

These protocols are designed to implement standard guidelines, based on the best evidence, that provide a consistent clinical experience for AHC II Integrated Clinical Delivery Network patients and allow to quantitatively demonstrate to payers the high-value care provided. They are not intended to replace a clinician's judgment or to establish a protocol for all patients with a particular condition.

SCREENING AND PREVENTION

All adult patients who present with symptoms of recurrent cough, wheezing, or shortness of breath

Bronchodilator trial: Symptoms relieved or improved by trial of inhaled short-acting beta 2 -agonist (SABA)

Spirometry Test: Additionally, in older children when they are capable to adequately perform testing and adults not on asthma medications, FEV1/FVC may be reduced and FEV1 (forced expiratory volume in 1 second) may be less than 80% normal with an increase in FEV1 (greater than and equal to 12%) post bronchodilator. Bronchoprovocation testing (methacholine challenge) is more useful to rule out asthma than to confirm it.

Peak flow meter: Measurements by peak flow meter in physicians' offices should not be used to determine the diagnosis of asthma

DIAGNOSIS

Diagnosis is clinical and may include both clinical features and lung function test results in older children and adults.

Medical History - Asthma			
Cough	Shortness of breath or chest tightness	Exercise induced cough or wheezing	History of respiratory tract infections with lingering cough
Recurrent episodes of wheezing	Nocturnal cough	Onset of symptoms after exposure to airborne allergens or other stimuli	Conditions associated with asthma (e.g. atopic dermatitis, rhinitis, etc.) Parental history of asthma

Physical Examination – Asthma			
Evidence of bronchial obstruction:	Prolonged expiration	Swollen, discolored nasal mucosa	Partial nasal airway obstruction
Wheezing	Airway obstruction at least partially reversible Nose/Eyes	Clear nasal discharge	Erythematous conjunctiva, palpebral cobblestoning, tearing Skin: Atopic dermatitis

Diagnostic Evaluation - Asthma

Asthma type and severity. Use the following factors to classify asthma as intermittent or persistent; if persistent, classify as mild, moderate or severe. Overall severity is based on the most severe impairment for any factor.

Symptoms – frequency	Interference with normal activity – extent	FEV1 or peak expiratory flow rate (PEFR) – % of predicted or of personal best (for older children and adults)	Exacerbations requiring oral or parenteral systemic corticosteroids – frequency and severity
Nighttime awakenings – frequency	Short-acting beta-2 agonist use for symptom control – frequency	FEV1/FVC – % of predicted (for older children and adults)	

COLLABORATIVE MANAGEMENT PLAN/INTEGRATED REFERRALS

Follow the 'INITIAL VISIT: Asthma Quick Care Reference' guide under appropriate sections that follow. ** CLASSIFYING ASTHMA SEVERITY AND INITIATING THERAPY

Initiate medication and demonstrate use

Encourage influenza vaccine every year and pneumococcal vaccine.

Develop action plan

Schedule follow-up

Every 2-6 weeks while gaining control

Every 1-6 months to monitor control

Every 3 months if step down in therapy is anticipated

Referral Considerations:

Allergy specialist	Asthma self-management education	Tobacco cessation	Pulmonologist
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INITIAL VISIT: CLASSIFYING ASTHMA SEVERITY AND INITIATING THERAPY

INITIAL VISIT: CLASSIFYING ASTHMA SEVERITY AND INITIATING THERAPY

(in patients who are not currently taking long-term control medications)

Level of severity (Columns 2-5) is determined by events listed in Column 1 for both impairment (frequency and intensity of symptoms and functional limitations) and risk (of exacerbations). Assess impairment by patient's or caregiver's recall of events during the previous 2-4 weeks; assess risk over the last year. Recommendations for initiating therapy based on level of severity are presented in the last row.

Components of Severity		Intermittent			Persistent								
		Ages 0-4 years	Ages 5-11 years	Ages ≥12 years	Mild			Moderate			Severe		
		Ages 0-4 years	Ages 5-11 years	Ages ≥12 years	Ages 0-4 years	Ages 5-11 years	Ages ≥12 years	Ages 0-4 years	Ages 5-11 years	Ages ≥12 years	Ages 0-4 years	Ages 5-11 years	Ages ≥12 years
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/week but not nightly		>1x/week	Often 7x/week	
	SABA* use for symptom control (not to prevent EIB*)	≤2 days/week			>2 days/week but not daily	>2 days/week but not daily and not more than once on any day		Daily			Several times per day		
	Interference with normal activity	None			Minor limitation			Some limitation			Extremely limited		
	Lung function		Normal FEV ₁ between exacerbations	Normal FEV ₁ between exacerbations									
	➔ FEV ₁ * (% predicted)	Not applicable	>80%	>80%	Not applicable	>80%	>80%	Not applicable	60-80%	60-80%	Not applicable	<60%	<60%
	➔ FEV ₁ /FVC*		>85%	Normal [†]		>80%	Normal [†]		75-80%	Reduced 5% [†]	<75%	Reduced >5% [†]	
Risk	Asthma exacerbations requiring oral systemic corticosteroids [‡]	0-1/year			≥2 exacerb. in 6 months, or wheezing ≥4x per year lasting >1 day AND risk factors for persistent asthma	≥2/year							
	Consider severity and interval since last asthma exacerbation. Frequency and severity may fluctuate over time for patients in any severity category. Relative annual risk of exacerbations may be related to FEV ₁ .*												
Recommended Step for Initiating Therapy		Step 1			Step 2			Step 3	Step 3 medium-dose ICS* option	Step 3	Step 3	Step 3 medium-dose ICS* option or Step 4	Step 4 or 5
(See "Stepwise Approach for Managing Asthma Long Term," page 7)													
The stepwise approach is meant to help, not replace, the clinical decisionmaking needed to meet individual patient needs.		Consider short course of oral systemic corticosteroids.											
In 2-6 weeks, depending on severity, assess level of asthma control achieved and adjust therapy as needed.													
For children 0-4 years old, if no clear benefit is observed in 4-6 weeks, consider adjusting therapy or alternate diagnoses.													

* Abbreviations: EIB, exercise-induced bronchospasm; FEV₁, forced expiratory volume in 1 second; FVC, forced vital capacity; ICS, inhaled corticosteroid; SABA, short-acting beta₂-agonist.

† Normal FEV₁/FVC by age: 8-19 years, 85%; 20-39 years, 80%; 40-59 years, 75%; 60-80 years, 70%.

‡ Data are insufficient to link frequencies of exacerbations with different levels of asthma severity. Generally, more frequent and intense exacerbations (e.g., requiring urgent care, hospital or intensive care admission, and/or oral corticosteroids) indicate greater underlying disease severity. For treatment purposes, patients with ≥2 exacerbations may be considered to have persistent asthma, even in the absence of impairment levels consistent with persistent asthma.

Follow the 'FOLLOW UP VISIT AND STEP WISE APPROACH AND Step-wise Approach for Managing Asthma Long-term

Assess and monitor asthma control

Review medication technique & adherence; assess side effects; review environment control

Maintain, step up or step down medication

Review asthma action plan, revise as needed

Schedule follow-up appointment

- Every 2-6 weeks while gaining control

- Every 1-6 months to monitor control

- Every 3 months if step down in therapy is anticipated

Obtain lung function measures by spirometry at least every 1-2 years; more frequently for asthma that is not well controlled

FOLLOW-UP VISITS: ASSESSING ASTHMA CONTROL AND ADJUSTING THERAPY

FOLLOW-UP VISITS: ASSESSING ASTHMA CONTROL AND ADJUSTING THERAPY

Level of control (Columns 2–4) is based on the most severe component of impairment (symptoms and functional limitations) or risk (exacerbations). Assess impairment by patient's or caregiver's recall of events listed in Column 1 during the previous 2–4 weeks and by spirometry and/or peak flow measures. Symptom assessment for longer periods should reflect a global assessment, such as inquiring whether the patient's asthma is better or worse since the last visit. Assess risk by recall of exacerbations during the previous year and since the last visit. Recommendations for adjusting therapy based on level of control are presented in the last row.

Components of Control		Well Controlled			Not Well Controlled			Very Poorly Controlled					
		Ages 0–4 years	Ages 5–11 years	Ages ≥12 years	Ages 0–4 years	Ages 5–11 years	Ages ≥12 years	Ages 0–4 years	Ages 5–11 years	Ages ≥12 years			
Impairment	Symptoms	≤2 days/week	≤2 days/week but not more than once on each day	≤2 days/week	>2 days/week	>2 days/week or multiple times on ≤2 days/week	>2 days/week	Throughout the day					
	Nighttime awakenings	≤1x/month		≤2x/month	>1x/month	≤2x/month	1–3x/week	>1x/week	≥2x/week	≥4x/week			
	Interference with normal activity	None			Some limitation			Extremely limited					
	SABA* use for symptom control (not to prevent EIB*)	≤2 days/week			>2 days/week			Several times per day					
	Lung function												
	↗ FEV ₁ * (% predicted) or peak flow (% personal best)	Not applicable	>80%	>80%	Not applicable	60–80%	60–80%	Not applicable	<60%	<60%			
	↗ FEV ₁ /FVC*		>80%	Not applicable		75–80%	Not applicable		<75%	Not applicable			
Risk	Validated questionnaires†												
	↗ ATAQ*	Not applicable	Not applicable	0	Not applicable	Not applicable	1–2	Not applicable	Not applicable	3–4			
	↗ ACQ*	Not applicable	Not applicable	≤0.75‡	Not applicable	Not applicable	≥1.5	Not applicable	Not applicable	Not applicable			
	↗ ACT*	Not applicable	Not applicable	≥20	Not applicable	Not applicable	16–19	Not applicable	Not applicable	≤15			
Risk	Asthma exacerbations requiring oral systemic corticosteroids⁹	0–1/year			2–3/year	≥2/year		>3/year	≥2/year				
		Consider severity and interval since last asthma exacerbation.											
	Reduction in lung growth/Progressive loss of lung function	Not applicable	Evaluation requires long-term follow-up care.			Not applicable	Evaluation requires long-term follow-up care.		Not applicable	Evaluation requires long-term follow-up care.			
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 “Stepwise Approach for Managing Asthma Long Term,” page 7) The stepwise approach is meant to help, not replace, the clinical decisionmaking needed to meet individual patient needs.					Step up 1 step	Step up at least 1 step	Step up 1 step	Consider short course of oral systemic corticosteroids. Step up 1–2 steps.					
					Reevaluate in 2–6 weeks to achieve control.								
					Maintain current step. Regular follow-up every 1–6 months. Consider step down if well controlled for at least 3 months.			For children 0–4 years, if no clear benefit observed in 4–6 weeks, consider adjusting therapy or alternative diagnoses.			Reevaluate in 2 weeks to achieve control.		
								Before step up in treatment: Review adherence to medication, inhaler technique, and environmental control. If alternative treatment was used, discontinue and use preferred treatment for that step. For side effects, consider alternative treatment options.					

* Abbreviations: ACQ, Asthma Control Questionnaire; ACT, Asthma Control Test™; ATAQ, Asthma Therapy Assessment Questionnaire; EIB, exercise-induced bronchospasm; FVC, forced vital capacity; FEV₁, forced expiratory volume in 1 second; SABA, short-acting beta₂-agonist.

† Minimal important difference: 1.0 for the ATAQ; 0.5 for the ACQ; not determined for the ACT.

‡ ACQ values of 0.76–1.4 are indeterminate regarding well-controlled asthma.

§ Data are insufficient to link frequencies of exacerbations with different levels of asthma control. Generally, more frequent and intense exacerbations (e.g., requiring urgent care, hospital or intensive care admission, and/or oral corticosteroids) indicate poorer asthma control.

Step-wise Approach for Managing Asthma Long-term

ASTHMA GUIDELINE FOR AHC II INTEGRATED CLINICAL DELIVERY NETWORK APPROVED 7.13.16

ASSESS CONTROL:		STEP UP IF NEEDED (first, check medication adherence, inhaler technique, environmental control, and comorbidities)					
		STEP DOWN IF POSSIBLE (and asthma is well controlled for at least 3 months)					
		STEP 1	STEP 2	STEP 3	STEP 4	STEP 5	STEP 6
		At each step: Patient education, environmental control, and management of comorbidities					
0-4 years of age		Intermittent Asthma	Persistent Asthma: Daily Medication				
			Consult with asthma specialist if step 3 care or higher is required. Consider consultation at step 2.				
	Preferred Treatment [†]	SABA as needed	low-dose ICS	medium-dose ICS	medium-dose ICS + either LABA or montelukast	high-dose ICS + either LABA or montelukast	high-dose ICS + either LABA or montelukast + oral corticosteroids
	Alternative Treatment ^{†,‡}		cromolyn or montelukast				
		If clear benefit is not observed in 4-6 weeks, and medication technique and adherence are satisfactory, consider adjusting therapy or alternate diagnoses.					
		<ul style="list-style-type: none"> SABA as needed for symptoms; intensity of treatment depends on severity of symptoms. With viral respiratory symptoms: SABA every 4-6 hours up to 24 hours (longer with physician consult). Consider short course of oral systemic corticosteroids if asthma exacerbation is severe or patient has history of severe exacerbations. Caution: Frequent use of SABA may indicate the need to step up treatment. 					
5-11 years of age		Intermittent Asthma	Persistent Asthma: Daily Medication				
			Consult with asthma specialist if step 4 care or higher is required. Consider consultation at step 3.				
	Preferred Treatment [†]	SABA as needed	low-dose ICS	low-dose ICS + either LABA, LTRA, or theophylline ^(b)	medium-dose ICS + LABA	high-dose ICS + LABA	high-dose ICS + LABA + oral corticosteroids
	Alternative Treatment ^{†,‡}		cromolyn, LTRA, or theophylline [§]	OR medium-dose ICS	medium-dose ICS + either LTRA or theophylline [§]	high-dose ICS + either LTRA or theophylline [§]	high-dose ICS + either LTRA or theophylline [§] + oral corticosteroids
		Consider subcutaneous allergen immunotherapy for patients who have persistent, allergic asthma.					
		<ul style="list-style-type: none"> SABA as needed for symptoms. The intensity of treatment depends on severity of symptoms: up to 3 treatments every 20 minutes as needed. Short course of oral systemic corticosteroids may be needed. Caution: Increasing use of SABA or use >2 days/week for symptom relief (not to prevent EIB) generally indicates inadequate control and the need to step up treatment. 					
≥12 years of age		Intermittent Asthma	Persistent Asthma: Daily Medication				
			Consult with asthma specialist if step 4 care or higher is required. Consider consultation at step 3.				
	Preferred Treatment [†]	SABA as needed	low-dose ICS	low-dose ICS + LABA OR medium-dose ICS	medium-dose ICS + LABA	high-dose ICS + LABA AND consider omalizumab for patients who have allergies ^{††}	high-dose ICS + LABA + oral corticosteroid ^{§§} AND consider omalizumab for patients who have allergies ^{††}
	Alternative Treatment ^{†,‡}		cromolyn, LTRA, or theophylline [§]	low-dose ICS + either LTRA, theophylline [§] , or zileuton ^{‡‡}	medium-dose ICS + either LTRA, theophylline [§] , or zileuton ^{‡‡}		
		Consider subcutaneous allergen immunotherapy for patients who have persistent, allergic asthma.					
		<ul style="list-style-type: none"> SABA as needed for symptoms. The intensity of treatment depends on severity of symptoms: up to 3 treatments every 20 minutes as needed. Short course of oral systemic corticosteroids may be needed. Caution: Use of SABA >2 days/week for symptom relief (not to prevent EIB) generally indicates inadequate control and the need to step up treatment. 					

KEY MEASURES OF PERFORMANCE

Aligned with CMS ACO/PQRS/Meaningful Use CQM measures

Tobacco Use: Screening and Cessation Intervention (ACO #17; NQF #28; PQRS #226)

Percentage of patients aged 18 years and older who were screened for tobacco use one or more times within 24 months AND who received cessation counseling intervention if identified as a tobacco user.

Domain: Population/Public Health

Numerator: Patients who were screened for tobacco use at least once within 24 months AND who received tobacco cessation counseling intervention if identified as a tobacco user. **Denominator:** All patients aged 18 years and older.

Preventive Care and Screening: Influenza Immunization (ACO #14; NQF #41; PQRS #110)

Percentage of patients aged 6 months and older seen for a visit between October 1 and March 31 who received an influenza immunization OR who reported previous receipt of an influenza immunization

Domain: Population/Public Health

Numerator: Patients who received an influenza immunization OR who reported previous receipt of an influenza immunization.

Denominator: All patients aged 6 months and older seen for a visit between October 1 and March 31.

Pneumonia Vaccination Status for Older Adults (ACO #15; NQF #43; PQRS #111)

Percentage of patients 65 years of age and older who have ever received a pneumococcal vaccine.

Domain: Clinical Process/Effectiveness

Numerator: Patients who have **ever** received a pneumococcal vaccination.

Denominator: Patients 65 years of age and older with a visit during the measurement period.

Tools and resources

U.S. Department of Health and Human Services, National Institutes of Health, National Heart Lung and Blood Institute. National Asthma Education and Prevention Program Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma Summary Report 2007. Retrieved from:

http://www.nhlbi.nih.gov/guidelines/asthma/asthma_qrg.pdf