

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 | | | | | | | | | |
|---|---|---|---|---|---|--|----------------|-----------------|--------------------------------|----------------|-----------------------|--|-------------|
| | | | | 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 | | | | | |
| | | <p>Generally, more frequent and intense events indicate greater severity.</p> <p>Generally, more frequent and intense events indicate greater severity.</p> | | | | | | | | | | | |
| <p>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 FEV₁.*</p> | | | | | | | | | | | | | |
| 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 |
| <p>(See "Stepwise Approach for Managing Asthma Long Term," page 7)</p> <p>The stepwise approach is meant to help, not replace, the clinical decisionmaking needed to meet individual patient needs.</p> | | <p>Consider short course of oral systemic corticosteroids.</p> | | | | | | | | | | | |
| <p>In 2-6 weeks, depending on severity, assess level of asthma control achieved and adjust therapy as needed.</p> <p>For children 0-4 years old, if no clear benefit is observed in 4-6 weeks, consider adjusting therapy or alternate diagnoses.</p> | | | | | | | | | | | | | |

* 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-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 | | | | | | | | | |
| | <ul style="list-style-type: none"> ➔ FEV₁* (% predicted) or peak flow (% personal best) ➔ FEV₁/FVC* | Not applicable | >80% | >80% | Not applicable | 60–80% | 60–80% | Not applicable | <60% | <60% |
| Validated questionnaires† | | | | | | | | | | |
| <ul style="list-style-type: none"> ➔ ATAQ* ➔ ACQ* ➔ ACT* | Not applicable | Not applicable | 0 ≤0.75‡ ≥20 | Not applicable | Not applicable | 1–2 ≥1.5 16–19 | Not applicable | Not applicable | 3–4 Not applicable ≤15 | |
| Risk | Asthma exacerbations requiring oral systemic corticosteroids§ | 0–1/year | | | 2–3/year | ≥2/year | | >3/year | ≥2/year | |
| | | <i>Consider severity and interval since last asthma exacerbation.</i> | | | | | | | | |
| | 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 | <i>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.</i> | | | | | | | | | |
| Recommended Action for Treatment | | Maintain current step. Regular follow-up 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 | Step up 1 step | Consider short course of oral systemic corticosteroids. | | |
| (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. | | | | | Reevaluate in 2–6 weeks to achieve control. For children 0–4 years, if no clear benefit observed in 4–6 weeks, consider adjusting therapy or alternative diagnoses. | | | Step up 1–2 steps. 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.

STEPWISE APPROACH FOR MANAGING ASTHMA LONG TERM

The stepwise approach tailors the selection of medication to the level of asthma severity (see page 5) or asthma control (see page 6). The stepwise approach is meant to help, not replace, the clinical decisionmaking needed to meet individual patient needs.

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)

ASSESS CONTROL: ←

| | 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 | | | | |
| | <i>If clear benefit is not observed in 4-6 weeks, and medication technique and adherence are satisfactory, consider adjusting therapy or alternate diagnoses.</i> | | | | | | |
| Quick-Relief Medication | <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 |
| Quick-Relief Medication | <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* | high-dose ICS* + LABA* + oral corticosteroid ^{§§} |
| | Alternative Treatment ^{†‡} | | cromolyn, LTRA,* or theophylline [§] | low-dose ICS* + either LTRA,* theophylline, [§] or zileuton ^{‡‡} | medium-dose ICS* + either LTRA,* theophylline, [§] or zileuton ^{‡‡} | high-dose ICS* + LABA* AND consider omalizumab for patients who have allergies ^{††} | AND consider omalizumab for patients who have allergies ^{††} |
| Quick-Relief Medication | <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. | | | | | | |
| <i>Consider subcutaneous allergen immunotherapy for patients who have persistent, allergic asthma.**</i> | | | | | | | |

* **Abbreviations:** EIB, exercise-induced bronchospasm; ICS, inhaled corticosteroid; LABA, inhaled long-acting beta₂-agonist; LTRA, leukotriene receptor antagonist; SABA, inhaled short-acting beta₂-agonist.

† Treatment options are listed in alphabetical order, if more than one.

‡ If alternative treatment is used and response is inadequate, discontinue and use preferred treatment before stepping up.

§ Theophylline is a less desirable alternative because of the need to monitor serum concentration levels.

** Based on evidence for dust mites, animal dander, and pollen; 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 to treat anaphylaxis that may occur.

‡‡ Zileuton is less desirable because of limited studies as adjunctive therapy and the need to monitor liver function.

§§ Before oral 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.