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Asthma Management Guidelines and How to Implement Them

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Children's Hospital Colorado
Here, it's different.™

NOVEMBER 1, 2024

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Conflict of Interest/Financial Disclosure

- No conflict of interest
- Nebraska Asthma Coalition

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Objectives

1. Describe the differences between global and national asthma guidelines
2. Review asthma management in young children, school age children, adolescents and adults
3. Discuss the development of a primary care asthma management guideline

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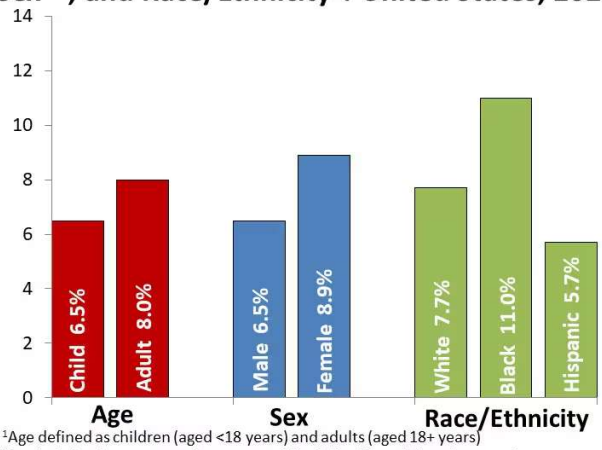
Asthma Overview

Percentage of People With Current Asthma by Age[1], Sex[2,3], and Race/Ethnicity[3]: United States, 2021



[1]Age defined as children (aged <18 years) and adults (aged 18+ years)
[2]Sex is defined as persons who answered "male" or "female" to the question "Are you male or female?"
[3]Sex and race/ethnicity include all ages
Source: National Health Interview Survey, National Center for Health Statistics, Centers for Disease Control and Prevention

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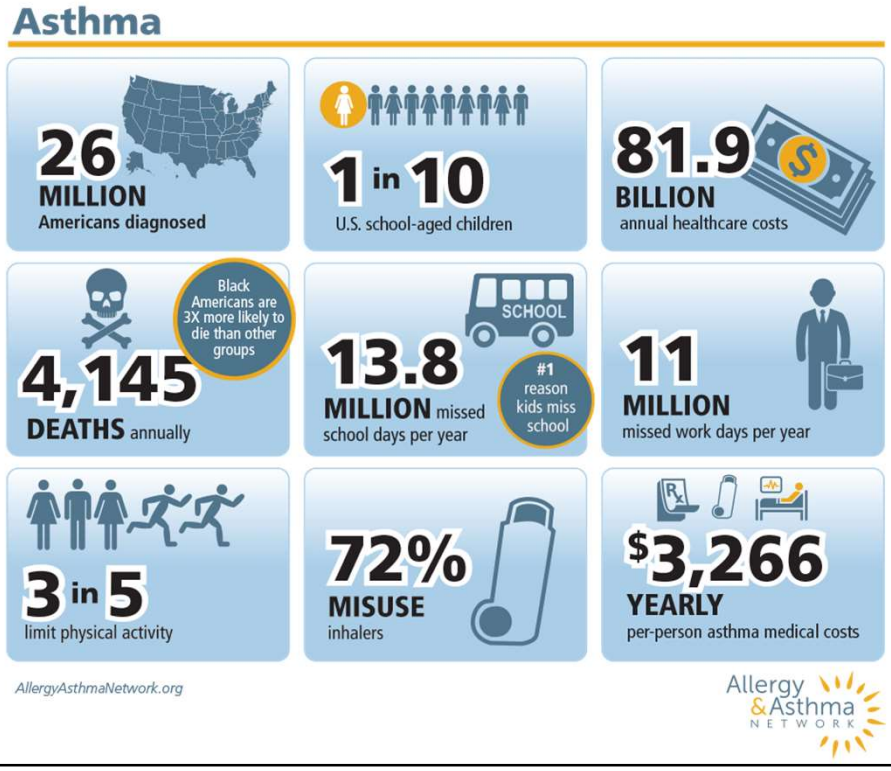

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Differences between global and national asthma guidelines

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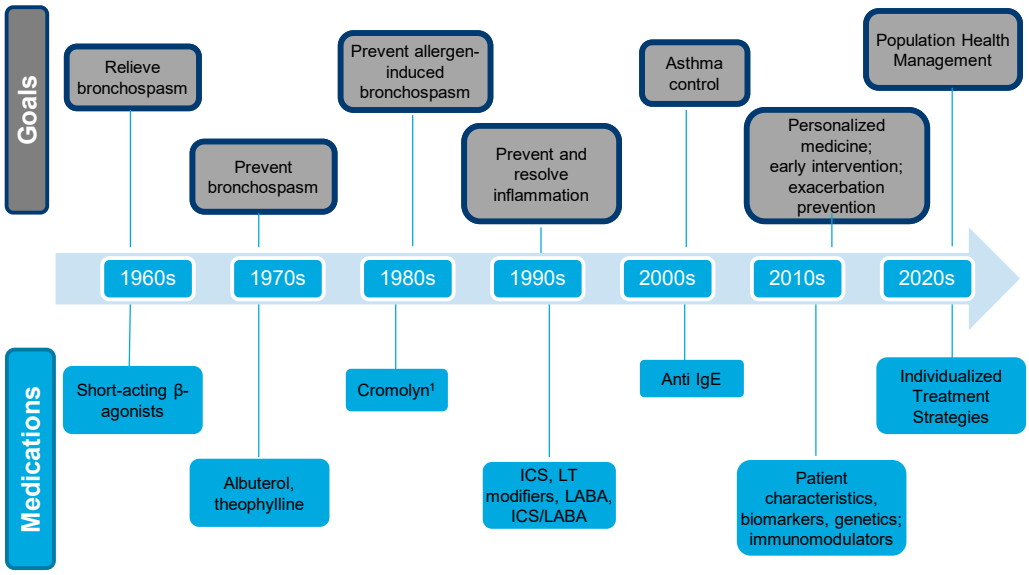
Evolving Patterns in Asthma Management



Szefler SJ. J Allergy Clin Immunol 2018

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Asthma Management

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Asthma Management: Global vs National

Approach	GINA	NAEPP
Direction	Global	National
Composition	Primarily asthma specialists from representative countries	Multidisciplinary combination of asthma specialists, primary care physicians, health policy experts, implementation and dissemination experts, methodologists, and other health care personnel
Target audience	Template for application for countries to develop their national approach	Provides specific guidance for the national approach in the United States
Challenges	Must consider developing countries with limited resources and access to asthma specialists	Must consider federal regulations as limitations of recommendations
Revision	Annually	Periodically
Scope	Living document approach that regularly reviews current literature and decides on modifications	Decides which questions to address and then evaluates the literature to make evidence-based recommendations using detailed GRADE methodology
Support system	Previously from restricted education grants from the pharmaceutical industry and now from product sales. Commercial sales allow for widespread advertising with multiple products, such as handbooks, documents, and teaching slides	NIH-directed development and distribution, with limited budget for distribution

Szelfler SJ. J Allergy Clin Immunology 2020

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Six Key Topics or Questions

1. Fractional exhaled nitric oxide (FeNO) in diagnosis, medication selection, and monitoring of treatment response in asthma
2. Remediation of indoor allergens in asthma management
3. Long-acting muscarinic antagonists (LAMA) as an add-on in asthma management
4. Subcutaneous and sublingual immunotherapy in the treatment of allergic asthma
5. Recommended use of bronchial thermoplasty (BT) in adult severe asthma
6. Inhaled corticosteroids in the treatment of asthma

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Cloutier MM, et al. Allergy Clin Immunol 2020

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Emerging Topics

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Cloutier MM, et al. Allergy Clin Immunol 2020

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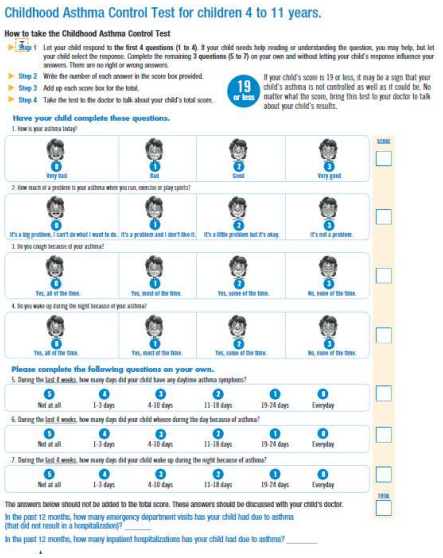
Asthma Control*

GINA

In the past 4 weeks, has the patient had:		Well controlled	Partly controlled	Uncontrolled
• Daytime asthma symptoms more than twice/week?	Yes☐ No☐	None of these	1–2 of these	3–4 of these
• Any night waking due to asthma?	Yes☐ No☐			
• SABA* reliever for symptoms more than twice/week?	Yes☐ No☐			
• Any activity limitation due to asthma?	Yes☐ No☐			

Up to 70% of individuals perceived their asthma to be well controlled but were found to not be well controlled

NAEPP



Childhood Asthma Control Test for children 4 to 11 years.

How to take the Childhood Asthma Control Test

Step 1 Let your child respond to the first 4 questions (1 to 4). If your child needs help reading or understanding the question, you may help, but let your child select the response. Complete the remaining 3 questions (5 to 7) on your own and without letting your child's response influence your answers. There are no right or wrong answers.

Step 2 Write the number of each answer in the score box provided.

Step 3 Add up each score box for the total.

Step 4 Take the test to the doctor to talk about your child's total score.

19 or less — If your child's score is 19 or less, it may be a sign that your child's asthma is not controlled as well as it could be. No matter what the score, bring this test to your doctor to talk about your child's results.

Have your child complete these questions.

1. How is your asthma today?
   Very bad (0) | Bad (1) | Good (2) | Very good (3)
2. How much of a problem is your asthma when you run, exercise or play sports?
   It's a big problem, I can't do what I want to do. (0) | It's a problem and I don't like it. (1) | It's a little problem but it's okay. (2) | It's not a problem. (3)
3. Do you cough because of your asthma?
   Yes, all of the time. (0) | Yes, most of the time. (1) | Yes, some of the time. (2) | No, none of the time. (3)
4. Do you wake up during the night because of your asthma?
   Yes, all of the time. (0) | Yes, most of the time. (1) | Yes, some of the time. (2) | No, none of the time. (3)

Please complete the following questions on your own.

5. During the last 4 weeks, how many days did your child have any daytime asthma symptoms?
   Not at all (5) | 1-3 days (4) | 4-10 days (3) | 11-18 days (2) | 19-24 days (1) | Everyday (0)
6. During the last 4 weeks, how many days did your child wheeze during the day because of asthma?
   Not at all (5) | 1-3 days (4) | 4-10 days (3) | 11-18 days (2) | 19-24 days (1) | Everyday (0)
7. During the last 4 weeks, how many days did your child wake up during the night because of asthma?
   Not at all (5) | 1-3 days (4) | 4-10 days (3) | 11-18 days (2) | 19-24 days (1) | Everyday (0)

SCORE / TOTAL

The answers below should not be added to the total score. These answers should be discussed with your child's doctor.

In the past 12 months, how many emergency department visits has your child had due to asthma (that did not result in a hospitalization)? _____

In the past 12 months, how many inpatient hospitalizations has your child had due to asthma? _____

GINA ©2024 Global Initiative for Asthma; Kritikos, V., Price, D., Papi, A. *et al. Prim. Care Respir. 2019;* GlaxoSmithKline (GSK) developed the Childhood Asthma Control Test (C-ACT), but QualityMetric Incorporated owns Trademark

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Comparison of Asthma Severity*

GINA

Mild	Moderate	Severe
Step 1 & 2	Step 3 & 4	Step 5

NAEPP

	Persistent		
Intermittent	Mild	Moderate	Severe
≤2 days/week	>2 days/week but not daily	Daily	Throughout the day
≤2x/month	3–4x/month	>1x/week but not nightly	Often 7x/week

GINA ©2024 Global Initiative for Asthma

National Heart, Lung, and Blood Institute; National Institutes of Health; U.S. Department of Health and Human Services. National Asthma E, Prevention P. Expert Panel Report 3 (EPR-3)

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Asthma management in young children, school age children, adolescents and adults

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Terminology*

- AIR = anti-inflammatory reliever
  - AIR = AIRSUPRA (albuterol+ budesonide 80 mcg)
- ICS = inhaled corticosteroid
- LABA = long-acting beta agonist
- LAMA = long-acting muscarinic
- MART = maintenance and reliever treatment
- SABA = short-acting beta agonist
- SMART = single maintenance and reliever therapy
  - MART = SMART (ICS + Formoterol)
    - GINA budesonide + formoterol
    - NAEPP budesonide + formoterol (Symbicort/Breyna), mometasone + formoterol (Dulera)

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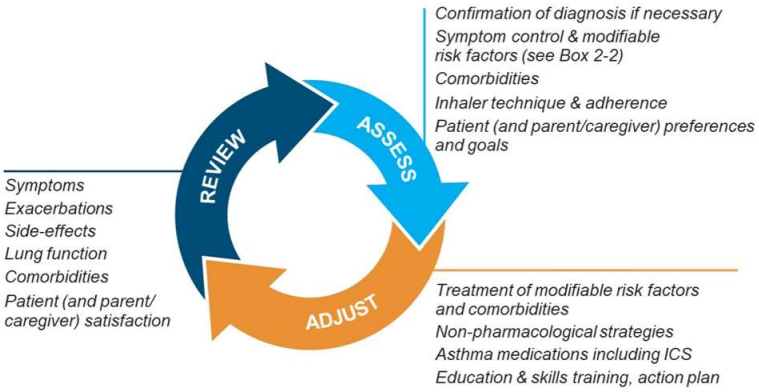
Asthma is Not a One Size Fits All



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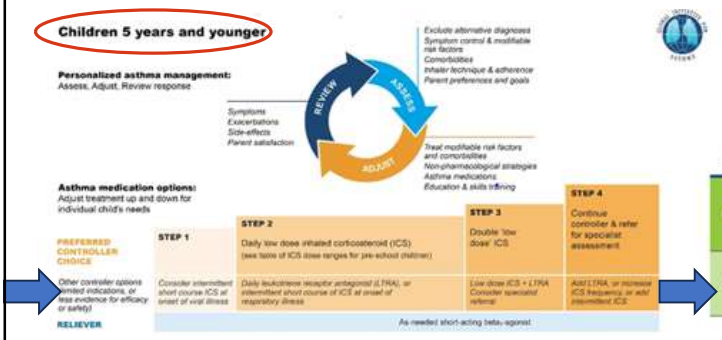
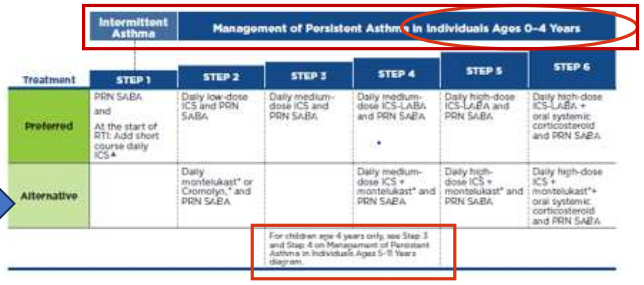
Comparison of Global and National Guidelines in Young Children*





National Heart, Lung, and Blood Institute; National Institutes of Health; U.S. Department of Health and Human Services. National Asthma E, Prevention P. Guidelines for the Diagnosis and Management of Asthma-Summary Report 2020.

GINA ©2024 Global Initiative for Asthma

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	GINA	NAEPP
Age Range	5 years and younger	0 – 4 years
Testing	None, FeNO not recommended	
Treatment **Step 1**	PRN SABA Alternative is short course of ICS	PRN SABA and short course of medium to high dose ICS
Step 2	Daily low dose ICS and PRN SABA	
Step 3	***Double daily low dose*** ICS and PRN SABA	Daily medium dose ICS and PRN SABA
Step 4	Continue daily ICS and PRN SABA, refer to specialist	Daily medium dose ICS+LABA and PRN SABA
Step 5	NA	Daily high dose ICS+LABA and PRN SABA
Step 6	NA	Daily high dose ICS+LABA+oral steroids and PRN SABA
Supporting literature	Kaiser et al. Pediatrics 2016; 137 (meta-analysis)	Bisgaard et al. Pediatircs. 2004; Wasserman RL. Ann Allergy Asthma Immuno. 2006; Roorda et al. JACI. 2001

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Recurrent Wheeze and Asthma

- 50% of children will have at least one episode of wheezing before the age of 6 years
- ~ 22% of infants and young children will have recurrent wheezing
- Airway epithelium and immune system alterations in response to URI and allergens are causing chronic airway obstruction and remodeling
- Children with a history of eczema, increased eosinophilia, family history of allergies, and hospitalizations for URI are more likely to progress into asthma.
- Asthma predictive index is a validated tool to assess the risk of developing asthma within 3 years of life

Bacharier LB. 2010; Garcia-Marcos L, et al. 2010;Shi T, et al; 2020;Coutts J, et al. 2020; Ruotsalainen M, Heikkila P, Backman K, Korppi M. 2022; Meissner HC. 2016; Choi T, et al. 2021; Wang YC, et al. 2018.

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Intermittent ICS in Young Children

Intermittent medium to high dose ICS for recurrent wheeze can reduce:

- Symptom duration and severity
- Days of short acting beta agonist (SABA) use
- Frequency of oral steroids
- Decrease emergency department visits and hospitalizations
- Improve quality of life
- Cost effective

Ducharme FM et al. 2009; Bacharier LB et al.,2008; Kaiser et al.2016; Buendia JA, Guerrero PD, Giraldo RJ. 2022.

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Dosing Comparison for Young Children

Total daily dose	GINA	NAEPP
Low dose	• Beclomethasone HFA 50-100 mcg • Budesonide solution 500 mcg • Fluticasone Propionate HFA 50 mcg • Mometasone HFA 100 mcg	• Budesonide solution 0.25-0.5 mg • Fluticasone HFA 176 mcg • Mometasone HFA 200 mcg*
Medium dose	Doubling low dose	• Budesonide solution >0.5-1.0 mg • Fluticasone HFA >176-352 mcg • Mometasone HFA >200-400 mcg*
High dose	NA	• Budesonide solution >1.0 mg • Fluticasone HFA >352 mcg • Mometasone HFA >400 mcg*

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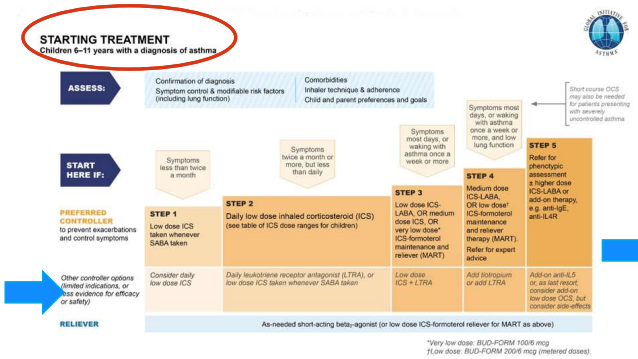
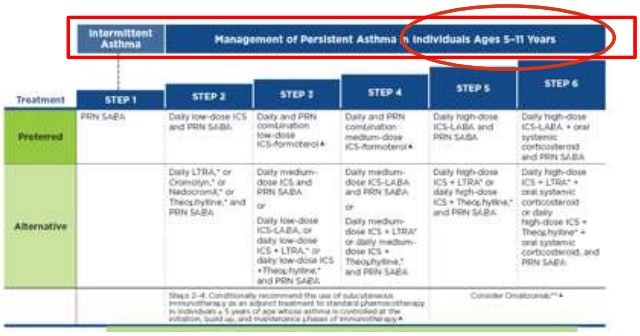
Comparison of Treatment Strategies for School Age Children*





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National Heart, Lung, and Blood Institute; National Institutes of Health; U.S. Department of Health and Human Services. National Asthma E, Prevention P. Guidelines for the Diagnosis and Management of Asthma-Summary Report 2020.

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	GINA	NAEPP
Age Range	6 – 11 years	5 – 11 years
Testing	Allergic sensitization, Spirometry, FeNO but should be used in conjunction with history	
Treatment **Step 1**	PRN low dose AIR	PRN SABA
Step 2	Daily low dose ICS and PRN SABA	
Step 3	Daily low dose ICS+ LABA or medium ICS with PRN SABA or daily SMART at **very low** dose and **low dose** as reliever	Daily **low dose** SMART
Step 4	Medium dose ICS + LABA and PRN SABA or and daily SMART at **low dose**, refer to specialist	Daily **medium dose** SMART
Step 5	Higher dose ICS+ LABA, add on therapy, refer to specialist	Daily **high dose** ICS+LABA and PRN SABA
Step 6	NA	Daily high dose ICS+LABA+oral steroids and PRN SABA
Supporting literature	Martinez FD et al. Lancet 2011; Calhoun WJ et al. JAMA 2012; Adams NP, Jones PW Respir Med 2006; Vaessen-Verberne A, et al. Am J Respir Crit Care Med 2010	

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Comparison of Dosing for School Age Children Age Children*

Total daily dose	GINA	NAEPP
Low	• Beclomethasone HFA 100-200 mcg • Budesonide DPI/HFA 100-200 mcg • Budesonide solution 0.25 - 0.5 mg • Fluticasone furoate DPI 50 mcg • Fluticasone propionate HFA/DPI 50-100 mcg • Mometasone HFA 100 mc	• Beclomethasone HFA 80-160 mcg • Budesonide DPI 180-400 mcg • Budesonide solution 0.5 mg • Fluticasone HFA 88-176 mcg • Fluticasone DPI 100-200 mcg • Mometasone HFA 100-200 mcg*
Medium	• Beclomethasone HFA >200-400 mcg • Budesonide DPI/HFA >200-400 mcg • Budesonide solution >0.5 – 1.0 mg • Fluticasone furoate DPI 50 mcg • Fluticasone propionate HFA/DPI >100-200 mcg • Mometasone HFA 100 mcg	• Beclomethasone HFA >160-320 mcg • Budesonide DPI >400-800 mcg • Budesonide solution 1.0 mg • Fluticasone HFA >176-352 mcg • Fluticasone DPI >200-400 mcg • Mometasone HFA >200-400 mcg*
High	• Beclomethasone HFA >400 mcg • Budesonide DPI/HFA >400 mcg • Budesonide solution >1.0 mg • Fluticasone propionate HFA/DPI >200 mcg • Mometasone HFA 200 mcg	• Beclomethasone HFA >320 mcg • Budesonide DPI >800 mcg • Budesonide solution 2.0 mg • Fluticasone HFA >352 mcg • Fluticasone DPI >400 mcg • Mometasone HFA >400 mcg*

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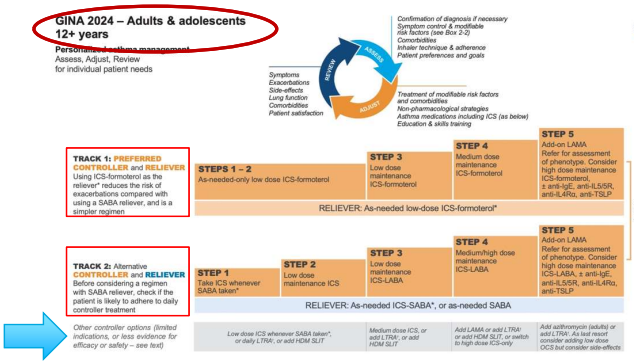
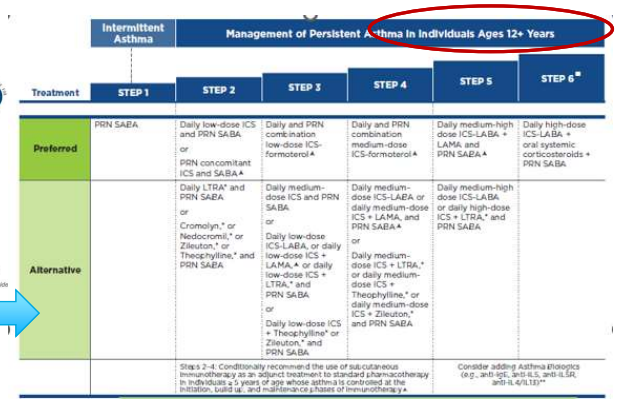
Comparison of Treatment Strategies for Adolescents and Adults*





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National Heart, Lung, and Blood Institute; National Institutes of Health; U.S. Department of Health and Human Services. National Asthma Guidelines for the Diagnosis and Management of Asthma-Summary Report 2020.

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	GINA	NAEPP
Treatment Step 1	T1:PRN low dose SMART T2: PRN AIR	PRN SABA
Step 2	T1: **PRN low dose SMART** T2: Daily low dose ICS and PRN SABA or AIR	Daily low dose ICS and PRN SABA or PRN AIR
Step 3	T1: Daily low dose SMART T2: Daily low dose ICS+LABA with PRN SABA or AIR	Daily low dose SMART
Step 4	T1: Daily medium dose SMART and PRN **low dose** ICS-formoterol T2: Daily medium-high dose ICS+LABA and PRN SABA or AIR	Daily medium dose SMART
Step 5	T1: Add on LAMA, consider high dose SMART and PRN **low dose** ICS-formoterol, refer to specialist, biologics T2: Add on LAMA , high dose ICS+LABA, PRN SABA or AIR, refer to a specialist, biologics	Daily medium-high dose ICS+LABA+LAMA and PRN SABA
Step 6	NA	Daily high-dose ICS+LABA+oral systemic steroids+PRN SABA
Supporting literature	*Chipps BE, Albers FC, Reilly L, Johnson E, Cappelletti C, Papi A. 2021; Rodrıguez-Martınez CE, Sossa-Briceno MP, Buendia JA. 2022; Camargos P, et al. 2018; Turpeinen M, et al. 2008; Sobieraj et al JAMA, 2018 (meta analysis); Reddel et al Lancet 2017*	

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Anti-inflammatory (AIR) Rescue Medication

- Daily ICS better asthma control, improves FEV_1, FVC, FEV_1/FVC and peak expiratory flow reducing the need for short acting beta agonist (SABA
- Once daily had higher adherence rates
- Poor adherence to daily maintenance therapy is 35-82% of children, increasing healthcare utilization and mortality as well as decreasing quality of life
- Decreases asthma exacerbation severity, worsening of the disease, and potentially the need for oral steroids when compared to SABA alone
- Lowest adherence rate is in young adults (18-29 yrs)

Chipps BE, Albers FC, Reilly L, Johnson E, Cappelletti C, Papi A. 2021; Rodrıguez-Martınez CE, Sossa-Briceno MP, Buendia JA. 2022; Camargos P, et al. 2018; Turpeinen M, et al. 2008, De Keyser et al. J Allergy Clin Immuno 2023

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Dosing Comparison for Adolescents and Adults

Total daily dose	GINA	NAEPP
Low dose	• Beclomethasone HFA 200-500 mcg • Beclomethasone DPI 100-200 mcg • Budesonide DPI/HFA 200-400 mcg • Fluticasone furoate DPI 100 mcg • Fluticasone propionate HFA/DPI 100-250 mcg • Mometasone HFA 200-400 mcg	• Beclomethasone HFA 80-240 mcg • Budesonide DPI 180-600 mcg • Fluticasone propionate HFA 88-264 mcg • Fluticasone propionate DPI 100-300 mcg • Mometasone DPI 200mcg
Medium dose	• Beclomethasone HFA >500-1000 mcg • Beclomethasone DPI >200-400 mcg • Budesonide DPI/HFA >400-800 mcg • Fluticasone furoate DPI 100 mcg • Fluticasone propionate HFA/DPI >250-500 mcg • Mometasone HFA 200-400 mcg	• Beclomethasone HFA >240-480 mcg • Budesonide DPI >600-1200 mcg • Fluticasone propionate HFA >264-440 mcg • Fluticasone propionate DPI >300-500 mcg • Mometasone DPI 400mcg
High dose	• Beclomethasone HFA >1000 mcg • Beclomethasone DPI > 400 mcg • Budesonide DPI/HFA > 800 mcg • Fluticasone furoate DPI 200 mcg • Fluticasone propionate HFA > 500 mcg • Mometasone HFA >400 mcg	• Beclomethasone HFA >480 mcg • Budesonide DPI >1200 mcg • Fluticasone propionate HFA >440 mcg • Fluticasone propionate DPI >500 mcg • Mometasone DPI >400mcg

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Age Based Dosing for SMART and AIR

	Therapy	Daily	Symptoms	Daily Maximum (24 hours)
6-11 years	AIR	Steps 1-2: NA	no evidence	
	SMART	Step 3: 1 puff daily Step 4: 1 puff BID Step 5: Not recommended	1 puff	8 puffs
12-17 years	AIR	Steps: 1-2: NA	1 puff	12 puffs
	SMART	Step 3: 1 puff once or twice PRN Step 4: 2 puff BID Step 5: 2 puff BID	1 puff	12 puffs
≥18 years	AIR	Steps 1-2: NA	1 puff	12 puffs
	SMART	Step 3: 1 puff once or twice PRN Step 4: 2 puff BID Step 5: 2 puff BID	1 puff	12 puffs

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Development of a Primary Care Asthma Management Guideline

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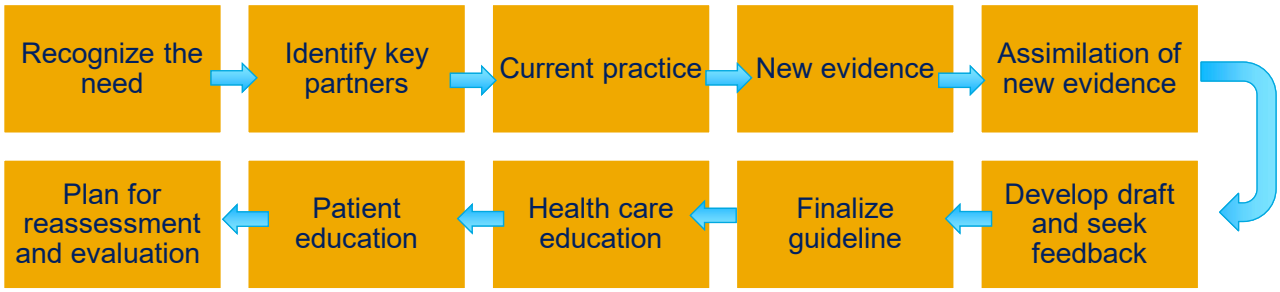
Developing and Implementing a Guideline



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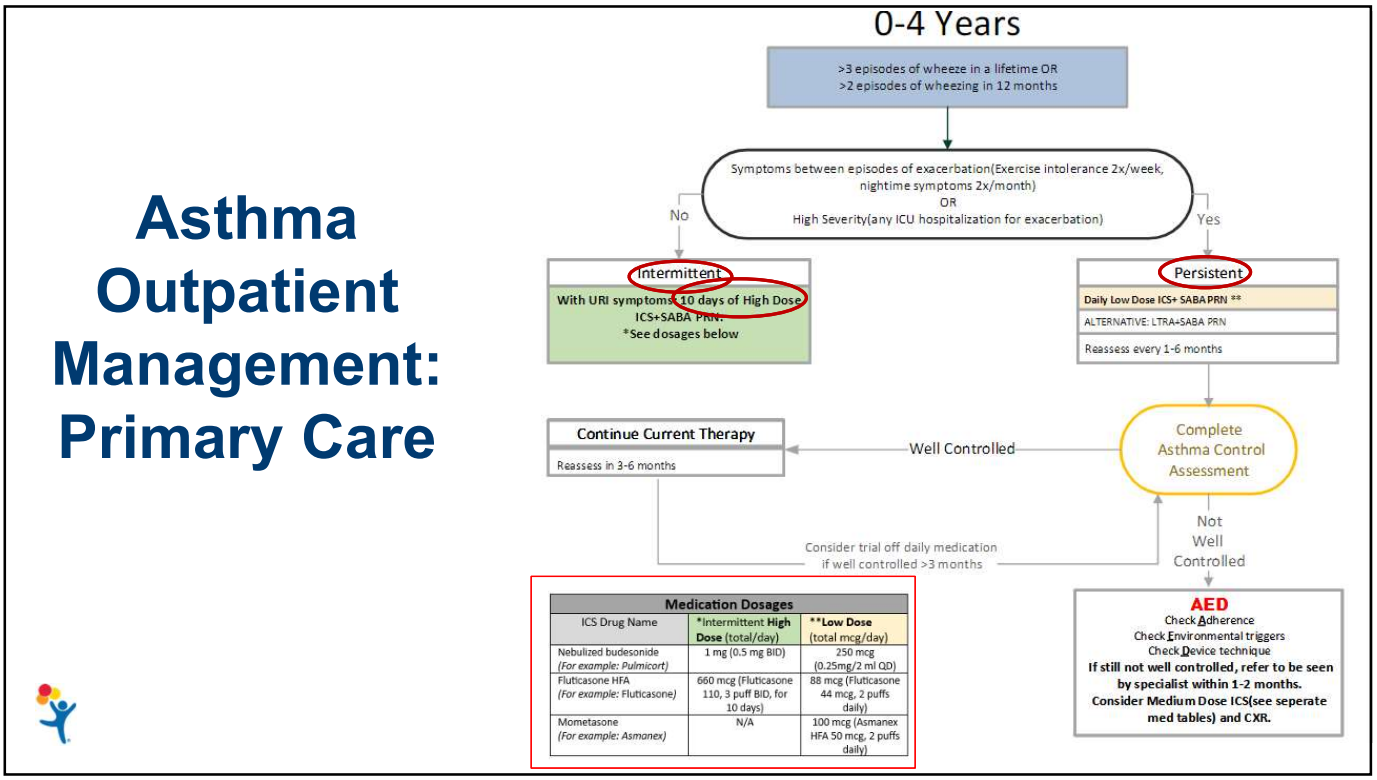
Asthma Outpatient Management: Primary Care



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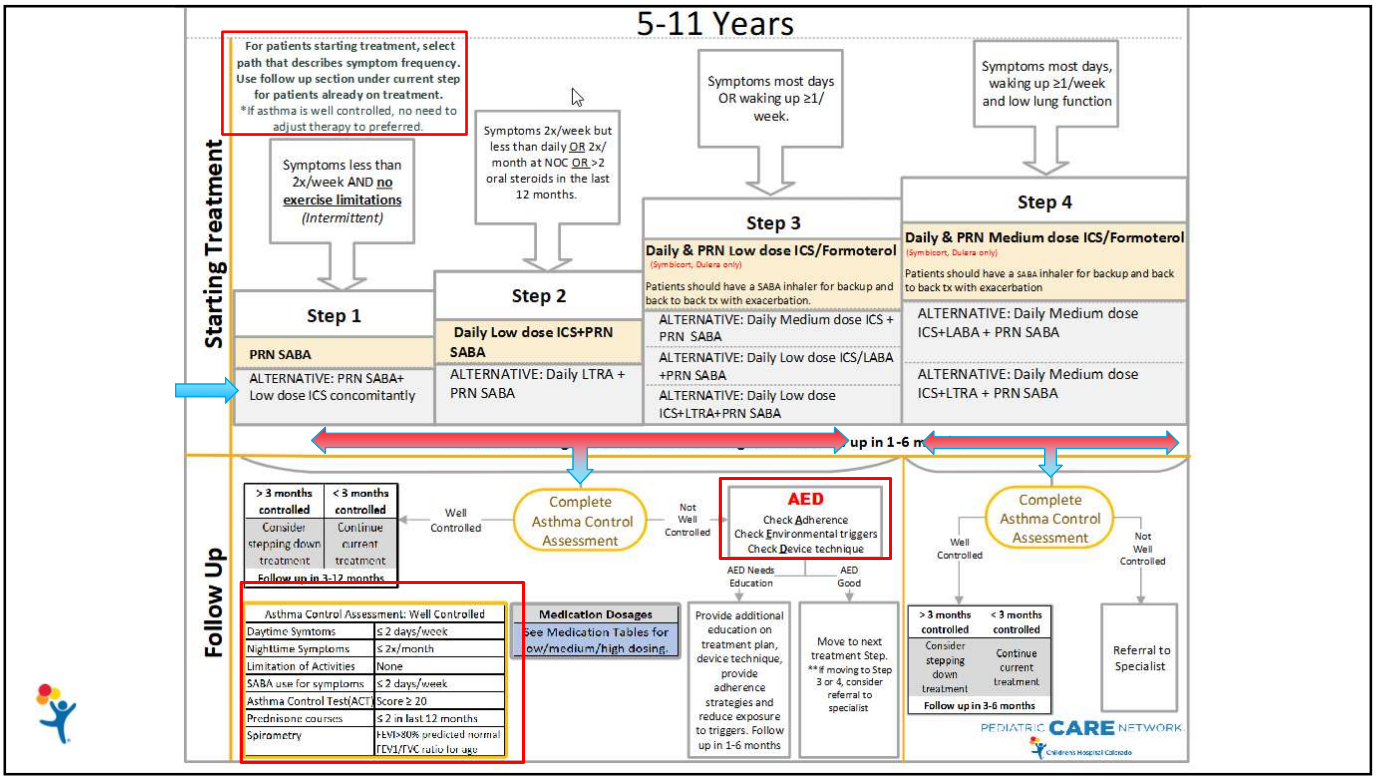

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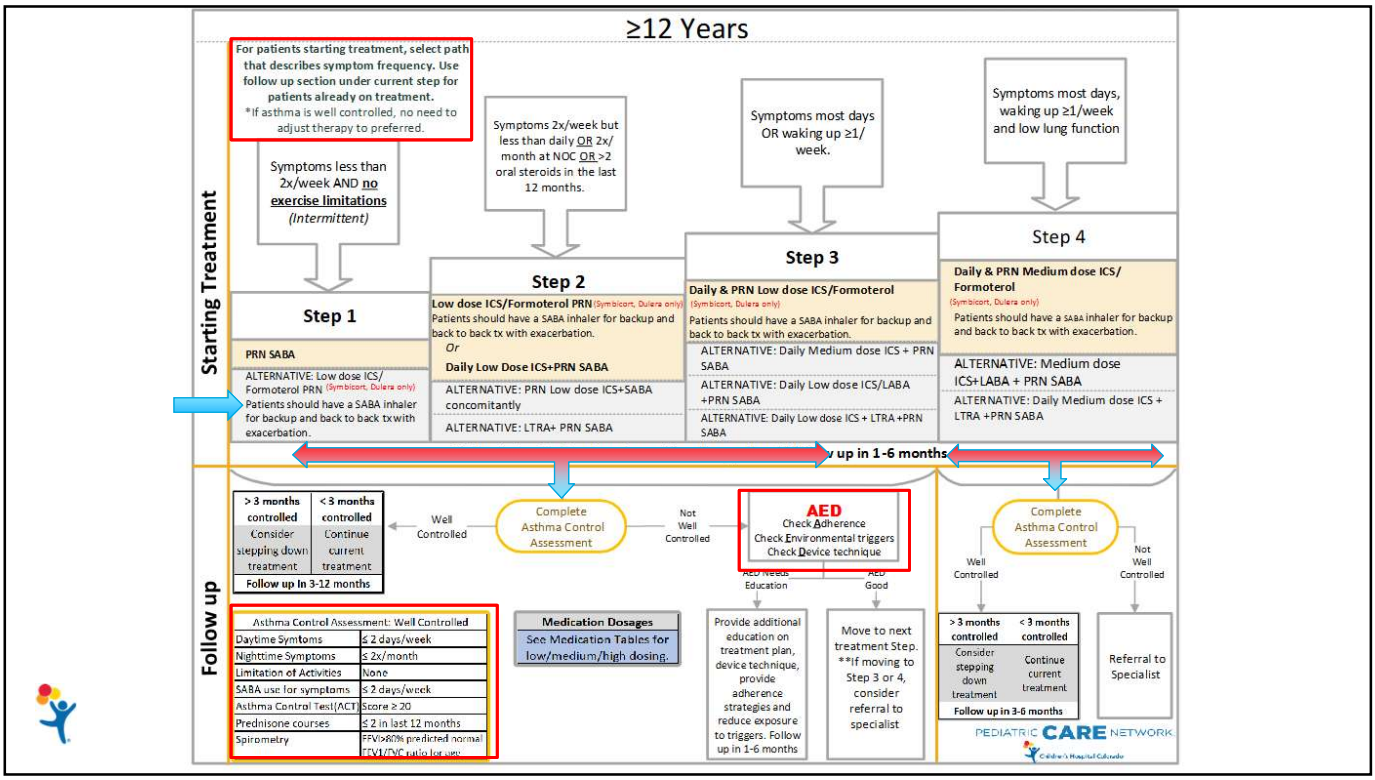

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0-4 Years

ICS Drug name	**LOW DOSE**: Total mcg/day (Example sig)
Nebulized budesonide (Pulmicort)	Total: 250 mcg (**Pulmicort** 0.25mg-2ml daily)
Fluticasone HFA	Total: 88 mcg (**Fluticasone** 44mcg-2p daily)
Mometasone (Asmanex)	Total: 100 mcg (**Asmanex** 50 mcg- 2p daily)

5-11 Years

ICS Drug Name (Available dosing)	**LOW DOSE** Total mcg/day **Example sig**	**MEDIUM DOSE** Total mcg/day **Example sig**	**HIGH DOSE** total mcg/day **Example sig**
Beclomethasone HFA QVAR (40mcg/80mcg)	Total: 50-100 mcg **QVAR** 40mcg-2p daily	Total: >100-200 mcg **QVAR** 40mcg-2p BID	Total: >200 mcg **QVAR** 80 mcg 2p BID
Budesonide nebules Pulmicort nebules (0.25/2ml, 0.5mg/2ml)	Total: 250-500 mcg **Pulmicort Nebules** 0.25mg/2ml daily or 0.25mg/2ml BID	Total: >500-1000 mcg **Pulmicort Nebules** 0.25mg/2ml BID	Total: >1000 mcg **Pulmicort Nebules** 0.5mg/2ml BID
Budesonide/formoterol HFA Symbicort* (80mcg/160mcg)	Total: 80-160 mcg **Symbicort HFA** 80mcg 2p QD or BID	Total: 320-640 mcg **Symbicort HFA** 80mcg 2p BID **Symbicort HFA** 160 mcg 2p daily	Total: >640 mcg **Symbicort HFA** 160mcg 2p BID
Ciclesonide Alvesco (80mcg/160mcg)	Total: 80 mcg	Total: >80-160 mcg **Alvesco** 80 mcg 2 puffs QD or 1 puff BID	Total: >160 mcg **Alvesco** 160 mcg 2 p QD or BID
Fluticasone propionate HFA Fluticasone HFA (44mcg/110mcg/220mcg) Advair HFA-fluticasone/salmeterol (45mcg/115mcg/230mcg)	Total: 88-180 mcg **Fluticasone** 44mcg 2p daily or 2p BID **Advair** 45mcg 2p daily or 2p BID	Total: 180-220 mcg **Fluticasone**44mcg 2p BID **Advair** 45mcg 2p BID	Total: >220 mcg **Fluticasone**110mcg 2p BID **Fluticasone**220 mcg 2p BID **Advair** 115mcg 2p BID **Advair** 230 mcg 2p BID
Mometasone furoate Asmanex-50mcg/100mcg/200mcg Dulera (mometasone/formoterol)* 50mcg/100mcg)	Total: 100 mcg Asmanex 50mcg 2p daily Dulera 50mcg 2p daily	Total: 100 mcg Asmanex 50mcg 2p BID Dulera 50mcg 2p BID	Total: >200 mcg Asmanex 100mcg 2p BID Dulera 100 mcg 2p BID

*If using SMART therapy, must use a FORMOTEROL containing combination (**Symbicort** or **Dulera** only). p=puffs
Max puffs in 24 hours for ICS/Formoterol combination medications: ***8 puffs***

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12 Years and Older

ICS Drug name (Available dosing)	LOW DOSE Total mcg/day	MEDIUM DOSE Total mcg/day	HIGH DOSE Total mcg/day
	Example sig	Example sig	Example sig
Beclomethasone HFA QVAR (40mcg/80mcg)	Total: 100-200 mcg	Total: >200-400 mcg	Total: >1000 mcg
	QVAR 40mcg 2pBID	**QVAR** 80mcg 2p BID	> **QVAR** 80mcg 2p BID
Budesonide DPI Pulmicort flexhaler (90mcg/180mcg)	Total: 200-400 mcg	Total: >400-800 mcg	Total: >800 mcg
	Pulmicort flexhaler 90mcg 2inh daily or 2inh BID	**Pulmicort flexhaler** 90mcg 2inh BID	**Pulmicort flexhaler** 180mcg 2inh BID
Budesonide/formoterol HFA Symbicort (80mcg/160mcg)	Total: 80-160 mcg	Total: 320-640 mcg	Total: >640mcg
	Symbicort HFA 80mcg 2p daily or BID	**Symbicort HFA** 80mcg 2p BID **Symbicort HFA** 160 mcg 2 p QD or BID	**Symbicort** 160mcg 2p BID
Ciclesonide (Alvesco (80mcg/160mcg)	Total: 80-160 mcg	Total: >160-320 mcg	Total: >320 mcg
	Alvesco 80mcg 2p daily	**Alvesco** 80mcg 2p BID	**Alvesco** 160mcg 2p BID
Fluticasone furoate DPI Breo (fluticasone/vilanterol) (100mcg/200mcg) Arnuity (50mcg/100mcg/200mcg)	100 mcg	100 mcg	200 mcg
	Breo 100mcg 1inh daily **Arnuity** 100mcg 1inh daily	**Breo** 100mcg 1inh daily **Arnuity** 100mcg 1inh daily	**Breo** 200mcg 1inh daily **Arnuity** 200mcg 1inh daily
Fluticasone propionate DPI Fluticasone Diskus (50 mcg/100mcg/250 mcg) Advair Diskus (fluticasone/salmeterol)100mcg/250mcg/500mcg)	Total: 100-250 mcg	Total: >250-500 mcg	Total: >500 mcg
	Fluticasone Diskus 50 mcg 1 or 2 inh BID	**Fluticasone Diskus** 100mcg 1 inh BID	**Fluticasone Diskus** 250 mcg 1 inh BID
	Advair Diskus 100mcg 1inh daily or BID	**Advair Diskus** 250mcg 1inh daily or BID	**Advair Diskus** 250mcg 1inh BID
Fluticasone propionate HFA Fluticasone (44mcg/110mcg/220mcg) Advair HFA (fluticasone/salmeterol) (45mcg/115mcg/230mcg)	Total: 100-250 mcg	Total: >250-500 mcg	Total: >500 mcg
	Fluticasone HFA 44mcg 2puffs BID	**Fluticasone HFA** 110mcg 2puffs daily or BID	**Fluticasone HFA** 220mcg 2puffs BID
	Advair HFA 45mcg 2puffs BID	**Advair HFA** 115mcg 2puffs daily or BID	**Advair HFA** 230mcg 2puffs BID
Mometasone furoate Asmanex (50mcg/100mcg/200mcg) Dulera (mometasone/formoterol) (50mcg/100mcg/200 mcg)	Total: 100-200 mcg	Total: >200-400 mcg	Total: >400 mcg
	Asmanex 100mcg 2puff daily	**Asmanex** 100mcg 2puffs BID	**Asmanex** 200mcg 2puffs BID
	Dulera 50mcg 2puffs daily or BID	**Dulera** 50mcg or 100mcg 2puffs BID	**Dulera** 200mcg 2puffs BID

If using SMART therapy, must use a FORMOTEROL containing combination (Symbicort or Dulera only). p=puffs

Max puffs in 24 hours for ICS/Formoterol combination medications: ***12 puffs***

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Global 2024 Changes

- Diagnostic flow chart updated
- More information added about cough variant phenotype
- Assessment of asthma control
- Goals for asthma treatment
- Remission of asthma on treatment
- Other controller options for adolescents and adults

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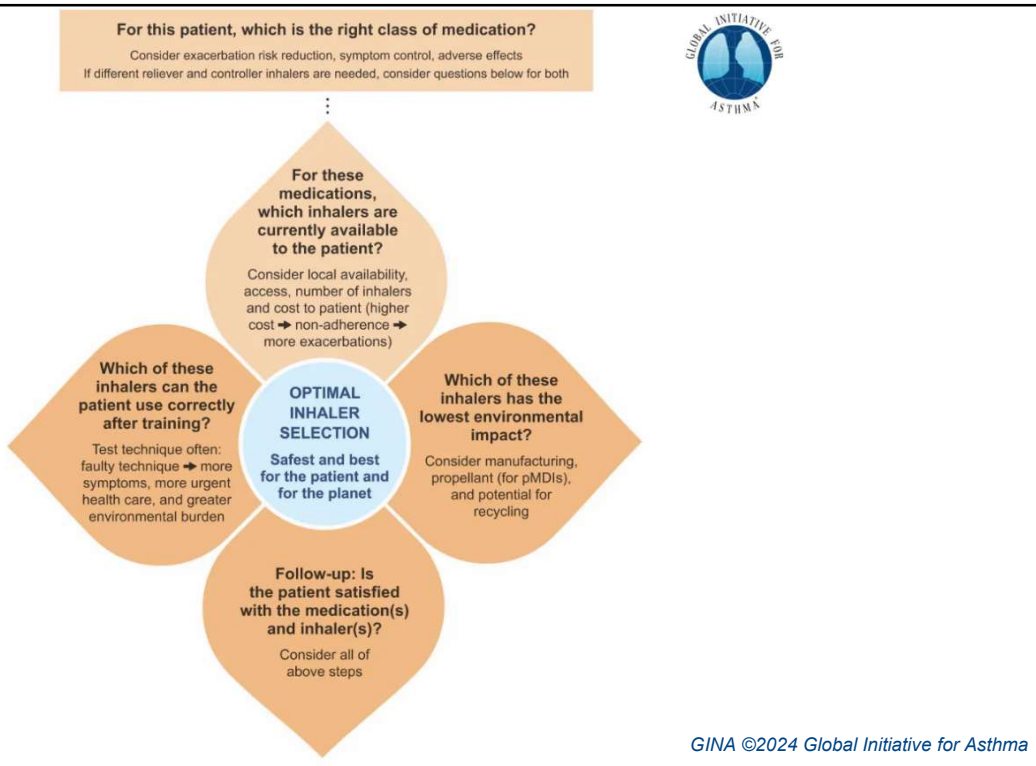

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Specialist Referral

1. Difficulty confirming diagnosis or doubts about diagnosis of asthma
2. Suspected occupational asthmaor subtypes of asthma
3. Persistent or severely uncontrolled asthma or frequent exacerbations
4. Risks for asthma related death
5. Evidence or risk of treatment side-effects
6. Biologic therapy

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