# CARE GUIDE for ASTHMA

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| **Diagnosis**<sup>(1)</sup> | • Confirm a diagnosis by establishing that:  
  ➢ Episodic symptoms of airflow obstruction or airway hyper-responsiveness are present  
  ➢ Airflow obstruction is at least partially reversible  
  ➢ Alternative diagnoses are excluded | • Typical symptoms: episodic wheezing, cough, dyspnea, chest tightness  
  • Spirometry (age >=5): Increase in FEV1 of >=12% and >=200 ml from baseline or >=10% of predicted FEV1 after inhalation of a short-acting bronchodilator | • Spirometry  
  • Exclude alternative diagnoses  
  • For difficult diagnosis: consider methacholine or histamine challenge, imaging, or referral to specialist | • Reassess as indicated |
| **Assessment of Severity**<sup>(1)</sup> | • Classify disease severity, best determined in a patient not yet receiving long-term control therapy:  
  ➢ Class 1: Intermittent  
  ➢ Class 2: Mild Persistent  
  ➢ Class 3: Moderate Persistent  
  ➢ Class 4: Severe Persistent  
  Evaluate risk based on frequency of exacerbations and /or wheezing episodes | • Degree of impairment:  
  ➢ Symptom frequency  
  ➢ Nocturnal awakenings  
  ➢ Beta agonist use  
  ➢ Interference with normal activity | • Initiate treatment according to severity classification  
  • Modify therapy based on control  
  • Consider specialty referral with life threatening exacerbations or multiple hospitalization, atypical signs/symptoms, difficulty with differential DX, unmet treatment goals after 3-6 months or earlier, complicating factors such as sinusitis, nasal polyps, aspergillosis, VD, GERD, COPD, Step 3 or 4 or higher depending on age, additional diagnostic testing, high dose corticosteroid therapy, or immunotherapy. | • Reassess as indicated |
| **Asthma Control**<sup>(1,4,5)</sup> | • Determine degree of asthma control by assessing degree of:  
  ➢ Daytime symptoms  
  ➢ Nocturnal symptoms  
  ➢ Beta agonist use | • Use validated asthma control assessment tool  
  • Well-controlled asthma:  
    ➢ Daytime symptoms <= 2 days/wk  
    ➢ Nocturnal awakenings <= | • Make stepwise adjustments in therapy based on degree of asthma control  
  • Once good control has been maintained for 3+ months, consider step down in therapy  
  • Patients should be taught:  
    ➢ the s/sx of exacerbation, | • At every encounter |
| Ability to perform daily activities. Identify those at high risk for severe attacks or for need of specialty care | 1/month age <12, <= 2/month >= 12 y/o | ➢ No interference with normal activity ➢ Short acting beta-agonist medication use <= 2 days/wk ➢ FEV1 > 80% predicted or >80% of personal best or in the green zone of the peak flow meter (adults and children >= 5 y/o) ➢ FEV1/FVC > 80% (children age 5-11) ➢ Exacerbations requiring oral systemic corticosteroids 0-1/yr | ➢ know when to seek emergency medical treatment and ➢ to follow their action plan |

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<td>Spirometry(1)</td>
<td>• Assess pulmonary function with spirometry to help establish a diagnosis, evaluate severity level, and monitor asthma control</td>
<td>• FEV1  • FEV6  • FEV1/FVC</td>
<td>• Make stepwise adjustments in therapy based on degree of asthma control as assessed by history and spirometry • Consider using spirometry as an accuracy check of the peak flow readings; when more precision is needed in measuring lung function; when an individual’s capacity to accurately perform peak flow measurements is impaired by age, physical problems present or when technical problems are suspected.</td>
<td>• Initial assessment • After treatment has begun and symptoms stabilized • During periods of progressive or prolonged worsening • At least every 1-2 years</td>
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<td>Triggers(1)</td>
<td>• Assess allergen and trigger exposure  • Assess medication triggers</td>
<td>• Exposure to dust mites, mold, cockroaches, tobacco smoke, pets and rodents  • Skin testing or in vitro testing for allergen sensitivity  • Aspirin/NSAID allergy  • Use of non-cardioselective beta-blockers</td>
<td>• Trigger avoidance: ➢ Multifaceted approach to allergen control based on sensitivities, including pets, dust, molds, cockroaches ➢ Avoid exertion outdoors when pollution is heavy ➢ Avoid exposure to first and second hand smoke ➢ Avoid occupational exposure to specific triggers ➢ Consider allergy testing for patients with</td>
<td>• Reassess as indicated • Consider referral to allergist or asthma specialist</td>
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</table>
persistent, non-seasonal asthma who are taking daily medication for their asthma

- Treat rhinitis/sinusitis
- Consider allergy immunotherapy
- When beta-blockers are needed for management of co-morbidities, consider cardio-selective beta-blockers, monitor carefully

Tobacco\(^{1,7,8}\)

- Document smoking status at each encounter
- History of prior attempts to quit
- Readiness assessment
- Tobacco use patterns
- Exposure to second-hand smoke

**Think: 5 As**
- Ask about smoking
- Advise user to quit
- Assess willingness to quit
- Assist user to quit (i.e., refer to smoking cessation program and consider pharmacotherapy)
- Arrange follow-up
- Strongly consider use of pharmacologic adjuvants; they can double or triple smoking cessation rates
- Educate household contacts about detrimental effects of passive smoking

- Call on quit date or within 72 hours to boost self-efficacy (can delegate to DM program or SC program)
- Assess each visit: smoking status, weight gain, nicotine withdrawal symptoms

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**Asthma Self Management\(^{(1)}\)**

- Provide self management education at multiple points of care including clinics, homes, pharmacies, schools, EDs, and hospitals
  - Self management education should include:
    - Asthma information and training in management skills
    - Self monitoring
    - Asthma action plan
    - Regular assessment by a consistent clinician
- Symptoms
- Home Peak Expiratory Flow (PEF) monitoring
- Inhaler technique
- Written asthma action plan
- Asthma education: Use written material, interactive computer programs, videos, individual or group sessions
- Tailor contents to patient’s age, culture ethnicity, and social, emotional and disease status
- Consider home PEF monitoring in patients who have moderate to severe persistent asthma, history of severe exacerbations, poor symptom perception, or a preference for this monitoring method
- Asthma action plan: Provide each patient with a personalized written asthma action plan including instructions on daily management and how to recognize and handle worsening symptoms. The action plan may be based on symptoms or PEF readings or a combination of both
- Reassess educational needs, self management goals, inhaler use, and action plan. Indicated at every opportunity in appropriate formats.
- Include caregivers of both adults and minors
- Update or review written asthma action plan at least annually
### Influenza Vaccination (1)
- **Annual vaccinations**
- Document that each patient has had an influenza vaccination every year and document if adverse event occurs
- Administer vaccine annually to all patients with asthma and >= 6 months old beginning each September
- **Annually**

### Depression/Anxiety (1, 2)
- **Screen for depression/anxiety**
- Use validated depression screening tool such as the PHQ-2. If positive, use the PHQ-9.
- Assess for signs of anxiety
- Assess for symptoms of anxiety often, especially during times of exacerbation
- Administer the PHQ-2 at least yearly
- If positive, administer the PHQ-9
- Refer appropriate individuals to a mental health professional when necessary based on assessment

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| **Quality of Life (QOL) (1, 2, 3, 6)** | Assess QOL | Areas of greatest importance include:  
- Missed work/school  
- Limitation of usual activities  
- Change in caregiver’s activity due to child’s asthma  
- Disturbances in sleep due to asthma  
- ED visit or unscheduled hospital stays since the last office visit | Assess QOL using a validated, asthma specific or generic QOL tool | Annually or when indicated |

| **Osteoporosis (1, 9)** | Assess those at increased risk for osteoporosis | Screening in adults with asthma include:  
- Individuals taking glucocorticoids >= 5 mg/day for >= 3 months ever  
- Individuals with a possible osteoporosis-related fracture  
- Individuals taking high doses of inhaled steroids (ICS) | Measurement of bone mineral density (BMD) depends on the duration of and dose of ICS and oral corticosteroids as well as any previous BMD scores | Every 1-2 years |
Step Drug Therapy \(^{(1)}\)

- Provide reliever and controller medications based on severity assessment and degree of control
- Step up controller therapy until effective control is achieved
- In patients with good control for at least 3 months, step down therapy to minimum level needed to maintain control

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<tr>
<th>Step</th>
<th>Age 0 - 4</th>
<th>Age 5 - 11</th>
<th>Age &gt;= 12</th>
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<tr>
<td>Step 1: Intermittent asthma</td>
<td>SABA PRN</td>
<td>SABA PRN</td>
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</table>
| Step 2: Persistent asthma | Preferred: Low dose ICS  
Alternatives: cromolyn or montelukast | Preferred: Low dose ICS  
Alternatives: cromolyn LTRA, neodocromil, or theophylline | Preferred: Low dose ICS  
Alternatives: cromolyn LTRA, neodocromil, or theophylline |
| Step 3: Persistent asthma | Medium dose ICS | Preferred: Low dose ICS + either LABA, LTRA, or theophylline  
OR Medium dose ICS | Preferred: Low dose ICS + either LABA OR Medium dose ICS  
Alternatives: Low dose ICS + either LTRA, theophylline, or zileuton |
| Step 4: Persistent asthma | Medium dose ICS + either LABA or montelukast | Preferred: Medium dose ICS + LABA  
Alternatives: Medium dose ICS + either LTRA or theophylline | Preferred: Medium dose ICS + LABA  
Alternatives: Medium dose ICS + either LTRA, theophylline, or zileuton |
| Step 5: Persistent asthma | High dose ICS + either LABA or montelukast | Preferred: High dose ICS + LABA  
Alternatives: High dose ICS + either LTRA or theophylline | Preferred: High dose ICS + LABA  
AND  
Consider omalizumab for patients with allergies |
| Step 6: Persistent asthma | High dose ICS + either LABA or montelukast  
Oral systemic corticosteroid | Preferred: High dose ICS + LABA + oral systemic corticosteroid  
Alternatives: High dose ICS + either LTRA or theophylline + oral systemic corticosteroid | Preferred: High dose ICS + LABA + oral systemic corticosteroid  
AND  
Consider omalizumab for patients with allergies |
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<td>SMOKING CESSATION COUNSELING</td>
<td>EACH VISIT</td>
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<td>ACTION PLAN</td>
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<td>FLU VACCINE</td>
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**Table 1: Levels of Asthma Control**


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<th>Characteristic</th>
<th>Controlled (all of the following)</th>
<th>Partly Controlled (any measure present in any week)</th>
<th>Uncontrolled</th>
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<tr>
<td>Daytime symptoms</td>
<td>Twice or less/week</td>
<td>More than twice/week</td>
<td>Three or more features of partly controlled asthma present in any week *†</td>
</tr>
<tr>
<td>Limitations of activities</td>
<td>None</td>
<td>Any</td>
<td></td>
</tr>
<tr>
<td>Nocturnal symptoms/awakening</td>
<td>None</td>
<td>Any</td>
<td></td>
</tr>
<tr>
<td>Need for reliever/rescue treatment</td>
<td>Twice or less/week</td>
<td>More than twice/week</td>
<td></td>
</tr>
<tr>
<td>Lung function (PF or FEV₁)‡</td>
<td>Normal</td>
<td>&lt;80% predicted or &lt;80% personal best (not in green zone of peak flow meter), if known.</td>
<td></td>
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Assessment of Future Risk (risk of exacerbations, instability, rapid decline in lung function, side effects)

Features that are associated with increased risk of adverse events in the future include:

- Poor clinical control, frequent exacerbations in the past year, ever admission to critical care for asthma, low FEV₁, exposure to cigarette smoke, high dose medications.

* Any exacerbation should prompt review of maintenance treatment to ensure that it is adequate
† By definition, an exacerbation in any week makes that an uncontrolled asthma week
‡ Lung function is not a reliable test for children 5 years and younger
### Reference List

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