.645.2422)
- Asthma and Allergy Foundation (St. Louis Chapter) can help with:
  - Medical Director
  - Nebulizer
  - Albuterol

# Asthma as Two Conditions: Medical and Environmental

**Objective:** Moving patients to lower cost, “higher touch” more effective services

