Asthma: Our Standard of Care

Children's Health Center, San Francisco General Hospital

Based on revised NIH Guidelines (2007)

1 Stabilize Respiratory Status.

Treat exacerbations promptly and aggressively.
A short course of systemic corticosteroids may be necessary.

Check patient history for past urgent care visits

2 Classify Severity OR Assess Control

For patient NOT currently taking control medication:
Classify severity according to impairment and risk

Then, decide on appropriate medication according to age, using charts below.

* All Patients: Short acting bronchodilator by nebulizer or MDI with a spacer as needed for symptoms.
* To decide who must also get long-term controller therapy, follow the "Rule of 2s":

Daytime symptoms > 2x wk
or
Nighttime symptoms > 2x mo = Persistent Asthma = Long-term controller therapy
or
Exacerbations > 2x yr

Component of Control		Intermittent		Persistent					
				Mild		Moderate		Severe	
		Ages 0-4	Ages ≥ 5	Ages 0-4	Ages ≥ 5	Ages 0-4	Ages ≥ 5	Ages 0-4	Ages ≥ 5
Impairment	Symptoms	≥ 2 days/week		>2 days/week but not daily		Daily		Throughout the day	
	Nighttime awakenings	0	<2x/ month	1-2x/month	3-4x/month	3-4x/month	≥ 1x/wk but not nightly	≥ 1x/wk	Often 7x/wk
	Interference with normal activity	None		Some limitation		Extremely limited			
	Short-acting Beta-agonist use for symptom Control	< 2 days/week		>2 days/week but not daily		Daily		Several times per wk	
	Inferences with Normal Activity	None		Minor limitation		Some limitation		Extremely limited	
	Lung function • FEV1/FVC • FEV, (predicted) or peak flow personal best	N/A	Normal FEV1 between exacerbations >80% >80%	N/A	> 80% >80%	NA	60-80% 75-85%	NA	<50% < 75%
Risk	Exacerbations requiring oral systemic corticosteroids (consider severity and interval since last exacerbation)	0-1x/year (see notes)		≥ 2 exacerbations in 6 months requiring oral systemic corticosteroids, or > 4 wheezing episode/year lasting ≥ 1 day and risk factors for persistent asthma	≥ 2x/year (see notes) Relative annual risk may be related to FEV1				
Recommended Step for Initiating Therapy (See "Stepwise Approach for Managing Asthma" for treatment steps.)		Step 1 (for both age groups)		Step 2 (for both age groups)		Step 3 and consider short course of oral systemic corticosteroids	Step 3 medium dose ICS option and consider short course of oral systemic corticosteroids	Step 3 and consider short course of systemic corticosteroids	Step 3 medium dose ICS option OR Step 4 and consider short course of oral systemic corticosteroids
The stepwise approach is meant to assist, not replace, clinical decision-making required to meet individual patient needs.		In 2-6 weeks, depending on severity, evaluate level of asthma control that is achieved • Children 0-4 years old: If no clear benefit is observed in 4-6 weeks, stop treatment and consider alternative diagnosis or adjusting therapy. • Children Ages ≥ 5 years old: Adjust therapy accordingly.							

OR

For patient currently taking controller medication:
Assess control according to impairment and risk

Component of Control		Assessing Asthma Control and Adjusting Therapy in Children					
		Well Controlled		Not Well Controlled		Very Poorly Controlled	
		Ages 0-4	Ages ≥ 5.	Ages 0-4	Ages ≥ 5	Ages 0-4	Ages ≥ 5
Impairment	Symptoms	≤ 2 days/week but not more than once on each day		>2 days/week or multiple times on ≤ 2 days/week		Throughout the day	
	Nighttime awakenings	≤ 1x/month		>1x/month	≥ 2x/month	>1x/month	≥ 2x/month
	Interference with normal activity	None		Some limitation		Extremely limited	
	Short-acting Beta-agonist use for symptom Control (not prevention of EIB)	≤ 2 days/week		>2 days/week		Several times per day	
	Lung function • FEV1/FVC • FEV, (predicted) or peak flow personal best	N/A	>80% >80%	N/A	60-80% 75-80%	N/A	<60% <75%
Risk	Exacerbations requiring oral systemic corticosteroids	0-1x/year		2-3x/year	≥ 2x/year	≥ 3x/year	≥ 2x/year
	Reduction in lung growth	N/A	Requires long-term followup	N/A		N/A	
	Treatment-related adverse effects	Medication side effects can vary in intensity from none to very troublesome and worrisome. The level of intensity does not correlate to specific levels of control but should be considered in the overall assessment of risk.					
Recommended Action for treatment (See below for treatment steps)		• Maintain current step • Regular followup every 1-6 months • Consider step down if well controlled for at least 3 months.		Step up 1 step	Step up at least 1 step	• Consider short course of oral systemic corticosteroids • Step up 1-2 steps	
The stepwise approach is meant to assist, not replace, clinical decision making required to meet individual patient needs.				• Before step up: Review adherence to medication, inhaler technique, and environmental control. If alternative treatment was used, discontinue it and use preferred treatment for that step. • Reevaluate the level of asthma control in 2-6 weeks to achieve control, every 1-6 months to maintain control. Children 0-4 years old: If no clear benefit is observed in 4-6 weeks, consider alternative diagnosis or adjusting therapy. Ages ≥ 5: Adjust therapy accordingly. • For side effects, consider alternative treatment options.			

3 Initiate, step-up or stp-down therapy according to severity/ control

Step up if needed (first check inhaler technique, adherence, environmental control, and comorbid conditions)
Assess control
Step down if possible (and asthma is well controlled at least 3 months)

		Step 1	Step 2	Step 3	Step 4	Step 5	Step 6
		Intermittent Asthma	Persistent Asthma: Daily Medication Consult with Asthma specialist if Step 3 care or higher is required. Consider consultation at step 2				
Ages 0-4 Years	Preferred	SABA PRN	Low-dose ICS	Medium-dose ICS	Medium-dose ICS + LABA OR High dose ICS	High-dose ICS + LABA	High-dose ICS + LABA + Oral Cortocosteroids ICS + LABA
	Alternative		Montelukast		Medium-dose ICS + Montelukast	High-dose ICS + Montelukast	
		Each Step: Patient Education and Environmental Control					
	Quick Relief Medication	• SABA as needed for symptoms. Intensity of treatment depends on severity of symptoms • With viral respiratory symptoms: SABA q 4-6 hours up to 24 hours (longer with physician consult). Consider short course of oral systemic corticosteroids if exacerbation is severe or patient has history of previous severe exacerbations..					
		Intermittent Asthma	Persistent Asthma: Daily Medication Consult with Asthma specialist if Step 3 care or higher is required. Consider consultation at step 3				
Ages ≥ 5 Years	Preferred	SABA PRN	Low-dose ICS	Low-dose ICS + LABA OR Medium dose ICS	Medium dose ICS + LABA	High-dose ICS + LABA	High-dose ICS + LABA + Oral corticosteroids
	Alternative		LTRA	Low dose ICS + LTRA	Medium dose ICS + LTRA	High-dose ICS + LTRA	High-dose ICS + LTRA + Oral corticosteroids
		Each Step: Patient Education and Environmental Control, and Management of Comorbidities Steps: 2-4: Consider subcutaneous allergen immunotherapy for patients who have persistent allergic asthma					
	Quick Relief Medication	• SABA as needed for symptoms. Intensity of treatment depends upon severity of symptoms. Up to 3 treatments at 20 minute intervals as needed. Short course of oral systemic cortocosteroids maybe needed • Consider Omalizumab for severe asthma with strong allergic component for those over 12 years of age.					

ESTIMATED COMPARATIVE DAILY DOSAGES FOR INHALED CORTICOSTEROIDS

Drug	Low Daily dose			Medium Daily Dose			High Daily Dose		
	Child 0-4 Years of Age	Child 5-11 Years of Age	≥12 years of Age & Adults	Child 0-4 Years of Age	Child 5-11 Years of Age	≥12 years of Age & Adults	Child 0-4 Years of Age	Child 5-11 Years of Age	≥12 years of Age & Adults
Beclomethasone HFA 40 or 80 mcg/puff	NA	80–160 mcg	80–240 mcg	NA	>160–320 mcg	>240–480 mcg	NA	>320 mcg	>480 mcg
Budesonide DPI 90, 180, or 200 mcg/inhalation	NA	180–400 mcg	180–600 mcg	NA	>400–800 mcg	>600–1,200 mcg	NA	>800 mcg	>1,200 mcg
Budesonide Inhaled Inhalation suspension for nebulization	0.25–0.5 mg	0.5 mg	NA	>0.5–1.0 mg	1.0 mg	NA	>1.0 mg	2.0mg	NA
Flunisolide 250 mcg/puff	NA	500–750 mcg	500–1,000 mcg	NA	1,000–1,250 mcg	>1,000–2,000 mcg	NA	>1,250 mcg	>2,000 mcg
Flunisolide HFA 80 mcg/puff	NA	160 mcg	320 mcg	NA	320 mcg	>320–640 mcg	NA	³640 mcg	>640 mcg
Fluticasone HFA/MDI: 44, 110, or 220 mcg/puff	176 mcg	88–176 mcg	88–264 mcg	>176–352 mcg	>176–352 mcg	>264–440 mcg	>352mcg	>352 mcg	>440 mcg
DPI: 50, 100, or 250 mcg/inhalation	NA	100–200 mcg	100–300 mcg	NA	>200–400 mcg	>300–500 mcg	NA	>400 mcg	>500 mcg
Mometasone DPI 200 mcg/inhalation	NA	NA	200 mcg	NA	NA	400 mcg	NA	NA	>400 mcg
Triamcinolone acetonide 75 mcg/puff	NA	300–600 mcg	300–750 mcg	NA	>600–900 mcg	>750–1,500 mcg	NA	>900 mcg	>1,500 mcg

Key: DPI, dry power inhaler; HFA, hydrofluoroalkane; MDI, metered-dose inhaler; NA, not available (either not approved, no data available, or safety and efficacy not established for this age group)

ICS = inhaled cortocosteroid; LABA = inhaled long-acting beta2-agonist;
LTRA = leukotriene receptor antagonist; SABA = inhaled short-acting beta2-agonist.

4 Check to be sure patient's insurance will pay for me

Place insurance information sheet in this sleeve.

5 Fill out an Asthma Action Plan

(see example, below)

Asthma Action Plan

Name: Luisa Lott SS# ___ - ___ - ___ Provider Healum

Provider's Phone #: ___ Date: ___ Personal Best Peak Flow: 400

ASTHMA ATTACK — WHAT I NEED TO DO:
Remember the colors to remind you what to do for asthma attacks

GREEN — OK Peak flow is 320 to 400 Use controller medicine

No Coughing No Wheezing No Chest Tightness No Trouble Breathing, Working, or Playing

MEDICINE:	HOW MUCH:	HOW OFTEN:
Flovent 44	2 puffs	2 times a day

YELLOW — WARNING Peak flow is 200 to 320 Keep taking controller medicine and take reliever medicine

Coughing Wheezing Chest Tightness Trouble Breathing Waking Up at Night

MEDICINE:	HOW MUCH:	HOW OFTEN:
Albuterol HFA	2 puffs	every 4 hours
OR Xopenex HFA	1- 2 puffs	every 4 hours

Also continue controller medications in green zone as ordered

RED — STOP — DANGER! Peak flow is less than 200 CALL YOUR PROVIDER NOW!

Breathing is hard and fast Can't Walk or Talk Easily Ribs Show or Nose Opens Wide with Breathing

TAKE THESE MEDICINES UNTIL YOU TALK TO YOUR PROVIDER OR REACH THE NEAREST MEDICAL FACILITY.

MEDICINE:	HOW MUCH:	HOW OFTEN:
Albuterol HFA (OR Xopenex HFA)	3-4 puffs	every 20 minutes until symptoms improve or medical facility is reached

If your child's mouth looks blue or he/she can not breath, call 911 right away.

Signatures: ___ Provider ___ Patient ___ Caregiver

Form courtesy of San Francisco Health Plan

6 Send all patients home with the following:

1. An Action Plan, for home and school. (Save copy for chart.)
2. Prescription for medications and spacer.
3. Adequate education regarding emergency procedures, use of medications, asthma action plan, spacer, peak flow meter, avoidance of major triggers, and the importance of follow-up appointments.
4. Signed school form that allows child to use rescue medication when needed at school.
5. Follow up appointments:
   a. In Urgent Care if patient having severe exacerbations
   b. With Primary Care Provider
   c. Also, if patient has persistent asthma, with an asthma specialty clinic, and a community health worker or public health nurse

YES WE CAN℠

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