



**L.A. Care**  
HEALTH PLAN®

*For All of L.A.*

# L.A. Care Health Plan's CME and CE Activities Ground Rules



**ELEVATING  
HEALTHCARE**  
IN LOS ANGELES COUNTY  
SINCE 1997

Welcome, Thank you for  
being here today and  
Thank you to Presenter(s)  
and L.A. Care Staff



L.A. Care  
HEALTH PLAN®

For All of L.A.

L.A. Care Provider Continuing  
Education (PCE) Program

# CME & CE Activities' Ground Rules



- **ALL** phones must be on silent mode.
- Partial credits are not allowed for those who come in late or leave early. Dinner Events and Saturday Conferences and PCE Program webinars are CME/CE activities and L.A. Care must stay in compliance with our accreditation Boards (CMA, CA BRN and CAMFT).
- Please refrain from having conversations at your table while the presentation is going on. Let's all be mindful and respectful to our presenters and to each other.
- For Q&A session, please keep your questions brief, concise and to the point.
- Respect others opinions; Agree to disagree.
- Powerpoint presentations will not be emailed. ***Please take notes.***
- End of the Program is End of Closing Remarks by our Host(s) for Saturday Conferences and/or end of Q&A session by presenter for CME/CE dinner events.
- *Please complete the evaluation form at the end of the program and submit to L.A. Care staff at the registration table in exchange for the CME / CE certificate.*
- **Each attendee / learner is responsible for keeping track of their own CME or CE credits and certificates. The L.A. Care PCE Program Manager is not responsible for looking up which Conferences and dinner events you attended in the past. The L.A. Care PCE Program Manager can only verify your attendance based on the sign in sheets if you provide the dates of the Conferences and webinars you attended.**
- L.A. Care has limited budget for our CME/CE activities, therefore, limited with what we can provide for breakfast, lunch, afternoon snack and/or dinner.

***Thank you for your understanding and cooperation!***



# *Presenter's Bio*

## *Sande Okelo, MD, PhD*

- As a pediatric pulmonologist and researcher, Dr. Okelo is interested in improving asthma care for children, particularly those children at risk for poor care and poor asthma outcomes. He has developed an asthma specialist clinic for children that incorporates clinical care, patient education and clinical research. Dr. Okelo's research interests range from physician decision-making regarding asthma treatment to the development of strategies to improve asthma care.
- Associate Professor of Pediatrics, UCLA
- Director, Pediatric Asthma Center of Excellence, UCLA

# *Asthma Management in the Primary Care Setting*

April 25, 2024, Almansor Court, Alhambra, CA 91801

CME/CE Dinner Event, 6:30 pm – 8:30 pm PST,

2 CME/CE Credits

Directly Provided CME / CE Activity by L.A. Care Health Plan

**Sande Okelo, MD, PhD**

**UCLA Division of Pediatric Pulmonology and Sleep  
Medicine**

# Disclosures

The following CME planners and faculty do not have relevant financial relationships with ineligible companies in the past 24 months:

- Leilanie Mercurio, L.A. Care PCE Program Manager, CME Planner
- Sande Okelo, MD, PhD, Associate Professor of Pediatrics, UCLA;  
Director, UCLA Pediatric Asthma Center of Excellence, CME Planner and Faculty

An ineligible company is any entity whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.

Commercial support was not received for this CME/CE activity.

# Cultural and Linguistic Competency (CLC)

This presentation includes content or topics that address:

- Patient Demographics including Age, Race/Ethnicity, Gender, Sexual Orientation
- Language/ Communication
- Religion
- Socioeconomics
- Physical Abilities / Qualities
- Awareness and Attitude Towards Cultural Differences
- Health Literacy
- Disparities in Care, Education, Geographic Location

# Course Outline

1. Asthma diagnosis
2. Asthma assessment questionnaire in asthma management
3. 2020 Asthma Guideline Updates: intermittent inhaled steroids and SMART therapy
4. Case-based learning



# Learning Objectives

1. List the three (3) asthma diagnostic criteria from national asthma guidelines.
2. Summarize how to incorporate an asthma assessment questionnaire into clinical practice.
3. Identify the four (4) levels of asthma severity (intermittent, mild persistent, moderate persistent, severe persistent) using an asthma assessment questionnaire.
4. Summarize the differential diagnosis of uncontrolled asthma.

# A few thoughts before we start...

1. Asthma is simple but not easy
2. When not diagnosing or not treating asthma, are you doing harm?
  1. How do you know?
3. Your asthma care should be a results-driven process
  1. Is your patient doing well or not?
    1. How do you know?
4. No standardization of assessment = poor care

# Case

- 26 month old male presenting to ER w/ one day of cough, post-tussive emesis, fatigue, and respiratory distress including retractions and increased work of breathing.
- Dx'd with bronchiolitis ~3wks ago: symptom-relief with albuterol inhaler; used ~twice in the last three weeks for evening/night time cough. Family declined prednisone.
- Dad w/ asthma. Mom/Dad w/ seasonal allergies
- ED Course: Pulse 140 | Temp 36.1 | Resp 44 | SpO2 (!) 85%
- Mod resp distress: tachypnea, accessory muscle use, exp wheeze.
- Duoneb x2, zofran x1, NS 30mL/kg x1, methylpred 1mg/kg x1
- CXR reassuring against focal consolidation.
- Improved exam, but cont'd wheezing and poor air movement

# Hospital Course

- Hosp x 3 days.
- Continuous albuterol. Methylprednisolone. Desaturated 91% when continuous albuterol removed, 2L NC initiated.
- Wheezing resolved and air movement throughout lungs significantly improved.
- **ADMISSION DIAGNOSES:** Viral illness, bronchiolitis
- **DISCHARGE DIAGNOSES:** Viral illness, reactive airway disease

# Discharge: Dosing & Instructions

## Medication List

**What's missing?**

### START taking these medications

**acetaminophen 32 mg/ml liquid**

Commonly known as: Tylenol

Take 3.5 mLs (112 mg total) by mouth every six (6) hours as needed.

**dexamethasone 2 mg tablet**

Take 3 tablets (6 mg total) by mouth once Please crush, mix in food, and give 10/7 at night for 1 dose.

### CONTINUE taking these medications

**albuterol 90 mcg/act inhaler**

Commonly known as: Proventil HFA, Ventolin HFA

Inhale 2 puffs every four (4) hours as needed (shortness of breath or wheezing).

# NIH Asthma Guidelines: Expert Panel Reports: Systematic Review of Evidence + Expert Opinion





# GLOBAL STRATEGY FOR ASTHMA MANAGEMENT AND PREVENTION

Updated 2021

# GINA Asthma Guidelines 2021

## **CONTROL-BASED ASTHMA MANAGEMENT**

In control-based asthma management, pharmacological and non-pharmacological treatment is adjusted in a continuous cycle that involves assessment, treatment and review (Box 3-2). Asthma outcomes have been shown to improve after the introduction of control-based guidelines<sup>151,152</sup> or practical tools for implementation of control-based management strategies.<sup>142,153</sup> The concept of control-based management is also supported by the design of most randomized controlled medication trials, with patients identified for a change in asthma treatment on the basis of features of poor symptom control with or without other risk factors such as low lung function or a history of exacerbations.

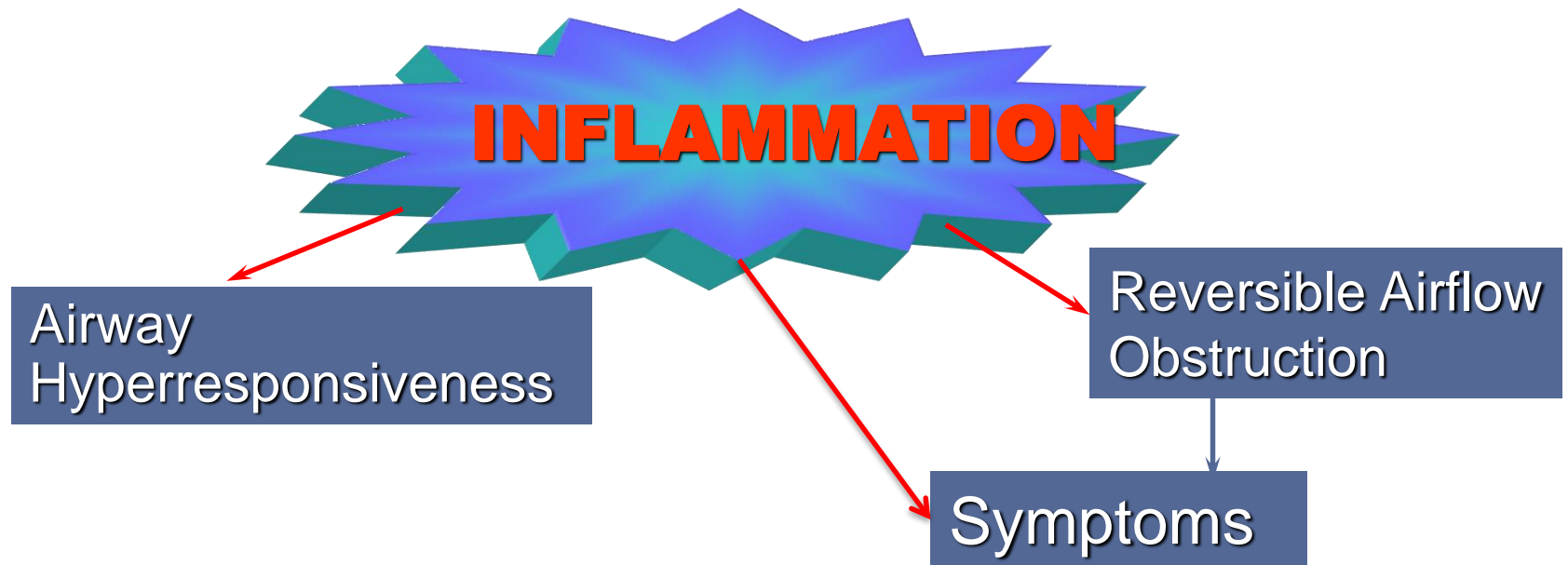




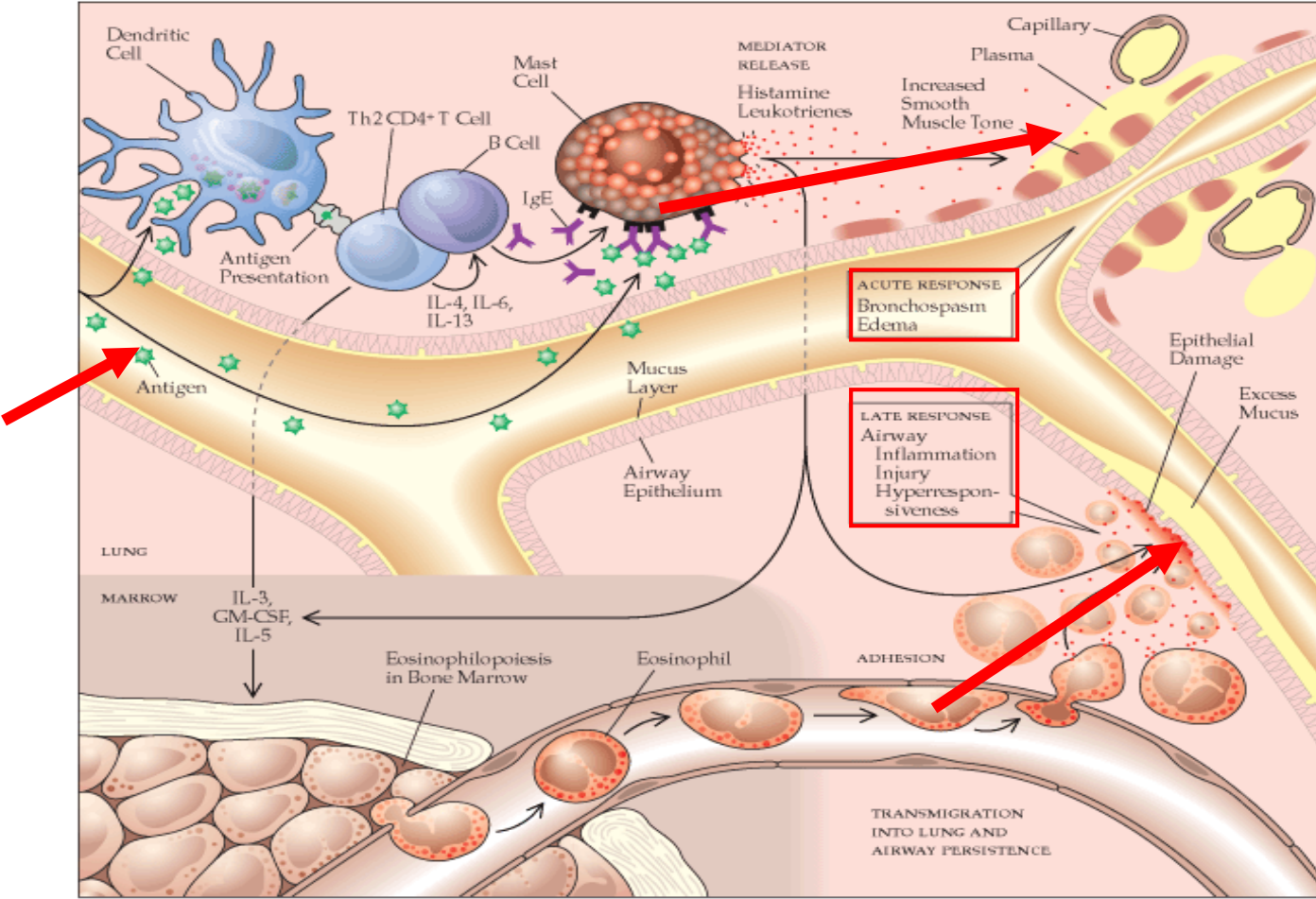
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# Diagnosis

# Biology of Asthma



# Asthma Pathogenesis

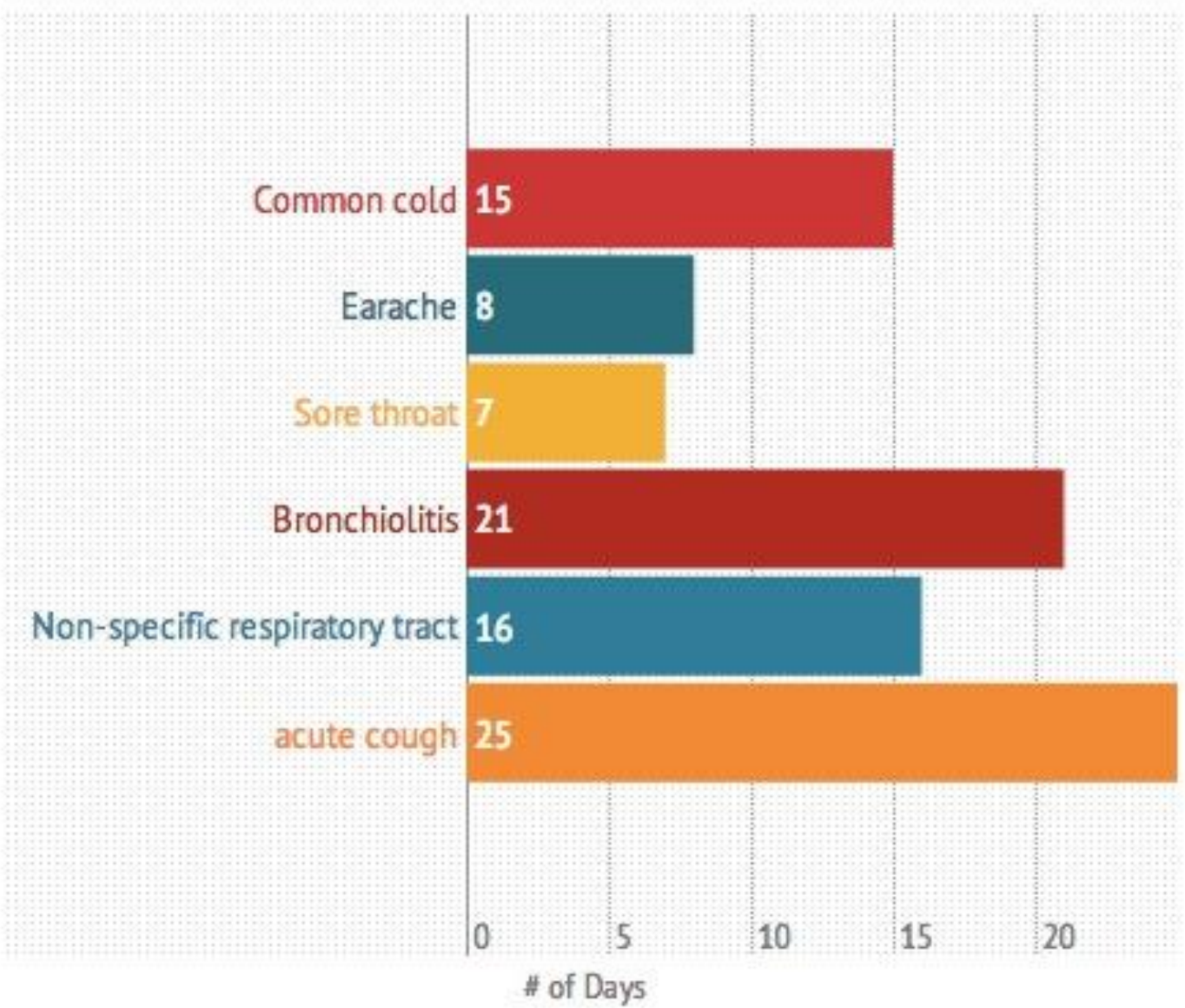


# To establish a diagnosis of asthma, determine that:

- Asthma symptoms occur more than once
  - Cough
  - Wheeze
  - Chest pain/tightness
  - Shortness of breath (exertional)
  - Decreased stamina
- Asthma symptoms improve with asthma medicines
  - Adequate dose, duration and technique
- Alternative diagnoses are excluded
  - Habit cough; chronic sinusitis; GERD

AGE IS NOT A  
CRITERION!

# How Long Are Resp Sx's in 90% of Children?



# Chronic Cough Definition

- Coughing >4 weeks
- Avoid missing serious diagnoses
  - Foreign body aspiration
  - Immunodeficiency
  - *Cystic fibrosis*

# Causes of Chronic Cough

- Asthma
- Aspiration
- Bronchiectasis
- Cilia dysfunction
- Congenital lung malformation
- ACE inhibitors
- Cystic Fibrosis
- Heart Failure
- GERD
- Habit Cough
- Immunodeficiency
- Post-viral Infection
- Interstitial Lung Disease
- Neuromuscular Disease
- Protracted bacterial bronchitis (PBB)
- Sinusitis (chronic)

# Common Causes of Cough

- Asthma
- Aspiration
- Bronchiectasis
- Cilia dysfunction
- Congenital lung malformation
- ACE inhibitors
- Cystic Fibrosis
- Heart Failure
- GERD
- Habit Cough
- Immunodeficiency
- Post-viral Infection
- Interstitial Lung Disease
- Neuromuscular Disease
- Pertussis
- Protracted bacterial bronchitis (PBB)
- Sinusitis (chronic)



# Uncommon Causes of Cough

- Asthma
- **Aspiration**
- Bronchiectasis
- Cilia dysfunction
- Congenital lung malformation
- ACE inhibitors
- **Cystic Fibrosis**
- **Heart Failure**
- **GERD**
- Habit Cough
- Immunodeficiency
- Post-viral Infection
- Interstitial Lung Disease
- Neuromuscular Disease
- Pertussis
- Protracted bacterial bronchitis (PBB)
- Sinusitis (chronic)

# Rare Causes of Cough

- Asthma
- Aspiration
- Bronchiectasis
- Cilia dysfunction
- Congenital lung malformation
- ACE inhibitors
- Cystic Fibrosis
- Heart Failure
- GERD
- Habit Cough
- Immunodeficiency
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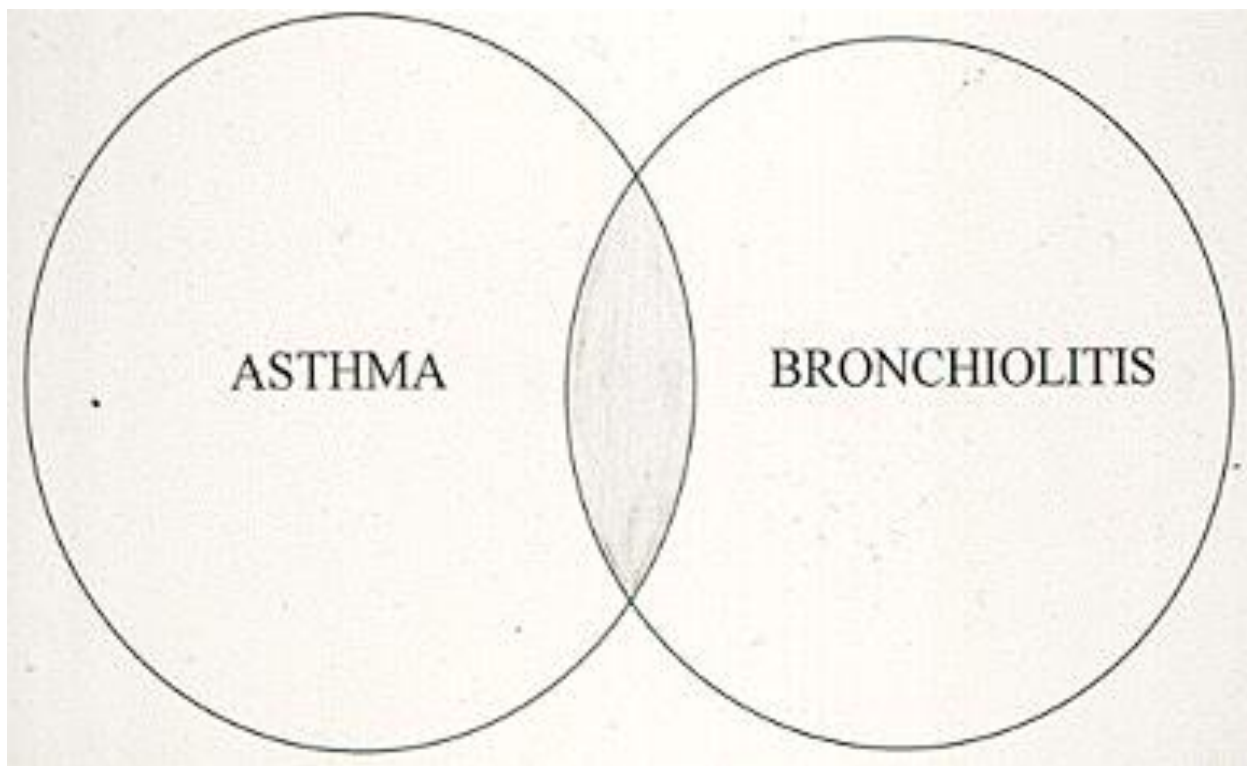
Take 3 tablets (6 mg total) by mouth once Please crush, mix in food, and give 10/7 at night for 1 dose.

### CONTINUE taking these medications

**albuterol 90 mcg/act inhaler**

Commonly known as: Proventil HFA, Ventolin HFA

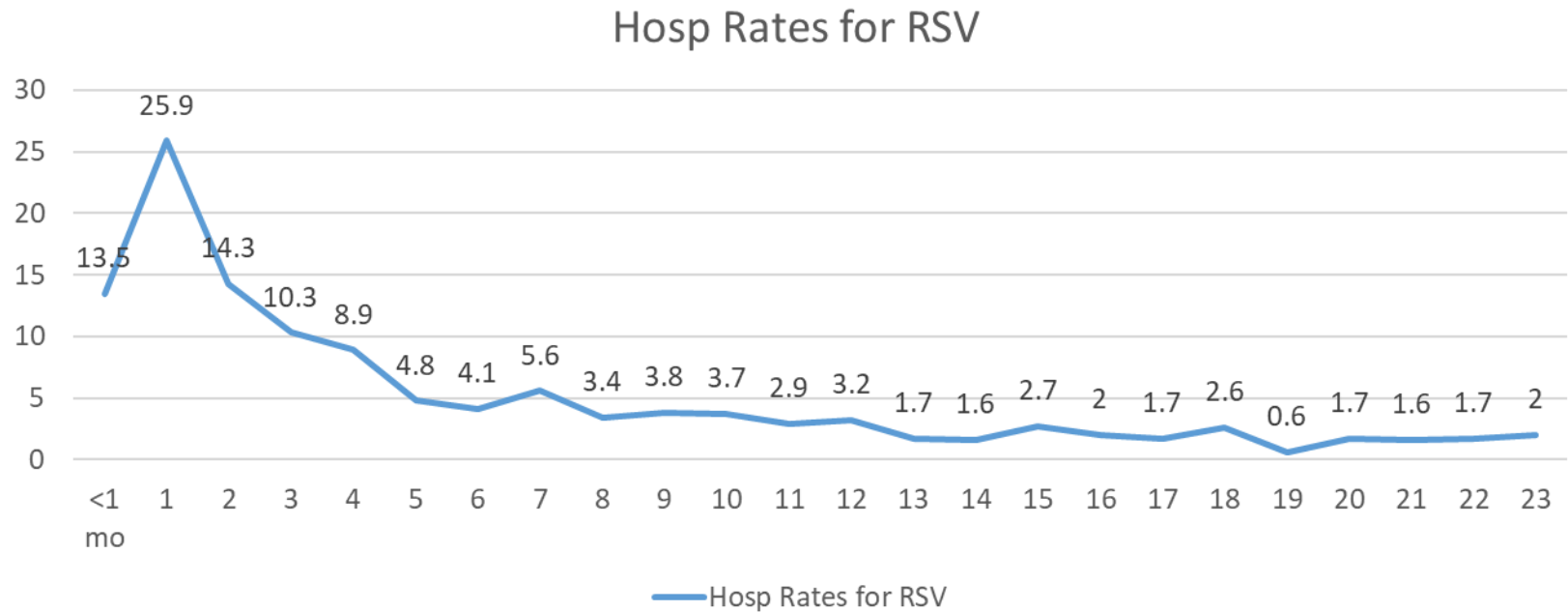
Inhale 2 puffs every four (4) hours as needed (shortness of breath or wheezing).



# EPIDEMIOLOGY

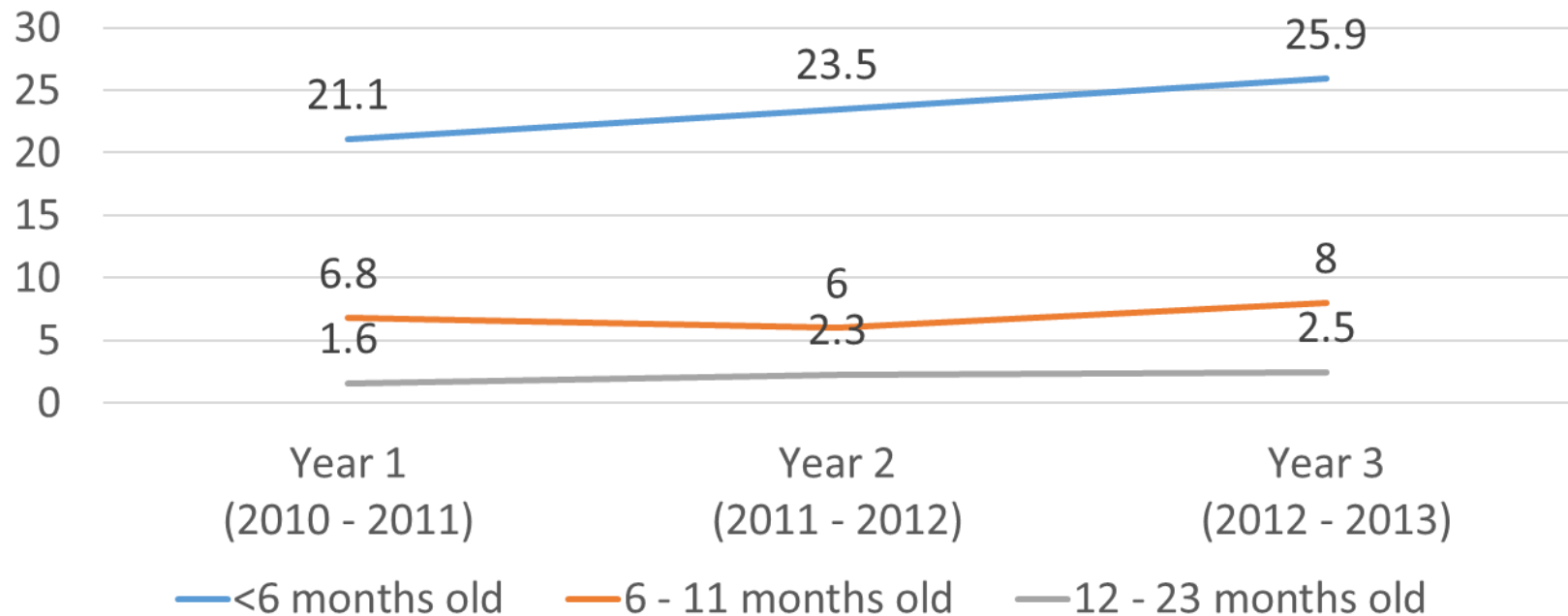
- Lowest attack rate adults (17%)
- Highest attack previously uninfected day-care infants (98%)
- Almost all children in a high-pop. urban setting will acquire by age 2 yrs.

# Average Age-Specific Rates of Hospitalization for RSV Infection Among Children <24 Months of Age (2000 – 2005)

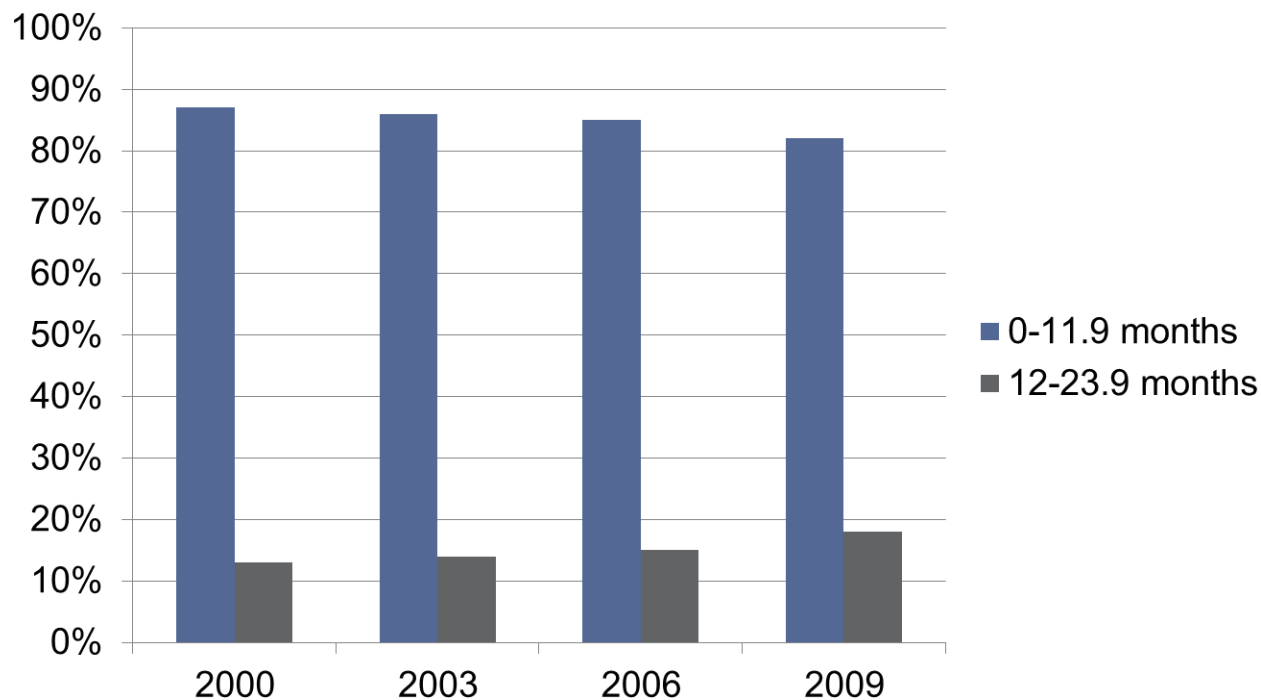




# Rates of RSV Hospitalizations by Age (per 1,000 persons)

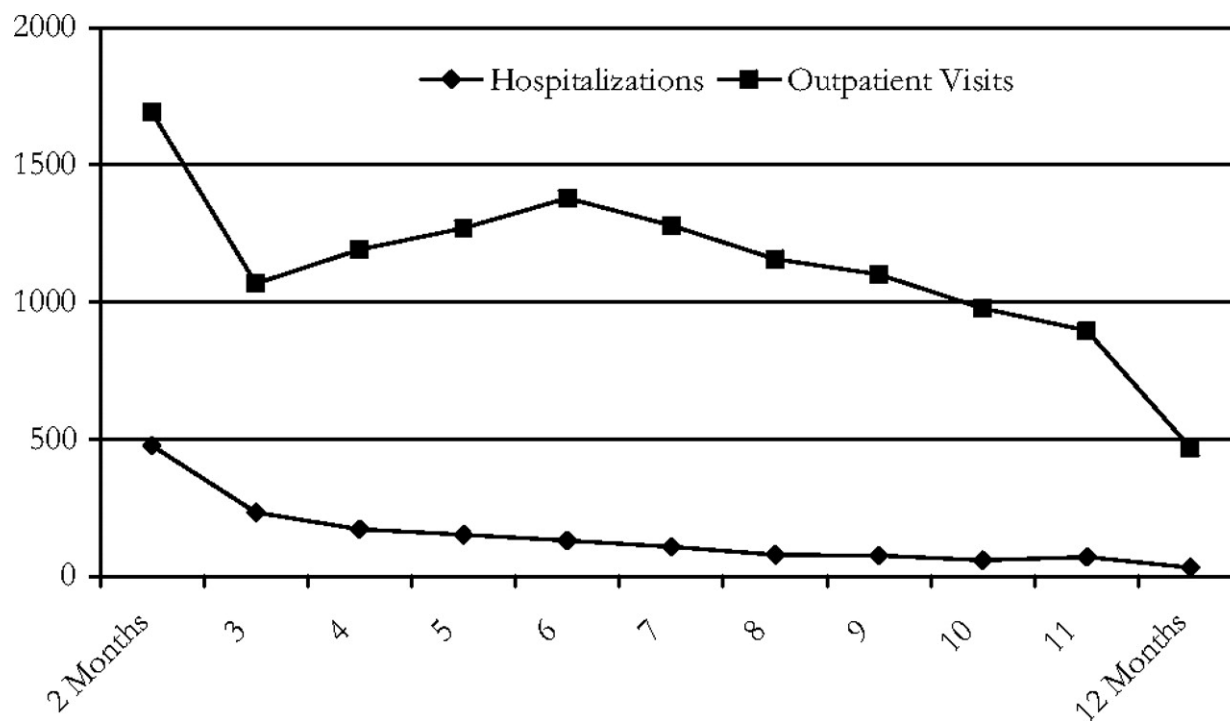


## Percentage of Hospitalizations for Bronchiolitis by Age, 2000 - 2009 (n = 544, 828)



Kohei Hasegawa et al. *Pediatrics* 2013;132:28-36

## Frequency of bronchiolitis cases according to age of diagnosis (3-year cohort = 93, 058 infants).



# Course Outline

1. Asthma diagnosis
2. *Asthma assessment questionnaire in asthma management*
3. 2020 Asthma Guideline Updates: intermittent inhaled steroids and SMART therapy
4. Case-based learning

# Direction, Bother, Risk, Adherence, Control

Who?  
 most poor outcomes in the past

How?  
 most frequent follow-up  
 most specialist referrals  
 most intensive medications

**Communicate with Your Child's Doctor about His / Her Asthma**

Asthma also includes reactive airway disease, regular coughing, wheezing, or difficulty breathing with or without colds.

Your child's name: \_\_\_\_\_ Today's Date: \_\_\_\_\_

When was your child's last asthma visit? \_\_\_\_\_. If your child has never had an asthma visit, check here:

Please check  one answer for each of the following questions. Your answers will help your doctor give you the best asthma care.

Questions 1-6 ask about how your child's asthma has been over the past 12 months, not just today. If your child has had asthma for less than 12 months, then think about how things have been since he/she started having breathing problems.

Over the past 12 months	Direction		
1. How has your child's asthma been?	Getting Better <input checked="" type="checkbox"/>	Staying the Same <input type="checkbox"/>	Getting Worse <input type="checkbox"/>

Over the past 12 months	Bothered		
2. How much have you been bothered by your child's asthma?	Not Bothered <input checked="" type="checkbox"/>	Somewhat Bothered <input type="checkbox"/>	Very Bothered <input type="checkbox"/>

Over the past 12 months	Risk				
Before today:	0	1	2	3	≥4
3. How many times has your child been to <u>urgent care</u> for asthma over the past 12 months?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. How many times has your child been to the <u>emergency room</u> for asthma over the past 12 months?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. How many times has your child been <u>hospitalized</u> for asthma over the past 12 months?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. How many times has your child used <u>an oral steroid</u> (Orapred, steroid pill, steroid liquid or steroid syrup) for asthma over the past 12 months? Don't include today.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**FOR CLINICIAN USE ONLY:**  
 Assign patient's level of chronic asthma control by looking at the box checked farthest to the right on questions 3-6. Match the box color to the level of asthma control in this section.

	Controlled	Partly Controlled	Mildly Uncontrolled	Moderately Uncontrolled	Severely Uncontrolled
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Take Medicine					
7. How often do you give your child's <u>daily</u> asthma medicine when he/she feels fine?	My child is not supposed to take a daily asthma medicine <input type="checkbox"/>	All of the time 5-7 days/week <input checked="" type="checkbox"/>	Most of the time 3-4 days/week <input type="checkbox"/>	Some of the time 1-2 days/week <input type="checkbox"/>	None of the time <input type="checkbox"/>
<b>Daily asthma medicines include:</b> Advair, Alvesco, Asmanex, Budesonide, Flovent, QVAR, Pulmicort, Singular, Symbicort					

**FOR CLINICIAN USE:** If any of the answers in red  are selected, this may be consistent with poorly controlled and/or undertreated asthma. Further assessment and follow-up in 2-6 weeks is recommended.

Risk-stratify  
 Identify those with...  
 the highest risk for poor outcomes in the future...  
 the worst prognosis...  
 and/or the most needs

Why?  
 Limited resources...  
 money, specialists, etc

Clinic, Urgent Care, ED, Hospital

## Pediatric Asthma Control & Communication Instrument

### Asthma Symptoms

7. Over the **past week**, how many days has your child had asthma symptoms? For example:

- Cough
- Chest tightness
- Shortness of breath
- Sputum (spit, mucous, phlegm when coughing)
- Difficulty taking a deep breath
- Wheezy or whistling sound in the chest



### Reliever use

8. Over the **past week**, how many days have you had to give your child medicine to quickly relieve asthma symptoms? For example:

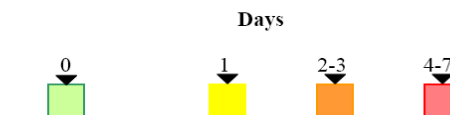
- Albuterol
- Inhaler
- Spray
- Pump
- Machine
- Nebulizer



### Attacks

9. Over the **past week**, how many days did your child have an asthma attack? For example:

- When it is harder for your child to breathe
- When you give your child more asthma medicine
- When the asthma medicine does not work



### Activity Limitation

10. Over the **past week**, how much has asthma limited your child's activities?



### Nighttime Symptoms

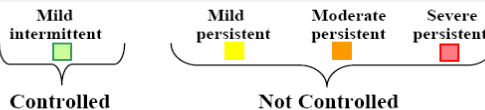
11. Now for this question, please answer about the **past 2 weeks**.

How many nights did **your child's asthma** keep your child from sleeping or wake him/her up in the past 2 weeks?



#### For clinician use only – Asthma Control Assignment

Assign patient's current level of asthma control by looking at box checked farthest to the right on questions 7-11 and match color of this box to level of asthma control in this section and circle and/or document in patient's chart



## Pediatric Asthma Control & Communication Instrument

**Asthma Symptoms**

7. Over the **past week**, how many days has your child had asthma symptoms? For example:

- Cough
- Chest tightness
- Shortness of breath
- Sputum (spit, mucous, phlegm when coughing)
- Difficulty taking a deep breath
- Wheezy or whistling sound in the chest

	<b>Days</b>				
	0	1-2	3-6	Every day (not all day long)	Every day (all day long)
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Reliever use**

8. Over the **past week**, how many days have you had to give your child medicine to quickly relieve asthma symptoms? For example:

- Albuterol
- Inhaler
- Spray
- Pump
- Machine
- Nebulizer

	<b>Days</b>				
	0	1-2	3-6	Every day (not all day long)	Every day (all day long)
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Attacks**

9. Over the **past week**, how many days did your child have an asthma attack? For example:

- When it is harder for your child to breathe
- When you give your child more asthma medicine
- When the asthma medicine does not work

	<b>Days</b>			
	0	1	2-3	4-7
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Activity Limitation**

10. Over the **past week**, how much has asthma limited your child's activities?

	Not at all	Slightly	Moderately	Very much	Completely
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Nighttime Symptoms**

11. Now for this question, please answer about the past 2 weeks.

How many nights did **your child's asthma** keep your child from sleeping or wake him/her up in the past 2 weeks?

	0	1	2	3-7	8-14
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**For clinician use only – Asthma Control Assignment**  
Assign patient's current level of asthma control by looking at box checked farthest to the right on questions 7-11 and match color of this box to level of asthma control in this section and circle and/or document in patient's chart

Mild intermittent <input type="checkbox"/>	Mild persistent <input type="checkbox"/>	Moderate persistent <input type="checkbox"/>	Severe persistent <input checked="" type="checkbox"/>
Controlled		Not Controlled	

Patient and/or Parent  
Completes in  
Waiting/Exam Room

Complete at every  
encounter

Clinic, Urgent Care,  
ED, Hospital

Enlist team members  
to use systematically

Lack of use risks  
inaccurate estimation  
of asthma control/  
severity

If unable to use,  
consider lower  
threshold for  
specialist referral

Use to drive care

# When to start Rescue Medication?

## Pediatric Asthma Control & Communication Instrument

		Asthma Symptoms							
7. Over the <b>past week</b> , how many days has your child had asthma symptoms? For example:	0	1-2	3-6	Every day (not all day long)	Every day (all day long)				
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
<ul style="list-style-type: none"> <li>▪ Cough</li> <li>▪ Chest tightness</li> <li>▪ Shortness of breath</li> <li>▪ Sputum (spit, mucous, phlegm when coughing)</li> <li>▪ Difficulty taking a deep breath</li> <li>▪ Wheezy or whistling sound in the chest</li> </ul>									
		Reliever use							
8. Over the <b>past week</b> , how many days have you had to give your child medicine to quickly relieve asthma symptoms? For example:	0	1-2	3-6	Every day (not all day long)	Every day (all day long)				
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
<ul style="list-style-type: none"> <li>▪ Albuterol</li> <li>▪ Inhaler</li> <li>▪ Spray</li> <li>▪ Pump</li> <li>▪ Machine</li> <li>▪ Nebulizer</li> </ul>									
		Attacks							
9. Over the <b>past week</b> , how many days did your child have an asthma attack? For example:	0	1	2-3	4-7					
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
<ul style="list-style-type: none"> <li>▪ When it is harder for your child to breathe</li> <li>▪ When you give your child more asthma medicine</li> <li>▪ When the asthma medicine does not work</li> </ul>									
		Activity Limitation							
10. Over the <b>past week</b> , how much has asthma limited your child's activities?	Not at all	Slightly	Moderately	Very much	Completely				
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
		Nighttime Symptoms							
11. Now for this question, please answer about the <b>past 2 weeks</b> .  How many nights did <b>your child's asthma</b> keep your child from sleeping or wake him/her up in the past 2 weeks?	0	1	2	3-7	8-14				
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
<p><b>For clinician use only – Asthma Control Assignment</b> Assign patient's current level of asthma control by looking at box checked farthest to the right on questions 7-11 and match color of this box to level of asthma control in this section and circle and/or document in patient's chart</p>		<p>Mild intermittent <input checked="" type="checkbox"/></p>		<p>Mild persistent <input type="checkbox"/></p>		<p>Moderate persistent <input type="checkbox"/></p>		<p>Severe persistent <input type="checkbox"/></p>	
		Controlled		Not Controlled					

Follow-up in 2-6 wks to confirm asthma is controlled



# When to Follow-up?

## Pediatric Asthma Control & Communication Instrument

	Asthma Symptoms				
<p>7. Over the <b>past week</b>, how many days has your child had asthma symptoms? For example:</p> <ul style="list-style-type: none"> <li>▪ Cough</li> <li>▪ Chest tightness</li> <li>▪ Shortness of breath</li> <li>▪ Sputum (spit, mucous, phlegm when coughing)</li> <li>▪ Difficulty taking a deep breath</li> <li>▪ Wheezy or whistling sound in the chest</li> </ul>	0	1-2	3-6	Every day (not all day long)	Every day (all day long)
<p>8. Over the <b>past week</b>, how many days have you had to give your child medicine to quickly relieve asthma symptoms? For example:</p> <ul style="list-style-type: none"> <li>▪ Albuterol</li> <li>▪ Inhaler</li> <li>▪ Spray</li> <li>▪ Pump</li> <li>▪ Machine</li> <li>▪ Nebulizer</li> </ul>	0	1-2	3-6	Every day (not all day long)	Every day (all day long)
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<p>10. Over the <b>past week</b>, how much has asthma limited your child's activities?</p>	Not at all	Slightly	Moderately	Very much	Completely
<p>11. Now for this question, please answer about the <b>past 2 weeks</b>.</p> <p>How many nights did <b>your child's asthma</b> keep your child from sleeping or wake him/her up in the past 2 weeks?</p>	0	1	2	3-7	8-14
<p><b>For clinician use only – Asthma Control Assignment</b> Assign patient's current level of asthma control by looking at box checked farthest to the right on questions 7-11 and match color of this box to level of asthma control in this section and circle and/or document in patient's chart</p>	<p>Mild intermittent</p> <p>Controlled</p>		<p>Mild persistent</p> <p>Moderate persistent</p> <p>Severe persistent</p> <p>Not Controlled</p>		

Follow-up in 2-6 wks to confirm asthma is controlled

Follow-up in 2 – 3 months to confirm asthma remains controlled

# When to start Daily Controller Medications?

## Pediatric Asthma Control & Communication Instrument

		Asthma Symptoms							
7. Over the <b>past week</b> , how many days has your child had asthma symptoms? For example:	0	1-2	3-6	Every day (not all day long)	Every day (all day long)				
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
<ul style="list-style-type: none"> <li>▪ Cough</li> <li>▪ Chest tightness</li> <li>▪ Shortness of breath</li> <li>▪ Sputum (spit, mucous, phlegm when coughing)</li> <li>▪ Difficulty taking a deep breath</li> <li>▪ Wheezy or whistling sound in the chest</li> </ul>									
		Reliever use							
8. Over the <b>past week</b> , how many days have you had to give your child medicine to quickly relieve asthma symptoms? For example:	0	1-2	3-6	Every day (not all day long)	Every day (all day long)				
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
<ul style="list-style-type: none"> <li>▪ Albuterol</li> <li>▪ Inhaler</li> <li>▪ Spray</li> <li>▪ Pump</li> <li>▪ Machine</li> <li>▪ Nebulizer</li> </ul>									
		Attacks							
9. Over the <b>past week</b> , how many days did your child have an asthma attack? For example:	0	1	2-3	4-7					
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
<ul style="list-style-type: none"> <li>▪ When it is harder for your child to breathe</li> <li>▪ When you give your child more asthma medicine</li> <li>▪ When the asthma medicine does not work</li> </ul>									
		Activity Limitation							
10. Over the <b>past week</b> , how much has asthma limited your child's activities?	Not at all	lightly	Moderately	Very much	Completely				
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
		Nighttime Symptoms							
11. Now for this question, please answer about the <b>past 2 weeks</b> .  How many nights did <b>your child's asthma</b> keep your child from sleeping or wake him/her up in the past 2 weeks?	0	1	2	3-7	8-14				
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
<p><b>For clinician use only – Asthma Control Assignment</b> Assign patient's current level of asthma control by looking at box checked farthest to the right on questions 7-11 and match color of this box to level of asthma control in this section and circle and/or document in patient's chart</p>		<p>Mild intermittent <input type="checkbox"/></p>		<p>Mild persistent <input type="checkbox"/></p>		<p>Moderate persistent <input type="checkbox"/></p>		<p>Severe persistent <input type="checkbox"/></p>	
		Controlled		Not Controlled					

Follow-up in 2-6 wks to confirm asthma is controlled

# When to start oral steroids?

## Pediatric Asthma Control & Communication Instrument

Asthma Symptoms						
7. Over the <b>past week</b> , how many days has your child had asthma symptoms? For example:	Days	0	1-2	3-6	Every day (not all day long)	Every day (all day long)
<ul style="list-style-type: none"> <li>Cough</li> <li>Chest tightness</li> <li>Shortness of breath</li> <li>Sputum (spit, mucous, phlegm when coughing)</li> <li>Difficulty taking a deep breath</li> <li>Wheezy or whistling sound in the chest</li> </ul>						
Reliever use						
8. Over the <b>past week</b> , how many days have you had to give your child medicine to quickly relieve asthma symptoms? For example:	Days	0	1-2	3-6	Every day (not all day long)	Every day (all day long)
<ul style="list-style-type: none"> <li>Albuterol</li> <li>Inhaler</li> <li>Spray</li> <li>Pump</li> <li>Machine</li> <li>Nebulizer</li> </ul>						
Attacks						
9. Over the <b>past week</b> , how many days did your child have an asthma attack? For example:	Days	0	1	2-3	4-7	
<ul style="list-style-type: none"> <li>When it is harder for your child to breathe</li> <li>When you give your child more asthma medicine</li> <li>When the asthma medicine does not work</li> </ul>						
Activity Limitation						
10. Over the <b>past week</b> , how much has asthma limited your child's activities?		Not at all	Slightly	Moderately	Very much	Completely
Nighttime Symptoms						
11. Now for this question, please answer about the <b>past 2 weeks</b> .	Nights	0	1	2	3-7	8-14
How many nights did <b>your child's asthma</b> keep your child from sleeping or wake him/her up in the past 2 weeks?						
<b>For clinician use only – Asthma Control Assignment</b>		Mild intermittent		Mild persistent	Moderate persistent	Severe persistent
Assign patient's current level of asthma control by looking at box checked farthest to the right on questions 7-11 and match color of this box to level of asthma control in this section and circle and/or document in patient's chart						
		Controlled		Not Controlled		

Follow-up in 2-6 wks to confirm asthma is controlled

# When to step-down or stop treatment?

## Pediatric Asthma Control & Communication Instrument

Asthma Symptoms	
<p>7. Over the <b>past week</b>, how many days has your child had asthma symptoms? For example:</p> <ul style="list-style-type: none"> <li>▪ Cough</li> <li>▪ Chest tightness</li> <li>▪ Shortness of breath</li> <li>▪ Sputum (spit, mucous, phlegm when coughing)</li> <li>▪ Difficulty taking a deep breath</li> <li>▪ Wheezy or whistling sound in the chest</li> </ul>	<p>Days</p> <p>0      1-2      3-6      Every day (not all day long)      Every day (all day long)</p>
Reliever use	
<p>8. Over the <b>past week</b>, how many days have you had to give your child medicine to quickly relieve asthma symptoms? For example:</p> <ul style="list-style-type: none"> <li>▪ Albuterol</li> <li>▪ Inhaler</li> <li>▪ Spray</li> <li>▪ Pump</li> <li>▪ Machine</li> <li>▪ Nebulizer</li> </ul>	<p>Days</p> <p>0      1-2      3-6      Every day (not all day long)      Every day (all day long)</p>
Attacks	
<p>9. Over the <b>past week</b>, how many days did your child have an asthma attack? For example:</p> <ul style="list-style-type: none"> <li>▪ When it is harder for your child to breathe</li> <li>▪ When you give your child more asthma medicine</li> <li>▪ When the asthma medicine does not work</li> </ul>	<p>Days</p> <p>0      1      2-3      4-7</p>
Activity Limitation	
<p>10. Over the <b>past week</b>, how much has asthma limited your child's activities?</p>	<p>Not at all      Slightly      Moderately      Very much      Completely</p>
Nighttime Symptoms	
<p>11. Now for this question, please answer about the <b>past 2 weeks</b>.</p> <p>How many nights did <b>your child's asthma</b> keep your child from sleeping or wake him/her up in the past 2 weeks?</p>	<p>Nights</p> <p>0      1      2      3-7      8-14</p>
<p><b>For clinician use only – Asthma Control Assignment</b> Assign patient's current level of asthma control by looking at box checked farthest to the right on questions 7-11 and match color of this box to level of asthma control in this section and circle and/or document in patient's chart</p>	<p>Mild intermittent      Mild persistent      Moderate persistent      Severe persistent</p> <p>Controlled      Not Controlled</p>

When controlled for  $\geq 3$  months

When controlled for  $\geq 12$  months if hospitalized and/or required oral steroids

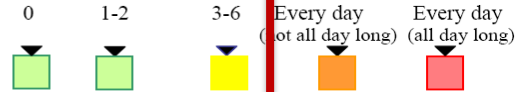
# When to refer to asthma specialist?

## Pediatric Asthma Control & Communication Instrument

### Asthma Symptoms

7. Over the **past week**, how many days has your child had asthma symptoms? For example:

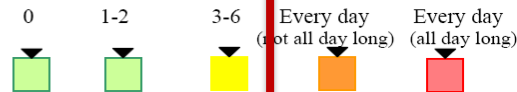
- Cough
- Chest tightness
- Shortness of breath
- Sputum (spit, mucous, phlegm when coughing)
- Difficulty taking a deep breath
- Wheezy or whistling sound in the chest



### Reliever use

8. Over the **past week**, how many days have you had to give your child medicine to quickly relieve asthma symptoms? For example:

- Albuterol
- Inhaler
- Spray
- Pump
- Machine
- Nebulizer



### Attacks

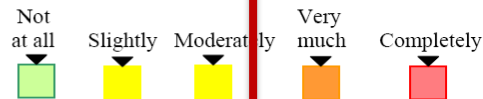
9. Over the **past week**, how many days did your child have an asthma attack? For example:

- When it is harder for your child to breathe
- When you give your child more asthma medicine
- When the asthma medicine does not work



### Activity Limitation

10. Over the **past week**, how much has asthma limited your child's activities?



### Nighttime Symptoms

11. Now for this question, please answer about the **past 2 weeks**.

- How many nights did **your child's asthma** keep your child from sleeping or wake him/her up in the past 2 weeks?



### For clinician use only – Asthma Control Assignment

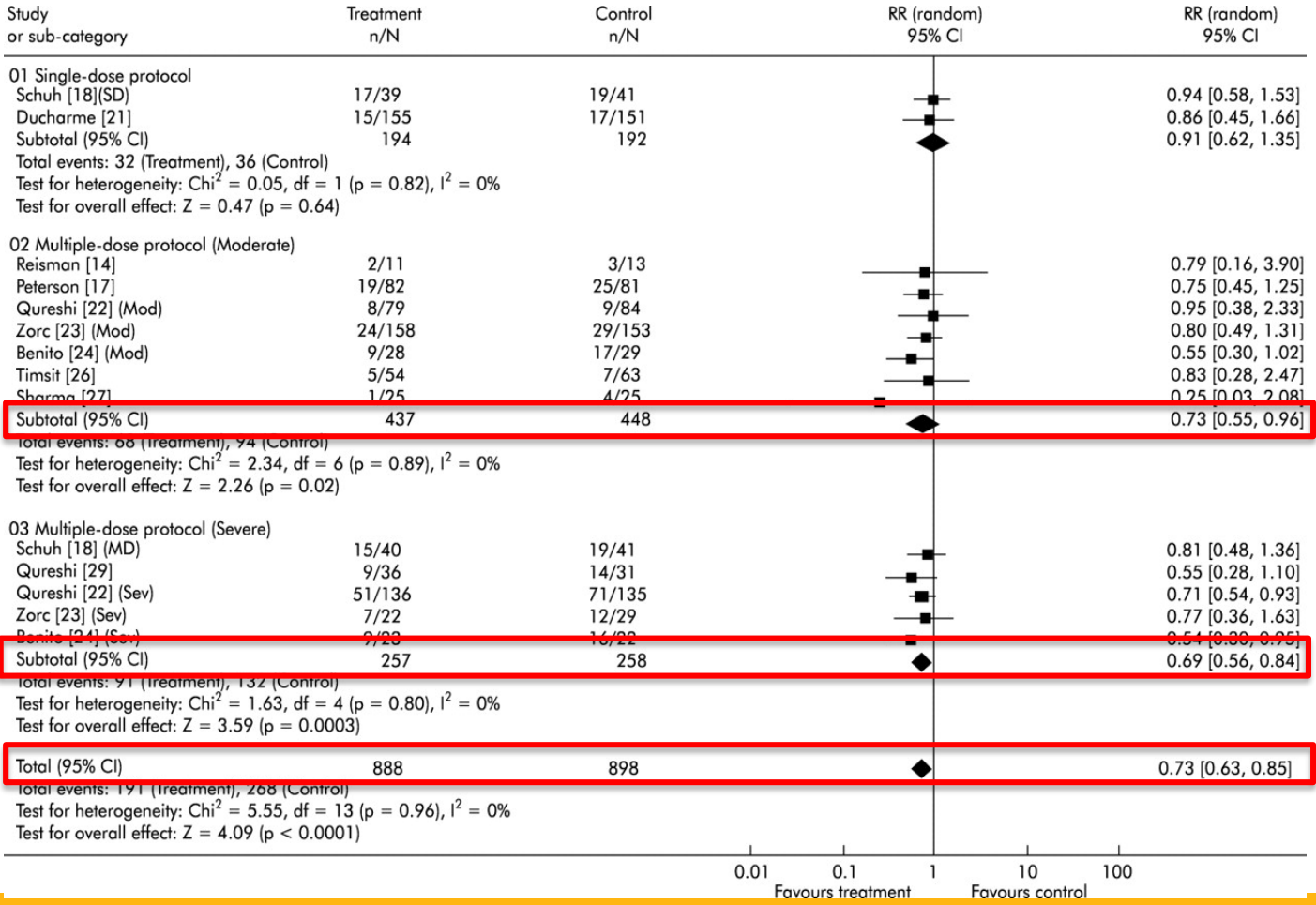
Assign patient's current level of asthma control by looking at box checked farthest to the right on questions 7-11 and match color of this box to level of asthma control in this section and circle and/or document in patient's chart



# Albuterol Inhalation for Exacerbations

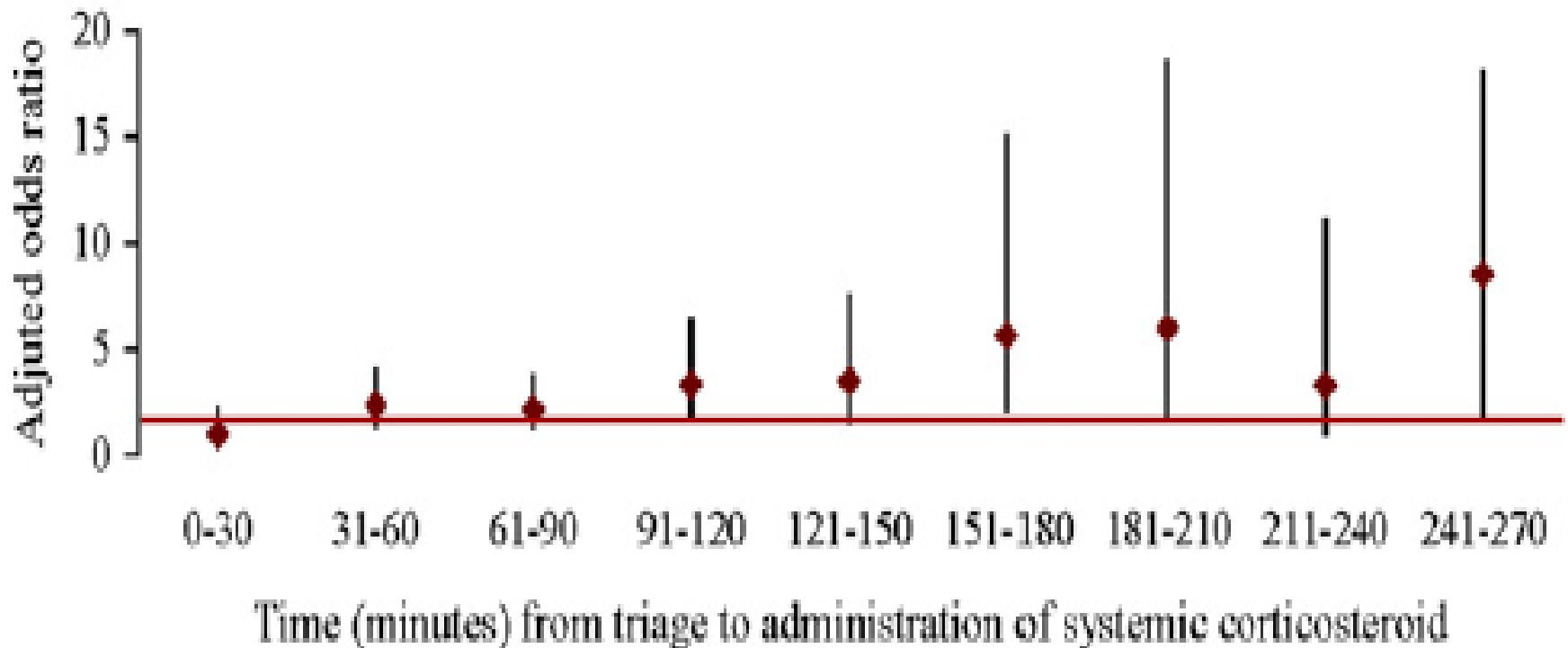
Medication	Dosages		Comments
	Child Dose (<12 yrs)	Adult Dose* (≥12 yrs)	
<b>Inhaled Short-Acting Beta<sub>2</sub>-Agonists (SABA)</b>			
Albuterol			
Nebulizer solution	<u>0.15 mg/kg</u> (minimum dose 2.5 mg) every 20 minutes for <u>3 doses</u> then <u>0.15–0.3 mg/kg</u> up to 10 mg every 1–4 hours 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.
A. (0.63 mg/3 mL, 1.25 mg/3 mL, 2.5 mg/3 mL, 5.0 mg/mL)			
MDI	<u>4–8 puffs</u> 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.
B. (90 mcg/puff)			

# Anti-cholinergic $\beta$ 2 agonist: multiple doses most effective in mod – severe + exacerbations: admits



# Early Oral Steroid Administration Reduces Admit Rates

## A. Admission





# Oral Steroids for Moderate/Severe Persistent Asthma 1mg/kg/day x3 – 10 days with Albuterol

Prednisolone  
(15mg/5ml)



Prednisolone  
(15mg/5ml)



OraPred  
(15mg/5ml)



**4 times a day**



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# 2020 FOCUSED UPDATES TO THE Asthma Management Guidelines



A Report from the National  
Asthma Education and Prevention  
Program Coordinating Committee  
Expert Panel Working Group



U.S. Department of Health and Human Services  
National Institutes of Health  
National Heart, Lung, and Blood Institute

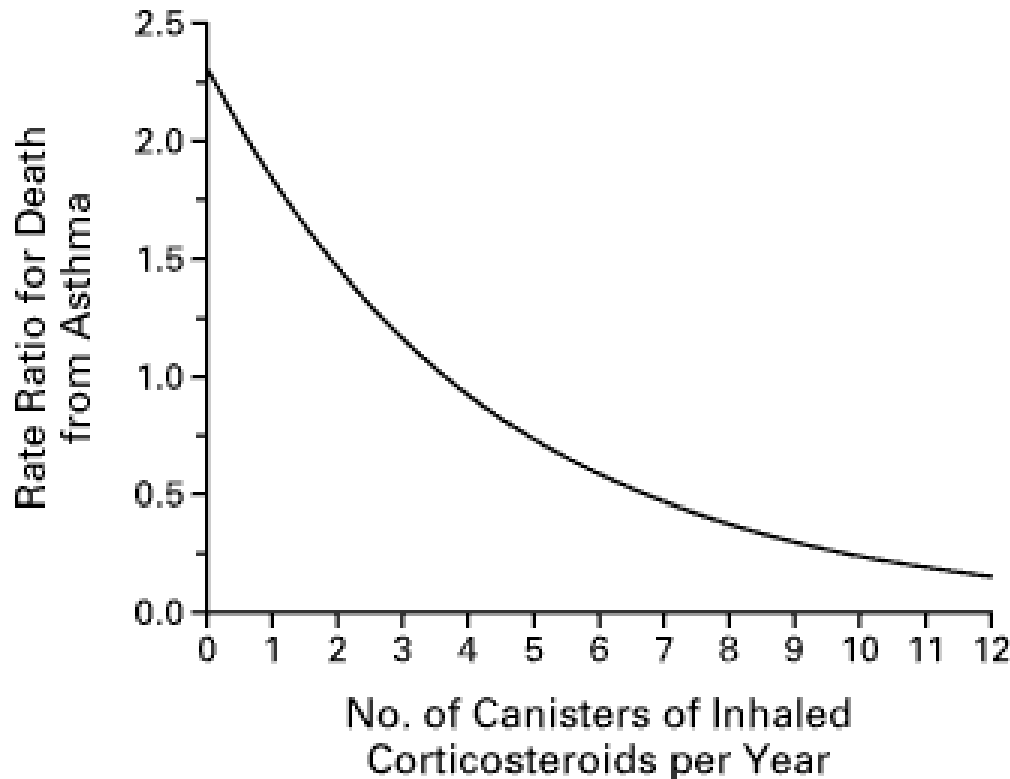
UCLA



Children's Hospital

Discovery & Innovation Institute

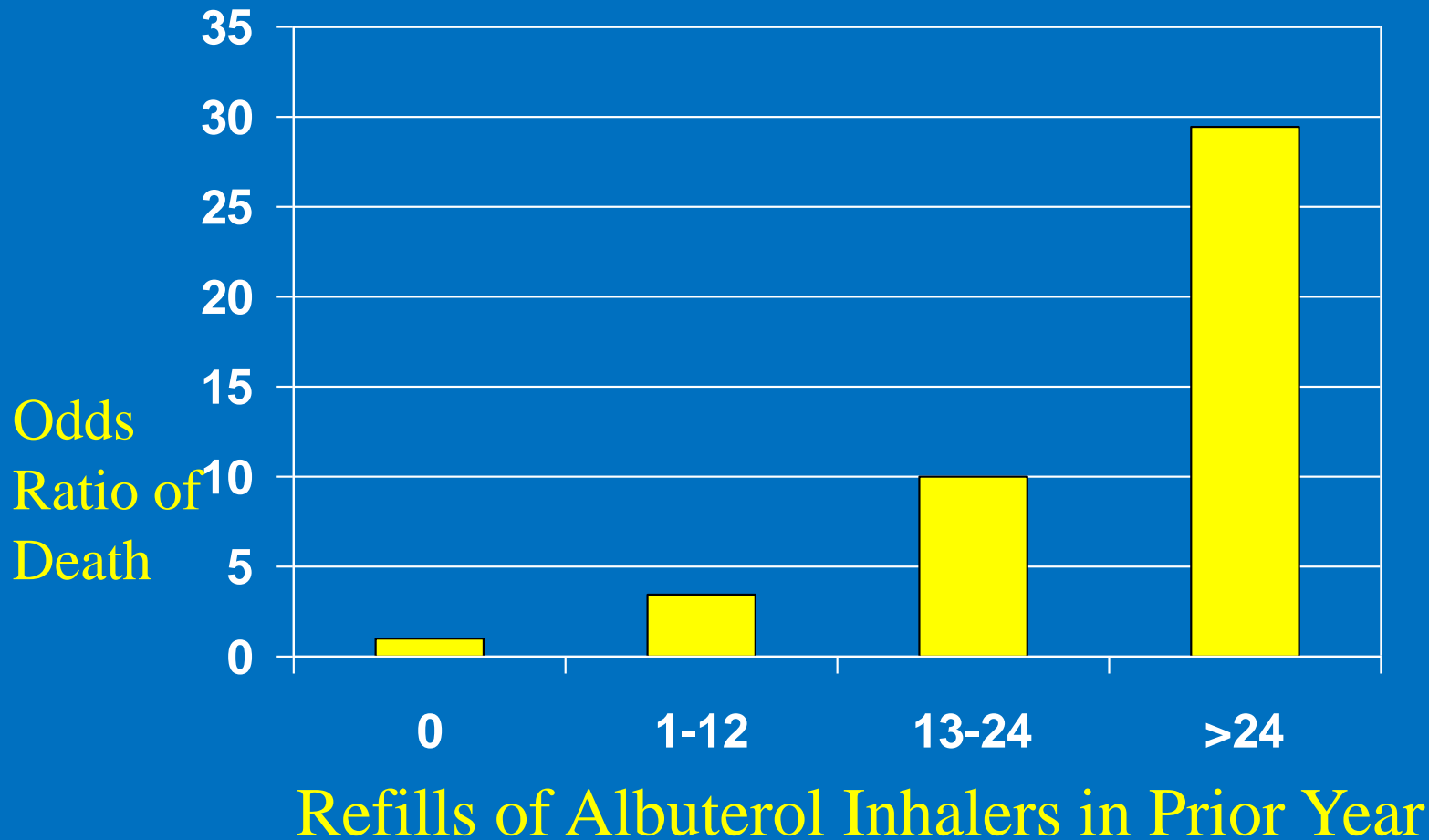
# Inhaled Steroids Reduce Death from Asthma



21% lower death rate/ each ICS cannister

50% lower death rate if used  $\geq 6$  ICS cannisters

# Albuterol Use and Death from Asthma



# Used every day Treat Inflammation so used daily

## 2 puffs for ≥3 months - years

## 2 times a day

# Decrease or stop when asthma well-controlled for ≥3 months



National nonprofit organization... chest.org



ProAir® Digihaler™ 117 mcg albuterol sulfate **128 A**

ProAir® HFA 100 mcg albuterol sulfate **128 A G**

ProAir® RespiClick® 117 mcg albuterol sulfate inhalation powder **128 A**

Prover 120 mcg albuterol sulfate **128 A**

hydrochloride **128 C**

### INHALED CORTICOSTEROIDS

Alvesco® HFA 80, 160 mcg ciclesonide **128 A**

ArmonAir™ RespiClick® 55, 113, 232 mcg fluticasone propionate inhalation powder **128 A**

Arnuity® Ellipta® 100, 200 mcg fluticasone furoate inhalation powder **128 A**

Asmanex® HFA 100, 200 mcg mometasone furoate **128 A**

Asmanex® Twisthaler® 110, 220 mcg mometasone furoate inhalation powder **128 A**

Flovent® Diskus® 50, 100, 250 mcg fluticasone propionate inhalation powder **128 A**

Flovent® HFA 44, 110, 220 mcg fluticasone propionate **128 A**

Pulmicort Flexhaler® 90, 180 mcg budesonide inhalation powder **128 A**

QVAR® Redihaler™ 40, 80 mcg beclomethasone dipropionate **128 A**

### COMBINATION MEDICATIONS

Advair Diskus® 100/50, 250/50, 500/50 mcg fluticasone propionate and salmeterol inhalation powder **128 A C G**

Advair® HFA 45/21, 115/21, 230/21 mcg fluticasone propionate and salmeterol xinafoate **128 A G**

AirDuo™ RespiClick® 55/14, 113/14, 232/14 mcg fluticasone propionate and salmeterol inhalation powder **128 A G**

Breo® Ellipta® 100/25, 200/25 mcg fluticasone furoate and vilanterol inhalation powder **128 A C**

Dulera® 100/5, 200/5 mcg mometasone furoate and formoterol fumarate dihydrate **128 A**

Symbicort® 80/4.5, 160/4.5 mcg budesonide and formoterol fumarate dihydrate **128 A C**

Wixela™ Inhub™ 100/50, 250/50, 500/50 mcg fluticasone propionate and salmeterol xinafoate (approved generic of Advair Diskus) **128 A C**

Anoro® Ellipta® 62.5/25 mcg umecclidinium and vilanterol inhalation powder **128 C**

Bevespi Aerosphere® 9/4.8 mcg glycopyrrolate and formoterol fumarate **128 C**

Stiolto™ RespiMat® 2.5/2.5 mcg tiotropium bromide and olodaterol **128 C**

Utibron™ Neohaler® 27.5/15.6 mcg indacaterol and glycopyrrolate inhalation powder **128 C**

Trelegy® Ellipta® 100/62.5/25 mcg fluticasone furoate, umecclidinium and vilanterol inhalation powder **128 C**

### MUSCARINIC ANTAGONIST (ANTICHOLINERGIC)

Short-acting: Atrovent® HFA 17 mcg ipratropium bromide **128 C**

Long-acting: Incruse® Ellipta® 62.5 mcg aclidinium inhalation powder **128 C**

Seebri™ Neohaler® 15.8 mcg glycopyrrolate inhalation powder **128 C**

Spiriva® HandiHaler® 18 mcg tiotropium bromide inhalation powder **128 C**

Spiriva® RespiMat® 1.25 mcg tiotropium bromide **128 A C**

Tudorza™ Pressair™ 400 mcg acclidinium bromide inhalation powder **128 C**

Short-acting: Combivent® RespiMat® 20/100 mcg ipratropium bromide and albuterol **128 C**

### BIOLOGICS

Cinqair® reslizumab **A**

Dupixent® dupilumab **A**

Fasenra™ benralizumab **A**

Nucala® mepolizumab **A**

Xolair® omalizumab **A**

### BRONCHIAL THERMOPLASTY

A minimally invasive procedure that uses mild heat to reduce airway smooth muscle, leading to fewer severe asthma flares, ER visits, and days lost from activities. [www.btforasthma.com](http://www.btforasthma.com) **A**

### PDE4 INHIBITORS

ease lung inflammation and reduce exacerbations

Daliresp® 250, 500 mcg roflumilast **128 C**

## 2019 Once Daily Options

12/23 = 12 MONTHS OF DATA AVAILABLE  
C = CENTER AVAILABLE

DISEASE STATES: A = ASTHMA C = COPD

Allergy & Asthma Network is a national nonprofit organization dedicated to ending needless death and suffering due to asthma, allergies and related conditions through outreach, education, advocacy and research.



### SHORT-ACTING BETA<sub>2</sub>-AGONIST BRONCHODILATORS

relax tight muscles in airways and offer quick relief of symptoms such as coughing, wheezing and shortness of breath for 3-6 hours

<b>ProAir® Digihaler™</b> 117 mcg albuterol sulfate A 12/23	<b>ProAir® HFA</b> 100 mcg albuterol sulfate A G 12/23	<b>ProAir® RespiClick®</b> 117 mcg albuterol sulfate inhalation powder A 12/23	<b>Proventil® HFA</b> 120 mcg albuterol sulfate A 12/23	<b>Ventolin® HFA</b> 90 mcg albuterol sulfate A G 12/23	<b>Xopenex® HFA®</b> 59 mcg levalbuterol tartrate A G 12/23
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### LONG-ACTING BETA<sub>2</sub>-AGONIST BRONCHODILATORS

relax tight muscles in airways and offer lasting relief of symptoms such as coughing, wheezing and shortness of breath for at least 12 hours

<b>Arcapta™ Neohaler™</b> 75 mcg indacaterol inhalation powder C 12/23	<b>Serevent® Diskus®</b> 50 mcg salmeterol xinafoate inhalation powder 12/23 A C	<b>Striverdi® Respimat®</b> 2.5 mcg olodaterol hydrochloride 12/23 C
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### INHALED CORTICOSTEROIDS

reduce airway inflammation, they do not relieve sudden symptoms of coughing, wheezing or shortness of breath

<b>Alvesco® HFA</b> 80, 160 mcg ciclesonide 12/23 A	<b>ArmonAir™ RespiClick®</b> 55, 113, 232 mcg fluticasone propionate inhalation powder 12/23 A	<b>Arnuity® Ellipta®</b> 100, 200 mcg fluticasone furoate inhalation powder 12/23 A	<b>Asmanex® HFA</b> 100, 200 mcg mometasone furoate 12/23 A	<b>Asmanex® Twisthaler®</b> 110, 220 mcg mometasone furoate inhalation powder 12/23 A	<b>Flovent® Diskus®</b> 50, 100, 250 mcg fluticasone propionate inhalation powder 12/23 A	<b>Flovent® HFA</b> 44, 110, 220 mcg fluticasone propionate 12/23 A	<b>Pulmicort Flexhaler®</b> 90, 180 mcg budesonide inhalation powder 12/23 A	<b>QVAR® Reditaler™</b> 40, 80 mcg beclomethasone dipropionate 12/23 A
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### COMBINATION MEDICATIONS

contain both inhaled corticosteroid and long-acting beta<sub>2</sub>-agonist (LABA)

<b>Advair Diskus®</b> 100/50, 250/50, 500/50 mcg fluticasone propionate and salmeterol inhalation powder 12/23 A C G	<b>Advair® HFA</b> 45/21, 115/21, 230/21 mcg fluticasone propionate and salmeterol inhalation powder 12/23 A G	<b>AirDuo™ RespiClick®</b> 55/14, 113/14, 232/14 mcg fluticasone propionate and salmeterol inhalation powder 12/23 A G	<b>Breo® Ellipta®</b> 100/25, 200/25 mcg fluticasone furoate and vilanterol inhalation powder 12/23 A C	<b>Dulera®</b> 100/5, 200/5 mcg mometasone furoate and formoterol fumarate dihydrate 12/23 A	<b>Symbicort®</b> 80/4.5, 160/4.5 mcg budesonide and formoterol fumarate dihydrate 12/23 A C	<b>Wixela™ Inhub™</b> 100/50, 250/50, 500/50 mcg fluticasone propionate and salmeterol xinafoate 12/23 A C	<b>Anoro® Ellipta®</b> 62.5/25 mcg vilanterol and fluticasone inhalation powder 12/23 C	<b>Bevespi Aerosphere®</b> 9/4.8 mcg glycopyrrolate and formoterol fumarate 12/23 C	<b>Stiolto™ Respimat®</b> 2.5/2.5 mcg tiotropium bromide and olodaterol 12/23 C	<b>Utibron™ Neohaler®</b> 27.5/15.6 mcg indacaterol and glycopyrrolate inhalation powder C	<b>Trelegy® Ellipta®</b> 100/62.5/25 mcg fluticasone furoate, umecidinium and vilanterol inhalation powder 12/23 C
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### MUSCARINIC ANTAGONIST (ANTICHOLINERGIC)

relieve cough, sputum production, wheeze and chest tightness associated with chronic lung diseases

<b>Short-acting</b> <b>Atrovent® HFA</b> 17 mcg ipratropium bromide 12/23 C	<b>Long-acting</b> <b>Incruse® Ellipta®</b> 62.5 mcg umeclidinium inhalation powder 12/23 C	<b>Seebri™ Neohaler®</b> 15.8 mcg glycopyrrolate inhalation powder C	<b>Spiriva® HandiHaler®</b> 18 mcg tiotropium bromide inhalation powder C	<b>Spiriva® Respimat®</b> 1.25 mcg tiotropium bromide 12/23 A C	<b>Tudorza™ Pressair™</b> 400 mcg acclidinium bromide inhalation powder 12/23 C
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### COMBINATION

muscarinic antagonist and beta<sub>2</sub>-agonist contains Short-acting **Combivent® Respimat®** 20/100 mcg ipratropium bromide and albuterol 12/23 C

### BIOLOGICS

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

<b>Cinqair® reslizumab</b> A	<b>Dupixent® dupilumab</b> A	<b>Fasenra™ benralizumab</b> A	<b>Nucala® mepolizumab</b> A	<b>Xolair® omalizumab</b> A
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### BRONCHIAL THERMOPLASTY

A minimally invasive procedure that uses mild heat to reduce airway smooth muscle, leading to fewer severe asthma flares, ER visits, and days lost from activities. www.btforasthma.com



### PDE4 INHIBITORS

ease lung inflammation and reduce exacerbations

<b>Daliresp®</b> 250, 500 mcg roflumilast C
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# Learning Objectives

1. Asthma diagnosis
2. Asthma assessment questionnaire in asthma management
3. ***2020 Asthma Guideline Updates: intermittent inhaled steroids and SMART therapy***
4. Case-based learning

# 2020 FOCUSED UPDATES TO THE Asthma Management Guidelines



A Report from the National  
Asthma Education and Prevention  
Program Coordinating Committee  
Expert Panel Working Group



U.S. Department of Health and Human Services  
National Institutes of Health  
National Heart, Lung, and Blood Institute

UCLA



Children's Hospital



# Organization and Topics

- 6 Sections (19 Questions; 14 Recommendations)
  1. Use of Exhaled Nitric Oxide in Diagnosis and Mgmt of Asthma
    - a. 5 Questions; 4 Recommendations
  2. Indoor Allergen Mitigation in Mgmt of Asthma
    - a. 1 Question; 4 Recommendations
  3. Use of Intermittent Inhaled Steroids (ICS) in the Treatment of Asthma
    - a. 3 Questions; 5 Recommendations
  4. Use of Long-Acting Muscarinic Antagonists for Asthma
    - a. 3 Questions; 3 Recommendations
  5. Subcut. and Sublingual Immunotherapy in the Tx of Allergic Asthma
    - a. 2 Questions; 2 Recommendations
  6. Use of Bronchial Thermoplasty to Improve Asthma Outcomes
    - a. 1 Question; 1 Recommendation

# Organization and Topics

- 6 Sections (19 Questions; 14 Recommendations)

1. Use of Exhaled Nitric Oxide in Diagnosis and Mgmt of Asthma
  - a. 5 Questions; 4 Recommendations
2. Indoor Allergen Mitigation in Mgmt of Asthma
  - a. 1 Question; 4 Recommendations
3. **Use of Intermittent ICS in the Treatment of Asthma**
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  - a. 3 Questions; 3 Recommendations
5. Subcut. and Sublingual Immunotherapy in the Tx of Allergic Asthma
  - a. 2 Questions; 2 Recommendations
6. Use of Bronchial Thermoplasty to Improve Asthma Outcomes
  - a. 1 Question; 1 Recommendation

# Intermittent ICS in Asthma

- 1. What is the comparative effectiveness of intermittent ICS for recurrent wheezing in children 0 – 4 years old?
- 2. What is the comparative effectiveness of intermittent ICS in patients 5 years of age and older with mild persistent asthma?
- 3. What is the comparative effectiveness of ICS-LABA (formoterol) combination therapy as both maintenance and rescue therapy in patients 5 years of age and older with persistent asthma?

# 1. What is the effectiveness of intermittent ICS for recurrent wheezing in children 0 – 4 years old?

- Recurrent Wheezing
- 3+ lifetime episodes or 2+ episodes in the past year
- Budesonide (1mg neb BID) + QID Albuterol OR
- Fluticasone (750mcg BID) + QID Albuterol
- **x 7 – 10 days**

## 2. What is the effectiveness of intermittent ICS in patients 5+ years old with mild persistent asthma?

- Not Recommended for Patients <12 Years Old
- For patients **12+ years old**, not on a daily inhaled steroid
  - QVAR 40: 2 – 6 puffs q4 hours + Albuterol 2 – 4 puffs q4 hours
  - QVAR 80: 1 – 3 puffs q4 hours + Albuterol 2 – 4 puffs q4 hours
- No doubling, quadrupling or quintupling of daily inhaled steroid as needed

### 3. What is the effectiveness of ICS-LABA (formoterol) as both **maintenance and rescue** therapy in patients **5+ years old** with **persistent asthma**?

- For patients with **moderate-severe persistent** asthma
- **ICS-LABA = ICS-formoterol ONLY**
  - Mometasone-Formoterol (Dulera): 100/5; 200/5
  - Budesonide-Formoterol (Symbicort): 80/4.5; 160/4.5
- One medicine for Maintenance and Rescue Treatment = **MART**
  - Single inhaler for Maintenance and Rescue Treatment = **SMART**

Allergy & Asthma Network is a national nonprofit organization dedicated to ending needless death and suffering due to asthma, allergies and related conditions through outreach, education, advocacy and research.



## Dulera 100

**Dulera<sup>®</sup>**  
(mometasone furoate and formoterol fumarate dihydrate)  
Inhalation Aerosol

**100 mcg/5 mcg**  
per actuation

For oral inhalation only

Attention Health Care Professional:  
Dispense the enclosed Medication Guide to each patient.  
**SHAKE WELL BEFORE USING.**  
Dulera<sup>®</sup> canister to be used with Dulera<sup>®</sup> actuator only.

Rx only 60 Metered Actuations  
Net Wt. 8.5g

## Dulera 200

**Dulera<sup>®</sup>**  
(mometasone furoate and formoterol fumarate dihydrate)  
Inhalation Aerosol

**200 mcg/5 mcg**  
per actuation

For oral inhalation only

Attention Health Care Professional:  
Dispense the enclosed Medication Guide to each patient.  
**SHAKE WELL BEFORE USING.**  
Dulera<sup>®</sup> canister to be used with Dulera<sup>®</sup> actuator only.

Rx only 60 Metered Actuations  
Net Wt. 8.5g

## LABA-AGONIST BRONCHODILATORS

relax tight muscles

<p><b>Serevent<sup>®</sup> Diskus<sup>®</sup></b> 50 mcg salmeterol xinafoate inhalation powder</p> <p>12B A C</p>	<p><b>Striverdi<sup>®</sup> Respimat<sup>®</sup></b> 2.5 mcg olodaterol hydrochloride</p> <p>12B C</p>	
<p><b>Serevent<sup>®</sup> HFA</b> 110, mcg icasonone pionate</p> <p>3 A</p>	<p><b>Pulmicort Flexhaler<sup>®</sup></b> 90, 180 mcg budesonide inhalation powder</p> <p>12B A</p>	<p><b>QVAR<sup>®</sup> Redihaler<sup>™</sup></b> 40, 80 mcg beclomethasone dipropionate</p> <p>12B A</p>

## COMBINATION MEDICATIONS

contain inhaled corticosteroid and long-acting beta<sub>2</sub>-agonist (LABA)

<p><b>Advair Diskus<sup>®</sup></b> 100/50, 250/50, 500/50 mcg fluticasone propionate and salmeterol inhalation powder</p> <p>12B A C G</p>	<p><b>Advair<sup>®</sup> HFA</b> 45/21, 115/21, 230/21 mcg fluticasone propionate and salmeterol xinafoate</p> <p>12B A G</p>	<p><b>Airbuo RespiClick<sup>®</sup></b> 100/25, 200/25 mcg fluticasone furoate and vilanterol inhalation powder</p> <p>12B A C</p>	<p><b>Ellipta<sup>®</sup></b> 100/25, 200/25 mcg fluticasone furoate and vilanterol inhalation powder</p> <p>12B A C</p>	<p><b>Dulera<sup>®</sup></b> 100/5, 200/5 mcg mometasone furoate and formoterol fumarate dihydrate</p> <p>12B A</p>	<p><b>Symbicort<sup>®</sup></b> 80/4.5, 160/4.5 mcg budesonide and formoterol fumarate dihydrate</p> <p>12B A C</p>	<p><b>Wixela<sup>™</sup> Inhub<sup>™</sup></b> 100/50, 250/50, 500/50 mcg fluticasone propionate and salmeterol xinafoate (approved generic of Advair Diskus)</p> <p>12B A C</p>	<p><b>Anoro<sup>®</sup> Ellipta<sup>®</sup></b> 62.5/25 mcg umeclidinium and vilanterol inhalation powder</p> <p>12B C</p>	<p><b>Bevespi Aerosphere<sup>®</sup></b> 9/4.8 mcg glycopyrrolate and formoterol fumarate</p> <p>12B C</p>	<p><b>Stiolto<sup>™</sup> Respimat<sup>™</sup></b> 2.5/2.5 mcg tiotropium bromide and olodaterol</p> <p>12B C</p>	<p><b>Utibron<sup>™</sup> Neohaler<sup>™</sup></b> 27.5/15.6 mcg indacaterol and glycopyrrolate inhalation powder</p> <p>C</p>	<p><b>Trelegy<sup>®</sup> Ellipta<sup>®</sup></b> 100/62.5/25 mcg fluticasone furoate, umeclidinium and vilanterol inhalation powder</p> <p>12B C</p>
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## Symbicort 80

**Symbicort<sup>®</sup> 80/4.5**

budesonide 80 mcg/formoterol fumarate dihydrate 4.5 mcg

INHALATION AEROSOL

120 inhalations

For Oral Inhalation Only

AstraZeneca

## Symbicort 160

**Symbicort<sup>®</sup> 160/4.5**

budesonide 160 mcg/formoterol fumarate dihydrate 4.5 mcg

INHALATION AEROSOL

60 inhalations

For Institutional Use Only

AstraZeneca

**COMBINATION** contains muscarinic antagonist and beta<sub>2</sub>-agonist

Short-acting

**Combivent<sup>®</sup> Respimat<sup>®</sup>**  
20/100 mcg  
ipratropium bromide and albuterol

12B C

**Tudorza<sup>™</sup> Pressair<sup>™</sup>**  
400 mcg  
acridinium bromide  
inhalation powder

12B C

**MOPLASTY**

**PDE4 INHIBITORS**  
ease lung inflammation and reduce exacerbations

**Daliresp<sup>®</sup>**  
250, 500 mcg  
roflumilast

C

# SMART (Single Maintenance and Rescue Therapy)

- **Maintenance** = 1 – 2 puffs qD – BID

+

- **Rescue** = 1 – 2 puffs BID – TID

- **Total Puffs/Day: varies by age:**

- 4 – 11 years old: 8 puffs/day total (maintenance + rescue)
- 12+ years old: 12 puffs/day total (maintenance + rescue)



# SMART Therapy: “Puff” Math

Age	Total Puffs/ Day	Maintenance Puffs/ Day	Rescue Puffs/ Day (prn)	<u>Final Regimen = Maintenance + Rescue</u>
4 – 11 Years	8	1puff qD	2puffs TID	2puffs <b>TID – QID</b>
4 – 11 Years	8	2puffs qD	2puffs TID	2puffs <b>QID</b>
4 – 11 Years	8	2puffs BID	2puffs BID	2puffs <b>QID</b>
12+ Years	12	1puff qD	3puffs TID	3puffs <b>QID</b> or 4 puffs <b>TID</b>
12+ Years	12	2puff qD	3puffs TID	3puffs <b>QID</b> or 4 puffs <b>TID</b>
12+ Years	12	2puff BID	2puffs TID	3puffs <b>QID</b> or 4 puffs <b>TID</b>

# Limitations of SMART Strategy

- Insurance formularies may not cover ICS-formoterol preparations
- Patient will likely need to always have 2 inhalers
  - 120 actuations/inhaler
  - 4 puffs/day → 30 days of use
  - 8 puffs/day → 15 days of use
  - 12 puffs/day → 10 days of use
  - Mail order?
- May need to pursue “traditional” treatment
  - ICS-salmeterol + as needed albuterol/xopenex

# Summary of 2020 NIH Asthma Guidelines Updates

Age	Intermittent (ICS)?	Asthma Type	Regimen	Notes
<b>0 – 4 Years</b>	<b>Yes</b>	Viral-induced asthma (“recurrent wheezing”)	<b>Budesonide</b> 1mg neb BID + QID Albuterol <b>Fluticasone</b> 750mcg BID + QID Albuterol	x7 – 10 days ↓growth w/ fluticasone
<b>5 – 11 Years</b>	No	-	-	Daily ICS or ICS-LABA +prn SABA
<b>12+ Years</b>	<b>Yes</b>	Mild persistent asthma	<b>QVAR 40 q4 hours</b> 2 – 6 puff + Albuterol 2 – 4 puff <b>QVAR 80 q4 hours</b> 1 – 3 puff + Albuterol 2 – 4 puff	
	<b>SMART?</b>			
<b>0 – 3 Years</b>	No	-	-	Daily ICS + prn SABA
<b>4 – 11 Years</b>	<b>Yes</b>	Mod–Severe Persistent	<b>Dulera/Symbicort</b> 2puffs QID	1-2puff qD – BID if intermittent sx’s
<b>12+ Years</b>	<b>Yes</b>	Mod–Severe Persistent	<b>Dulera/Symbicort</b> 3puffs QID or 4puffs TID	1-2puff qD – BID if intermittent sx’s

For URIs, cough, wheeze, SOB

2 – 8 puffs per dose 4 times a day



Allergy & Asthma Network is a national nonprofit organization dedicated to ending needless death and suffering due to asthma, allergies and related conditions through outreach, education, advocacy and research.



800.878.4403

**SHORT-ACTING BETA<sub>2</sub>-AGONIST BRONCHODILATORS**

relax tight muscles in airways and offer quick relief of symptoms such as coughing, wheezing and shortness of breath for 3-6 hours

<b>ProAir® Digihaler™</b> 117 mcg albuterol sulfate 128 A	<b>ProAir® HFA</b> 100 mcg albuterol sulfate 128 A G	<b>ProAir® RespiClick®</b> 117 mcg albuterol sulfate inhalation powder 128 A	<b>Proventil® HFA</b> 120 mcg albuterol sulfate 128 A	<b>Ventolin® HFA</b> 90 mcg albuterol sulfate 128 A G	<b>Xopenex® HFA®</b> 59 mcg levalbuterol tartrate A G
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**LONG-ACTING BETA<sub>2</sub>-AGONIST BRONCHODILATORS**

relax tight muscles in airways and offer lasting relief of symptoms such as coughing, wheezing and shortness of breath for at least 12 hours

<b>Arcapta™ Neohaler™</b> 75 mcg indacaterol inhalation powder C	<b>Serevent® Diskus®</b> 50 mcg salmeterol xinafoate inhalation powder 128 A C	<b>Striverdi® Respimat®</b> 2.5 mcg olodaterol hydrochloride 128 C
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**INHALED CORTICOSTEROIDS** reduce and prevent swelling of airway tissue; they do not relieve sudden symptoms of coughing, wheezing or shortness of breath

<b>Alvesco® HFA</b> 80, 160 mcg ciclesonide 128 A	<b>ArmonAir™ RespiClick®</b> 55, 113, 232 mcg fluticasone propionate inhalation powder 128 A	<b>Asmanex® HFA</b> 100, 200 mcg mometasone furoate 128 A	<b>Asmanex® Twisthaler®</b> 110, 220 mcg mometasone furoate inhalation powder 128 A	<b>Flovent® Diskus®</b> 50, 100, 250 mcg fluticasone propionate inhalation powder 128 A	<b>Flovent® HFA</b> 44, 110, 220 mcg fluticasone propionate 128 A	<b>Pulmicort Flexhaler®</b> 90, 180 mcg budesonide inhalation powder 128 A	<b>QVAR® Redihaler™</b> 40, 80 mcg beclomethasone dipropionate 128 A
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**Ace®**



**AeroChamber®**



contain both long-acting and long-acting medications

<b>Symbicort®</b> 80/4.5, 160/4.5 mcg budesonide and formoterol fumarate dihydrate	<b>Wixela™ Inhub™</b> 100/50, 250/50, 500/50 mcg budesonide and formoterol fumarate dihydrate	<b>Anoro® Ellipta®</b> 62.5/25 mcg umecclidinium and budesonide
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**BIOLOGICS** target cells and pathways that cause airway inflammation; delivered by injection or IV

<b>Cinqair®</b> reslizumab A	<b>Dupixent®</b> dupilumab A	<b>Fasenra™</b> benralizumab A	<b>Nucala®</b> mepolizumab A	<b>Xolair®</b> omalizumab A
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**BRONCHIAL THERMOPLASTY**

A minimally invasive procedure that uses mild heat to reduce airway smooth muscle, leading to fewer severe asthma flares, ER visits, and days lost from activities. [www.btforasthma.com](http://www.btforasthma.com)



**PDE4 INHIBITORS** ease lung inflammation and reduce exacerbations

<b>Daliresp®</b> 250, 500 mcg roflumilast C
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2.5mg if <30kg  
5mg if >30kg

4 boxes  
(100 vials)  
per prescription

# Nebulized Bronchodilators



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# Oral Corticosteroids

# Oral Steroids for Moderate/Severe Persistent Asthma

## 1mg/kg/day x3 – 10 days

Prednisolone  
(15mg/5ml)



Prednisolone  
(15mg/5ml)



OraPred  
(15mg/5ml)



w/ SABA or ICS-formoterol

PediaPred (5mg/5ml)



Prelone Syrup



**4 times a day**

Prednisone Tabs

(1, 2.5, 5, 10, 20, 50mg)



# Learning Objectives

1. Asthma diagnosis
2. Asthma assessment questionnaire in asthma management
3. 2020 Asthma Guideline Updates: intermittent inhaled steroids and SMART therapy
4. *Case-based learning*



# AG: Original HPI

- AG is a 5 year old boy who has had nearly nightly coughing x3 months, worse over the past 2-4 weeks, and disruptive to sleep at least every 2 wks. There have been frequent interval URIs, when cough is more intensive. Coughing paroxysms (20 times in a row).
- Allegra was too sedating w/o relief of the cough (presumed post nasal drip).
- 2 puffs of albuterol, hypoallergenic bedding, humidifier have not relieved the cough.
- Required prednisone x2 over the prior year for wheezing.
  - prednisone & albuterol q4 x48 hrs relieved sx's within 24 hrs
- The allergist is recommending Singulair.

# Why might this patient have asthma?

- Cough x3 months duration (>1 month)
- Nocturnal cough that is disruptive to sleep
- URIs induce coughing
- Reduced cough with use of prednisone and albuterol simultaneously

What to do? days + f/u in 2-6 wks

Pediatric Asthma Control & Communication Instrument

Asthma Symptoms

7. Over the **past week**, how many days has your child had asthma symptoms? For example:

- Cough
- Chest tightness
- Shortness of breath
- Sputum (spit, mucous, phlegm when coughing)
- Difficulty taking a deep breath
- Wheezy or whistling sound in the chest

Days: 0, 1-2, 3-6, Every day (not all day long), Every day (all day long)

0:  1-2:  3-6:  Every day (not all day long):  Every day (all day long):

Reliever use

8. Over the **past week**, how many days have you had to give your child medicine to quickly relieve asthma symptoms? For example:

- Albuterol
- Inhaler
- Spray
- Pump
- Machine
- Nebulizer

Days: 0, 1-2, 3-6, Every day (not all day long), Every day (all day long)

0:  1-2:  3-6:  Every day (not all day long):  Every day (all day long):

Attacks

9. Over the **past week**, how many days did your child have an asthma attack? For example:

- When it is harder for your child to breathe
- When you give your child more asthma medicine
- When the asthma medicine does not work

Days: 0, 1, 2-3, 4-7

0:  1:  2-3:  4-7:

Activity Limitation

10. Over the **past week**, how much has asthma limited your child's activities?

Not at all, Slightly, Moderately, Very much, Completely

Not at all:  Slightly:  Moderately:  Very much:  Completely:

Nighttime Symptoms

11. Now for this question, please answer about the past 2 weeks.

How many nights did **your child's asthma** keep your child from sleeping or wake him/her up in the past 2 weeks?

Nights: 0, 1, 2, 3-7, 8-14

0:  1:  2:  3-7:  8-14:

For clinician use only – Asthma Control Assignment

Assign patient's current level of asthma control by looking at box checked farthest to the right on questions 7-11 and match color of this box to level of asthma control in this section and circle and/or document in patient's chart

Mild intermittent:  Mild persistent:  Moderate persistent:  Severe persistent:

Controlled: Mild intermittent, Mild persistent, Moderate persistent

Not Controlled: Severe persistent

## Pediatric Asthma Control & Communication Instrument

### Asthma Symptoms

7. Over the **past week**, how many days has your child had asthma symptoms? For example:

	0	1-2	3-6	Every day (not all day long)	Every day (all day long)
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

- Cough
- Chest tightness
- Shortness of breath
- Sputum (spit, mucous, phlegm when coughing)
- Difficulty taking a deep breath
- Wheezy or whistling sound in the chest

### Reliever use

8. Over the **past week**, how many days have you had to give your child medicine to quickly relieve asthma symptoms? For example:

	0	1-2	3-6	Every day (not all day long)	Every day (all day long)
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

- Albuterol
- Inhaler
- Spray
- Pump
- Machine
- Nebulizer

### Attacks

9. Over the **past week**, how many days did your child have an asthma attack? For example:

	0	1	2-3	4-7
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- When it is harder for your child to breathe
- When you give your child more asthma medicine
- When the asthma medicine does not work

### Activity Limitation

10. Over the **past week**, how much has asthma limited your child's activities?

	Not at all	Slightly	Moderately	Very much	Completely
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Nighttime Symptoms

11. Now for this question, please answer about the **past 2 weeks**.

How many nights did **your child's asthma** keep your child from sleeping or wake him/her up in the past 2 weeks?

	0	1	2	3-7	8-14
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**For clinician use only – Asthma Control Assignment**  
Assign patient's current level of asthma control by looking at box checked farthest to the right on questions 7-11 and match color of this box to level of asthma control in this section and circle and/or document in patient's chart

Mild intermittent	Mild persistent	Moderate persistent	Severe persistent
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Controlled		Not Controlled	

# AG f/u Visit: 11/14/20 What to do? Dulera 200 (2p QID)+ f/u in 2-6 wks

## Pediatric Asthma Control & Communication Instrument

### Asthma Symptoms

7. Over the **past week**, how many days has your child had asthma symptoms? For example:

- Cough
- Chest tightness
- Shortness of breath
- Sputum (spit, mucous, phlegm when coughing)
- Difficulty taking a deep breath
- Wheezy or whistling sound in the chest

Days

0	1-2	3-6	Every day (not all day long)	Every day (all day long)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Reliever use

8. Over the **past week**, how many days have you had to give your child medicine to quickly relieve asthma symptoms? For example:

- Albuterol
- Inhaler
- Spray
- Pump
- Machine
- Nebulizer

Days

0	1-2	3-6	Every day (not all day long)	Every day (all day long)
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Attacks

9. Over the **past week**, how many days did your child have an asthma attack? For example:

- When it is harder for your child to breathe
- When you give your child more asthma medicine
- When the asthma medicine does not work

Days

0	1	2-3	4-7
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Activity Limitation

10. Over the **past week**, how much has asthma limited your child's activities?

Not at all	Slightly	Moderately	Very much	Completely
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Nighttime Symptoms

11. Now for this question, please answer about the past 2 weeks.

How many nights did **your child's asthma** keep your child from sleeping or wake him/her up in the past 2 weeks?

0	1	2	3-7	8-14
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**For clinician use only – Asthma Control Assignment**  
Assign patient's current level of asthma control by looking at box checked farthest to the right on questions 7-11 and match color of this box to level of asthma control in this section and circle and/or document in patient's chart

Mild intermittent	Mild persistent	Moderate persistent	Severe persistent
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Controlled		Not Controlled	

**Pediatric Asthma Control & Communication Instrument**

**Asthma Symptoms**

7. Over the **past week**, how many days has your child had asthma symptoms? For example:

- Cough
- Chest tightness
- Shortness of breath
- Sputum (spit, mucous, phlegm when coughing)
- Difficulty taking a deep breath
- Wheezy or whistling sound in the chest

Days

0	1-2	3-6	Every day (not all day long)	Every day (all day long)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Reliever use**

8. Over the **past week**, how many days have you had to give your child medicine to quickly relieve asthma symptoms? For example:

- Albuterol
- Inhaler
- Spray
- Pump
- Machine
- Nebulizer

Days

0	1-2	3-6	Every day (not all day long)	Every day (all day long)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Attacks**

9. Over the **past week**, how many days did your child have an asthma attack? For example:

- When it is harder for your child to breathe
- When you give your child more asthma medicine
- When the asthma medicine does not work

Days

0	1	2-3	4-7
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Activity Limitation**

10. Over the **past week**, how much has asthma limited your child's activities?

Not at all	Slightly	Moderately	Very much	Completely
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Nighttime Symptoms**

11. Now for this question, please answer about the **past 2 weeks**.

How many nights did **your child's asthma** keep your child from sleeping or wake him/her up in the past 2 weeks?

Nights

0	1	2	3-7	8-14
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**For clinician use only – Asthma Control Assignment**  
Assign patient's current level of asthma control by looking at box checked farthest to the right on questions 7-11 and match color of this box to level of asthma control in this section and circle and/or document in patient's chart

Mild intermittent	Mild persistent	Moderate persistent	Severe persistent
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Controlled		Not Controlled	

## JH: Original HPI

- JH is a 16 y.o. high school football player (300lb lineman) who presents with a history of asthma, including persistent cough x2 months, worse at night. JH also has SOB, a lot of coughing during football practice, and while running, particularly in the cold. Bronchitis x4, tx'd with antibiotics and prednisone.
- JH has also used a combination of albuterol HFA (2 puffs) and albuterol nebs (1 vial) up to 5 times per day.
- How could albuterol dosing have been improved?

# Why might this patient have asthma?

- Cough x2 months duration (>1month)
- Cough is worse at night
- Exercise and cold weather induce coughing
- Improved symptoms with past use of prednisone



## Pediatric Asthma Control & Communication Instrument

### Asthma Symptoms

7. Over the **past week**, how many days has your child had asthma symptoms? For example:

- Cough
- Chest tightness
- Shortness of breath
- Sputum (spit, mucous, phlegm when coughing)
- Difficulty taking a deep breath
- Wheezy or whistling sound in the chest

	Days				
	0	1-2	3-6	Every day (not all day long)	Every day (all day long)
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### Reliever use

8. Over the **past week**, how many days have you had to give your child medicine to quickly relieve asthma symptoms? For example:

- Albuterol
- Inhaler
- Spray
- Pump
- Machine
- Nebulizer

	Days				
	0	1-2	3-6	Every day (not all day long)	Every day (all day long)
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Attacks

9. Over the **past week**, how many days did your child have an asthma attack? For example:

- When it is harder for your child to breathe
- When you give your child more asthma medicine
- When the asthma medicine does not work

	Days			
	0	1	2-3	4-7
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### Activity Limitation

10. Over the **past week**, how much has asthma limited your child's activities?

Not at all	Slightly	Moderately	Very much	Completely
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Nighttime Symptoms

11. Now for this question, please answer about the past 2 weeks.

How many nights did **your child's asthma** keep your child from sleeping or wake him/her up in the past 2 weeks?

	Nights				
	0	1	2	3-7	8-14
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**For clinician use only – Asthma Control Assignment**  
Assign patient's current level of asthma control by looking at box checked farthest to the right on questions 7-11 and match color of this box to level of asthma control in this section and circle and/or document in patient's chart

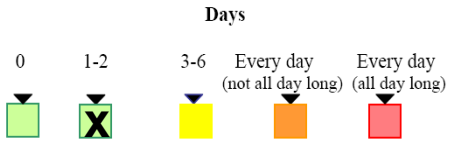
Mild intermittent	Mild persistent	Moderate persistent	Severe persistent
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Controlled		Not Controlled	

# What to do?

## Pediatric Asthma Control & Communication Instrument

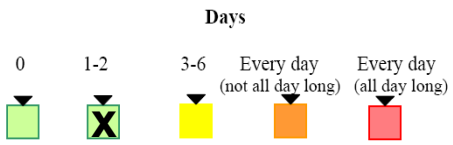
### Asthma Symptoms

7. Over the **past week**, how many days has your child had asthma symptoms?  
 For example:  
 • Cough • Chest tightness • Shortness of breath  
 • Sputum (spit, mucous, phlegm when coughing) • Difficulty taking a deep breath  
 • Wheezy or whistling sound in the chest



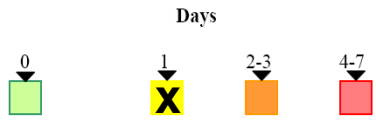
### Reliever use

8. Over the **past week**, how many days have you had to give your child medicine to quickly relieve asthma symptoms? For example:  
 • Albuterol • Inhaler • Spray  
 • Pump • Machine • Nebulizer



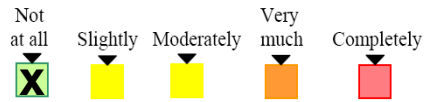
### Attacks

9. Over the **past week**, how many days did your child have an asthma attack? For example:  
 • When it is harder for your child to breathe  
 • When you give your child more asthma medicine  
 • When the asthma medicine does not work



### Activity Limitation

10. Over the **past week**, how much has asthma limited your child's activities?

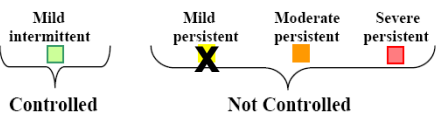


### Nighttime Symptoms

11. Now for this question, please answer about the past 2 weeks.  
 How many nights did **your child's asthma** keep your child from sleeping or wake him/her up in the past 2 weeks?



**For clinician use only – Asthma Control Assignment**  
 Assign patient's current level of asthma control by looking at box checked farthest to the right on questions 7-11 and match color of this box to level of asthma control in this section and circle and/or document in patient's chart



## NC: Original HPI

NC is a 4 y.o. male with a history of respiratory infections with wheezing, resulting in hospitalization x2. He does have recurrent wheezing and chest congestion with URIs. He is well during the summer. The parents report no symptoms between illnesses and no symptoms during physical activity.

In the past, he has been treated with Budesonide nebs (0.25mg BID), prn URIs

# Why might this patient have asthma?

- Recurrent wheezing
- URI-induced wheezing

**Common pattern for young children with URI-induced asthma**

**Pediatric Asthma Control & Communication Instrument**

**Asthma Symptoms**

7. Over the **past week**, how many days has your child had asthma symptoms? For example:

- Cough
- Chest tightness
- Shortness of breath
- Sputum (spit, mucous, phlegm when coughing)
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- Wheezy or whistling sound in the chest

Days: 0, 1-2, 3-6, Every day (not all day long), Every day (all day long)

0:  1-2:  3-6:  Every day (not all day long):  Every day (all day long):

**Reliever use**

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- Albuterol
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**Attacks**

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Days: 0, 1, 2-3, 4-7

0:  1:  2-3:  4-7:

**Activity Limitation**

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Not at all, Slightly, Moderately, Very much, Completely

Not at all:  Slightly:  Moderately:  Very much:  Completely:

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Nights: 0, 1, 2, 3-7, 8-14

0:  1:  2:  3-7:  8-14:

**For clinician use only – Asthma Control Assignment**

Assign patient's current level of asthma control by looking at box checked farthest to the right on questions 7-11 and match color of this box to level of asthma control in this section and circle and/or document in patient's chart

Mild intermittent:  Mild persistent:  Moderate persistent:  Severe persistent:

Controlled: Mild intermittent, Mild persistent  
 Not Controlled: Moderate persistent, Severe persistent

**Pediatric Asthma Control & Communication Instrument**

**Asthma Symptoms**

7. Over the **past week**, how many days has your child had asthma symptoms? For example:

Days: 0, 1-2, 3-6, Every day (not all day long), Every day (all day long)

0     1-2     3-6     Every day (not all day long)     Every day (all day long)

- Cough
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0     1-2     3-6     Every day (not all day long)     Every day (all day long)

- Albuterol
- Inhaler
- Spray
- Pump
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**Attacks**

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Days: 0, 1, 2-3, 4-7

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**Nighttime Symptoms**

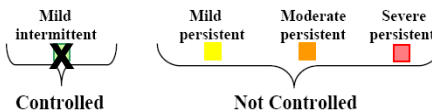
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# Additional Thoughts Beyond Asthma Care

Health care in the U.S. is consistently worse for ethnic/racial minorities

Racial bias (e.g., stereotypes) are a source of racial disparities in health care

Is empathy possible w/o relatability?

# UNEQUAL TREATMENT

CONFRONTING RACIAL AND ETHNIC  
DISPARITIES IN HEALTH CARE

Brian D. Smedley, Adrienne Y. Stith, and  
Alan R. Nelson, Editors

Committee on Understanding and Eliminating  
Racial and Ethnic Disparities in Health Care

Board on Health Sciences Policy

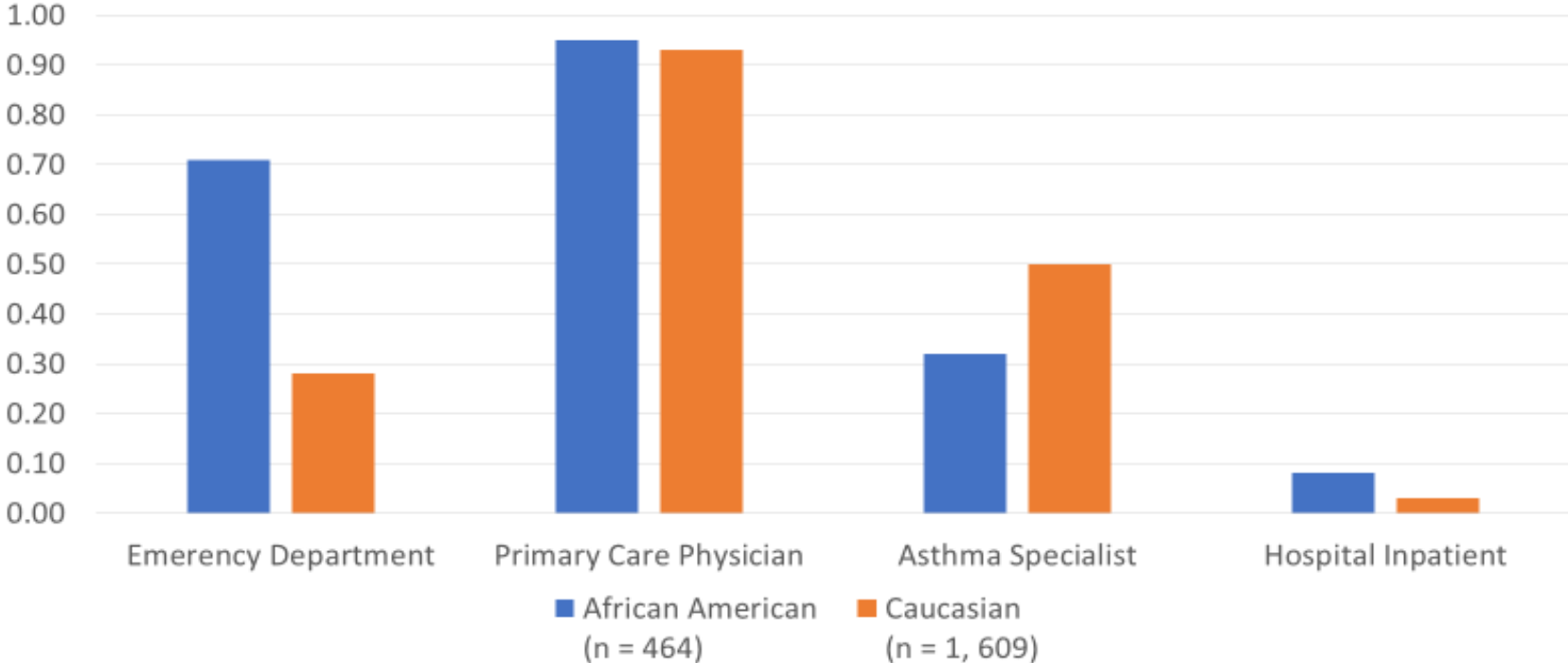
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Washington, D.C.  
[www.nap.edu](http://www.nap.edu)



# Racial Inequities in Asthma Care Despite Higher Levels of Asthma Morbidity in Black Patients

Annual Rates of Various Healthcare Encounters, by Race



Adapted from EM Zoratti. AJRCCM 1998 Aug;158(2):371-7. Health service use by African Americans and Caucasians with asthma in a managed care setting

Akin-Imran A et al. Ethnic variation in asthma healthcare utilization and exacerbation: systematic review and meta-analysis. ERJ Open Res. 2023 May 2;9(3):00591-2022.

Oraka E et al. Racial and ethnic disparities in current asthma and emergency department visits: findings from the National Health Interview Survey, 2001-2010. J Asthma. 2013 Jun;50(5):488-96.



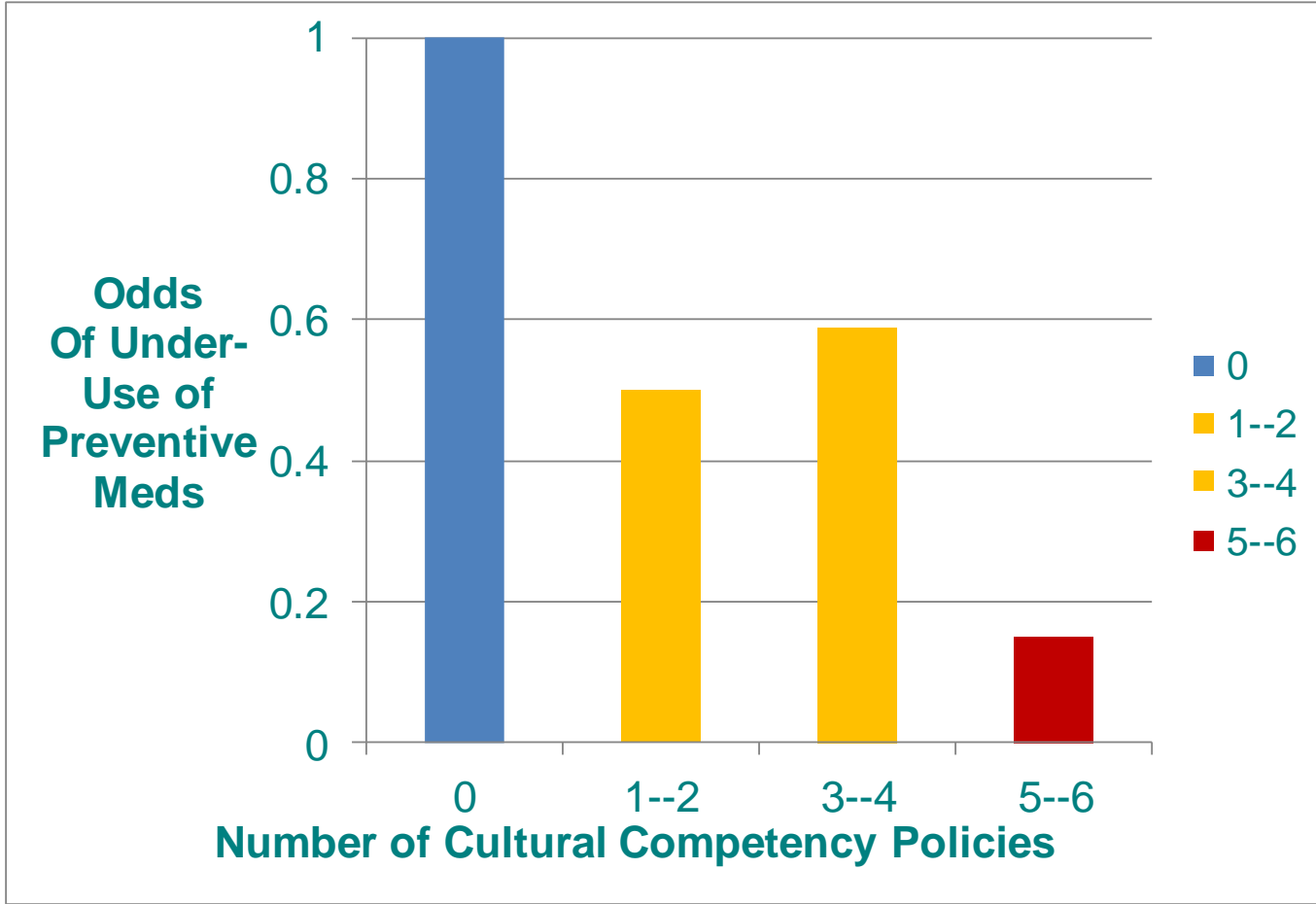
# Background:

## Why Cultural Competency?

- Nearly half of the children in California are Hispanic and/or have a foreign-born parent.
- Currently one of three of families speak a language other than English
- ~50% of our children are from *ethnic or racial “minority”* groups
- One out of every 8 children in the United States lives in California



# Better Asthma Care if Cultural Competency Present



# Asthma Resources

## NIH Asthma Guidelines

<https://www.nhlbi.nih.gov/health-topics/asthma-management-guidelines-2020-updates>

## NIH Asthma Guidelines Digital Toolkit

<https://www.nhlbi.nih.gov/health-topics/asthma-management-guidelines-2020-updates/digital-toolkit>

## GINA Asthma Guidelines

<https://ginasthma.org/pocket-guide-for-asthma-management-and-prevention/>

## Asthma Surveys

<https://www.uclahealth.org/mattel/pediatric-pulmonology/patient-forms>

# Thank You!

Sande Okelo, MD, PhD

[sokelo@mednet.ucla.edu](mailto:sokelo@mednet.ucla.edu)

Division of Pediatric Pulmonology and Sleep Medicine

UCLA Mattel Children's Hospital

# FAQs

1. How often should a patient with well-controlled asthma be seen?

**Answer:** at least every 3 months.

2. There are so many asthma medication options—so what is a short-list of go-to asthma medications?

**Answer:** Two of the more commonly covered inhaled steroids are Flovent (44, 110, 220) and QVAR (40, 80).

3) When should a patient be referred to an asthma specialist?

**Answers:** 1) patient request; 2) admitted for asthma; 3) asthma remains uncontrolled.

4) Can patients be treated with as needed controller medications?

**Answer:** Yes. 1mg of budesonide nebulized BID x7 days, at the onset of each URI or Symbicort/Dulera (asthma symptoms <3 days/month): 2 puffs BID.

# Q & A