

# Asthma Action Plans and SMART!

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# Objectives:

- a) Understand the importance of asthma action plans.
- b) Confidently (and competently) be able to complete asthma action plan!
- c) Brief review of single maintenance and reliever therapy (SMART)



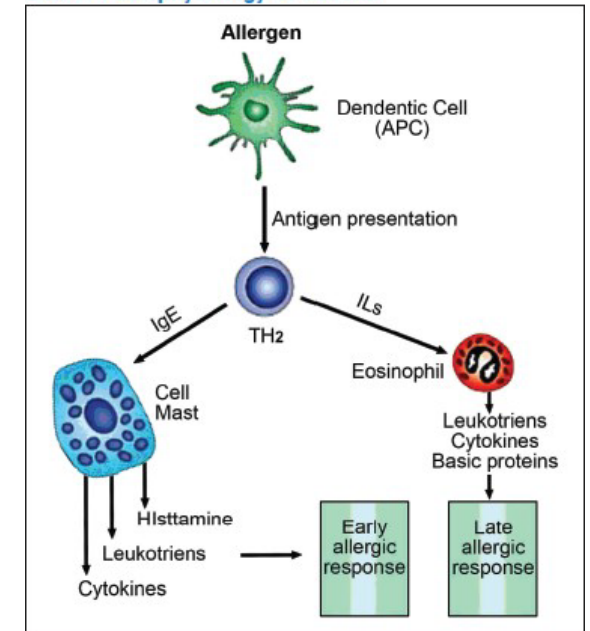
**None of the planners or speakers for this activity have relevant financial relationships to disclose.**

# Asthma Series:

- 7/9/24 – Recognizing asthma in the inpatient setting
- 7/16/24– Asthma controller options
- 7/22/24 – Effective asthma action plans!
- 8/15/24- Outpatient Asthma Management



Box 1: Pathophysiology of asthma



# The Burden of Asthma:

## In 2017:

- 18.7 million adults had asthma, 1 in 12 adults.
- 7 million children had asthma, 1 in 11 children.
- Approximately 9 people die from asthma each day.
- In the last decade, the proportion of people with asthma in the United States grew by nearly 15%.
- 1 in 5 children with asthma went to an ED in 2017.
- **Less than 1 in 2 children get an asthma action plan.**
- Nearly 1 in 2 children miss at least 1 day of school each year because of their asthma: 10.5 million missed days of school/year.

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<http://www.cdc.gov/asthma/asthmadata.htm>

Lurie Sider Packard Children's Hospital  
STANFORD UNIVERSITY MEDICAL CENTER  
725 Welch Road Palo Alto, CA 94304

**MY CHILD'S ASTHMA ACTION PLAN**

Date \_\_\_\_\_  
 Asthma severity: (check one)  intermittent  mild persistent  moderate  severe persistent

**GO (GREEN)**  
 CHILD IS WELL:  
 -Everything is easy  
 -No wheezing  
 -No cough  
 -Works or plays easily

Use these asthma CONTROL medications every day to prevent asthma symptoms

Medicine/dose (use EVERY day)	How delivered	How much	How often

Comments: \_\_\_\_\_  
 For exercise, take: \_\_\_\_\_

peak flow 80% (\_\_\_\_\_) to 100% (\_\_\_\_\_) personal best) or  peak flow N/A

**CAUTION (YELLOW)**  
 CHILD IS NOT WELL:  
 -first sign of a cold  
 -known trigger exposure  
 -cough or mild wheeze  
 -tight chest,  
 -night cough

CONTINUE GREEN ZONE (GO) MEDICATIONS. ADD these relief medications.

Medicine/dose (use IN ADDITION to green zone medications for quick relief)	How delivered	How much	How often

Comments: \_\_\_\_\_

peak flow 50% (\_\_\_\_\_) to 80% (\_\_\_\_\_) OR  peak flow N/A

**STOP (RED)**  
 CHILD FEELS AWFUL:  
 -medicine does not help within 15-20 minutes  
 -breathing hard and fast  
 -trouble walking or talking

Give these medicines NOW and call the doctor NOW.

Medicine/dose (use FOR EMERGENCY)	How delivered	How much	How often

Comments: \_\_\_\_\_

**CALL 911 IF RIBS SUCK IN, LIPS OR FINGERNAILS ARE BLUE, OR YOUR CHILD DOESN'T RESPOND TO YOU.**

peak flow below 50% (\_\_\_\_\_) OR  peak flow N/A

**TRIGGERS:**

allergens	tobacco	dust/mold	pollen, cold,	infection (cold, pneumonia)	gastroesophageal reflux	stress/high emotions	exercise	air pollution	medicines	foods
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**FOR SCHOOL and DAYCARE MEDICATION PERMISSION:**  
 This patient has been instructed in how to take his/her medications and can use the above medications with adult supervision.

Physician signature: \_\_\_\_\_ Patient Signature: \_\_\_\_\_

Healthcare provider \_\_\_\_\_ Follow-up Appointment \_\_\_\_\_  
 Doctor Phone # \_\_\_\_\_ Parent Emergency # \_\_\_\_\_

# Adherence:

- Asthma Action Plan:
  - Controller
  - Reliever
  - Triggers
  - Provider contact info
- Individualize treatment plan
- Reinforce teaching
- Phone calls to pharmacy

**2024 Respiratory Treatments**

800.878.4403 • AllergyAsthmaNetwork.org

**SHORT-ACTING BETA<sub>2</sub>-AGONIST BRONCHODILATORS**  
 \*Use light meter in morning and after each relief respiratory such as coughing, wheezing and shortness of breath for 5 hours

**LONG-ACTING BETA<sub>2</sub>-AGONIST BRONCHODILATORS**  
 \*Use light meter in morning and after each relief respiratory such as coughing, wheezing and shortness of breath for at least 12 hours

**INHALED CORTICOSTEROIDS**  
 reduce and prevent swelling of airway tissues. May do not reduce median symptoms of coughing, wheezing or shortness of breath

**MUSCARINIC ANTAGONISTS (ANTICHOLINERGIC)**  
 \*reduces cough, sputum production, wheeze and shortness of breath in combination with bronchodilator

**PDE4 INHIBITORS**  
 to get long relief, add this to your controller

**COMBINATION MEDICATIONS**  
 combine both inhaled corticosteroid and long acting beta<sub>2</sub>-agonist (LABA)

**BIOLOGICS**  
 target cells and pathways that cause airway inflammation, delivered by injection or IV

**LEUKOTRIENE MODIFIERS**  
 block chemicals called leukotrienes that cause airway inflammation, available as tablet or granules



Letter by Coates, Anne C, MD on 3/13/2024



21  
Portland ME  
Phone: 2  
No

Asthma Action Plan for:	Dean Benjamin Bernier	DOB:	12/17/2021	Date:
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Use a spacer with your inhalers  Follow-up with your provider Summary (AVS)

**Green Zone** No asthma symptoms – Able to do usual without having symptom

Avoid known triggers, shake and prime inhaler, rinse mouth after inhaled steroids

1. Take controller medicines every day

Medicine	Amount	How oft
Symbicort (budesonide and formoterol fumarate dihydrate) HFA 160mcg	2 puffs	Twice a d
Singulair (montelukast) 4mg chewable	1 tab	Once a c

2. Take these medicines prescribed by the doctor (i.e. antihistamines and nasal sprays)

Medicine	Amount	How oft

3. Take this medicine 15 minutes before exercise (prime it first, if needed)

Medicine	Amount	How oft

Coughing, wheezing, shortness of breath, chest tightn can't do regular physical activities. Must continue albu days. Keep taking Green Zone medications. After 24 h worsen, call your primary care physician.

1. Start rescue medicine

Medicine (prime it first, if needed)	Amount	How Of
Albuterol HFA 90 mcg	4 puffs	Every 6

2. If not improving or symptoms worsen, increase or add the following

Medicine	Amount	How oft
Albuterol HFA 90 mcg	4 puffs	Every 3

**Red Zone** Symptoms are severe, not responding to yellow zone treat of breath, fast breathing, skin pulling between ribs or at ne

RESCUE MEDICINE AND PROCEED TO THE EMERGENCY IF UNABLE TO TALK OR CONCERN FOR SAFETY DURING TRANSPORTATION TO THE EMERGENCY ROOM

Medicine	Amount	How oft

### SMART Asthma Action Plan

Patient: Cadence Annabelle Stewart  
Today's Date: 9/23/2024

Asthma Specialist: Anne C Coates, MD  
Tel: 207-662-5522 opt 3

#### Green Zone: Doing Well

**Symptoms**

- Breathing is good
- No cough, wheeze, chest tightness, or shortness of breath during day of night
- Can play or exercise normally

**Take these medications every day to prevent asthma symptoms**

Symbicort \*\*\*, 2 puffs twice daily with spacer

#### Yellow Zone: Asthma is Getting Worse

**Symptoms**

- Coughing
- Wheeze
- Tight chest
- Waking up at night coughing
- Hard to play or exercise

**Add: Quick-relief medicine and keep taking your GREEN ZONE medicine**

- Increase Symbicort to add 1 puff every 4-6 hours as needed, with the spacer. **MAXIMUM dose** is 8 puffs/day including the green zone above.
- No albuterol!

If your child has so much trouble breathing such that you cannot wait 4 hours to give treatments, go to Red Zone below.

#### Red Zone: Medical Alert!

**Symptoms**

- Breathing hard and fast
- Very short of breath
- Hard to walk
- Medicine is not helping
- Symptoms are the same or get worse after 24 hours in yellow zone

**Take medicine below and call your doctor NOW**

- Take 2 puffs of Symbicort NOW and seek Emergency Care

This child may carry his/her: Inhaled Asthma Medicine:  YES  NO  
Parent/ guardian authorizes exchange of information about this child's asthma between provider's office and school nurse:  YES  NO

es:  
onplan

Chart Re... Results Growth Teleheal... Wrap-Up Immuniza... Medications Problems Asthma Plan

### Asthma Plan

**Asthma Action Plan**

**Warning: this patient's asthma action plan has not been signed!**

## Asthma Action Plan

Viewable in Reports

Patient declines asthma action plan

Asthma severity:  intermittent  persistent- mild  persistent- moderate

persistent- severe  exercise induced bronchospasm

Asthma triggers:  respiratory infection  allergens  tobacco smoke  exercise

pollen  outdoor mold  indoor mold  smoke, odors, and sprays

cockroaches  animal dander  dust mites  other

### Green Zone "Doing Well"

No asthma symptoms. Able to do usual activities and sleep without having symptoms. Avoid known triggers, shake and prime inhaler, rinse mouth after inhaled steroids, and always use a spacer with a metered dose inhaler.

Controller Medication	Dose	Frequency

Pre-Exercise or As Needed Medication	Dose	Frequency

Other Medication	Dose	Frequency

Other instructions:  100%

### Yellow Zone "Asthma is getting worse"

CONTINUE GREEN ZONE CONTROLLER MEDICATIONS. IF you develop the following symptoms that may include: coughing, wheezing, shortness of breath, chest tightness, waking at night with cough, or inability to do regular physical activities. ADD rescue medication. Plan on continuing rescue medication for at least 3 days. After 24 hours if symptoms worsen contact your primary care office.

Rescue Medication	Dose	Frequency

Other instructions:  100%

### Red Zone: Seek emergency care. Call 911 IF UNABLE TO TALK OR CONCERN FOR SAFETY DURING TRANSPORTATION TO THE EMERGENCY DEPT.

Symptoms are severe and not responding to yellow zone treatments: very short of breath, fast breathing, skin pulling between ribs or at neck. TAKE RESCUE MEDICINE AND PROCEED TO THE EMERGENCY DEPARTMENT.

Rescue Medication	Dose	Frequency

Other instructions:  100%

May carry inhaled asthma medicines:

May carry Epi-Pen?:

Parent/Guardian authorizes exchange of information about this child's asthma between provider's office and



# SMART Tips:

- **SMART** = Single Maintenance And Reliever Therapy
- One inhaler for daily use and rescue use
- Must have a formoterol component
- **Examples:**
  - Budesonide + formoterol (Symbicort, Breyna)
  - Mometasone + formoterol (Dulera)
- Recommended for ages 4 years and older on NHLBI (age 6+ on GINA)
- **Maximum dose**
  - Ages 4-11 MAX **8** puffs per day
  - Ages 12+ MAX **12** puffs per day
- No Albuterol

<b>Green Zone</b>			No asthma symptoms – Able to do usual activities and sleep without having symptoms.			Good!		
Avoid known triggers, shake and prime inhaler, rinse mouth after inhaled steroids								
1. Take controller medicines every day								
Medicine			Amount			How often		
Symbicort (budesonide and formoterol fumarate dihydrate) HFA 80mcg			1 puff			Twice a day		
2. Take these medicines prescribed by the doctor (i.e. antihistamines and nasal sprays)								
Medicine			Amount			How often		
3. Take this medicine 15 minutes before exercise (prime it first, if needed)								
Medicine			Amount			How often		
Symbicort			1 puff			15 minutes before exercise		
Coughing, wheezing, shortness of breath, chest tightness, waking at night, Caution can't do regular physical activities. Must continue Symbicort for at least 3 days. Keep taking Green Zone medications. After 24 hours if symptoms worsen, call your primary care physician. Maximum of 8 puffs/day.								
1. Start rescue medicine								
Medicine (prime it first, if needed)			Amount			How Often		
Symbicort 80 mcg			2 puffs			Every 6 hours		
2. If not improving or symptoms worsen, increase or add the following								
Medicine			Amount			How often		
Symbicort 80 mcg			1 puff			Every 3 hours		
<b>Red Zone</b>			Symptoms are severe, not responding to yellow zone treatments: very short of breath, fast breathing, skin pulling between ribs or at neck. TAKE RESCUE MEDICINE AND PROCEED TO THE EMERGENCY ROOM-CALL 911 IF UNABLE TO TALK OR CONCERN FOR SAFETY DURING TRANSPORTATION TO THE EMERGENCY ROOM			Danger		
Medicine			Amount			How often		
Albuterol HFA 90 mcg			4 puffs			every 15 minutes up to 3 times while on way to ER		
School:		Grade:		Phone:		Fax:		
This child may carry his/her: Inhaled Asthma Medicine: <input type="checkbox"/> YES <input type="checkbox"/> NO Epi-Pen: <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A								
Parent/ guardian authorizes exchange of information about this child's asthma between provider's office and school nurse:								
<input type="checkbox"/> YES <input type="checkbox"/> NO								
Parent/ guardian authorizes school (nurse) to administer rescue asthma medicine as outlined in Asthma Action Plan:								
<input type="checkbox"/> YES <input type="checkbox"/> NO								

## AGES 0-4 YEARS: STEPWISE APPROACH FOR MANAGEMENT OF ASTHMA

	Intermittent Asthma	Management of Persistent Asthma in Individuals Ages 0-4 Years				
Treatment	STEP 1	STEP 2	STEP 3	STEP 4	STEP 5	STEP 6
<b>Preferred</b>	PRN SABA and At the start of RTI: Add short course daily ICS▲	Daily low-dose ICS and PRN SABA	Daily medium-dose ICS and PRN SABA	Daily medium-dose ICS-LABA and PRN SABA	Daily high-dose ICS-LABA and PRN SABA	Daily high-dose ICS-LABA + oral systemic corticosteroid and PRN SABA
<b>Alternative</b>		Daily montelukast* or Cromolyn,* and PRN SABA		Daily medium-dose ICS + montelukast* and PRN SABA	Daily high-dose ICS + montelukast* and PRN SABA	Daily high-dose ICS + montelukast*+ oral systemic corticosteroid and PRN SABA

For children age 4 years only, see Step 3 and Step 4 on Management of Persistent Asthma in Individuals Ages 5-11 Years diagram.

### Assess Control

- First check adherence, inhaler technique, environmental factors,▲ and comorbid conditions.
- **Step up** if needed; reassess in 4-6 weeks
- **Step down** if possible (if asthma is well controlled for at least 3 consecutive months)

Consult with asthma specialist if Step 3 or higher is required. Consider consultation at Step 2.

Control assessment is a key element of asthma care. This involves both impairment and risk. Use of objective measures, self-reported control, and health care utilization are complementary and should be employed on an ongoing basis, depending on the individual's clinical situation.

# Intermittent ICS age 0-4 years

## Children Ages 0-4 Years with Recurrent Wheezing

### KEY POINT

In children ages 0-4 years with recurrent wheezing, a short (7-10 day) course of daily ICS with as-needed inhaled short-acting beta<sub>2</sub>-agonist (SABA) for quick-relief therapy is recommended starting at the onset of a respiratory tract infection.

### IMPLEMENTATION GUIDANCE AND CONSIDERATIONS FOR SHARED DECISION-MAKING

- **Target population:** Children ages 0-4 years with recurrent wheezing (at least three episodes of wheezing triggered by apparent infection in their lifetime or two episodes in the past year with no symptoms between infections) and who are not taking daily asthma treatment.
- **Treatment:** One regimen used in two reviewed studies is budesonide inhalation suspension, 1 mg twice daily for 7 days at the first sign of respiratory tract infection-associated symptoms.
- **Potential benefits:** The main benefit during respiratory tract infections is a reduction in exacerbations requiring systemic corticosteroids.
- **Potential risks:** This treatment could affect growth. Carefully monitor growth in children who use this treatment.
- **Other considerations:** Caregivers can initiate intermittent ICS treatment at home without a visit to a health care provider when they have clear instructions.

### RECOMMENDATION

In children ages 0-4 years with recurrent wheezing triggered by respiratory tract infections and no wheezing between infections, the Expert Panel conditionally recommends starting a short course of daily ICS at the onset of a respiratory tract infection with as-needed SABA for quick-relief therapy compared to as-needed SABA for quick-relief therapy only.

Inhalation, PRN, as needed

	Intermittent Asthma	Management of Persistent Asthma in Individuals Ages 5-11 Years				
Treatment	STEP 1	STEP 2	STEP 3	STEP 4	STEP 5	STEP 6
<b>Preferred</b>	PRN SABA	Daily low-dose ICS and PRN SABA	Daily and PRN combination low-dose ICS-formoterol▲	Daily and PRN combination medium-dose ICS-formoterol▲	Daily high-dose ICS-LABA and PRN SABA	Daily high-dose ICS-LABA + oral systemic corticosteroid and PRN SABA
<b>Alternative</b>		Daily LTRA,* or Cromolyn,* or Nedocromil,* or Theophylline,* and PRN SABA	Daily medium-dose ICS and PRN SABA or Daily low-dose ICS-LABA, or daily low-dose ICS + LTRA,* or daily low-dose ICS + Theophylline,* and PRN SABA	Daily medium-dose ICS-LABA and PRN SABA or Daily medium-dose ICS + LTRA* or daily medium-dose ICS + Theophylline,* and PRN SABA	Daily high-dose ICS + LTRA* or daily high-dose ICS + Theophylline,* and PRN SABA	Daily high-dose ICS + LTRA* + oral systemic corticosteroid or daily high-dose ICS + Theophylline* + oral systemic corticosteroid, and PRN SABA
		Steps 2-4: Conditionally recommend the use of subcutaneous immunotherapy as an adjunct treatment to standard pharmacotherapy in individuals ≥ 5 years of age whose asthma is controlled at the initiation, build up, and maintenance phases of immunotherapy▲			Consider Omalizumab**▲	

**Assess Control**

- First check adherence, inhaler technique, environmental factors,▲ and comorbid conditions.
- **Step up** if needed; reassess in 2-6 weeks
- **Step down** if possible (if asthma is well controlled for at least 3 consecutive months)

Consult with asthma specialist if Step 4 or higher is required. Consider consultation at Step 3.

Control assessment is a key element of asthma care. This involves both impairment and risk. Use of objective measures, self-reported control, and health care utilization are complementary and should be employed on an ongoing basis, depending on the individual's clinical situation.

**Abbreviations:** ICS, inhaled corticosteroid; LABA, long-acting beta<sub>2</sub>-agonist; LTRA, leukotriene receptor antagonist; SABA, inhaled short-acting beta<sub>2</sub>-agonist

## AGES 12+ YEARS: STEPWISE APPROACH FOR MANAGEMENT OF ASTHMA

	Intermittent Asthma	Management of Persistent Asthma in Individuals Ages 12+ Years				
Treatment	STEP 1	STEP 2	STEP 3	STEP 4	STEP 5	STEP 6 <sup>■</sup>
Preferred	PRN SABA	Daily low-dose ICS and PRN SABA or PRN concomitant ICS and SABA▲	Daily and PRN combination low-dose ICS-formoterol▲	Daily and PRN combination medium-dose ICS-formoterol▲	Daily medium-high dose ICS-LABA + LAMA and PRN SABA▲	Daily high-dose ICS-LABA + oral systemic corticosteroids + PRN SABA
Alternative		Daily LTRA* and PRN SABA or Cromolyn,* or Nedocromil,* or Zileuton,* or Theophylline,* and PRN SABA	Daily medium-dose ICS and PRN SABA or Daily low-dose ICS-LABA, or daily low-dose ICS + LAMA,▲ or daily low-dose ICS + LTRA,* and PRN SABA or Daily low-dose ICS + Theophylline* or Zileuton,* and PRN SABA	Daily medium-dose ICS-LABA or daily medium-dose ICS + LAMA, and PRN SABA▲ or Daily medium-dose ICS + LTRA,* or daily medium-dose ICS + Theophylline,* or daily medium-dose ICS + Zileuton,* and PRN SABA	Daily medium-high dose ICS-LABA or daily high-dose ICS + LTRA,* and PRN SABA	
		Steps 2-4: Conditionally recommend the use of subcutaneous immunotherapy as an adjunct treatment to standard pharmacotherapy in individuals ≥ 5 years of age whose asthma is controlled at the initiation, build up, and maintenance phases of immunotherapy▲			Consider adding Asthma Biologics (e.g., anti-IgE, anti-IL5, anti-IL5R, anti-IL4/IL13)**	



# Options

## Comparative Doses

Single Agent Inhaler (In alphabetical order) (Active Ingredient) Dosage Strength Frequency	Low DAILY Dose (Total)			Medium DAILY Dose (Total)			High DAILY Dose (Total)		
	Child 0-4	Child 5-11	>12 & Adults	Child 0-4	Child 5-11	>12 & Adults	Child 0-4	Child 5-11	>12 & adults
<b>Alvesco</b> (Ciclesonide HFA) 80 or 160 mcg Dosed twice daily	N/A	80mcg once daily†	160mcg	N/A	160mcg once daily†	320mcg	N/A	N/A	640mcg
<b>ArmonAir Digihaler</b> (Fluticasone propionate DPI) 55, 113, 232 mcg Dosed twice daily	N/A	N/A	110mcg	N/A	N/A	226mcg	N/A	N/A	464mcg
<b>Arnuity Ellipta</b> (Fluticasone furoate DPI) 50, 100, 200 mcg Dose once daily	N/A	50 mcg	100mcg	N/A	N/A	100mcg	N/A	N/A	200mcg
<b>Asmanex HFA</b> (Mometasone furoate) 50mcg, 100mcg, 200mg Dose twice daily	N/A	N/A	200mcg	N/A	200mcg*	400mcg	N/A	N/A	800mcg
<b>Asmanex Twisthaler</b> (Mometasone furoate DPI) 110 or 220 mcg Dosed once or twice daily	N/A	110mcg once daily	110mcg once daily	N/A	N/A	440mcg once daily or divided twice daily	N/A	N/A	880mcg divided twice daily
<b>Flovent Diskus<sup>4</sup></b> (Fluticasone propionate DPI) 50mcg, 100mcg, 250mcg Dosed twice daily	N/A	100mcg or 200mcg	200mcg	N/A	N/A	400mcg or 500mcg	N/A	N/A	1000mcg
<b>Flovent HFA</b> (Fluticasone propionate HFA) 44mcg, 110, 220 mcg Dosed twice daily	176mcg*	176mcg <sup>1</sup>	176mcg	N/A	N/A	220mcg or 440mcg	N/A	N/A	880mcg or 1,760mcg
<b>Pulmicort Flexhaler</b> (Budesonide DPI) 90mcg or 180mcg Dosed twice daily	N/A	180mcg or 360mcg <sup>3</sup>	180mcg or 360mcg <sup>5</sup>	N/A	720mcg <sup>3</sup>	720mcg <sup>5</sup>	N/A	N/A	1440mcg <sup>5</sup>
<b>Pulmicort Respules<sup>1A</sup></b> (Budesonide nebulizer) 0.25mg, 0.5mg, 1mg Dosed once or twice daily	0.25mg once daily	0.25mg once daily	N/A	0.5mg divided twice daily	0.5mg divided twice daily	N/A	1mg divided twice daily	1mg divided twice daily	N/A

# Time To Practice!

# Cases:

- 10-month old with 3 episodes of recurrent viral wheezing, asymptomatic between illnesses
  - Former full term infant
  - In daycare
  - No eczema
  - Maternal cousin with asthma
- A. Albuterol in yellow zone only
  - B. Start low dose ICS daily
  - C. Start SMART with Symbicort (budesonide/formoterol)
  - D. Start budesonide 1mg BID for 7-10 days with respiratory illness
  - E. Start Singulair (Montelukast)

<b>Green Zone</b>		No asthma symptoms – Able to do usual activities and sleep without having symptoms.		Good!
Avoid known triggers, shake and prime inhaler, rinse mouth after inhaled steroids				
1. Take controller medicines every day				
Medicine	Amount	How often		
2. Take these medicines prescribed by the doctor (i.e. antihistamines and nasal sprays)				
Medicine	Amount	How often		
3. Take this medicine 15 minutes before exercise (prime it first, if needed)				
Medicine	Amount	How often		
Coughing, wheezing, shortness of breath, chest tightness, waking at night, Caution can't do regular physical activities. Must continue albuterol for at least 3 days. Keep taking Green Zone medications. After 24 hours if symptoms worsen, call your primary care physician.				
1. Start rescue medicine				
Medicine (prime it first, if needed)	Amount	How Often		
Budesonide nebulizer	1mg	Twice a day for 7-10 days		
Albuterol HFA 90mcg	4 puffs	Every 6 hours		
2. If not improving or symptoms worsen, increase or add the following				
Medicine	Amount	How often		
Budesonide nebulizer	1mg	Twice a day for 7-10 days		
Albuterol HFA 90 mcg	4 puffs	Every 3 hours		
<b>Red Zone</b>	Symptoms are severe, not responding to yellow zone treatments: very short of breath, fast breathing, skin pulling between ribs or at neck. TAKE RESCUE MEDICINE AND PROCEED TO THE EMERGENCY ROOM-CALL 911 IF UNABLE TO TALK OR CONCERN FOR SAFETY DURING TRANSPORTATION TO THE EMERGENCY ROOM			Danger
Medicine	Amount	How often		
Albuterol HFA 90 mcg	4 puffs	every 15 minutes up to 3 times while on way to ER		
School:	Grade:	Phone:	Fax:	
This child may carry his/her: Inhaled Asthma Medicine: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO Epi-Pen: <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> N/A				
Parent/ guardian authorizes exchange of information about this child's asthma between provider's office and school nurse:				
<input type="checkbox"/> YES <input type="checkbox"/> NO				
Parent/ guardian authorizes school (nurse) to administer rescue asthma medicine as outlined in Asthma Action Plan:				
<input type="checkbox"/> YES <input type="checkbox"/> NO				

# Cases:

- 10-month old with 4 episodes of recurrent viral wheezing, some chronic cough that worsens at night
  - Former 28 weeker
  - In daycare
  - Eczema
  - Maternal history of asthma
- A. Albuterol in yellow zone only
  - B. Start low dose ICS daily
  - C. Start SMART with Symbicort (budesonide/formoterol)
  - D. Start budesonide 1mg BID for 7-10 days with respiratory illness
  - E. Start Singulair (Montelukast)

<b>Green Zone</b> No asthma symptoms – Able to do usual activities and sleep without		
Avoid known triggers, shake and prime inhaler, rinse mouth after inhaled steroids		
1. Take controller medicines every day		
Medicine	Amount	How often
Flovent (fluticasone propionate) MDI	2 puffs	Twice a day
2. Take these medicines prescribed by the doctor (i.e. antihistamines and nasal sprays)		
Medicine	Amount	How often
3. Take this medicine 15 minutes before exercise (prime it first, if needed)		
Medicine	Amount	How often
<b>Yellow Zone</b> Coughing, wheezing, shortness of breath, chest tightness, waking at night, can't do regular physical activities. Must continue albuterol for at least 3 days. Keep taking Green Zone medications. After 24 hours if symptoms worsen, call your primary care physician. <span style="float: right;">Caution</span>		
1. Start rescue medicine		
Medicine (prime it first, if needed)	Amount	How Often
Albuterol HFA 90 mcg	4 puffs	Every 6 hours
2. If not improving or symptoms worsen, increase or add the following		
Medicine	Amount	How often
Albuterol HFA 90 mcg	4 puffs	Every 3 hours
<b>Red Zone</b> Symptoms are severe, not responding to yellow zone treatments: very short of breath, fast breathing, skin pulling between ribs or at neck. TAKE RESCUE MEDICINE AND PROCEED TO THE EMERGENCY ROOM-CALL 911 IF UNABLE TO TALK OR CONCERN FOR SAFETY DURING TRANSPORTATION TO THE EMERGENCY ROOM <span style="float: right;">Danger</span>		
Medicine	Amount	How often
Albuterol HFA 90 mcg	4 puffs	every 15 minutes up to 3 times while on way to ER
School:	Grade:	Phone:
		Fax:
This child may carry his/her: Inhaled Asthma Medicine: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO      Epi-Pen: <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> N/A		
Parent/ guardian authorizes exchange of information about this child's asthma between provider's office and school nurse: <input type="checkbox"/> YES <input type="checkbox"/> NO		
Parent/ guardian authorizes school (nurse) to administer rescue asthma medicine as outlined in Asthma Action Plan: <input type="checkbox"/> YES <input type="checkbox"/> NO		



# Cases:

- 15 year old with severe persistent asthma, admitted for an exacerbation triggered by presumed viral infection.
  - Compliant with Symbicort 80mcg/puff, 1 puff BID with spacer
  - Administering albuterol most days per week especially with sports
- A. Step up to Symbicort 160mcg
  - B. Add Spiriva (tiotropium bromide)
  - C. Switch to SMART with Symbicort 80mcg
  - D. Add budesonide 1mg BID for 7-10 days with respiratory illness
  - E. Start Singulair (Montelukast)

<b>Green Zone</b>		
No asthma symptoms – Able to do usual activities and sleep without having symptoms. <span style="float: right;">Good!</span>		
Avoid known triggers, shake and prime inhaler, rinse mouth after inhaled steroids		
1. Take controller medicines every day		
Medicine	Amount	How often
Symbicort (budesonide and formoterol fumarate dihydrate) HFA 80mcg	1 puff	Twice a day
2. Take these medicines prescribed by the doctor (i.e. antihistamines and nasal sprays)		
Medicine	Amount	How often
3. Take this medicine 15 minutes before exercise (prime it first, if needed)		
Medicine	Amount	How often
Symbicort	1 puff	15 minutes before exercise
Coughing, wheezing, shortness of breath, chest tightness, waking at night, Caution can't do regular physical activities. Must continue Symbicort for at least 3 days. Keep taking Green Zone medications. After 24 hours if symptoms worsen, call your primary care physician. Maximum of 8 puffs/day.		
1. Start rescue medicine		
Medicine (prime it first, if needed)	Amount	How Often
Symbicort 80 mcg	2 puffs	Every 6 hours
2. If not improving or symptoms worsen, increase or add the following		
Medicine	Amount	How often
Symbicort 80 mcg	1 puff	Every 3 hours
<b>Red Zone</b>		
Symptoms are severe, not responding to yellow zone treatments: very short of breath, fast breathing, skin pulling between ribs or at neck. TAKE RESCUE MEDICINE AND PROCEED TO THE EMERGENCY ROOM-CALL 911 IF UNABLE TO TALK OR CONCERN FOR SAFETY DURING TRANSPORTATION TO THE EMERGENCY ROOM <span style="float: right;">Danger</span>		
Medicine	Amount	How often
Albuterol HFA 90 mcg	4 puffs	every 15 minutes up to 3 times while on way to ER
School:	Grade:	Phone:
		Fax:
This child may carry his/her: Inhaled Asthma Medicine: <input type="checkbox"/> YES <input type="checkbox"/> NO Epi-Pen: <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A		
Parent/ guardian authorizes exchange of information about this child's asthma between provider's office and school nurse:		
<input type="checkbox"/> YES <input type="checkbox"/> NO		
Parent/ guardian authorizes school (nurse) to administer rescue asthma medicine as outlined in Asthma Action Plan:		
<input type="checkbox"/> YES <input type="checkbox"/> NO		

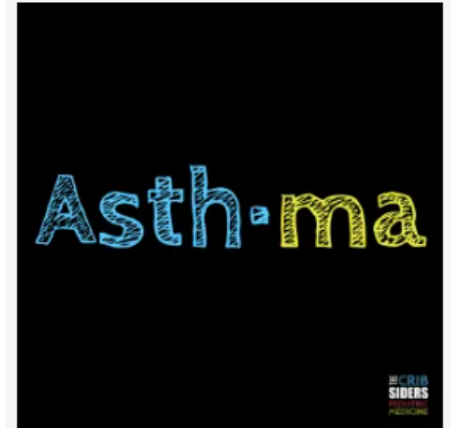
# Cases:

- 6 year old with poorly controlled moderate persistent asthma, currently on low dose ICS (fluticasone 44, 2p BID) admitted for an exacerbation triggered by viral infection
  - Several environmental allergies
  - Frequent snoring
- A. Continue current medications
  - B. Start SMART with Symbicort
  - C. Switch fluticasone to budesonide 1mg BID for 7 days with respiratory illness
  - D. Add Singulair (Montelukast)
  - E. Start SMART, and add nasal steroids and/or cetirizine

<b>Green Zone</b> No asthma symptoms – Able to do usual activities and sleep without		
Avoid known triggers, shake and prime inhaler, rinse mouth after inhaled steroids		
1. Take controller medicines every day		
Medicine	Amount	How often
Symbicort (budesonide and formoterol)	1 puff	Twice a day
2. Take these medicines prescribed by the doctor (i.e. antihistamines and nasal sprays)		
Medicine	Amount	How often
Zyrtec suspension	5mg	Once a day
Flonase	1sprays	Once a day
3. Take this medicine 15 minutes before exercise (prime it first, if needed)		
Medicine	Amount	How often
<b>Yellow Zone</b> Coughing, wheezing, shortness of breath, chest tightness, waking at night, can't do regular physical activities. Must continue Symbicort for at least 3 days. Keep taking Green Zone medications. After 24 hours if symptoms worsen, call your primary care physician. Maximum dose of 8 puffs/day.		Caution
1. Start rescue medicine		
Medicine (prime it first, if needed)	Amount	How Often
Symbicort 80mcg	2 puffs	Every 6 hours
2. If not improving or symptoms worsen, increase or add the following		
Medicine	Amount	How often
Symbicort 80mcg	1 puff	Every 3 hours
<b>Red Zone</b> Symptoms are severe, not responding to yellow zone treatments: very short of breath, fast breathing, skin pulling between ribs or at neck. TAKE RESCUE MEDICINE AND PROCEED TO THE EMERGENCY ROOM-CALL 911 IF UNABLE TO TALK OR CONCERN FOR SAFETY DURING TRANSPORTATION TO THE EMERGENCY ROOM		Danger
Medicine	Amount	How often
Albuterol HFA 90 mcg	4 puffs	every 15 minutes up to 3 times while on way to ER
School:	Grade:	Phone:
This child may carry his/her: Inhaled Asthma Medicine: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO Epi-Pen: <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> N/A		
Parent/ guardian authorizes exchange of information about this child's asthma between provider's office and school nurse: <input type="checkbox"/> YES <input type="checkbox"/> NO		
Parent/ guardian authorizes school (nurse) to administer rescue asthma medicine as outlined in Asthma Action Plan: <input type="checkbox"/> YES <input type="checkbox"/> NO		

# Resources:

- NHLBI/NAEPP 2020 guidelines
  - <https://www.nhlbi.nih.gov/health-topics/asthma-management-guidelines-2020-updates/digital-toolkit>
  - The pdf of the "2020 Focused Updates to the NIH Asthma Management Guidelines: Key Points for Pediatricians" article is: [peds\\_2021050286.pdf \(silverchair.com\)](https://www.silverchair.com/peds_2021050286.pdf)
- GINA guidelines
  - <https://ginasthma.org/pocket-guide-for-asthma-management-and-prevention/>
- Steroid dosing charts
  - [American Lung Association](#)
  - Age <12 years
    - [Estimated comparative daily doses for inhaled glucocorticoids in children](#)
  - Age 12+ years
    - [Estimated comparative daily doses for inhaled glucocorticoids in adolescents ≥12 years and adults](#)



[Cribsiders episode #8](#)

# Smart Phrases For The Asthma Action Plans:

- .pedipulmactionplan
- .isosmart511
- .isosmart12



My email is: [anne.coates@mainehealth.org](mailto:anne.coates@mainehealth.org)

**Thank you!**

