Purpose

The purpose of this guide is to provide an update to all practitioners in Arkansas caring for patients with asthma. Recent national asthma guidelines recommend new options for asthma treatment. These changes include the addition of intermittent ICS therapy, concomitant ICS/SABA use for symptoms, SMART therapy, and LAMAs. Additional recommendations were also made that can be found in the Guideline Summary: https://www.nhlbi.nih.gov/health-topics/all-publications-and-resources/2020-focused-updates-asthma-management-guidelines

Intermittent ICS Therapy

Affected Population: Children ages 0–4 years with at least 3 wheezing episodes triggered by viral URI with no wheezing in between illnesses.

Recommendation: Start daily ICS at the start of viral respiratory illness (for 7–10 days) with as-needed SABA for quick relief of symptoms

**Not indicated for children taking daily ICS

Concomitant ICS/SABA Therapy

Affected Population: Children (12 years and older) and adults with mild persistent asthma

Recommendation: EITHER daily, low dose ICS OR as-needed ICS AND SABA for quick-relief of symptoms are considered equal treatment for mild persistent asthma (Step 2)

Single Maintenance and Reliever Therapy (SMART)

Affected Population: Children (4 years and older) and adults with uncontrolled, moderate to severe persistent asthma

Recommendation: ICS-formoterol, in a single inhaler, can be used as BOTH a daily controller AND quick-relief therapy

**For SMART eligible patients, increasing the ICS dose or starting daily ICS-LABA with as-needed SABA remain alternatives, based upon provider discretion

Long-Acting Muscarinic Antagonist (LAMA)

Affected Population: Children (12 years and older) and adults with uncontrolled persistent asthma

Recommendation: LAMA can be added to ICS or ICS-LABA rather than continuing the current dose of ICS/ICS-LABA

**LAMA is NOT superior to adding LABA to ICS in uncontrolled persistent asthma

Abbreviations:

SABA: short-acting beta2-agonist
ICS: inhaled corticosteroids
LABA: long-acting beta2-agonist
LAMA: long-acting muscarinic antagonist

Using This Guide

1. A summary of changes from the 2020 NAEPPCC Asthma Guideline Management Updates is included
2. Tables for classification of asthma severity and assessment of asthma control are also included. Asthma severity is typically assessed at the time of asthma diagnosis and should be based upon the presence of asthma-related symptoms. Assessment of asthma control should be performed at each asthma visit.
3. An algorithm for performing asthma-related visits and initiation of controller therapy is also included
4. In the interior of the brochure, guideline-based treatment tables as well as dosing recommendations for Intermittent ICS, SMART, concomitant ICS-SABA, and LAMAs are included

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Resources

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The information in this Asthma Management Guide was taken in part from the following:

"Guidelines for the Diagnosis and Management of Asthma," Summary Report 2007 from the National Asthma Education and Prevention Program Expert Panel Report 3 (EPR-3).

"2020 Focused Updates to the Asthma Management Guidelines," A Report from the National Asthma Education and Prevention Program Coordinating Committee Expert Panel Working Group.

The Global Initiative for Asthma (GINA) Global Strategy for Asthma Management and Prevention Guidelines

Asthma Management Guide

A Diagnostic and Treatment Tool for Health Care Providers Incorporating 2020 NAEPPCC Asthma Management Guideline Updates

Asthma Diagnosis and Classification of Severity

Classification of Asthma Severity

	Components of Severity	Intermittent Asthma	Persistent Asthma		
			Mild	Moderate	Severe
Impairment	Symptoms	≤ 2 days/weeks	> 2 days/week but not daily	Daily	Throughout the day
	Nighttime Awakenings	0-4 years: None ≥ 5 years: ≤ 2 days/month	0-4 years: 1-2 times/month ≥ 5 years: 3-4 times/month	0-4 years: 3-4 times/ month ≥ 5 years: > 1 times/weekly, but not daily	0-4 years: > 1 time/week ≥ 5 years: Daily
	SABA use	≤ 2 days/week	> 2 days/week but not > 1 time daily	Daily	Several times per day
	Activity limitation	None	Minor	Some	Extremely limited
	Lung function (PFTs)*: FEV_1 FEV_1/FVC *For children unable to perform PFTs, severity may be assigned without FEV_1 or FEV_1/FVC	FEV1 > 80% predicted FEV_1/FVC > 85% Normal FEV_1 between exacerbations	FEV1 ≥ 80% predicted FEV1/FVC > 80%	FEV1 = 60-80% predicted FEV1/FVC = 75-80%	FEV1 < 60% predicted FEV1/FVC < 75%
Risk	Exacerbations requiring oral systemic corticosteroids	0-1 exacerbations per year	≥ 2 exacerbations in 6 months requiring systemic corticosteroids, OR ≥ 4 wheezing episodes in 1 year lasting > 1 day (0-4 years) or ≥ 2 in 1 year (≥ 5 years)		
		Consider severity and interval since last exacerbation. Frequency and severity may fluctuate over time for patients in any severity category Relative annual risk of exacerbations may be related to FEV1			

Assessment of Asthma Control

Assess asthma control by patient or caregiver's recall of symptoms over the previous 2-4 weeks. It is also important to assess the number of exacerbations. If a patient has experienced **more than one** exacerbation over the preceding 3-6 months, asthma is uncontrolled, regardless of symptom frequency.

In the past 4 weeks, has the patient had:		
Daytime symptoms more than twice per week?	□ Yes □ No	Asthma is **Well-Controlled** if the answers to all questions is NO
Any night waking due to asthma?	□ Yes □ No	Asthma is **Not-Well Controlled** if 1-2 of the answers are YES
SABA needed for than twice per week?	□ Yes □ No	
Any activity limitation due to asthma?	□ Yes □ No	Asthma is **Uncontrolled** if 3-4 of the answers are YES

Asthma Control Assessment adapted from the 2021 Global Initiative for Asthma (GINA) Report, Global Strategy for Asthma Management and Prevention: https://ginasthma.org/gina-reports/

Asthma Management

Assess asthma control at least every 6 months. For patients experiencing uncontrolled asthma symptoms or acute asthma exacerbations, consider starting asthma controller therapy. For patients already on controller therapy, a change in dosing or type of medication(s) used should be considered.

Start Asthma Controller Therapy for ANY of the Following:

- Diagnosis of persistent asthma
- Uncontrolled asthma symptoms
  - Cough, wheezing, shortness of breath, or chest tightness ***more than twice a week***
  - Waking at night due to asthma ***more than once a month***
- ≥ 2 courses of systemic steroids for asthma in the ***past 12 months***
- History of ICU admission for asthma
- FEV1 <80% of predicted
- PFTs that show a ≥ 12% increase in FEV1 after a bronchodilator is administered during testing

Reassess asthma control in 2-6 weeks

- Assess symptoms
- Assess number of exacerbations
- Assess PFTs (if available)
- Review inhaler technique

Well-Controlled

Continue current medications

- Consider a step-down if well-controlled for at least 3 months

Reassess asthma control every **3-6 month** and adjust treatment as needed

Not Well-Controlled or Uncontrolled

Step up Treatment

- Step 3 treatment or higher, referral to asthma specialist recommended
- See Treatment Tables for dosing recommendations

Reassess asthma control in **2-6 weeks**

Well-Controlled

Reassess asthma control every **3-6 month** and adjust treatment as needed

Not Well-Controlled or Uncontrolled

Step up Treatment

- Refer to asthma specialist

** Assessment of asthma control should be performed every 6 months and consists of evaluating symptoms (see table), PFTs, and frequency of exacerbations.*

AGES 0–4 YEARS: STEPWISE APPROACH FOR MANAGEMENT OF ASTHMA

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

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

AGES 5–11 YEARS: STEPWISE APPROACH FOR MANAGEMENT OF ASTHMA

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

AGES 12+ YEARS: STEPWISE APPROACH FOR MANAGEMENT OF ASTHMA

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

Dosing Recommendations for Intermittent ICS

Intermittent ICS (Start of URI – continue for 7-10 days)	0 to 4 years
Fluticasone propionate (Flovent HFA)	88-110mcg twice a day + as needed SABA
Budesonide (Pulmicort Respules)	0.25-1 mg twice a day + as needed SABA

Dosing Recommendations for SMART Therapy

SMART Therapy	>4 to 11 years	
	Low	Medium
Budesonide+Formoterol (Symbicort)	Symbicort 80/4.5, 2 puffs daily + 1-2 puffs every 4 hours as needed *Maximum daily dose: 8 puffs	Symbicort 80/4.5, 2 puffs BID + 1-2 puffs every 4 hours as needed *Maximum daily dose: 8 puffs
Mometasone+Formoterol (Dulera)	Dulera 50/5, 2 puffs daily + 1-2 puffs every 4 hours as needed *Maximum daily dose: 8 puffs	Dulera 100/5, 2 puffs BID + 1-2 puffs every 4 hours as needed *Maximum daily dose: 8 puffs
SMART Therapy	**12 years and Older**	
	Low	Medium
Budesonide+Formoterol (Symbicort)	Symbicort 80/4.5, 2 puffs daily + 1-2 puffs every 4 hours as needed *Maximum daily dose: 12 puffs	Symbicort 80/4.5, 2 puffs BID + 1-2 puffs every 4 hours as needed *Maximum daily dose: 12 puffs
Mometasone+Formoterol (Dulera)	Dulera 100/5, 2 puffs daily + 1-2 puffs every 4 hours as needed *Maximum daily dose: 12 puffs	Dulera 100/5, 2 puffs BID + 1-2 puffs every 4 hours as needed *Maximum daily dose: 12 puffs

Dosing Recommendations for Concomitant ICS-SABA

Concomitant ICS-SABA for asthma symptoms	12 years and older
	2-4 puffs of SABA + Low to Medium Dose ICS every 4 hours as needed

Dosing Recommendations for LAMA

LAMA	12 years and older
	Spiriva 1.25mcg/puff: 2 puffs once daily

Inhaled Corticosteroid Equivalencies

	Low	Medium	High
Beclomethasone dipropionate HFA (Qvar) 40mcg, 80mcg	5-11yrs: 80-160mcg 12 and older: 80-240mcg	5-11yrs: 200-320mcg 12 and older: 280-480mcg	5-11yrs: >320mcg 12 and older: >480mcg
Budesonide (nebulization) (Pulmicort) 0.25mg, 0.5mg, 1mg respules	12mo-8yrs: 0.5mg	12mo-8yrs: 1mg	12mo-8yrs: 2mg
Budesonide DPI (Pulmicort Flexhaler) 90mcg, 180mcg	5-11yrs: 180-360mcg 12 and older: 180-540mcg	5-11yrs: 450-720mcg 12 and older: 630-1170mcg	5-11yrs: >800mcg 12 and older: >1200mcg
Fluticasone propionate HFA (Flovent) 44mcg, 110mcg, 220mcg	5-11yrs: 88-176mcg 12 and older: 88-264mcg	5-11yrs: 220-352mcg 12 and older: 264-440mcg	5-11yrs: >352mcg 12 and older: >440mcg
Fluticasone propionate DPI (Flovent Diskus) 50mcg, 100mcg, 250mcg	5-11yrs: 100-200mcg 12 and older: 100-300mcg	5-11yrs: 250-400mcg 12 and older: 350-500mcg	5-11yrs: >400mcg 12 and older: >500mcg
Ciclesonide HFA (Alvesco) 80mcg, 160mcg	12 and older: 80-160mcg	12 and older: >160-320mcg	12 and older: >320mcg
Mometasone furoate HFA (Asmanex) 50mcg, 100mcg, 200mcg	5-11yrs: 50-100mcg 12 and older: 100-200mcg	5-11yrs: >100-200mcg 12 and older: >200-400mcg	5-11yrs: >200mcg 12 and older: >400mcg
Mometasone furoate DPI (Asmanex Twisthaler) 110mcg, 220mcg	5-11yrs: 110mcg 12 and older: 110-220mcg	5-11yrs: 220-<440mcg 12 and older: 330-440mcg	≥440mcg