# FIGURE 4-1a. STEPWISE APPROACH FOR MANAGING ASTHMA IN CHILDREN 0-4 YEARS OF AGE

**Persistent Asthma: Daily Medication** Intermittent Consult with asthma specialist if step 3 care or higher is required. **Asthma** Consider consultation at step 2. Step 6 Step up if Step 5 Preferred: needed Preferred: High-dose ICS + (first, check Step 4 either adherence, High-dose ICS + Preferred: LABA or Step 3 either inhaler Montelukast LABA or technique, and Medium-dose Preferred: Montelukast environmental Step 2 ICS + either Oral systemic Medium-dose control) LABA or corticosteroids Preferred: Montelukast Step 1 Assess Low-dose ICS control Preferred: Alternative: SABA PRN Step down if Cromolyn or possible Montelukast (and asthma is well controlled at least Patient Education and Environmental Control at Each Step 3 months) **Quick-Relief Medication for All Patients** SABA as needed for symptoms. Intensity of treatment depends on severity of symptoms. With viral respiratory infection: SABA q 4-6 hours up to 24 hours (longer with physician consult). Consider short course of oral

Key: Alphabetical order is used when more than one treatment option is listed within either preferred or alternative therapy. ICS, inhaled corticosteroid; LABA, inhaled long-acting beta<sub>2</sub>-agonist; SABA, inhaled short-acting beta<sub>2</sub>-agonist

systemic corticosteroids if exacerbation is severe or patient has history of previous severe exacerbations.

Caution: Frequent use of SABA may indicate the need to step up treatment. See text for recommendations on initiating daily

#### Notes:

long-term-control therapy.

- The stepwise approach is meant to assist, not replace, the clinical decisionmaking required to meet individual patient needs.
- If alternative treatment is used and response is inadequate, discontinue it and use the preferred treatment before stepping up.
- If clear benefit is not observed within 4–6 weeks and patient/family medication technique and adherence are satisfactory, consider adjusting therapy or alternative diagnosis.
- Studies on children 0–4 years of age are limited. Step 2 preferred therapy is based on Evidence A. All other recommendations are based on expert opinion and extrapolation from studies in older children.

### FIGURE 4-1b. STEPWISE APPROACH FOR MANAGING ASTHMA IN CHILDREN 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.

Step 4

Preferred:

ICS + LABA

Alternative:

Medium-dose

ICS + either

Medium-dose

Step up if needed

(first, check adherence. inhaler technique. environmental control, and comorbid conditions)

> Assess control

Step down if possible

(and asthma is well controlled at least 3 months)



### Step 6 Preferred:

High-dose ICS + LABA + oral systemic corticosteroid Alternative:

High-dose ICS + either LTRA or Theophylline + oral systemic corticosteroid

Step 1 Preferred: SABA PRN

Step 2 Preferred:

Low-dose ICS Alternative: Cromolyn, LTRA, Nedocromil, or Theophylline

Step 3 Preferred:

EITHER: Low-dose ICS +

either LABA, LTRA, or Theophylline OR Medium-dose

LTRA or Theophylline

Step 5

High-dose ICS +

Alternative:

High-dose ICS +

either LTRA or

Theophylline

Preferred:

LABA

Each step: Patient education, environmental control, and management of comorbidities.

Steps 2-4: Consider subcutaneous allergen immunotherapy for patients who have allergic asthma

#### Quick-Relief Medication for All Patients

- · SABA as needed for symptoms. Intensity of treatment depends on severity of symptoms: up to 3 treatments at 20-minute intervals as needed. Short course of oral systemic corticosteroids may be needed.
- Caution: Increasing use of SABA or use >2 days a week for symptom relief (not prevention of EIB) generally indicates inadequate control and the need to step up treatment.



Key: Alphabetical order is used when more than one treatment option is listed within either preferred or alternative therapy. ICS, inhaled corticosteroid; LABA, inhaled long-acting beta2-agonist, LTRA, leukotriene receptor antagonist; SABA, inhaled short-acting beta2-agonist

- The stepwise approach is meant to assist, not replace, the clinical decisionmaking required to meet individual patient needs.
- If alternative treatment is used and response is inadequate, discontinue it and use the preferred treatment before stepping up.
- Theophylline is a less desirable alternative due to the need to monitor serum concentration levels.
- Step 1 and step 2 medications are based on Evidence A. Step 3 ICS + adjunctive therapy and ICS are based on Evidence B for efficacy of each treatment and extrapolation from comparator trials in older children and adults comparator trials are not available for this age group; steps 4-6 are based on expert opinion and extrapolation from studies in older children and adults.
- Immunotherapy for steps 2–4 is based on Evidence B for house-dust mites, animal danders, and pollens; evidence is weak or lacking for molds and cockroaches. Evidence is strongest for immunotherapy with single allergens. The role of allergy in asthma is greater in children than in adults. Clinicians who administer immunotherapy should be prepared and equipped to identify and treat anaphylaxis that may occur.

## FIGURE 4-2a. CLASSIFYING ASTHMA SEVERITY AND INITIATING TREATMENT IN CHILDREN 0-4 YEARS OF AGE

Assessing severity and initiating therapy in children who are not currently taking long-term control medication

Components of Severity		Classification of Asthma Severity (0-4 years of age)				
			Persistent			
			Mild	Moderate	Severe	
	Symptoms	≤2 days/week	>2 days/week but not daily	Daily	Throughout the day	
	Nighttime awakenings	0	1–2x/month	3–4x/month	>1x/week	
Impairment	Short-acting beta <sub>2</sub> -agonist use for symptom control (not prevention of EIB)	≤2 days/week	>2 days/week but not daily	Daily	Several times per day	
	Interference with normal activity	None	Minor limitation	Some limitation	Extremely limited	
Risk	Exacerbations		≥2 exacerbations in 6 months requiring oral systemic corticosteroids, or ≥4 wheezing episodes/1 year lasting >1 day AND risk factors for persistent asthma			
RISK	requiring oral systemic corticosteroids	Consider severity and interval since last exacerbation. Frequency and severity may fluctuate over time.				
		Exacerbations of any severity may occur in patients in any severity category.				
Recommended Step for Initiating Therapy		Step 1	Step 2 Step 3 and consider short course of oral systemic corticosteroids			
` `	ure 4–1a for ent steps.)		ending on severity, ev ar benefit is observed tive diagnoses.			

Key: EIB, exercise-induced bronchospasm

- The stepwise approach is meant to assist, not replace, the clinical decisionmaking required to meet individual patient needs.
- Level of severity is determined by both impairment and risk. Assess impairment domain by patient's/caregiver's recall of previous 2–4 weeks. 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. Assign severity to the most severe category in which any feature occurs.
- At present, there are inadequate data to correspond frequencies of exacerbations with different levels of asthma severity. For treatment purposes, patients who had ≥2 exacerbations requiring oral systemic corticosteroids in the past 6 months, or ≥4 wheezing episodes in the past year, and who have risk factors for persistent asthma may be considered the same as patients who have persistent asthma, even in the absence of impairment levels consistent with persistent asthma.

## FIGURE 4-2b. CLASSIFYING ASTHMA SEVERITY AND INITIATING TREATMENT IN CHILDREN 5-11 YEARS OF AGE

Assessing severity and initiating therapy in children who are not currently taking long-term control medication

Components of Severity		Classification of Asthma Severity (5-11 years of age)				
		Intermittent	Persistent			
			Mild	Moderate	Severe	
	Symptoms	≤2 days/week	>2 days/week but not daily	Daily	Throughout the day	
	Nighttime awakenings	≤2x/month	3–4x/month	>1x/week but not nightly	Often 7x/week	
Impairment	Short-acting beta <sub>2</sub> -agonist use for symptom control (not prevention of EIB)	≤2 days/week	>2 days/week but not daily	Daily	Several times per day	
	Interference with normal activity	None	Minor limitation	Some limitation	Extremely limited	
	Lung function	<ul> <li>Normal FEV<sub>1</sub> between exacerbations</li> </ul>				
		• FEV <sub>1</sub> >80% predicted	• FEV <sub>1</sub> = >80% predicted	• FEV <sub>1</sub> = 60–80% predicted	• FEV <sub>1</sub> <60% predicted	
		• FEV <sub>1</sub> /FVC >85%	• FEV <sub>1</sub> /FVC >80%	• FEV <sub>1</sub> /FVC = 75–80%	• FEV <sub>1</sub> /FVC <75%	
	Freezolastions	0–1/year (see note) ≥2/year (see note) -				
Risk	Exacerbations requiring oral systemic	Consider severity and interval since last exacerbation.  Frequency and severity may fluctuate over time for patients in any severity category.				
corticosteroids		Relative annual risk of exacerbations may be related to $FEV_1$ .				
Recommended Step for Initiating Therapy		Step 1	Step 2	Step 3, medium- dose ICS option	Step 3, medium-dose ICS option, or step 4	
		эсер 1	Экер 2	and consider short course of oral systemic corticosteroids		
(See figure 4–1b for treatment steps.)		In 2–6 weeks, evaluate level of asthma control that is achieved, and adjust therapy accordingly.				

Key: EIB, exercise-induced bronchospasm; FEV<sub>1</sub>, forced expiratory volume in 1 second; FVC, forced vital capacity; ICS, inhaled corticosteroids

- The stepwise approach is meant to assist, not replace, the clinical decisionmaking required to meet individual patient needs.
- Level of severity is determined by both impairment and risk. Assess impairment domain by patient's/caregiver's recall of the previous 2–4 weeks and spirometry. Assign severity to the most severe category in which any feature occurs.
- At present, there are inadequate data to correspond frequencies of exacerbations with different levels of asthma severity. In general, more frequent and intense exacerbations (e.g., requiring urgent, unscheduled care, hospitalization, or ICU admission) indicate greater underlying disease severity. For treatment purposes, patients who had ≥2 exacerbations requiring oral systemic corticosteroids in the past year may be considered the same as patients who have persistent asthma, even in the absence of impairment levels consistent with persistent asthma.

## FIGURE 4-3a. ASSESSING ASTHMA CONTROL AND ADJUSTING THERAPY IN CHILDREN 0-4 YEARS OF AGE

		Classification	of Asthma Contro	l (0-4 years of age)		
Components of Control		Well Controlled	Not Well Controlled	<b>Very Poorly Controlled</b>		
	Symptoms	≤2 days/week	>2 days/week	Throughout the day		
	Nighttime awakenings	≤1x/month	>1x/month	>1x/week		
Impairment	Interference with normal activity	None	Some limitation	Extremely limited  Several times per day		
	Short-acting beta <sub>2</sub> -agonist use for symptom control (not prevention of EIB)	≤2 days/week	>2 days/week			
pt-l-	Exacerbations requiring oral systemic corticosteroids	0–1/year	2–3/year	>3/year		
Risk	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 figure 4–1a for treatment steps.)		<ul> <li>Maintain current treatment.</li> <li>Regular followup every 1–6 months.</li> <li>Consider step down if well controlled for at least 3 months.</li> </ul>	<ul> <li>Step up (1 step) and</li> <li>Reevaluate in 2-6 weeks.</li> <li>If no clear benefit in 4-6 weeks, consider alternative diagnoses or adjusting therapy.</li> <li>For side effects, consider alternative treatment options.</li> </ul>	<ul> <li>Consider short course of oral systemic corticosteroids,</li> <li>Step up (1–2 steps), and</li> <li>Reevaluate in 2 weeks.</li> <li>If no clear benefit in 4–6 weeks, consider alternativ diagnoses or adjusting therapy.</li> <li>For side effects, consider alternative treatment options.</li> </ul>		

Key: EIB, exercise-induced bronchospasm

- The stepwise approach is meant to assist, not replace, the clinical decisionmaking required to meet individual patient needs.
- The level of control is based on the most severe impairment or risk category. Assess impairment domain by caregiver's recall of previous 2–4 weeks. 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.
- At present, there are inadequate data to correspond frequencies of exacerbations with different levels of asthma control. In general, more frequent and intense exacerbations (e.g., requiring urgent, unscheduled care, hospitalization, or ICU admission) indicate poorer disease control. For treatment purposes, patients who had ≥2 exacerbations requiring oral systemic corticosteroids in the past year may be considered the same as patients who have not-well-controlled asthma, even in the absence of impairment levels consistent with not-well-controlled asthma.
- Before step up in therapy:
  - Review adherence to medications, inhaler technique, and environmental control.
  - If alternative treatment option was used in a step, discontinue it and use preferred treatment for that step.

## FIGURE 4-3b. ASSESSING ASTHMA CONTROL AND ADJUSTING THERAPY IN CHILDREN 5-11 YEARS OF AGE

Components of Control		Classification of Asthma Control (5-11 years of age)				
		Well Controlled	Not Well Controlled	Very Poorly Controlled		
	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	≥2x/month	≥2x/week		
	Interference with normal activity	None	Some limitation	Extremely limited		
Impairment	Short-acting beta <sub>2</sub> -agonist use for symptom control (not prevention of EIB)	≤2 days/week	>2 days/week	Several times per day		
	Lung function					
	FEV <sub>1</sub> or peak flow	>80% predicted/ personal best	60–80% predicted/ personal best	<60% predicted/ personal best		
	• FEV <sub>1</sub> /FVC	>80%	75–80%	<75%		
	Exacerbations requiring	0–1/year ≥2/year (see note)				
	oral systemic corticosteroids	Consider severity and interval since last exacerbation				
Risk	Reduction in lung growth	Evaluation requires long-term followup.				
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 figure 4–1b for treatment steps.)		<ul> <li>Maintain current step.</li> <li>Regular followup every 1–6 months.</li> <li>Consider step down if well controlled for at least 3 months.</li> </ul>	<ul> <li>Step up at least 1 step and</li> <li>Reevaluate in 2-6 weeks.</li> <li>For side effects: consider alternative treatment options.</li> </ul>	<ul> <li>Consider short course of oral systemic corticosteroids,</li> <li>Step up 1–2 steps, and</li> <li>Reevaluate in 2 weeks.</li> <li>For side effects, consider alternative treatment options.</li> </ul>		

Key: EIB, exercise-induced bronchospasm;  $FEV_1$ , forced expiratory volume in 1 second; FVC, forced vital capacity **Notes:** 

- The stepwise approach is meant to assist, not replace, the clinical decisionmaking required to meet individual patient needs.
- The level of control is based on the most severe impairment or risk category. Assess impairment domain by patient's/caregiver's recall of previous 2–4 weeks and by spirometry/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.
- At present, there are inadequate data to correspond frequencies of exacerbations with different levels of asthma control. In general, more frequent and intense exacerbations (e.g., requiring urgent, unscheduled care, hospitalization, or ICU admission) indicate poorer disease control. For treatment purposes, patients who had ≥2 exacerbations requiring oral systemic corticosteroids in the past year may be considered the same as patients who have persistent asthma, even in the absence of impairment levels consistent with persistent asthma.
- Before step up in therapy:
  - Review adherence to medications, inhaler technique, environmental control, and comorbid conditions.
  - If alternative treatment option was used in a step, discontinue it and use preferred treatment for that step.

Step 5

AND

Omalizumab for

patients who have

Preferred:

High-dose

Consider

allergies

ICS + LABA

### FIGURE 4-5. STEPWISE APPROACH FOR MANAGING ASTHMA IN YOUTHS ≥12 YEARS OF AGE AND ADULTS

Intermittent **Asthma** 

#### **Persistent Asthma: Daily Medication**

Consult with asthma specialist if step 4 care or higher is required. Consider consultation at step 3.



### Step 6

Preferred: High-dose ICS + LABA + oral

corticosteroid AND

Consider Omalizumab for patients who have allergies

#### Step up if needed

(first, check adherence. environmental control, and comorbid conditions)

> Assess control

Step down if possible

(and asthma is well controlled at least 3 months)



### Step 1

Preferred: SABA PRN

### Step 2

Preferred: Low-dose ICS Alternative: Cromolyn, LTRA, Nedocromil, or Theophylline

### Step 3 Preferred: Low-dose ICS + LABA

OR

Medium-dose ICS Alternative: Low-dose ICS + either LTRA, Theophylline, or Zileuton

## Step 4

Preferred: Medium-dose ICS + LABA

Alternative: Medium-dose ICS + either LTRA, Theophylline, or Zileuton

## Each step: Patient education, environmental control, and management of comorbidities.

Steps 2-4: Consider subcutaneous allergen immunotherapy for patients who have allergic asthma (see notes).

#### Quick-Relief Medication for All Patients

- SABA as needed for symptoms. Intensity of treatment depends on severity of symptoms: up to 3 treatments at 20-minute intervals as needed. Short course of oral systemic corticosteroids may be needed.
- Use of SABA >2 days a week for symptom relief (not prevention of EIB) generally indicates inadequate control and the need to step up treatment.



Key: Alphabetical order is used when more than one treatment option is listed within either preferred or alternative therapy. EIB, exercise-induced bronchospasm; ICS, inhaled corticosteroid; LABA, long-acting inhaled beta2agonist; LTRA, leukotriene receptor antagonist; SABA, inhaled short-acting beta<sub>2</sub>-agonist

- The stepwise approach is meant to assist, not replace, the clinical decisionmaking required to meet individual patient
- If alternative treatment is used and response is inadequate, discontinue it and use the preferred treatment before stepping up.
- Zileuton is a less desirable alternative due to limited studies as adjunctive therapy and the need to monitor liver function. Theophylline requires monitoring of serum concentration levels.
- In step 6, before oral systemic corticosteroids are introduced, a trial of high-dose ICS + LABA + either LTRA, theophylline, or zileuton may be considered, although this approach has not been studied in clinical trials.
- Step 1, 2, and 3 preferred therapies are based on Evidence A; step 3 alternative therapy is based on Evidence A for LTRA, Evidence B for theophylline, and Evidence D for zileuton. Step 4 preferred therapy is based on Evidence B, and alternative therapy is based on Evidence B for LTRA and theophylline and Evidence D for zileuton. Step 5 preferred therapy is based on Evidence B. Step 6 preferred therapy is based on (EPR-2 1997) and Evidence B for omalizumab.
- Immunotherapy for steps 2-4 is based on Evidence B for house-dust mites, animal danders, and pollens; evidence is weak or lacking for molds and cockroaches. Evidence is strongest for immunotherapy with single allergens. The role of allergy in asthma is greater in children than in adults.
- Clinicians who administer immunotherapy or omalizumab should be prepared and equipped to identify and treat anaphylaxis that may occur.

# FIGURE 4-6. CLASSIFYING ASTHMA SEVERITY AND INITIATING TREATMENT IN YOUTHS ≥12 YEARS OF AGE AND ADULTS

 Assessing severity and initiating treatment for patients who are not currently taking long-term control medications

Components of Severity		Classification of Asthma Severity ≥12 years of age				
			Persistent			
		Intermittent	Mild	Moderate	Severe	
	Symptoms	≤2 days/week	>2 days/week but not daily	Daily	Throughout the day	
	Nighttime awakenings	≤2x/month	3–4x/month	>1x/week but not nightly	Often 7x/week	
Impairment	Short-acting beta <sub>2</sub> -agonist use for symptom control (not prevention of EIB)	≤2 days/week	>2 days/week but not daily, and not more than 1x on any day	Daily	Several times per day	
Normal FEV <sub>1</sub> /FVC: 8–19 yr 85% 20 –39 yr 80%	Interference with normal activity	None	Minor limitation	Some limitation	Extremely limited	
40 –59 yr 75% 60 –80 yr 70%	Lung function	<ul> <li>Normal FEV<sub>1</sub> between exacerbations</li> </ul>				
		• FEV <sub>1</sub> >80% predicted	• FEV <sub>1</sub> >80% predicted	• FEV <sub>1</sub> >60% but <80% predicted	• FEV <sub>1</sub> <60% predicted	
		• FEV <sub>1</sub> /FVC normal	• FEV <sub>1</sub> /FVC normal	• FEV <sub>1</sub> /FVC reduced 5%	• FEV <sub>1</sub> /FVC reduced >5%	
	Exacerbations	0–1/year (see note)	≥2/year (see note) ■			
Risk	requiring oral systemic corticosteroids	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 $FEV_1$ .				
Recommended Step for Initiating Treatment		Step 1	Step 2		Step 4 or 5 er short course of ic corticosteroids	
(See figure 4–5 for	treatment steps.)	In 2–6 weeks, evaluate level of asthma control that is achieved and adjust therapy accordingly.				

Key: FEV<sub>1</sub>, forced expiratory volume in 1 second; FVC, forced vital capacity; ICU, intensive care unit

- The stepwise approach is meant to assist, not replace, the clinical decisionmaking required to meet individual patient needs.
- Level of severity is determined by assessment of both impairment and risk. Assess impairment domain by patient's/caregiver's recall of previous 2–4 weeks and spirometry. Assign severity to the most severe category in which any feature occurs.
- At present, there are inadequate data to correspond frequencies of exacerbations with different levels of asthma severity. In general, more frequent and intense exacerbations (e.g., requiring urgent, unscheduled care, hospitalization, or ICU admission) indicate greater underlying disease severity. For treatment purposes, patients who had ≥2 exacerbations requiring oral systemic corticosteroids in the past year may be considered the same as patients who have persistent asthma, even in the absence of impairment levels consistent with persistent asthma.

# FIGURE 4-7. ASSESSING ASTHMA CONTROL AND ADJUSTING THERAPY IN YOUTHS ≥12 YEARS OF AGE AND ADULTS

Components of Control		Classification of Asthma Control (≥12 years of age)				
		Well Controlled	Not Well Controlled	Very Poorly Controlled		
	Symptoms	≤2 days/week	>2 days/week	Throughout the day		
	Nighttime awakenings	≤2x/month	1–3x/week	≥4x/week		
	Interference with normal activity	None	Some limitation	Extremely limited		
Impairment	Short-acting beta <sub>2</sub> -agonist use for symptom control (not prevention of EIB)	≤2 days/week	>2 days/week	Several times per day		
	FEV <sub>1</sub> or peak flow	>80% predicted/ personal best	60–80% predicted/ personal best	<60% predicted/ personal best		
	Validated questionnaires					
	ATAQ ACQ ACT	0 ≤0.75* ≥20	1–2 ≥1.5 16–19	3–4 N/A ≤15		
	Exacerbations requiring oral systemic	0−1/year ≥2/year (see note)				
	corticosteroids	Consider severity and interval since last exacerbation				
Risk	Progressive loss of lung function	Evaluation requires long-term followup 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 figure 4–5 for treatment steps)		Maintain current step.     Regular followups every 1–6 months to maintain control.     Consider step down if well controlled for at least 3 months.	<ul> <li>Step up 1 step and</li> <li>Reevaluate in 2-6 weeks.</li> <li>For side effects, consider alternative treatment options.</li> </ul>	Consider short course of oral systemic corticosteroids,     Step up 1–2 steps, and     Reevaluate in 2 weeks.     For side effects, consider alternative treatment options.		

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

Key: EIB, exercise-induced bronchospasm; ICU, intensive care unit

- The stepwise approach is meant to assist, not replace, the clinical decisionmaking required to meet individual patient needs.
- The level of control is based on the most severe impairment or risk category. Assess impairment domain by patient's recall of previous 2–4 weeks and by spirometry/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.
- At present, there are inadequate data to correspond frequencies of exacerbations with different levels of asthma control. In general, more frequent and intense exacerbations (e.g., requiring urgent, unscheduled care, hospitalization, or ICU admission) indicate poorer disease control. For treatment purposes, patients who had ≥2 exacerbations requiring oral systemic corticosteroids in the past year may be considered the same as patients who have not-well-controlled asthma, even in the absence of impairment levels consistent with not-well-controlled asthma.
- Validated Questionnaires for the impairment domain (the questionnaires do not assess lung function or the risk domain)
  - ATAQ = Asthma Therapy Assessment Questionnaire© (See sample in "Component 1: Measures of Asthma Assessment and Monitoring.")
  - ACQ = Asthma Control Questionnaire© (user package may be obtained at www.qoltech.co.uk or juniper@goltech.co.uk)
  - ACT = Asthma Control Test™ (See sample in "Component 1: Measures of Asthma Assessment and Monitoring.") Minimal Important Difference: 1.0 for the ATAQ; 0.5 for the ACQ; not determined for the ACT.
- Before step up in therapy:
  - Review adherence to medication, inhaler technique, environmental control, and comorbid conditions.
  - If an alternative treatment option was used in a step, discontinue and use the preferred treatment for that step.