Asthma: Severity Classifications

What We Know

› Individualized asthma management plans (AMPs) should be based on the patient’s clinical status using an established asthma severity classification system and evaluation of:
  
  • symptoms (e.g., presenting, frequency, duration, and history)\(^{(2,4,7,9)}\)
  
  • pulmonary function status using spirometry (i.e., pulmonary function test that measures air volume and flow rate within the lungs), if possible.\(^{(2,4,7,9)}\) (For other options and information regarding diagnosing and treating asthma, see Quick Lesson About ... Asthma, Adult and related Quick Lessons and Evidence-Based Care Sheets)
  
  • frequency of use of short-acting beta-agonists (SABAs) for symptomatic relief, if appropriate\(^{(2,4,7,9)}\)
  
    – Initial treatment for asthma is prescribed based on the level of asthma severity prior to the use of long-term anti-inflammatory agents

› Asthma is classified as intermittent (i.e., symptom-free periods between acute episodes of symptom flare-up) or persistent (i.e., chronic airway inflammation and frequent symptoms)\(^{(2,4,9)}\)

  • Intermittent asthma is categorized simply as mild; persistent asthma is categorized as mild, moderate, or severe\(^{(2,4,9)}\)

    – An acute episode of intermittent asthma ends if the stimuli, or trigger, is removed; continued trigger exposure can cause intermittent asthma to develop into persistent asthma.\(^{(4)}\) (For information on asthma triggers, see Evidence-Based Care Sheet ... Asthma: Risk Factors, Triggers, and Prevention )

    - Because the clinical presentation of asthma can change over time, each patient’s severity classification should be reevaluated regularly

› The Guidelines for the Diagnosis and Management of Asthma Expert Panel Report 3 was published in 2007 by the National Asthma Education and Prevention Program (NAEPP), which is affiliated with the National Heart, Lung, and Blood Institute (NHLBI) in the United States, in collaboration with the Global Initiative for Asthma (GINA), which is a joint initiative by the NHLBI and the World Health Organization (WHO)\(^{(2,7,9)}\)

  • The NAEPP guidelines classify asthma severity into the four categories of intermittent, mild persistent, moderate persistent, and severe persistent based on the number of days and nights when symptoms are present, frequency of SABA use, frequency of symptom interference with normal activity, pulmonary function test results, and frequency of asthma exacerbations (i.e., episodes of severe symptoms)

    – The criteria for placement in each category vary by patient age such that there are slight differences in classification of children from birth to 4 years, children aged 5 to 11 years, and adolescents and adults aged 12 years and older

    - Performing pulmonary function tests is not practical in children aged ≤ 4 years and results correlate less closely with asthma symptom-based severity in children compared with results in adults\(^{(2,3,9)}\)

› The severity classification of intermittent (i.e., mild) asthma is an appropriate designation for a patient who has\(^{(2,9)}\)

  • daytime asthma symptoms ≤ 2 days/week

  • nighttime awakening due to asthma ≤ 2 times/month
• SABA use ≤ 2 times/week
• no interference of asthma symptoms with normal activity
• forced expiratory volume in 1 second (FEV1) > 80% predicted and the ratio of FEV1 to forced vital capacity (FVC) > 85% in children aged 8–19 years; FEV1 > 80% predicted and normal FEV1/FVC in patients aged 20–39 years; FEV1 > 75% predicted and normal FEV1/FVC in patients aged 40–59 years; and FEV1 > 70% predicted and normal FEV1/FVC in patients aged 60–80 years
• exacerbation periods occurring 0–1 time per year

Persistent asthma classifications of mild, moderate, and severe are characterized by progressively worsening asthma symptoms²⁻²

- The number of days with symptoms in individuals who are classified in severity as having
  - mild persistent asthma is ≥ 2 days/week, but not daily
  - moderate persistent asthma is daily
  - severe persistent asthma is continuous throughout every day
- The number of nights with symptoms in individuals who have asthma with the severity classification of
  - mild persistent is 1–2 times/month in children aged ≤ 4 years and 3–4 times/month in patients aged ≥ 5 years
  - moderate persistent is 3–4 times/month in children aged ≤ 4 years and ≥ 1 time/week but not nightly in patients aged ≥ 5 years
  - severe persistent is ≥ 1 time/week in children aged ≤ 4 years and often nightly in patients aged ≥ 5 years
- SABA use in individuals who have asthma with the severity classification of
  - mild persistent is ≥ 2 days/week, but not daily
  - moderate persistent is daily
  - severe persistent is several times each day
- Interference with normal activity in individuals who have asthma with the severity classification of
  - mild persistent is only minor limitation
  - moderate persistent is some limitation
  - severe persistent is an extreme limitation in normal activity
- Spirometer or peak flow meter results in individuals who have asthma with a severity classification of
  - mild persistent is FEV1 > 80% and FEV1/FVC > 80% in children aged 5–11 years; FEV1 > 80% and normal FEV1/FVC in patients aged ≥ 12 years
  - moderate persistent is FEV1 60–80% and FEV1/FVC 75–80% in children aged 5–11 years; FEV1 60–80% and FEV1/FVC reduced by 5% in patients aged ≥ 12 years
  - severe persistent is FEV1 < 60% and FEV1/FVC < 75% in children aged 5–11 years; FEV1 < 60% and FEV1/FVC reduced by 5% in patients aged ≥ 12 years
- Individuals with persistent asthma of any severity classification experience symptom exacerbation during which oral corticosteroids are required; oral corticosteroids are typically prescribed if symptom exacerbation occurs
  - ≥ 2 times in 6 months or ≥ 4 wheezing episodes in a year that last longer than 1 day in patients aged ≤ 4 years
  - ≥ 2 times/year in patients aged ≥ 5 years

Routine evaluation of each patient’s AMP should be scheduled for 2–6 weeks following the initial diagnostic appointment and every 1–6 months thereafter according to the patient’s severity classification and ability to adhere to the treatment regimen for symptom control¹⁰

- Routine asthma management involves assessment of symptoms, frequency of missed work or school, allergy and trigger factors, drug effectiveness and side effects, treatment adherence, and retention of previous asthma education
- Each patient’s self-management plan for asthma should be reviewed during every clinician visit. (For more information, see Evidence-Based Care Sheet … Asthma: Self-Management)

- Primary care clinicians (who typically are the first to recognize asthma symptoms during an acute attack or by patient description during a subsequent outpatient visit) can provide initial patient education about the disease process and ask about allergies and possible trigger factors, but referral to and co-management by a specialty clinician (e.g., allergist or pulmonologist) with asthma expertise is often necessary for effective long-term management⁶⁻⁸⁻¹⁰
- Patients with persistent asthma of any severity level should have an individualized AMP rather than receiving treatment only during symptom exacerbation or an emergency department visit⁶⁻⁸⁻¹⁰
Researchers have proposed monitoring biomarkers associated with airway inflammation—such as sputum eosinophilia, exhaled nitric oxide, and serum cytokine and chemokine levels—and considering the age of onset and duration of asthma to be tools to obtain a more accurate assessment of asthma severity and better predict response to therapy. Ongoing research continues to distinguish cellular and molecular biomarkers that permit greater understanding of asthma phenotypes and their underlying pathophysiologic mechanisms.

What We Can Do

- Learn about asthma severity classification levels so you can accurately assess your patients’ personal characteristics and health education needs; share this information with your colleagues
- Be aware that the growing understanding of the relevant cellular and molecular biomarkers offers clinicians the opportunity to practice an individualized approach to diagnosis and treatment
- Evaluate your patients for allergy responses and asthma symptom severity; encourage them to talk with their primary clinician about a long-term AMP and referral to an asthma specialty clinician, if appropriate
- Discuss the long-term AMP with your patients and encourage adherence
- Encourage your patients to keep a written record of symptom frequency and severity so they can accurately discuss it with the clinician at each visit
- Collaborate with your facility’s continuing medical education department to provide education on asthma severity classification levels for clinicians of all specialties

Coding Matrix

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<tr>
<th>Code</th>
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<tr>
<td>SR</td>
<td>Published systematic or integrative literature review</td>
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<tr>
<td>RCT</td>
<td>Published research (randomized controlled trial)</td>
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<tr>
<td>R</td>
<td>Published research (not randomized controlled trial)</td>
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<td>C</td>
<td>Case histories, case studies</td>
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<td>G</td>
<td>Published guidelines</td>
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References