Asthma Toolkit
Dear Provider:

L.A. Care is pleased to present this updated asthma toolkit. Our goal is to promote the highest level of asthma care, based on the 2007 National Asthma Education and Prevention Program (NAEPP) guidelines. We recognize the complexity of the guidelines and have provided the following documents to make it easier for you to incorporate them into your clinical practice:

- Summary of the 2007 NAEPP Guidelines
- Asthma tools for classifying asthma severity and control
- Asthma Control Tests for children and adults (in Spanish and English)
- Asthma Action Plans for children and adults (in Spanish and English)
- Asthma controller and quick-relief medications
- Asthma Home Environment Checklist
- Asthma formulary coverage for L.A. Care and our Plan Partners
- Sample provider asthma verification letter and classification table
- 5-Step Provider Education Plan for Asthma Patients
- National and statewide (CA) asthma resources for healthcare providers
- Health education materials addressing: asthma basics, triggers, medicines, peak flow meters, spacers, use of Asthma Action Plans, and tips on communicating with providers about asthma

You can access additional copies of the toolkit by downloading it from the L.A. Care website at https://www.lacare.org/providers/resources/providertoolkits.

L.A. Care Health Plan offers an asthma disease management program, called “L.A. Cares About Asthma®,” to our Medi-Cal, Medicare, Healthy Families, Healthy Kids, and In-Home Supportive Services members directly enrolled with L.A. Care. Your L.A. Care patients in these product lines that are identified with asthma according to our data are automatically enrolled into this program and receive health education and/or telephonic coaching on a regular basis. To enroll your L.A. Care patients in our program, please call 1-888-200-3094 or email us at asthmadm@lacare.org.

L.A. Care also offers health education group appointments and individual phone consultations. Participation is voluntary. You can refer members to health education services using the Health Education, Cultural and Linguistic Services Referral form, available on L.A. Care website’s provider portal https://www.lacare.org/providers or by downloading the form here: http://www.lacare.org/files/English/HECLS%20Referral%20Form%20rev%2010-13-11(1).pdf

Sincerely,

Gertrude S. Carter, MD
Chief Medical Officer
L.A. Care Health Plan

Elaine Sadocchi-Smith, FNP, MPH, CHES
Disease Management Manager
L.A. Care Health Plan
# Asthma Provider Resources

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Guidelines from the National Asthma Education and Prevention Program

EXPERT PANEL REPORT 3

The goal of this asthma care quick reference guide is to help clinicians provide quality care to people who have asthma.

Quality asthma care involves not only initial diagnosis and treatment to achieve asthma control, but also long-term, regular follow-up care to maintain control.

Asthma control focuses on two domains: (1) **reducing impairment**—the frequency and intensity of symptoms and functional limitations currently or recently experienced by a patient; and (2) **reducing risk**—the likelihood of future asthma attacks, progressive decline in lung function (or, for children, reduced lung growth), or medication side effects.

Achieving and maintaining asthma control requires providing appropriate medication, addressing environmental factors that cause worsening symptoms, helping patients learn self-management skills, and monitoring over the long term to assess control and adjust therapy accordingly.

The diagram (right) illustrates the steps involved in providing quality asthma care.
KEY CLINICAL ACTIVITIES FOR QUALITY ASTHMA CARE

(See complete table in Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma [EPR-3])

<table>
<thead>
<tr>
<th>Clinical Issue</th>
<th>Key Clinical Activities and Action Steps</th>
</tr>
</thead>
</table>
| **ASThma DiagNOSIS** | Establish asthma diagnosis.  
- Determine that symptoms of recurrent airway obstruction are present, based on history and exam.  
  - History of cough, recurrent wheezing, recurrent difficulty breathing, recurrent chest tightness  
  - Symptoms occur or worsen at night or with exercise, viral infection, exposure to allergens and irritants, changes in weather, hard laughing or crying, stress, or other factors  
- In all patients ≥5 years of age, use spirometry to determine that airway obstruction is at least partially reversible.  
- Consider other causes of obstruction. |
| **LONG-TERM ASTHMA MANAGEMENT** | GOAL: Asthma Control  
Reduce Impairment  
- Prevent chronic symptoms.  
- Require infrequent use of short-acting beta2-agonist (SABA).  
- Maintain (near) normal lung function and normal activity levels.  
Reduce Risk  
- Prevent exacerbations.  
- Minimize need for emergency care, hospitalization.  
- Prevent loss of lung function (or, for children, prevent reduced lung growth).  
- Minimize adverse effects of therapy. |
| Assessment and Monitoring | INITIAL VISIT: Assess asthma severity to initiate treatment (see page 5).  
FOLLOW-UP VISITS: Assess asthma control to determine if therapy should be adjusted (see page 6).  
- Assess at each visit: asthma control, proper medication technique, written asthma action plan, patient adherence, patient concerns.  
- Obtain lung function measures by spirometry at least every 1–2 years; more frequently for asthma that is not well controlled.  
- Determine if therapy should be adjusted: Maintain treatment; step up, if needed; step down, if possible.  
Schedule follow-up care.  
- Asthma is highly variable over time. See patients:  
  - Every 2–6 weeks while gaining control  
  - Every 1–6 months to monitor control  
  - Every 3 months if step down in therapy is anticipated |
| Use of Medications | Select medication and delivery devices that meet patient’s needs and circumstances.  
- Use stepwise approach to identify appropriate treatment options (see page 7).  
- Inhaled corticosteroids (ICSs) are the most effective long-term control therapy.  
- When choosing treatment, consider domain of relevance to the patient (risk, impairment, or both), patient’s history of response to the medication, and willingness and ability to use the medication.  
Review medications, technique, and adherence at each follow-up visit. |
## KEY CLINICAL ACTIVITIES FOR QUALITY ASTHMA CARE (continued)

<table>
<thead>
<tr>
<th>Clinical Issue</th>
<th>Key Clinical Activities and Action Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Patient Education for Self-Management</strong></td>
<td><strong>Teach patients how to manage their asthma.</strong></td>
</tr>
<tr>
<td></td>
<td>• Teach and reinforce at each visit:</td>
</tr>
<tr>
<td></td>
<td>• Self-monitoring to assess level of asthma control and recognize signs of worsening asthma (either symptom or peak flow monitoring)</td>
</tr>
<tr>
<td></td>
<td>• Taking medication correctly (inhaler technique, use of devices, understanding difference between long-term control and quick-relief medications)</td>
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<tr>
<td></td>
<td>• <strong>Long-term control medications</strong> (such as inhaled corticosteroids, which reduce inflammation) prevent symptoms. Should be taken daily; will not give quick relief.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Quick-relief medications</strong> (short-acting beta₂-agonists or SABAs) relax airway muscles to provide fast relief of symptoms. Will not provide long-term asthma control. If used &gt;2 days/week (except as needed for exercise-induced asthma), the patient may need to start or increase long-term control medications.</td>
</tr>
<tr>
<td></td>
<td>• Avoiding environmental factors that worsen asthma</td>
</tr>
<tr>
<td></td>
<td><strong>Develop a written asthma action plan</strong> in partnership with patient/family (sample plan available at <a href="http://www.nhlbi.nih.gov/health/public/lung/asthma/asthma_actplan.pdf">www.nhlbi.nih.gov/health/public/lung/asthma/asthma_actplan.pdf</a>).</td>
</tr>
<tr>
<td></td>
<td>• Agree on treatment goals.</td>
</tr>
<tr>
<td></td>
<td>• Teach patients how to use the asthma action plan to:</td>
</tr>
<tr>
<td></td>
<td>• Take daily actions to control asthma</td>
</tr>
<tr>
<td></td>
<td>• Adjust medications in response to worsening asthma</td>
</tr>
<tr>
<td></td>
<td>• Seek medical care as appropriate</td>
</tr>
<tr>
<td></td>
<td>• Encourage adherence to the asthma action plan.</td>
</tr>
<tr>
<td></td>
<td>• Choose treatment that achieves outcomes and addresses preferences important to the patient/family.</td>
</tr>
<tr>
<td></td>
<td>• Review at each visit any success in achieving control, any concerns about treatment, any difficulties following the plan, and any possible actions to improve adherence.</td>
</tr>
<tr>
<td></td>
<td>• Provide encouragement and praise, which builds patient confidence. Encourage family involvement to provide support.</td>
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<td></td>
<td><strong>Integrate education into all points of care involving interactions with patients.</strong></td>
</tr>
<tr>
<td></td>
<td>• Include members of all health care disciplines (e.g., physicians, pharmacists, nurses, respiratory therapists, and asthma educators) in providing and reinforcing education at all points of care.</td>
</tr>
<tr>
<td><strong>Control of Environmental Factors and Comorbid Conditions</strong></td>
<td><strong>Recommend ways to control exposures to allergens, irritants, and pollutants that make asthma worse.</strong></td>
</tr>
<tr>
<td></td>
<td>• Determine exposures, history of symptoms after exposures, and sensitivities. (In patients with persistent asthma, use skin or in vitro testing to assess sensitivity to perennial indoor allergens to which the patient is exposed.)</td>
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<tr>
<td></td>
<td>• Recommend multifaceted approaches to control exposures to which the patient is sensitive; single steps alone are generally ineffective.</td>
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<tr>
<td></td>
<td>• Advise all asthma patients and all pregnant women to avoid exposure to tobacco smoke.</td>
</tr>
<tr>
<td></td>
<td>• Consider allergen immunotherapy by trained personnel for patients with persistent asthma when there is a clear connection between symptoms and exposure to an allergen to which the patient is sensitive.</td>
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<tr>
<td></td>
<td><strong>Treat comorbid conditions.</strong></td>
</tr>
<tr>
<td></td>
<td>• Consider allergic bronchopulmonary aspergillosis, gastroesophageal reflux, obesity, obstructive sleep apnea, rhinitis and sinusitis, and stress or depression. Treatment of these conditions may improve asthma control.</td>
</tr>
<tr>
<td></td>
<td>• Consider inactivated flu vaccine for all patients &gt;6 months of age.</td>
</tr>
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</table>
# Asthma Care for Special Circumstances

<table>
<thead>
<tr>
<th>Clinical Issue</th>
<th>Key Clinical Activities and Action Steps</th>
</tr>
</thead>
</table>
| Exercise-Induced Bronchospasm  | Prevent EIB.*  
▪ Physical activity should be encouraged. For most patients, EIB should not limit participation in any activity they choose.  
▪ Teach patients to take treatment before exercise. SABAs* will prevent EIB in most patients; LTRAs,* cromolyn, or LABAs* also are protective. Frequent or chronic use of LABA to prevent EIB is discouraged, as it may disguise poorly controlled persistent asthma.  
▪ Consider long-term control medication. EIB often is a marker of inadequate asthma control and responds well to regular anti-inflammatory therapy.  
▪ Encourage a warm-up period or mask or scarf over the mouth for cold-induced EIB.                                                                                                               |

## Pregnancy

**Maintain asthma control through pregnancy.**  
▪ Check asthma control at all prenatal visits. Asthma can worsen or improve during pregnancy; adjust medications as needed.  
▪ Treating asthma with medications is safer for the mother and fetus than having poorly controlled asthma. Maintaining lung function is important to ensure oxygen supply to the fetus.  
▪ ICSs* are the preferred long-term control medication.  
▪ Remind patients to avoid exposure to tobacco smoke.

# Managing Exacerbations

<table>
<thead>
<tr>
<th>Clinical Issue</th>
<th>Key Clinical Activities and Action Steps</th>
</tr>
</thead>
</table>
| Home Care                      | **Develop a written asthma action plan** (see Patient Education for Self-Management, page 3).  
**Teach patients how to:**  
▪ Recognize early signs, symptoms, and PEF* measures that indicate worsening asthma.  
▪ Adjust medications (increase SABA* and, in some cases, add oral systemic corticosteroids) and remove or withdraw from environmental factors contributing to the exacerbation.  
▪ Monitor response.  
▪ Seek medical care if there is serious deterioration or lack of response to treatment. Give specific instructions on who and when to call.                                                                                                     |

### Urgent or Emergency Care

**Assess severity by lung function measures (for ages ≥5 years), physical examination, and signs and symptoms.**  
**Treat to relieve hypoxemia and airflow obstruction; reduce airway inflammation.**  
▪ Use supplemental oxygen as appropriate to correct hypoxemia.  
▪ Treat with repetitive or continuous SABA,* with the addition of inhaled ipratropium bromide in severe exacerbations.  
▪ Give oral systemic corticosteroids in moderate or severe exacerbations or for patients who fail to respond promptly and completely to SABA.  
▪ Consider adjunctive treatments, such as intravenous magnesium sulfate or heliox, in severe exacerbations unresponsive to treatment.  

**Monitor response with repeat assessment of lung function measures, physical examination, and signs and symptoms, and, in emergency department, pulse oximetry.**  
**Discharge with medication and patient education:**  
▪ Medications: SABA, oral systemic corticosteroids; consider starting ICS*  
▪ Referral to follow-up care  
▪ Asthma discharge plan  
▪ Review of inhaler technique and, whenever possible, environmental control measures

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

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<th>Components of Severity</th>
<th>Intermittent</th>
<th>Persistent</th>
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<td>Ages 0–4 years</td>
<td>Ages 5–11 years</td>
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<tr>
<td><strong>Ages</strong></td>
<td><strong>Symptoms</strong></td>
<td><strong>Nighttime awakenings</strong></td>
</tr>
<tr>
<td>0–4 years</td>
<td>≤2 days/week</td>
<td>0</td>
</tr>
<tr>
<td>5–11 years</td>
<td>&gt;2 days/week but not daily</td>
<td>≤2x/month</td>
</tr>
<tr>
<td>≥12 years</td>
<td>Daily</td>
<td>&gt;2x/month</td>
</tr>
<tr>
<td><strong>Mild</strong></td>
<td>Ages 0–4 years</td>
<td>Ages 5–11 years</td>
</tr>
<tr>
<td>0–4 years</td>
<td>&gt;80%</td>
<td>≥2x/month</td>
</tr>
<tr>
<td>5–11 years</td>
<td>&gt;85%</td>
<td>3–4x/month</td>
</tr>
<tr>
<td>≥12 years</td>
<td>Not applicable</td>
<td>&gt;2 days/week but not daily</td>
</tr>
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</table>

**Risk**

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**

(See “Stepwise Approach for Managing Asthma Long Term,” page 7)

The stepwise approach is meant to help, not replace, the clinical decision-making needed to meet individual patient needs.

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; FEV\(_1\), forced expiratory volume in 1 second; FVC, forced vital capacity; ICS, inhaled corticosteroid; SABA, short-acting beta\(_2\)-agonist.

† Normal FEV\(_1\)/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.

<table>
<thead>
<tr>
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<th>Well Controlled</th>
<th>Not Well Controlled</th>
<th>Very Poorly Controlled</th>
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<tr>
<td></td>
<td>Ages 0–4 years</td>
<td>Ages 5-11 years</td>
<td>Ages ≥12 years</td>
</tr>
<tr>
<td><strong>Symptoms</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>≤2 days/week</td>
<td>≤2 days/week but</td>
<td>≤2 days/week</td>
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<tr>
<td></td>
<td></td>
<td>not more than</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>once on each day</td>
<td></td>
</tr>
<tr>
<td><strong>Nighttime awakenings</strong></td>
<td></td>
<td>≤1x/month</td>
<td>≥2x/month</td>
</tr>
<tr>
<td><strong>Interference with normal activity</strong></td>
<td></td>
<td>None</td>
<td>Some limitation</td>
</tr>
<tr>
<td><em><em>SABA</em> use for symptom control (not to prevent EIB</em>)**</td>
<td></td>
<td>≤2 days/week</td>
<td>&gt;2 days/week</td>
</tr>
<tr>
<td><strong>Impairment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lung function</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FEV₁ (% predicted) or peak flow (% personal best)</td>
<td></td>
<td>&gt;80%</td>
<td>&gt;80%</td>
</tr>
<tr>
<td>FEV₁/FVC*</td>
<td></td>
<td>&gt;80%</td>
<td></td>
</tr>
<tr>
<td><strong>Validated questionnaires†</strong></td>
<td></td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>ATQA*</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>ACQ*</td>
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<td></td>
</tr>
<tr>
<td>ACT*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Asthma exacerbations requiring oral systemic corticosteroids§</strong></td>
<td>0–1/year</td>
<td>2–3/year</td>
<td>≥2/year</td>
</tr>
<tr>
<td><strong>Treatment-related adverse effects</strong></td>
<td>Medication side effects can vary in intensity from none to very troublesome and worrisome.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Recommended Action for Treatment</th>
<th>Maintain current step. Regular follow-up every 1–6 months. Consider step down if well controlled for at least 3 months.</th>
<th>Step up 1 step</th>
<th>Step up at least 1 step</th>
<th>Step up 1 step</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stepwise Approach for Managing Asthma Long Term,</strong> page 7</td>
<td>Consider short course of oral systemic corticosteroids. Step up 1–2 steps. Reevaluate in 2 weeks to achieve control.</td>
<td>Consider step down if well controlled for at least 3 months. Regular follow-up every 1–6 months. For children 0–4 years, if no clear benefit observed in 4–6 weeks, consider adjusting therapy or alternative diagnoses.</td>
<td>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.</td>
<td></td>
</tr>
</tbody>
</table>

* Abbreviations: ACQ, Asthma Control Questionnaire; ACT, Asthma Control TestTM; ATQA, 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 ATQA; 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.
**FOLLOW-UP VISITS: ASSESSING ASTHMA CONTROL AND ADJUSTING THERAPY**

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.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Components of Control</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Ages 0–4 years</td>
</tr>
<tr>
<td></td>
<td>Ages 5–11 years</td>
</tr>
<tr>
<td></td>
<td>Ages ≥12 years</td>
</tr>
</tbody>
</table>

**Well Controlled**

- **Symptoms**
  - 0–4 years: 2 days/week but >2 days/week or multiple times on ≥1x/month
  - 5–11 years: ≤1x/month
  - ≥12 years: ≤1x/month

- **Nighttime awakenings**
  - 0–4 years: 1x/month
  - 5–11 years: 2x/month
  - ≥12 years: 4x/week

- **SABA**
  - 0–4 years: ≤2 days/week (not to prevent EIB as needed)
  - 5–11 years: ≤2 days/week
  - ≥12 years: ≤2 days/week

- **Lung function**
  - 0–4 years: ≥80%
  - 5–11 years: >80%
  - ≥12 years: >80%

- **Risk of lung function impairment**
  - 0–4 years: Not applicable
  - 5–11 years: Not applicable
  - ≥12 years: Not applicable

- **FEV1/FVC**
  - 0–4 years: Not applicable
  - 5–11 years: Not applicable
  - ≥12 years: Not applicable

- **Atmospheric peak expiratory flow (APEF)**
  - 0–4 years: Not applicable
  - 5–11 years: Not applicable
  - ≥12 years: Not applicable

- **Asthma exacerbations**
  - 0–4 years: 0–1/year
  - 5–11 years: 2/year
  - ≥12 years: 3/year

- **Corticosteroids**
  - 0–4 years: Reduction in lung impairment if no clear benefit observed in 4–6 weeks
  - 5–11 years: Reduction in lung impairment if no clear benefit observed in 4–6 weeks
  - ≥12 years: Reduction in lung impairment if no clear benefit observed in 4–6 weeks

**Very Poorly Controlled**

- **Symptoms**
  - 0–4 years: ≥1x/month
  - 5–11 years: >1x/week
  - ≥12 years: >1x/week

- **Nighttime awakenings**
  - 0–4 years: ≥2x/month
  - 5–11 years: >2x/month
  - ≥12 years: >2x/month

- **SABA**
  - 0–4 years: >2 days/week
  - 5–11 years: >2 days/week
  - ≥12 years: >2 days/week

- **Lung function**
  - 0–4 years: <60%
  - 5–11 years: 60–80%
  - ≥12 years: ≥80%

- **Risk of lung function impairment**
  - 0–4 years: Not applicable
  - 5–11 years: Not applicable
  - ≥12 years: Not applicable

- **FEV1/FVC**
  - 0–4 years: Not applicable
  - 5–11 years: Not applicable
  - ≥12 years: Not applicable

- **Atmospheric peak expiratory flow (APEF)**
  - 0–4 years: Not applicable
  - 5–11 years: Not applicable
  - ≥12 years: Not applicable

- **Asthma exacerbations**
  - 0–4 years: >2/year
  - 5–11 years: >2/year
  - ≥12 years: >2/year

- **Corticosteroids**
  - 0–4 years: Reduction in lung impairment if no clear benefit observed in 4–6 weeks
  - 5–11 years: Reduction in lung impairment if no clear benefit observed in 4–6 weeks
  - ≥12 years: Reduction in lung impairment if no clear benefit observed in 4–6 weeks

**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.

**Assess Control:**

**Step Up If Needed**

1. Check medication adherence, inhaler technique, environmental control, and comorbidities
2. If clear benefit is not observed in 4–6 weeks, and medication technique and adherence are satisfactory, consider adjusting therapy or alternate diagnoses.

**Quick-Relief Medication**

- **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.

**Step Down If Possible**

- (and asthma is well controlled for at least 3 months)

**Step 1**

- Intermittent Asthma
- Consult with asthma specialist if step 2 care or higher is required. Consider consultation at step 2.

**Step 2**

- Preferred Treatment
- SABA as needed
- low-dose ICS
- low-dose ICS + LABA
- low-dose ICS + either LABA or LTRA or theophylline
- low-dose ICS + medium-dose ICS
- medium-dose ICS + LABA
- med-dose ICS + either LABA or LTRA or theophylline
- high-dose ICS + LABA
- high-dose ICS + either LABA or LTRA or theophylline
- high-dose ICS + oral corticosteroids

**Step 3**

- Alternative Treatment
- Cromolyn or nedocromil
- SABA
- SABA or ICS
- high-dose ICS
- high-dose ICS + oral corticosteroids
- high-dose ICS + either LABA or LTRA or theophylline
- high-dose ICS + oral corticosteroids

**Step 4**

- Intermittent Asthma
- Consult with asthma specialist if step 3 care or higher is required. Consider consultation at step 2.

**Step 5**

- Preferred Treatment
- SABA as needed
- low-dose ICS + LABA
- low-dose ICS + medium-dose ICS
- medium-dose ICS + LABA
- medium-dose ICS + LABA
- medium-dose ICS + high-dose ICS
- high-dose ICS + LABA
- high-dose ICS + oral corticosteroids
- high-dose ICS + oral corticosteroids
- high-dose ICS + oral corticosteroids

**Step 6**

- Alternative Treatment
- Consider subcutaneous allergen immunotherapy for patients who have persistent, allergic asthma.
- Consider subcutaneous allergen immunotherapy for patients who have persistent, allergic asthma.
- Consider subcutaneous allergen immunotherapy for patients who have persistent, allergic asthma.
- Consider subcutaneous allergen immunotherapy for patients who have persistent, allergic asthma.
- Consider subcutaneous allergen immunotherapy for patients who have persistent, allergic asthma.
- Consider subcutaneous allergen immunotherapy for patients who have persistent, allergic asthma.

**Abbreviations**

- EIB, exercise-induced bronchospasm
- ICS, inhaled corticosteroid
- LABA, inhaled long-acting beta, agonist
- LTRA, leukotriene receptor antagonist
- SABA, inhaled short-acting beta, agonist
- ACQ, Asthma Control Questionnaire
- ATAQ, Asthma Therapy Assessment Questionnaire
- ACT, Asthma Control Test
- EIB, exercise-induced bronchospasm
- ICS, inhaled corticosteroid
- LABA, inhaled long-acting beta, agonist
- LTRA, leukotriene receptor antagonist
- SABA, inhaled short-acting beta, agonist
- Zileuton is less desirable because of limited studies as adjunctive therapy and the need to monitor liver function.
- The role of allergy in asthma is greater in children than in adults.
- The objective of allergy treatment is to improve asthma control and quality of life and to improve symptoms of allergy.
- The minimal important difference for the ATAQ is 1.0; for the ACQ is 0.5; and for the ACT is not determined.
- 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) are associated with poorer asthma control.
- The level of control achieved in each step does not guarantee that the patient will not experience an exacerbation while being treated; thus, treatment should not be decreased or stopped without a physician’s advice.
- The minimal important difference for the ATAQ is 1.0; for the ACQ is 0.5; and for the ACT is not determined.
- The minimal important difference for the ATAQ is 1.0; for the ACQ is 0.5; and for the ACT is not determined.
- The minimal important difference for the ATAQ is 1.0; for the ACQ is 0.5; and for the ACT is not determined.
- The minimal important difference for the ATAQ is 1.0; for the ACQ is 0.5; and for the ACT is not determined.
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- The minimal important difference for the ATAQ is 1.0; for the ACQ is 0.5; and for the ACT is not determined.
- The minimal important difference for the ATAQ is 1.0; for the ACQ is 0.5; and for the ACT is not determined.
### ESTIMATED COMPARATIVE DAILY DOSAGES: INHALED CORTICOSTEROIDS FOR LONG-TERM ASTHMA CONTROL

<table>
<thead>
<tr>
<th>MEDICATION</th>
<th>Low</th>
<th>Medium*</th>
<th>High*</th>
<th>Low</th>
<th>Medium*</th>
<th>High*</th>
<th>Low</th>
<th>Medium*</th>
<th>High*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Beclomethasone MDI</strong></td>
<td></td>
<td></td>
<td></td>
<td>80–160 mcg</td>
<td>&gt;160–320 mcg</td>
<td>&gt;320 mcg</td>
<td>80–240 mcg</td>
<td>&gt;240–480 mcg</td>
<td>&gt;480 mcg</td>
</tr>
<tr>
<td>40 mcg/puff</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>1-2 puffs 2x/day</td>
<td>3-4 puffs 2x/day</td>
<td>≥3 puffs 2x/day</td>
<td>1 puff am, 2 puffs pm</td>
<td>2-3 puffs 2x/day</td>
<td>≥4 puffs 2x/day</td>
</tr>
<tr>
<td>80 mcg/puff</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>1 puff 2x/day</td>
<td>2 puffs 2x/day</td>
<td>≥3 puffs 2x/day</td>
<td>1 puff am, 2 puffs pm</td>
<td>2-3 puffs 2x/day</td>
<td>≥4 puffs 2x/day</td>
</tr>
<tr>
<td><strong>Budesonide DPI</strong></td>
<td></td>
<td></td>
<td></td>
<td>180-360 mcg</td>
<td>&gt;360–720 mcg</td>
<td>&gt;720 mcg</td>
<td>180–540 mcg</td>
<td>&gt;540–1080 mcg</td>
<td>&gt;1,080 mcg</td>
</tr>
<tr>
<td>90 mcg/inhalation</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>1-2 inhs' 2x/day</td>
<td>3-4 inhs' 2x/day</td>
<td>≥3 inhs' 2x/day</td>
<td>1 inh¹ am, 2 inhs' pm</td>
<td>2-3 inhs' 2x/day</td>
<td>≥4 inhs' 2x/day</td>
</tr>
<tr>
<td>180 mcg/ inhalation</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>2 inhs' 2x/day</td>
<td>≥3 inhs' 2x/day</td>
<td>1 inh¹ am, 2 inhs' pm</td>
<td>2-3 inhs' 2x/day</td>
<td>≥4 inhs' 2x/day</td>
<td></td>
</tr>
<tr>
<td><strong>Budesonide Nebules</strong></td>
<td></td>
<td></td>
<td></td>
<td>0.25–0.5 mg</td>
<td>&gt;0.5–1.0 mg</td>
<td>&gt;1.0 mg</td>
<td>0.5 mg</td>
<td>1.0 mg</td>
<td>2.0 mg</td>
</tr>
<tr>
<td>0.25 mg</td>
<td>1-2 nebs¹/day</td>
<td></td>
<td></td>
<td>1 neb¹ 2x/day</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.5 mg</td>
<td>1 neb¹/day</td>
<td>2 nebs¹/day</td>
<td>3 nebs¹/day</td>
<td>1 neb¹/day</td>
<td>1 neb¹ 2x/day</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.0 mg</td>
<td>1 neb¹/day</td>
<td>2 nebs¹/day</td>
<td></td>
<td>1 neb¹/day</td>
<td>1 neb¹ 2x/day</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ciclesonide MDI</strong></td>
<td></td>
<td></td>
<td></td>
<td>80–160 mcg</td>
<td>&gt;160–320 mcg</td>
<td>&gt;320 mcg</td>
<td>160–320 mcg</td>
<td>&gt;320–640 mcg</td>
<td>&gt;640 mcg</td>
</tr>
<tr>
<td>80 mcg/puff</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>1-2 puffs 2x/day</td>
<td>1 puff am, 2 puffs pm–2 puffs 2x/day</td>
<td>≥3 puffs 2x/day</td>
<td>1-2 puffs 2x/day</td>
<td>3-4 puffs 2x/day</td>
<td></td>
</tr>
<tr>
<td>160 mcg/puff</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>1 puff 2x/day</td>
<td>1 puff 2x/day</td>
<td>≥2 puffs 2x/day</td>
<td>1 puff 2x/day</td>
<td>2 puffs 2x/day</td>
<td>≥3 puffs 2x/day</td>
</tr>
<tr>
<td><strong>Flunisolide MDI</strong></td>
<td></td>
<td></td>
<td></td>
<td>160 mcg</td>
<td>320–480 mcg</td>
<td>≥480 mcg</td>
<td>320 mcg</td>
<td>&gt;320–640 mcg</td>
<td>&gt;640 mcg</td>
</tr>
<tr>
<td>80 mcg/puff</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>1 puff 2x/day</td>
<td>2-3 puffs 2x/day</td>
<td>≥4 puffs 2x/day</td>
<td>2 puffs 2x/day</td>
<td>3-4 puffs 2x/day</td>
<td>≥5 puffs 2x/day</td>
</tr>
</tbody>
</table>

*It is preferable to use a higher mcg/puff or mcg/inhalation formulation to achieve as low a number of puffs or inhalations as possible.

† Abbreviations: DPI, dry powder inhaler (requires deep, fast inhalation); inh, inhalation; MDI, metered dose inhaler (releases a puff of medication); neb, nebule.
### Therapeutic Issues Pertaining to Inhaled Corticosteroids (ICSs) for Long-Term Asthma Control

- **The most important determinant of appropriate dosing is the clinician’s judgment of the patient’s response to therapy.** The clinician must monitor the patient’s response on several clinical parameters (e.g., symptoms; activity level; measures of lung function) and adjust the dose accordingly. Once asthma control is achieved and sustained at least 3 months, the dose should be carefully titrated down to the minimum dose necessary to maintain control.

- Some doses may be outside package labeling, especially in the high-dose range. Budesonide nebulizer suspension is the only inhaled corticosteroid (ICS) with FDA-approved labeling for children <4 years of age. Budesonide suspension is compatible with albuterol, ipratropium, and levalbuterol nebulizer solutions in the same nebulizer. Use only jet nebulizers, as ultrasonic nebulizers are ineffective for suspensions. For fluticasone MDI, the dose should be divided 2 times daily; the low dose for children <4 years of age is higher than for children 5–11 years of age because of lower dose delivered with face mask and data on efficacy in young children.

- For children <4 years of age: The safety and efficacy of ICSs in children <1 year of age has not been established. Children <4 years of age generally require delivery of ICS (budesonide and fluticasone MDI) through a face mask that fits snugly over nose and mouth to avoid nebulizing in the eyes. Face should be washed after treatment to prevent local corticosteroid side effects. For budesonide, the dose may be given 1–3 times daily. Budesonide suspension is compatible with albuterol, ipratropium, and levalbuterol nebulizer solutions in the same nebulizer. Use only jet nebulizers, as ultrasonic nebulizers are ineffective for suspensions. For fluticasone MDI, the dose should be divided 2 times daily; the low dose for children <4 years of age is higher than for children 5–11 years of age because of lower dose delivered with face mask and data on efficacy in young children.

- **It is preferable to use a higher mcg/puff or mcg/inhalation formulation to achieve as low a number of puffs or inhalations as possible.**

- **Abbreviations:** DPI, dry powder inhaler (requires deep, fast inhalation); inh, inhalation; MDI, metered dose inhaler (releases a puff of medication); neb, nebule.

---

### ESTIMATED COMPARATIVE DAILY DOSAGES: INHALED CORTICOSTEROIDS FOR LONG-TERM ASTHMA CONTROL (continued)

<table>
<thead>
<tr>
<th>Medication</th>
<th>0–4 years of age</th>
<th>5–11 years of age</th>
<th>≥12 years of age</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Daily Dose</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>Medium*</td>
<td>High*</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td></td>
<td>High</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fluticasone MDI†</td>
<td>176 mcg</td>
<td>&gt;176–352 mcg</td>
<td>&gt;352 mcg</td>
</tr>
<tr>
<td>44 mcg/puff</td>
<td>2 puffs 2x/day</td>
<td>3–4 puffs 2x/day</td>
<td>1 puff 2x/day</td>
</tr>
<tr>
<td>110 mcg/puff</td>
<td>1 puff 2x/day</td>
<td>≥2 puffs 2x/day</td>
<td>2 puffs 2x/day</td>
</tr>
<tr>
<td>220 mcg/puff</td>
<td>1 puff 2x/day</td>
<td>≥2 puffs 2x/day</td>
<td>2 puffs 2x/day</td>
</tr>
<tr>
<td>Fluticasone DPI†</td>
<td>N/A</td>
<td>100–200 mcg</td>
<td>&gt;200–400 mcg</td>
</tr>
<tr>
<td>50 mcg/inhalation</td>
<td>1–2 inh* 2x/day</td>
<td>&gt;400 mcg</td>
<td>&gt;400 mcg</td>
</tr>
<tr>
<td>100 mcg/inhalation</td>
<td>1 inh* 2x/day</td>
<td>&gt;200–400 mcg</td>
<td>&gt;400 mcg</td>
</tr>
<tr>
<td>250 mcg/inhalation</td>
<td>1 inh* 2x/day</td>
<td>&gt;300–500 mcg</td>
<td>&gt;500 mcg</td>
</tr>
<tr>
<td>Mometasone DPI†</td>
<td>N/A</td>
<td>110 mcg</td>
<td>&gt;440 mcg</td>
</tr>
<tr>
<td>110 mcg/inhalation</td>
<td>1 inh* 2x/day</td>
<td>&gt;220–440 mcg</td>
<td>&gt;440 mcg</td>
</tr>
<tr>
<td>220 mcg/inhalation</td>
<td>1 inh* 2x/day</td>
<td>&gt;220–440 mcg</td>
<td>&gt;440 mcg</td>
</tr>
</tbody>
</table>

* It is preferable to use a higher mcg/puff or mcg/inhalation formulation to achieve as low a number of puffs or inhalations as possible.

† Abbreviations: DPI, dry powder inhaler (requires deep, fast inhalation); inh, inhalation; MDI, metered dose inhaler (releases a puff of medication); neb, nebule.
### Usual Dosages for Other Long-Term Control Medications*

<table>
<thead>
<tr>
<th>Medication</th>
<th>0–4 years of age</th>
<th>5–11 years of age</th>
<th>≥12 years of age</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Combined Medication (inhaled corticosteroid + long-acting beta₂-agonist)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fluticasone/Salmeterol — DPI† 100 mcg/50 mcg, 250 mcg/50 mcg, or 500 mcg/50 mcg</td>
<td>N/A†</td>
<td>1 inhalation 2x/day; dose depends on level of severity or control</td>
<td>1 inhalation 2x/day; dose depends on level of severity or control</td>
</tr>
<tr>
<td>MDI† 45 mcg/21 mcg, 115 mcg/21 mcg, or 230 mcg/21 mcg</td>
<td>N/A†</td>
<td>2 puffs 2x/day; dose depends on level of severity or control</td>
<td>2 puffs 2x/day; dose depends on level of severity or control</td>
</tr>
<tr>
<td>Budesonide/Formoterol — MDI† 80 mcg/4.5 mcg or 160 mcg/4.5 mcg</td>
<td>N/A†</td>
<td>2 inhalations 2x/day; dose depends on severity of asthma</td>
<td></td>
</tr>
<tr>
<td>Mometasone/Formoterol — MDI† 100 mcg/5 mcg</td>
<td>N/A†</td>
<td>N/A†</td>
<td>N/A†</td>
</tr>
<tr>
<td><strong>Leukotriene Modifiers</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leukotriene Receptor Antagonists (LTRAs)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Montelukast — 4 mg or 5 mg chewable tablet, 4 mg granule packets, 10 mg tablet</td>
<td>4 mg every night at bedtime (1–5 years of age)</td>
<td>5 mg every night at bedtime (6–14 years of age)</td>
<td>10 mg every night at bedtime</td>
</tr>
<tr>
<td>Zafirlukast — 10 mg or 20 mg tablet</td>
<td>N/A†</td>
<td>10 mg 2x/day (7–11 years of age)</td>
<td>40 mg daily (20 mg tablet 2x/day)</td>
</tr>
<tr>
<td><strong>5-Lipoxygenase Inhibitor</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zileuton — 600 mg tablet</td>
<td>N/A†</td>
<td>N/A†</td>
<td>2,400 mg daily (give 1 tablet 4x/day)</td>
</tr>
<tr>
<td><strong>Immunomodulators</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Omalizumab (Anti IgE†) — Subcutaneous injection, 150 mg/1.2 mL following reconstitution with 1.4 mL sterile water for injection</td>
<td>N/A†</td>
<td>N/A†</td>
<td>150–375 mg subcutaneous every 2–4 weeks, depending on body weight and pretreatment serum IgE level</td>
</tr>
<tr>
<td><strong>Cromolyn</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cromolyn — Nebulizer: 20 mg/ampule</td>
<td>1 ampule 4x/day, N/A† &lt;2 years of age</td>
<td>1 ampule 4x/day</td>
<td>1 ampule 4x/day</td>
</tr>
<tr>
<td><strong>Methylxanthines</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Theophylline — Liquids, sustained-release tablets, and capsules</td>
<td>Starting dose 10 mg/kg/day; usual maximum: &lt;1 year of age: 0.2 mg (age in weeks) + 5 = mg/kg/day; ≥1 year of age: 16 mg/kg/day</td>
<td>Starting dose 10 mg/kg/day; usual maximum: 16 mg/kg/day</td>
<td>Starting dose 10 mg/kg/day up to 300 mg maximum; usual maximum: 800 mg/day</td>
</tr>
<tr>
<td><strong>Inhaled Long-Acting Beta₂-Agonists (LABAs) — used in conjunction with ICS† for long-term control; LABA is NOT to be used as monotherapy</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salmeterol — DPI† 50 mcg/blister</td>
<td>N/A†</td>
<td>1 blister every 12 hours</td>
<td>1 blister every 12 hours</td>
</tr>
<tr>
<td>Formoterol — DPI† 12 mcg/single-use capsule</td>
<td>N/A†</td>
<td>1 capsule every 12 hours</td>
<td>1 capsule every 12 hours</td>
</tr>
<tr>
<td><strong>Oral Systemic Corticosteroids</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Methylprednisolone — 2, 4, 8, 16, 32 mg tablets</td>
<td><strong>0.25–2 mg/kg daily in single dose in a.m. or every other day as needed for control</strong></td>
<td><strong>0.25–2 mg/kg daily in single dose in a.m. or every other day as needed for control</strong></td>
<td><strong>75–60 mg daily in single dose in a.m. or every other day as needed for control</strong></td>
</tr>
<tr>
<td>Prednisolone — 5 mg tablets; 5 mg/5 cc, 15 mg/5 cc</td>
<td><strong>Short course “burst”: 1–2 mg/kg/day, max 60 mg/d for 3–10 days</strong></td>
<td><strong>Short course “burst”: 1–2 mg/kg/day, max 60 mg/d for 3–10 days</strong></td>
<td><strong>Short course “burst”: to achieve control, 40–60 mg/day as single or 2 divided doses for 3–10 days</strong></td>
</tr>
<tr>
<td>Prednisone — 1, 2.5, 5, 10, 20, 50 mg tablets; 5 mg/cc, 5 mg/5 cc</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Dosages are provided for those products that have been approved by the U.S. Food and Drug Administration or have sufficient clinical trial safety and efficacy data in the appropriate age ranges to support their use.

† Abbreviations: DPI, dry powder inhaler; IgE, immunoglobulin E; MDI, metered-dose inhaler; N/A, not available (not approved, no data available, or safety and efficacy not established for this age group).

The most important determinant of appropriate dosing is the clinician’s judgment of the patient’s response to therapy. The clinician must monitor the patient’s response on several clinical parameters (e.g., symptoms; activity level; measures of lung function) and adjust the dose accordingly. Once asthma control is achieved and sustained at least 3 months, the dose should be carefully titrated down to the minimum dose necessary to maintain control.
RESPONDING TO PATIENT QUESTIONS ABOUT INHALED CORTICOSTEROIDS

Questions and varying beliefs about inhaled corticosteroids (ICSs) are common and may affect adherence to treatment. Following are some key points to share with patients and families.

- ICSs are the most effective medications for long-term control of persistent asthma. Because ICSs are inhaled, they go right to the lungs to reduce chronic airway inflammation. In general, ICSs should be taken every day to prevent asthma symptoms and attacks.

- The potential risks of ICSs are well balanced by their benefits. To reduce the risk of side effects, patients should work with their doctor to use the lowest dose that maintains asthma control, and be sure to take the medication correctly.
  - Mouth irritation and thrush (yeast infection), which may be associated with ICSs at higher doses, can be avoided by rinsing the mouth and spitting after ICS use and, if appropriate for the inhaler device, by using a valved holding chamber or spacer.
  - ICS use may slow a child's growth rate slightly. This effect on linear growth is not predictable and is generally small (about 1 cm), appears to occur in the first several months of treatment, and is not progressive. The clinical significance of this potential effect has yet to be determined. Growth rates are highly variable in children, and poorly controlled asthma can slow a child's growth.

- ICSs are generally safe for pregnant women. Controlling asthma is important for pregnant women to be sure the fetus receives enough oxygen.

- ICSs are not addictive.

- ICSs are not the same as anabolic steroids that some athletes use illegally to increase sports performance.

RESPONDING TO PATIENT QUESTIONS ABOUT LONG-ACTING BETA\(_2\)-AGONISTS

Keep the following key points in mind when educating patients and families about long-acting beta\(_2\)-agonists (LABAs).

- The addition of LABA (salmeterol or formoterol) to the treatment of patients who require more than low-dose inhaled corticosteroid (ICS) alone to control asthma improves lung function, decreases symptoms, and reduces exacerbations and use of short-acting beta\(_2\)-agonists (SABA) for quick relief in most patients to a greater extent than doubling the dose of ICS.

- A large clinical trial found that slightly more deaths occurred in patients taking salmeterol in a single inhaler every day in addition to usual asthma therapy* (13 out of about 13,000) compared with patients taking a placebo in addition to usual asthma therapy (3 out of about 13,000). Trials for formoterol in a single inhaler every day in addition to usual therapy* found more severe asthma exacerbations in patients taking formoterol, especially at higher doses, compared with those taking a placebo added to usual therapy. Therefore, the Food and Drug Administration placed a Black Box warning on all drugs containing a LABA.

- The established benefits of LABAs added to ICS for the great majority of patients who require more than low-dose ICS alone to control asthma should be weighed against the risk of severe exacerbations, although uncommon, associated with daily use of LABAs.

- LABAs should not be used as monotherapy for long-term control. Even though symptoms may improve significantly, it is important to keep taking ICS while taking LABA.

- Daily use should generally not exceed 100 mcg salmeterol or 24 mcg formoterol.

- It is not currently recommended that LABAs be used to treat acute symptoms or exacerbations.

* Usual therapy included a wide range of regimens, from those in which no other daily therapy was taken to those in which varying doses of other daily medications were taken.
EDUCATIONAL RESOURCES

National Heart, Lung, and Blood Institute
- Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma (EPR-3)
  www.nhlbi.nih.gov/guidelines/asthma
- Physician Asthma Care Education (PACE): www.nhlbi.nih.gov/health/prof/lung/asthma/pace/

Allergy & Asthma Network Mothers of Asthmatics
800–878–4403
www.aanma.org

American Academy of Allergy, Asthma, and Immunology
414–272–6071
www.aaaai.org

American Academy of Pediatrics
847–434–4000
www.aap.org

American Association of Respiratory Care
972–243–2272
www.aarc.org

American College of Chest Physicians
847–498–1400
www.chestnet.org

American College of Allergy, Asthma & Immunology
847–427–1200
www.acaai.org

American Lung Association
800–LUNG–USA (800–586–4872)
www.lungusa.org

American School Health Association
800–445–2742
www.ashaweb.org

Asthma and Allergy Foundation of America
800–7–ASTHMA (800–727–8462)
http://aafa.org

Centers for Disease Control and Prevention
800–CDC–INFO (800–232–4636)
www.cdc.gov/asthma

Environmental Protection Agency/Asthma Community Network
www.asthmacommunitynetwork.org
800–490–9198 (to order EPA publications)
www.epa.gov/asthma/publications.html

National Association of School Nurses
240–821–1130
www.nasn.org

For more information contact:
NHLBI Information Center
P.O. Box 30105
Bethesda, MD 20824–0105
Phone: 301–592–8573
Fax: 301–592–8563
Web site: www.nhlbi.nih.gov
### ASTHMA FLOW SHEET

**INITIAL asthma Severity for patients who are NOT currently taking long-term control medications**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Intermittent</th>
<th>Persistent Mild</th>
<th>Persistent Moderate</th>
<th>Persistent Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>≤ 2</td>
<td>&gt;2 but not daily</td>
<td>Daily</td>
<td>Throughout the day</td>
</tr>
<tr>
<td>5-adult</td>
<td>≤ 2</td>
<td>1-2</td>
<td>3-4</td>
<td>&gt; 1 time a week</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1-2</td>
<td>&gt;1X/week but not nightly</td>
<td>Often 7X/week</td>
</tr>
</tbody>
</table>

**SABA use per week for symptom control (not EIB prevention)**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Intermittent</th>
<th>Persistent Mild</th>
<th>Persistent Moderate</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-11</td>
<td>≤ 2</td>
<td>&gt;2 but not daily</td>
<td>Daily</td>
</tr>
<tr>
<td>≥12-adult</td>
<td>≤ 2</td>
<td>&gt;2 but not daily*</td>
<td>Daily</td>
</tr>
</tbody>
</table>

**Activity**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Intermittent</th>
<th>Persistent Mild</th>
<th>Persistent Moderate</th>
</tr>
</thead>
<tbody>
<tr>
<td>all</td>
<td>no limitations</td>
<td>Minor limitations</td>
<td>Some limited</td>
</tr>
</tbody>
</table>

**Risk**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Intermittent</th>
<th>Persistent Mild</th>
<th>Persistent Moderate</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>≥ 2 per 6 months</td>
<td>&gt;2 per 6 months</td>
<td>2 per 6 months</td>
</tr>
<tr>
<td>5-adult</td>
<td>≥ 2 per 6 months</td>
<td>&gt;2 per 6 months</td>
<td>2 per 6 months</td>
</tr>
</tbody>
</table>

**Lung function**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Intermittent</th>
<th>Persistent Mild</th>
<th>Persistent Moderate</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-11</td>
<td>FEV1 &gt; 80% predicted</td>
<td>FEV1 &gt;80% predicted</td>
<td>FEV1 = 60-80% predicted</td>
</tr>
<tr>
<td></td>
<td>FEV1/FVC &gt; 85%</td>
<td>FEV1/FVC &gt; 80%</td>
<td>FEV1/FVC = 75-80%</td>
</tr>
<tr>
<td></td>
<td>FEV1 &gt; 80% predicted</td>
<td>FEV1 &gt; 80% predicted</td>
<td>FEV1 &lt; 60% predicted</td>
</tr>
<tr>
<td></td>
<td>FEV1/FVC normal</td>
<td>FEV1/FVC normal</td>
<td>FEV1/FVC &lt; 75%</td>
</tr>
</tbody>
</table>

**Exacerbations requiring oral systemic corticosteroids**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Intermittent</th>
<th>Persistent Mild</th>
<th>Persistent Moderate</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>≥ 2 per 6 months</td>
<td>&gt;2 per 6 months</td>
<td>2 per 6 months</td>
</tr>
<tr>
<td>5-adult</td>
<td>≥ 2 per 6 months</td>
<td>&gt;2 per 6 months</td>
<td>2 per 6 months</td>
</tr>
</tbody>
</table>

**Treatment Recommendation**

- **In 2-6 weeks, depending on severity, evaluate level of asthma control that is achieved. If no clear benefit is observed in 2-6 weeks, consider adjusting therapy or alternative diagnosis.**
- **In 2-6 weeks, evaluate level of asthma control that is achieved, and adjust therapy accordingly.**

---

**Notes**

- The **Stepwise approach** is meant to assist, not replace, the clinical decision making required to meet individual patient needs.
- Level of severity is determined by both impairment **AND** risk. Assess impairment domain by caretaker's recall of previous 2-4 weeks. Symptom assessment for longer 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.

**For ages 0-4:**
- At present there is inadequate data to correspond frequencies of exacerbations with different levels of asthma severity. For treatment purposes, patients who had 2 or more exacerbations requiring oral systemic corticosteroids in past 6 months, or 4 or more 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.

**For ages 5-adult:**
- At present, there are inadequate data to correspond frequencies of exacerbations with different levels of asthma severity. In general, more frequent and intense exacerbations (eg requiring urgent, unscheduled care, hospitalization or ICU admission) indicate greater underlying disease severity. For treatment purposes, patients who had 2 or more 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.

**Risk Factors for persistent asthma:** ...

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**Definintions/Explanations:**

- **Impairment**
- **Risk**
- **Daytime Sx**
- **Night Sx**

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Principal Author: Kenny Yat-Choi Kwong, MD in association with QueensCare Family Clinics. The Asthma Flow Sheet is provided as a service through L.A. Care Health Plan, 12/1/09.

To order forms, go to http://www.lacare.org/providers/resources/healtheducation; email shernandez@lacare.org, or Fax: 213-438-5744.
### Asthma Control

**Impairment**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Well Controlled</th>
<th>Not Well Controlled</th>
<th>Very Poorly Controlled</th>
<th>Check box</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>≤ 2*</td>
<td>&gt;2*</td>
<td></td>
<td>Throughout the day</td>
</tr>
</tbody>
</table>

#### Daytime symptoms (days per week)

- 0-4: ≤ 1
- 5-11: ≤ 2
- ≥ 12-adult: ≤ 2

#### Nighttime symptoms (nights per month)

- 0-4: ≤ 1
- 5-11: > 1
- > 12-adult: > 1

#### SABA use per week for symptom control (not for EIB prevention)

- All: ≤ 2

#### FEV1 or PEFR (predicted/personal best)

- 5-adult: >80%
- 60-80%
- <60%

#### FEV1/FVC

- 5-11: >80%
- 60-80%
- <60%

#### Questionnaire (>12 only)

- ACT (>12 yrs version)
  - ≥ 20
  - 16-19
  - ≤ 15

- ATAQ
  - 0
  - 1-2
  - 3-4

- ACQ
  - < 0.75
  - > 1.5
  - N/A

#### Risk

- Age Group
  - 0-4: 0-1
  - 5-adult: 0-1

#### Exacerbations req. syst. steroids (per year)

- 0-4: 0-1
- 5-adult: > 2 (see note)

#### Activity

- All: no limitations
- Some limitations
- Extremely limited

**Treatment Recommendations**

1. Maintain current treatment
2. Regular follow up in 1-6 months
3. Consider stepping down (if well controlled for at least 3 months)

1. Step up 1 step
2. Re-evaluate in 2-6 weeks
3. Consider alternative treatment options
4. For ages 0-4 if no clear benefit in 4-6 weeks consider alternative diagnosis or adjusting therapy

1. Consider short course of systemic corticosteroids
2. Step up 1-2 steps
3. Re-evaluate in 2 weeks
4. For side effects consider alternative treatment options
5. For ages 0-4 if no clear benefit in 4-6 weeks consider alternative diagnosis or adjusting therapy

#### Key

- SABA, short acting beta agonist; EIB, exercise induced bronchospasm; FEV1, forced expiratory volume in 1 second; FVC, forced vital capacity
- For patients ages 5-11: Well controlled is day symptoms ≤ 2 days/week but not more than once on each day.
- Not well controlled is day symptoms > 2 days/week or multiple times on < 2 days/week
- **Other risk include 1. Risk of reduction in lung growth (requiring long-term follow up) 2. 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.

#### Notes

1. The Stepwise approach is meant to assist, not replace, the clinical decision making required to meet individual patient needs.
2. 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.
3. At present there is 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.
4. Before step up in therapy:
   - Review adherence to medications, inhaler technique, environmental control and co-morbid conditions.
   - If alternative treatment option was used in a step, discontinue it and use preferred treatment for that step.
5. Validated Questionnaires for the Impairment domain:
   - ACT = Asthma Control Test™ ≥12 yrs (version used here)
   - ACT = Childhood Asthma Control Test™ for children 4 through 11 yrs
   - ATAQ = Asthma Therapy Assessment Questionnaire©
   - ACQ = Asthma Control Questionnaire©

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Childhood Asthma Control Test™ (for children 4 to 11 years old)

Asthma Control Test can help you and your child’s doctor see how well your child’s asthma care plan is working or if you need to make any changes. Complete this Asthma Control Test and take it to your child’s next doctor visit!

Steps to taking the Asthma Control Test
- Answer each question and write the number in the score box.
- Add the score from each question to get the total score.

Please help your child complete questions 1 to 4.

1. How is your asthma today?

<table>
<thead>
<tr>
<th>Very Bad</th>
<th>Bad</th>
<th>Good</th>
<th>Very Good</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

2. How much of a problem is your asthma when you run, exercise or play sports?

<table>
<thead>
<tr>
<th>It’s a big problem, I can’t do what I want to do</th>
<th>It’s a problem and I don’t like it</th>
<th>It’s a little problem but it’s okay</th>
<th>It’s not a problem</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

3. Do you cough because of your asthma?

<table>
<thead>
<tr>
<th>Yes, all of the time</th>
<th>Yes, most of the time</th>
<th>Yes, some of the time</th>
<th>No, none of the time</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

4. Do you wake up during the night because of your asthma?

<table>
<thead>
<tr>
<th>Yes, all of the time</th>
<th>Yes, most of the time</th>
<th>Yes, some of the time</th>
<th>No, none of the time</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Parents, please complete questions 5 to 7.

5. During the last 4 weeks, how many days did your child have any daytime asthma symptoms?

<table>
<thead>
<tr>
<th>Everyday</th>
<th>19-24 days</th>
<th>11-18 days</th>
<th>4-10 days</th>
<th>1-3 days</th>
<th>Not at all</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

6. During the last 4 weeks, how many days did your child wheeze during the day because of asthma?

<table>
<thead>
<tr>
<th>Everyday</th>
<th>19-24 days</th>
<th>11-18 days</th>
<th>4-10 days</th>
<th>1-3 days</th>
<th>Not at all</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

7. During the last 4 weeks, how many days did your child wake up during the night because of asthma?

<table>
<thead>
<tr>
<th>Everyday</th>
<th>19-24 days</th>
<th>11-18 days</th>
<th>4-10 days</th>
<th>1-3 days</th>
<th>Not at all</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

TOTAL SCORE=
Childhood Asthma Control Test™ (para niños de 4 a 11 años)

La prueba sobre el control del asma, llamada Asthma Control Test, puede ayudarles a usted y al médico a saber si el plan de tratamiento del asma de su hijo está funcionando o si necesita hacer algún cambio. Complete esta prueba sobre el control del asma y llévela a la próxima visita médica de su hijo.

Pasos para realizar la prueba sobre el control del asma
- Responda a cada pregunta y escriba el número en la casilla del puntaje.
- Sume el puntaje de cada pregunta para obtener el puntaje total.

Ayude a su hijo a responder las preguntas del número 1 al 4.

1. ¿Cómo está tu asma hoy?

<table>
<thead>
<tr>
<th>Muy mala</th>
<th>Mala</th>
<th>Buena</th>
<th>Muy buena</th>
<th>Puntaje</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

2. ¿Qué tan problemática es tu asma cuando corres, haces ejercicio o practicas algún deporte?

<table>
<thead>
<tr>
<th>Es un problema grande, no puedo hacer lo que quiero hacer</th>
<th>Es un problema y no me siento bien</th>
<th>Es un problema pequeño pero está bien</th>
<th>No es un problema</th>
<th>Puntaje</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

3. ¿Tienes tos debido a tu asma?

<table>
<thead>
<tr>
<th>Sí, siempre</th>
<th>Sí, la mayoría del tiempo</th>
<th>Sí, algo del tiempo</th>
<th>No, nunca</th>
<th>Puntaje</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

4. ¿Te despieritas durante la noche debido a tu asma?

<table>
<thead>
<tr>
<th>Sí, siempre</th>
<th>Sí, la mayoría del tiempo</th>
<th>Sí, algo del tiempo</th>
<th>No, nunca</th>
<th>Puntaje</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Los padres deben responder a las preguntas del número 5 al 7.

5. Durante las últimas 4 semanas, ¿cuántos días tuvo su niño/a síntomas de asma durante el día?

<table>
<thead>
<tr>
<th>Todos los días</th>
<th>De 19 a 24 días</th>
<th>De 11 a 18 días</th>
<th>De 4 a 10 días</th>
<th>De 1 a 3 días</th>
<th>Nunca</th>
<th>Puntaje</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

6. Durante las últimas 4 semanas, ¿cuántos días tuvo su niño/a respiración sibilante (un silbido en el pecho) durante el día debido al asma?

<table>
<thead>
<tr>
<th>Todos los días</th>
<th>De 19 a 24 días</th>
<th>De 11 a 18 días</th>
<th>De 4 a 10 días</th>
<th>De 1 a 3 días</th>
<th>Nunca</th>
<th>Puntaje</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

7. Durante las últimas 4 semanas, ¿cuántos días se despertó su niño/a durante la noche debido al asma?

<table>
<thead>
<tr>
<th>Todos los días</th>
<th>De 19 a 24 días</th>
<th>De 11 a 18 días</th>
<th>De 4 a 10 días</th>
<th>De 1 a 3 días</th>
<th>Nunca</th>
<th>Puntaje</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

Significado del puntaje:
- Si el puntaje de su hijo es **19 o menos**, es posible que NO tenga el asma tan bien controlada como podría.
- Si el puntaje de su hijo es **20 o más**, ¡felicitaciones! Aparentemente el asma de su hijo está bien controlada.
**The Asthma Control Test™ (for 12 years and older)**

Asthma Control Test can help you and your doctor see how well your asthma care plan is working or if you need to make any changes. Complete this Asthma Control Test and take it to your next doctor visit!

Steps to taking the Asthma Control Test
- Answer each question and write the number in the score box.
- Add the score from each question to get the total score.

Please complete questions 1 to 5.

1. **In the past 4 weeks,** how much of the time did your asthma keep you from getting as much done at work, school or at home?

<table>
<thead>
<tr>
<th>All of the time</th>
<th>Most of the time</th>
<th>Some of the time</th>
<th>A little of the time</th>
<th>None of the time</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

2. **During the past 4 weeks,** how often have you had shortness of breath?

<table>
<thead>
<tr>
<th>More than once a day</th>
<th>Once a day</th>
<th>3-6 times a week</th>
<th>1-2 times a week</th>
<th>Not at all</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

3. **During the past 4 weeks,** how often did your asthma symptoms (wheezing, coughing, shortness of breath, chest tightness or pain) wake you up at night or earlier than usual in the morning?

<table>
<thead>
<tr>
<th>4 or more nights a week</th>
<th>2-3 nights a week</th>
<th>Once a week</th>
<th>Once or twice</th>
<th>Not at all</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

4. **During the past 4 weeks,** how often have you used your rescue inhaler or nebulizer medication (such as albuterol)?

<table>
<thead>
<tr>
<th>3 or more times a day</th>
<th>1-2 times a day</th>
<th>2-3 times per week</th>
<th>Once a week or less</th>
<th>Not at all</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

5. **How would you rate your asthma control during the past 4 weeks?**

<table>
<thead>
<tr>
<th>Not controlled at all</th>
<th>Poorly controlled</th>
<th>Somewhat controlled</th>
<th>Well controlled</th>
<th>Completely controlled</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

**What the score means:**
- If your score is **19 or less** your asthma may **NOT** be controlled as well as it could be.
- If your score is **20 or more**, good job! Your asthma seems to be well controlled.

TOTAL SCORE=
The Asthma Control Test™
(Para personas de 12 años de edad en adelante)

La prueba sobre el control del asma, llamada Asthma Control Test, puede ayudarles a usted y a su médico a saber si su plan de tratamiento del asma está funcionando o si necesita hacer algún cambio. Complete esta prueba sobre el control del asma y llévala a su próxima visita médica.

Pasos para realizar la prueba sobre el control del asma
- Responda a cada pregunta y escriba el número en la casilla del puntaje.
- Sume el puntaje de cada pregunta para obtener el puntaje total.

Responda a las preguntas del número 1 al 5.

1. En las últimas 4 semanas, ¿cuánto tiempo le ha impedido su asma hacer todo lo que quería en el trabajo, en la escuela o en la casa?

<table>
<thead>
<tr>
<th>Siempre</th>
<th>La mayoría del tiempo</th>
<th>Algo del tiempo</th>
<th>Un poco del tiempo</th>
<th>Nunca</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

2. Durante las últimas 4 semanas, ¿con qué frecuencia le ha faltado aire?

<table>
<thead>
<tr>
<th>Más de una vez al día</th>
<th>Una vez por día</th>
<th>De 3 a 6 veces por semana</th>
<th>1 a 2 veces por semana</th>
<th>Nunca</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

3. Durante las últimas 4 semanas, ¿con qué frecuencia sus síntomas del asma (respiración sibilante o un silbido en el pecho, tos, falta de aire, opresión en el pecho o dolor) lo/la despertaron durante la noche o más temprano de lo usual en la mañana?

<table>
<thead>
<tr>
<th>4 o más noches por semana</th>
<th>2 o 3 noches por semana</th>
<th>Una vez por semana</th>
<th>Una o dos veces</th>
<th>Nunca</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

4. Durante las últimas 4 semanas, ¿con qué frecuencia ha usado su inhalador de rescate o medicamento en nebulizador (como albuterol)?

<table>
<thead>
<tr>
<th>3 o más veces al día</th>
<th>1 o 2 veces al día</th>
<th>2 o 3 veces por semana</th>
<th>Una vez por semana o menos</th>
<th>Nunca</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

5. ¿Cómo evaluaría el control de su asma durante las últimas 4 semanas?

<table>
<thead>
<tr>
<th>No controlada, en absoluto</th>
<th>Mal controlada</th>
<th>Algo controlada</th>
<th>Bien controlada</th>
<th>Completamente controlada</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Significado del puntaje:
- Si su puntaje es 19 o menos, es posible que NO tenga el asma tan bien controlada como podría.
- Si su puntaje es 20 o más, ¡felicitaciones! Aparentemente su asma está bien controlada.

PUNTAJE TOTAL=
Community Asthma Initiative: Evaluation of a Quality Improvement Program for Comprehensive Asthma Care
Elizabeth R. Woods, Urmik Bhaumik, Susan J. Sommer, Sonja I. Ziniel, Alaina J. Kessler, Elaine Chan, Ronald B. Wilkinson, Maria N. Sesma, Amy B. Burack, Elizabeth M. Klements, Lisa M. Queenin, Deborah U. Dickerson and Shari Nethersole

*Pediatrics*; originally published online February 20, 2012;
DOI: 10.1542/peds.2010-3472

The online version of this article, along with updated information and services, is located on the World Wide Web at:
http://pediatrics.aappublications.org/content/early/2012/02/15/peds.2010-3472
Community Asthma Initiative: Evaluation of a Quality Improvement Program for Comprehensive Asthma Care

AUTHORS: Elizabeth R. Woods, MD, MPH, a, b Urmia Bhattacharya, MBBS, MS, DSc, c, d, e Susan J. Sommer, MSN, RN, AC-C, e Sonja I. Zinie, PhD, f Alaina J. Kessler, BS, a Elaine Chan, BA, a Ronald B. Wilkinson, MA, MS, a Maria N. Sesma, BS, a Amy B. Burack, RN, MA, AC-C, f Elizabeth M. Klement, MS, f PNP-BC, AC-C, f Lisa M. Queenin, BA, f, g Deborah U. Dickerson, BA, h and Shari Nethersole, MD h

Abbreviations:
AAP—Asthma Action Plan
CAI—Community Asthma Initiative
CHW—Community Health Worker
CI—confidence interval
ED—emergency department
FTE—full-time equivalent
FY—fiscal year
GEE—generalized estimating equation
IPM—Integrated Pest Management
NAEPP—National Asthma Education Prevention Program
QI—quality improvement
ROI—return on investment

Objectives: The objective of this study was to assess the cost-effectiveness of a quality improvement (QI) program in reducing asthma emergency department (ED) visits, hospitalizations, limitation of physical activity, patient missed school, and parent missed work.

Methods: Urban, low-income patients with asthma from 4 zip codes were identified through logs of ED visits or hospitalizations, and offered enhanced care including nurse case management and home visits. QI evaluation focused on parent-completed interviews at enrollment, and at 6- and 12-month contacts. Hospital administrative data were used to assess ED visits and hospitalizations at enrollment, and 1 and 2 years after enrollment. Hospital costs of the program were compared with the hospital costs of a neighboring community with similar demographics.

Results: The program provided services to 283 children. Participants were 55.1% male; 39.6% African American, 52.3% Latino; 77.2% had Medicaid; 70.8% had a household income ≤$25,000. Twelve-month data show a significant decrease in any (≥1) asthma ED visits (68.0%) and hospitalizations (84.8%), and any days of limitation of physical activity (42.6%), patient missed school (41.0%), and parent missed work (49.7%) (all P < .0001). Patients with greatest functional impairment from ED visits, limitation of activity, and missed school were more likely to have any nurse home visit and greater number of home visits. There was a significant reduction in hospital costs compared with the comparison community (P < .0001), and a return on investment of 1.46.

Conclusions: The program showed improved health outcomes and cost-effectiveness and generated information to guide advocacy efforts to finance comprehensive asthma care. Pediatrics 2012;129:465–472.
Developing and testing the effectiveness of new chronic care models is essential for cost savings under health care reform. Asthma is 1 of the most common chronic illnesses for children in the United States, and rates have reached historically high levels nationally with large racial/ethnic health disparities.\textsuperscript{1, 2} For children <18 years, asthma rates had increased to 9.6\% in 2009.\textsuperscript{3} At the time of planning for this project (2003–2005), the asthma prevalence rate was 9.5\% overall in Massachusetts, but the average prevalence reported in the urban Boston Public Schools was 16\% with 5 schools reporting rates >24\%. In addition, asthma was the leading cause of hospitalization at Children’s Hospital Boston (hereafter referred to as “Children’s”) with 70\% of children hospitalized with asthma from urban, low-income neighborhoods in Boston. There were substantial health disparities with rates of asthma-related hospitalizations 5 times higher for black (14.2 per 1000) and Latino (14.1 per 1000) compared with white children (2.9 per 1000).\textsuperscript{4} Care for children with poorly controlled asthma provides an important opportunity for the development of novel models of care and new payment systems under health care reform.

The National Asthma Education Prevention Program (NAEPP)\textsuperscript{5} provides guidelines for asthma management that have been effective in improving health outcomes including decreasing hospitalization and emergency department (ED) visits.\textsuperscript{5, 6} Previous studies, including several randomized clinical trials, have demonstrated that multifaceted community-based environmental interventions for children with asthma that follow the NAEPP guidelines are particularly successful.\textsuperscript{7–16} Effective interventions incorporating trained community health workers (CHWs) who provide asthma education and environmental materials (such as bedding encasements, cleaning materials, and HEPA vacuums) reduce household antigens, improve quality of life and symptom-free days, and decrease hospitalizations beyond office-based nurse case management.\textsuperscript{6–11}

This program was modeled after several community-based comprehensive programs that address health disparities. The “Yes We Can Urban Asthma Partnership” and other culturally sensitive community-based programs provide a road map for comprehensive approaches that improve asthma-symptom-free days and reduce ED visits.\textsuperscript{12–14} The Harlem Children’s Zone Asthma Initiative focused on a specific geographic community so that health outcomes could be tracked, and demonstrated reduced ED and urgent-care office visits through a combination of care coordination and CHW home visits.\textsuperscript{15, 16} The combination of CHW asthma education and office-based nurse case management have demonstrated cost-effectiveness\textsuperscript{17} and improved quality of life.\textsuperscript{18} However, none of these programs have incorporated nurse home visits to address medication issues and compliance as well as environmental support. In addition, limited cost analyses of comprehensive programs are available.\textsuperscript{19}

As we implemented the current program, we used the health outcomes presented by Lieu and colleagues, who demonstrated that asthma quality improvement (QI) indicators can be tracked including ED visits and hospitalizations.\textsuperscript{20} QI efforts to develop individualized care plans with an up-to-date Asthma Action Plan (AAP) have been shown to reduce acute care visits.\textsuperscript{21} The Community Asthma Initiative (CAI) was developed to address health disparities in the Boston neighborhoods most impacted by asthma by providing an enhanced model of care for children previously seen in the ED or hospitalized because of asthma. The objective of this article is to evaluate the CAI health and quality-of-life outcomes, to compare cost data with a similar community, and to calculate the return on investment (ROI) to society for this QI initiative.

**METHODS**

**Setting**

CAI was designed to reduce health disparities by addressing asthma issues at multiple levels of the socioecological model.\textsuperscript{22, 23} A community-based participatory approach involving active Community and Family Advisory Boards\textsuperscript{24} and evidence from previous programs were used in the design. The model was developed for children 2 to 18 years old living in 4 urban zip codes showing a high prevalence of asthma and encompassing diverse underserved communities neighboring a major pediatric urban hospital and the hospital’s community health center. The model includes (1) nurse case management and coordination of care with primary care and referral services, (2) nurse (bilingual) or nurse-supervised CHW (bilingual/bicultural in Spanish) home visits for asthma education, environmental assessment, and remediation materials (HEPA vacuum, bedding encasements, and Integrated Pest Management (IPM) materials tailored to the needs of the family), and connection to community resources; (3) referral to an IPM exterminator or Inspectional Services (http://www.cityofboston.gov/isd/housing/bmc/) when indicated.

**Population**

CAI services were offered to children from the 4 zip codes who had a recent ED visit or hospitalization. The nurse case manager (hereafter referred to as “nurse”) reviewed daily, weekly, and monthly admission and ED logs for patients with the diagnosis codes for asthma. Patients were prioritized at greatest need for services because of a hospitalization or multiple ED visits in...
the past year. Patients with intake from October 1, 2005 to June 30, 2008 had sufficient follow-up time to be included in this study. Services and follow-up care were provided for 1 year.

Patients were contacted by the nurse through face-to-face visits during hospitalizations or through telephone contact, and were offered case management services and home visits. Clinical releases were obtained to allow communication with providers and home visitors contracted through a community agency. Baseline, 6- and 12-month standardized interviews were completed as part of clinical care to assess asthma symptoms and control, number of ED visits and hospitalizations, days of limitation of physical activity, child missed school days, parent/guardian missed work days, insurance access, up-to-date AAP (updated within the past year), environmental issues, and medication adherence. Asthma severity scores were obtained from AAPs, modified through clinical assessment by the nurses and discussions with primary care providers, and categorized as intermittent, or mild, moderate, or severe persistent asthma according to the NAEPP guidelines.

For the cost analyses, CAI patients were compared with children from 4 similar zip code neighborhoods (not statistically different): similar diverse low-income communities (41.2% vs 59.2% black, 46.1% vs 34.6% Hispanic), male gender (53.9% vs 59.8%), mean age (7.9 ± 4.4 years vs 7.1 ± 5.4 years), and socioeconomic status (77.5% vs 73.3% Medicaid) with ED visits or hospitalization during the same study period. From hospital administrative data for the CAI and comparison community, the number of hospitalizations and ED visits, and costs were assessed the year before the baseline visit, and 1 and 2 years of follow-up. Children’s Internal Review Board waived the need for consent for the enhanced clinical care program, and approved access to case management data and hospital administrative databases for intervention and comparison groups with waiver of informed consent for the evaluation.

Statistical Analyses
Data were analyzed with the use of Stata version 10.1. Outcomes obtained by parental report included whether patients in 6-month time intervals had ED visits or hospitalizations (events), or limitation of physical activity, missed school or parent/guardian missed work (days) because of asthma, and if the patient had an up-to-date AAP. The events/days were analyzed both as dichotomous variables of the percentage of patients with ≥1 events/days versus none, and continuous variables of the number of events/days. Demographic characteristics such as age, gender, race/ethnicity (black/African American versus others, Hispanic versus others), insurance status (private versus public), household income (<$25 000 versus higher income), and asthma severity scores were collected. For the trichotomous variable for asthma severity (severe, moderate, others), indicator variables were developed for moderate versus others and severe versus others for the multivariate analyses. The number of home visits and any (≥1) nurse home visits were tracked. Analyses evaluated changes from baseline to 6 or 12 months, or the combined follow-up variable (with the use of the latest follow-up visit available).

For the intervention group, attrition analysis for demographic and asthma characteristics was performed with the use of $\chi^2$ tests for categorical variables and unpaired $t$ tests for continuous variables comparing baseline values for initial and follow-up time points. Paired analyses used the McNemar test to assess differences in dichotomous outcomes between the baseline and follow-up measurements. Paired $t$ tests were applied for comparisons of continuous variables at 2 time points. Dichotomous outcomes across 3 time points were compared by using unadjusted and adjusted repeated-measures random intercept logistic regression models (displayed with odds ratios with their 95% confidence interval [CI]). Generalized estimating equation (GEE) repeated measures random intercept Poisson regression analyses tested differences for the counts of number of events/days for outcome variables (displayed with the change in number of events/days and 95% CI). Because of a small increase in all outcomes at 12 months, a quadratic term was inserted in the equation for multivariate models to correct for seasonal variation.

Hospital administrative data were used to compare the admissions, ED visits, and hospital cost for the intervention and comparison populations for Fiscal Year (FY) 2006. Cost of the ED visits and hospitalizations for each patient was calculated with the baseline event included in the previous year and assessing events at 1 and 2 years of follow-up. A comparison group was identified for those with an ED visit or hospitalization from demographically similar neighborhoods; the first visit in the time period was used as the baseline visit. Hospital charges were adjusted with the appropriate Medicare modified rate (~0.42) to estimate hospital costs and brought to net present value (current dollar amounts). The ROI was calculated for the CAI patients, comparing the cost savings for society (due to the reduction in ED visits and hospitalizations) over the cost of the clinical program (ROI = difference in hospital costs of baseline from year 1 and year 2 for CAI patients divided by the cost of the program). The clinical cost of the program in FY2006 for 102 new families included 1.0 full-time equivalent (FTE) nurse, 1.0 FTE sub-contracted CHW, 0.25 FTE program
RESULTS

During the study period, 562 children were identified and 283 (50.4%) children’s families agreed to participate. The participating children were 55.1% male, 39.6% black, 52.3% Latino; 72.7% Medicaid; 70.8% household income <$25 000 (Table 1). One hundred twenty (42.9%) were scored as having moderate or severe persistent asthma; the remainder of the children had intermittent (24.3%) or mild persistent asthma (32.9%) with exacerbations resulting in ED visits or hospitalizations. One hundred fourteen (40.3%) were enrolled face-to-face by the nurse during the hospitalization and the rest by phone. A total of 203 (71.7%) families had a mean of 1.28 home visits (+1.27 SD), including 176 nurse visits (performed by nurse, or CHW and nurse) and 145 CHW visits, and 40 IPM extermination visits. The retention rate was 68% at 6 months and 60% at 1 year, and 78% of participants had follow-up at 1 or both time points (follow-up). Attrition analyses showed minimal differences for baseline values of variables for the population compared with those cared for at 6 or 12 months of follow-up, with the exception of fewer low-income patients at 6 months, and fewer Hispanic patients at 12 months. Demographic variables were controlled for in the final models.

There were highly significant (all $P < .0001$) reductions in any (≥1) ED visits (66.5% at 6 months, 68.0% at 12 months, and 56.0% with any follow-up), hospitalizations (79.7%, 84.8%, 82.6%), days of limitation of physical activity (50.4%, 42.6%, 38.7%), patient missed school days (44.9%, 41.0%, 42.3%), and parent missed work days (53.2%, 49.7%, 47.7%) (Fig 1). There was a large improvement in having an up-to-date AAP at follow-up (59.1%, 55.3%, 55.6%; $P < .0001$). Also, for the continuous variables, there were similarly highly significant reductions in the number of events/days at 6 and 12 months (all $P < .0001$) (Table 2).

Multivariate logistic regression models for dichotomous outcomes (controlling for demographic variables, asthma severity, number of home visits, any nurse home visits, and a quadratic term) showed that there were greatly reduced odds of having any ED visits, hospitalizations, days of limitation of activity, patient missed school days, parent/guardian missed work days, and increased odds of an up-to-date AAP at follow-up (Table 3). Patients with greatest functional impairment from ED visits and missed school were more likely to have any nurse home visits and greater number of home visits, respectively.

GEE for continuous variables, controlling for the same variables, showed significantly decreased number of ED visits ($−2.84$ events; 95% CI $−3.98$ to $−1.71$), hospitalizations ($−3.16; −5.06$ to $−1.26$), days of limitation of activity ($−2.11$ days; 95% CI $−2.68$ to $−1.53$), missed school days ($−0.75; −1.11$ to $−0.40$), and missed parent/guardian work days ($−1.31; −1.87$ to $−0.74$). Those with more home visits and any nurse visits were associated with more days of limitation of physical activity (0.06; 0.02–0.11) and (0.14; 0.01–0.27), and missed school (0.04; 0.00–0.07) or (0.23; 0.13–0.32), respectively.

The cost of ED visits and hospitalizations for FY2006 CAI patients and a comparison population 1 year back and 2 years forward by using hospital administrative data showed remarkable differences (Fig 2). CAI patients started out with higher average cost per patient in the 1 year before entering the program compared with the comparison community, had similar costs at 1 year (with a greater decline from baseline for CAI patients), and had further reduction in costs at 2 years (repeated-measures analysis comparing intervention and comparison groups was $P < .001$). Services were provided for 1 year with ~10% of patients needing care after the first year. The cost of the clinical program was $2529/child and the savings for the intervention group was $3827/child over 2 years of follow-up yielding a ROI of 1.46. In other words, for every dollar spent on the program, 1.46 dollars were saved to society because of reduced ED visits and hospitalizations.

**DISCUSSION**

CAI augmented traditional asthma care by providing nurse case management, nurse and/or CHW home visits, asthma

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**TABLE 1** Baseline Demographic Information and Asthma Characteristics for Community Asthma Initiative Participants

<table>
<thead>
<tr>
<th>Baseline</th>
<th>$N = 283$ n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, mean in years (SD) ($n = 263$)</td>
<td>7.9 (4.6)</td>
</tr>
<tr>
<td>Gender (male) ($n = 283$)</td>
<td>156 (55.1)</td>
</tr>
<tr>
<td>Insurance (private) ($n = 282$)</td>
<td>66 (23.4)</td>
</tr>
<tr>
<td>Household Income (&lt;$25 000) ($n = 257$)</td>
<td>82 (70.8)</td>
</tr>
<tr>
<td>Race/ethnicity ($n = 283$)</td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>148 (52.3)</td>
</tr>
<tr>
<td>Black/African American</td>
<td>112 (39.6)</td>
</tr>
<tr>
<td>Other</td>
<td>23 (8.1)</td>
</tr>
<tr>
<td>Asthma Severity Score ($n = 280$)</td>
<td></td>
</tr>
<tr>
<td>Intermittent</td>
<td>68 (24.3)</td>
</tr>
<tr>
<td>Mild persistent</td>
<td>92 (32.8)</td>
</tr>
<tr>
<td>Moderate persistent</td>
<td>99 (35.4)</td>
</tr>
<tr>
<td>Severe persistent</td>
<td>21 (7.5)</td>
</tr>
<tr>
<td>Enrollment ($n = 283$)</td>
<td>114 (40.3)</td>
</tr>
<tr>
<td>Face-to-face during hospitalization</td>
<td>114 (40.3)</td>
</tr>
<tr>
<td>Number of families receiving home visits</td>
<td>203 (71.7)</td>
</tr>
<tr>
<td>Mean number of home visits/family (SD)</td>
<td>1.28 (1.27)</td>
</tr>
<tr>
<td>Total number of nurse or CHW home visits</td>
<td>321</td>
</tr>
<tr>
<td>Number nurse or CHW and nurse visits (nurse visits)</td>
<td>176 (54.8)</td>
</tr>
<tr>
<td>Number of CHW-performed visits</td>
<td>145 (45.2)</td>
</tr>
<tr>
<td>Number of families receiving IPM extermination services</td>
<td>30 (14.7)</td>
</tr>
<tr>
<td>Number of IPM extermination service visits</td>
<td>40</td>
</tr>
</tbody>
</table>
education, and environmental assessment and remediation based on the evidence of previous national programs. The evaluation of this QI initiative has demonstrated a significant reduction in asthma ED visits, hospitalizations, missed school days, missed work days (parents/caregivers), limitation of physical activity, and AAP for 283 children (all \(P \leq .0001\)).

The improvements in hospital costs were particularly remarkable when compared with the demographically similar diverse, low-income neighborhoods that had not received services during the study period. The continued reduction in cost at 2 years may indicate the ongoing improvement due to reduction in allergens through IPM and continued use of controller medications. Home visits by CHWs and nurses allow the care system to reach families in their own homes to provide asthma education and can address the obstacles to good asthma control. The CAI patients identified from these low-income communities were primarily black and Hispanic, and the program was developed to reduce health disparities for these populations. A comprehensive treatment plan needs to address social determinants of health, such as exposure to high levels of asthma triggers in the form of pests, mold, and dust found in poor housing and deteriorating schools, and chronic stress due to community violence.

The home environmental issues that families face required more aggressive services to reduce common asthma triggers than we originally anticipated. CAI provided all patients with HEPA vacuums and bedding encasements, environmental materials tailored to their needs, and IPM extermination on a case-by-case basis. Culturally sensitive communication about asthma treatment and medications also helped to address the personal beliefs of patients and their families and to identify barriers to adherence. Not surprisingly, nurse home visits were provided to patients with more ED visits and addressed the medication issues in greater detail. Nurse home visits and CHW visits closely supervised by nurses have not been reported in previous published initiatives, and their added value should be investigated further.

The changes in the comparison community over time may have reflected some degree of “regression to the mean,” because some patients may not require subsequent ED visits or hospitalizations after 1 episode. Also, the comparison neighborhoods controlled for the impact of community-wide

TABLE 2 The Community Asthma Initiative Continuous Outcomes

<table>
<thead>
<tr>
<th>Continuous Outcomes (3 Time Points)</th>
<th>Baseline</th>
<th>6 mo</th>
<th>12 mo</th>
<th>(P) (Repeated Measures)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED visits</td>
<td>1.0</td>
<td>0.3</td>
<td>0.3</td>
<td>(&lt; .0001)</td>
</tr>
<tr>
<td>Hospitalizations</td>
<td>0.5</td>
<td>0.1</td>
<td>0.1</td>
<td>(&lt; .0001)</td>
</tr>
<tr>
<td>Days of limitation of physical activity</td>
<td>2.7</td>
<td>1.2</td>
<td>1.2</td>
<td>(&lt; .0001)</td>
</tr>
<tr>
<td>Missed school days</td>
<td>5.1</td>
<td>3.1</td>
<td>2.4</td>
<td>(&lt; .0001)</td>
</tr>
<tr>
<td>Missed work days</td>
<td>2.1</td>
<td>1.1</td>
<td>1.1</td>
<td>(&lt; .0001)</td>
</tr>
</tbody>
</table>

Number of events or days at baseline, 6 months, and 12 months using GEE (unadjusted) repeated-measures analyses for continuous outcomes, including number of ED visits, hospitalizations, days of limitation of physical activity, child missed school days and parental missed work days (\(N = 283\)).

FIGURE 1

Community Asthma Initiative dichotomous outcomes at baseline, 6 months, and 12 months. Percentage of patients who experienced any (≥1 versus none) ED visits, hospitalizations, missed school days, missed work days (parents/caregivers), limitation of physical activity, and AAP for 283 children (all \(P \leq .0001\)).
TABLE 3 Logistic Regression Models for Dichotomous Outcomes (≥1 Versus None) Adjusted for Quadratic Term, Age, Gender, Race/Ethnicity, Number of Home Visits, Any Nurse Visits, Income, Insurance, and Asthma Severity

<table>
<thead>
<tr>
<th>Days of Limitation of Physical Activity OR (CI)</th>
<th>ED Visits OR (CI)</th>
<th>Admissions OR (CI)</th>
<th>Missed School Days OR (CI)</th>
<th>Missed Work Days OR (CI)</th>
<th>Up-to-date AAP OR (CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \chi^2 ) for model</td>
<td>46.2*</td>
<td>117.3*</td>
<td>92.5*</td>
<td>87.0*</td>
<td>84.9*</td>
</tr>
<tr>
<td>( P ) value</td>
<td>&lt;.0001*</td>
<td>&lt;.0001*</td>
<td>&lt;.0001*</td>
<td>&lt;.0001*</td>
<td>&lt;.0001*</td>
</tr>
<tr>
<td>Follow-up</td>
<td>0.08 (0.02–2.40)*</td>
<td>0.01 (0.00–0.04)*</td>
<td>0.01 (0.00–0.08)*</td>
<td>0.00 (0.00–0.01)*</td>
<td>0.01 (0.00–0.03)*</td>
</tr>
<tr>
<td>Quadratic term</td>
<td>1.66 (1.16–2.39)*</td>
<td>2.68 (1.75–4.11)*</td>
<td>2.38 (1.34–4.21)*</td>
<td>3.72 (2.43–5.70)*</td>
<td>2.98 (1.98–4.49)*</td>
</tr>
<tr>
<td>Age</td>
<td>0.99 (0.94–1.03)</td>
<td>0.95 (0.91–0.99)*</td>
<td>0.96 (0.91–1.01)</td>
<td>0.96 (0.91–1.02)</td>
<td>0.88 (0.83–0.95)*</td>
</tr>
<tr>
<td>Male</td>
<td>0.88 (0.59–1.30)</td>
<td>0.82 (0.56–1.19)</td>
<td>1.06 (0.68–1.66)</td>
<td>0.61 (0.39–0.96)*</td>
<td>0.79 (0.46–1.34)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>1.48 (0.53–5.70)</td>
<td>1.45 (0.85–2.54)</td>
<td>2.87 (1.05–7.98)*</td>
<td>1.30 (0.51–3.28)</td>
<td>2.91 (0.96–8.29)</td>
</tr>
<tr>
<td>African American</td>
<td>2.09 (0.84–5.17)</td>
<td>1.06 (0.48–2.36)</td>
<td>3.4 (1.24–9.37)*</td>
<td>1.47 (0.58–3.68)</td>
<td>2.48 (0.86–7.16)</td>
</tr>
<tr>
<td>Number of home visits</td>
<td>1.07 (0.91–1.26)</td>
<td>1.00 (0.86–1.17)</td>
<td>1.06 (0.88–1.28)</td>
<td>1.36 (1.11–1.67)*</td>
<td>1.12 (0.88–1.46)</td>
</tr>
<tr>
<td>Any nurse visit</td>
<td>1.39 (0.93–2.10)</td>
<td>1.59 (1.07–2.35)*</td>
<td>1.28 (0.80–2.04)</td>
<td>1.48 (0.93–2.37)</td>
<td>1.30 (0.74–2.28)</td>
</tr>
<tr>
<td>Low income</td>
<td>1.00 (0.58–1.71)</td>
<td>1.10 (0.84–1.89)</td>
<td>0.70 (0.38–1.29)</td>
<td>0.74 (0.39–1.41)</td>
<td>0.81 (0.43–1.55)</td>
</tr>
<tr>
<td>Private insurance</td>
<td>0.87 (0.46–1.65)</td>
<td>1.19 (0.82–1.68)</td>
<td>1.41 (0.70–2.82)</td>
<td>0.85 (0.42–1.71)</td>
<td>1.44 (0.68–3.07)</td>
</tr>
<tr>
<td>Moderate persistent asthma(^a)</td>
<td>2.01 (1.32–3.07)*</td>
<td>1.17 (0.78–1.75)</td>
<td>0.74 (0.45–1.22)</td>
<td>1.19 (0.74–1.91)</td>
<td>1.00 (0.58–1.79)</td>
</tr>
<tr>
<td>Severe persistent asthma(^a)</td>
<td>3.71 (1.73–7.88)*</td>
<td>2.56 (1.24–5.28)*</td>
<td>2.16 (0.96–4.89)</td>
<td>2.17 (0.83–5.66)</td>
<td>2.59 (0.86–7.79)</td>
</tr>
</tbody>
</table>

\(^a\) Significant results.
\(^b\) Moderate persistent asthma = moderate persistent versus all others (indicator variable).
\(^c\) Severe persistent asthma = severe persistent versus all others (indicator variable).

Figure 2

Cost of ED visits and hospitalizations for Community Asthma Initiative patients (\(N = 102\)) and comparison population (Dorchester Comparison Group) (\(N = 559\)) 1 year back (−1 Yr) and 2 years forward (+1 Yr and +2 Yr) (FY2006) (repeated-measures analysis comparing intervention and comparison groups, \(P < .001\)).

Changes in asthma care, case management, and education. CAI patients were selected to be at greatest need of services by the nurse case manager and therefore showed higher initial cost, but ended up with costs similar to the comparison community at the end of the first year, and even lower costs at the end of the second year, which resulted in significant cost savings. Identification of an ideal comparison group is challenging, and our program was able to compare costs with demographically similar zip code neighborhoods. The use of the nonenrolled population in the same neighborhoods as a comparison group would reflect additional biases, because nonrespondents may have higher risks of poorer outcomes owing to the inability to be contacted and the refusal of enhanced care. Future matching strategies or risk adjustment for patients with initial hospitalizations might help correct the differential baseline cost of the 2 populations.

There were strengths and limitations to this study, because CAI was not a randomized clinical trial. The comparison data were drawn from hospital administrative data, but similar case management information was not available for the comparison group. The retention rate was lower than ideal, but reasonable for a voluntary QI study with no evidence of differential attrition. Additional initiatives may need to be developed to reach the “unreachable” populations not served by the program. The regression analyses indicated that patients with greater functional impairment had nurse visits and more home visits. However, the analyses could not separate out the impact of specific services. Because administrative data were used for the comparison population, there were no biases due to lack of follow-up for the cost analyses.

Hospital administrative data cannot identify care at other hospitals; however, parental reports contain information across institutions as well as quality-of-life information, but they may lack accuracy. Parent and hospital administrative data were remarkably similar in this study and complemented each other. The cost estimate is conservative, because some of the staff time included in the analyses was used for CHW training and supervision, community meetings and collaborations, program planning, and evaluation in
addition to patient care. The cost analysis did not include physician fees or financial estimates of impact on quality of life, and so the ROI underestimated the true cost savings. Future cost analyses should consider merging program information with insurance company data to include the costs of urgent care visits and medications that may increase when asthma is in better control and patients have more connection to their primary care providers. 

These remarkable results provide a model of effective care for high-risk asthma patients with substantial cost savings. The initial ROI calculation of 1.46 exceeds the break-even threshold of 1.0. Case management and home visits combined have helped patients who previously needed a higher level of care to have better control of their asthma. CAI incorporates a culturally sensitive, family-centered approach through home visits and care coordination, and is based in the community, as recommended by the Institute of Medicine's chronic care model. Cost-effectiveness calculations support the business case for payers to cover these chronic care services and materials that are not reimbursed in a fee-for-service system. The program has partnered with asthma policy organizations in Massachusetts to develop the “Investing in Best Practices for Asthma: A Business Case” that moved ahead policy changes for care of children with asthma.

CAI provides an effective enhanced-care model that could be included in a bundled or global payment system to reduce the cost of asthma care to society and improve the health and the quality of the life of children living with asthma. The CAI model can be used to respond to the health care reform call for “accountable care organizations” and expansion of care under the medical homes for patients with chronic illnesses. Accountable care organizations are responsible for the quality of care, as measured by standard outcome metrics and would receive bundled or global payments for care with potential shared savings for providers and payers. CAI has started working with Medicaid and other stakeholders to develop and implement a bundled payment pilot.

CONCLUSIONS

CAI was developed to address health disparities for urban low-income children, and the cost-effectiveness of the program has generated information to guide advocacy efforts to finance comprehensive asthma care for children.

ACKNOWLEDGMENTS

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(Continued from first page)
Community Asthma Initiative: Evaluation of a Quality Improvement Program for Comprehensive Asthma Care

Elizabeth R. Woods, Urmi Bhaumik, Susan J. Sommer, Sonja I. Ziniel, Alaina J. Kessler, Elaine Chan, Ronald B. Wilkinson, Maria N. Sesma, Amy B. Burack, Elizabeth M. Klements, Lisa M. Queenin, Deborah U. Dickerson and Shari Nethersole

Pediatrics; originally published online February 20, 2012;
DOI: 10.1542/peds.2010-3472

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## MY ASTHMA ACTION PLAN

### Please complete with your doctor.

**Name:** ____________________________  **Date of Birth:** ____________________________

**Doctor’s Name:** ____________________________  **Doctor’s Phone Number:** ____________________________

**Emergency Contact:** ____________________________  **Emergency Contact Phone:** ____________________________

**My triggers are:**
- Pollen
- Air pollution
- Mold
- Dust mites
- Smoke
- Strong smells
- Cockroaches
- Exercise
- Animals
- Colds
- Food
- Other ____________________________

**My asthma level is:**
- 1 Intermittent
- 2 Mild Persistent
- 3 Moderate Persistent
- 4 Severe Persistent

### I feel GOOD (Green Zone) 😊

- Breathing is good, and
- No cough, tight chest, or wheeze, and
- Can work and exercise easily

**Peak Flow Numbers:**

<table>
<thead>
<tr>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
</table>

**Take asthma long-term control medicine everyday.**

<table>
<thead>
<tr>
<th>Medicine</th>
<th>How taken</th>
<th>How much</th>
<th>When:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>times a day</td>
</tr>
</tbody>
</table>

15-20 minutes before exercise or sports, take ____ puffs of ____________________________ using a spacer.

### I DO NOT feel good (Yellow Zone) 😞

- Cough or wheeze, or
- Tight chest, or
- Hard to breathe, or
- Wake up at night, or
- Can’t do all activities, or (work & exercise)

**Peak Flow Numbers:**

<table>
<thead>
<tr>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
</table>

**TAKE ____ puffs of quick-relief medicine.** If not back in the Green Zone within 20 to 30 minutes, take ____ more puffs.

<table>
<thead>
<tr>
<th>Medicine</th>
<th>How taken</th>
<th>How much</th>
<th>When:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>every____ hours</td>
</tr>
</tbody>
</table>

**KEEP USING** long-term control medicine.

<table>
<thead>
<tr>
<th>Medicine</th>
<th>How taken</th>
<th>How much</th>
<th>When:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>times a day</td>
</tr>
</tbody>
</table>

Call your doctor if quick-relief medicine does not work OR if these symptoms happen more than twice a week.

### I feel AWFUL (Red Zone) 😞 😞

- Medicine does not help, or
- Breathing is hard or fast, or
- Can’t talk or walk well, or
- Chest pain, or
- Feel scared

**Peak Flow Numbers:**

<table>
<thead>
<tr>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
</table>

**Get help now!** Take these quick-relief medicines until you get emergency care:

<table>
<thead>
<tr>
<th>Medicine</th>
<th>How taken</th>
<th>How much</th>
<th>When:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>times a day</td>
</tr>
</tbody>
</table>

**Get emergency care/Call 911** if you can’t walk or talk because it is too hard to breathe OR if drowsy OR if lips or fingernails are gray or blue. **DO NOT WAIT!**

**Physician signature:** ____________________________  **Date:** ____________________________

---

**LA0722 03/14**
MI PLAN DE ACCIÓN
CONTRA EL ASMA

Firma del médico: ___________________________ Fecha: ________________

Nombre: ___________________________ Fecha de nacimiento: ________________

Nombre del médico: ___________________________ Número de teléfono del médico: ________________

Contacto para emergencias: ___________________________ Teléfono del contacto para emergencias: ________________

Mis desencadenantes son: □ Polen □ Contaminación atmosférica □ Moho □ Ácaros del polvo □ Humo □ Olores fuertes □ Cucarachas □ Ejercicio □ Animales □ Resfriados □ Alimentos □ Otro ________________

El nivel de mi asma es: □ 1 Intermitten □ 2 Persistente □ 3 Moderado Persistente □ 4 Severo Persistente

Me siento BIEN (zona verde)
• Mi respiración es buena, y
• No tengo tos, opresión en el pecho ni sibilancia, y
• Puedo trabajar y hacer ejercicio fácil

Valores del flujo máximo:
___________ a ___________

INHALE ___ dosis de medicamento de alivio rápido. Si no vuelve a la zona verde dentro de los 20 a 30 minutos siguientes, inhale ___ dosis más.

Medicamento: Cómo se toma: Cuánto: Cuándo:
_________________________ ___________________________ _____________ _____ veces por día
_________________________ ___________________________ _____________ _____ veces por día
_________________________ ___________________________ _____________ _____ veces por día

SIGA USANDO medicamentos de control a largo plazo.

Medicamento: Cómo se toma: Cuánto: Cuándo:
_________________________ ___________________________ _____________ _____ veces por día
_________________________ ___________________________ _____________ _____ veces por día
_________________________ ___________________________ _____________ _____ veces por día

Llame a su médico si el medicamento de alivio rápido no funciona O si estos síntomas se presentan más de dos veces por semana.

NO me siento bien (zona amarilla)
• Tos o sibilancia, o
• Opresión en el pecho, o
• Dificultad para respirar, o
• Me despierto por la noche, o
• No puedo hacer todas las actividades (trabajo y ejercicio)

Valores del flujo máximo:
___________ a ___________

Me siento MUY MAL (zona roja)
• El medicamento no me ayuda, o
• Mi respiración es dificultosa o acelerada, o
• No puedo hablar o caminar bien, o
• Dolor en el pecho, o
• Me asusto

Valores del flujo máximo:
Menos de ________________

¡Obtenga ayuda ahora! Tome estos medicamentos de alivio rápido hasta que reciba atención de emergencia:

Medicamento: Cómo se toma: Cuánto: Cuándo:
_________________________ ___________________________ _____________ _____ veces por día
_________________________ ___________________________ _____________ _____ veces por día
_________________________ ___________________________ _____________ _____ veces por día

Obtenga atención de emergencia/Llame al 911 si no puede caminar o hablar porque le cuesta demasiado respirar O se siente somnoliento O tiene los labios o las uñas de color gris o azul. ¡NO ESPERE!
MY CHILD’S ASTHMA ACTION PLAN

Please complete with your doctor.

Name: ___________________________________________________ Date of Birth: ___________________________________________

Doctor’s Name: ___________________________________________ Doctor’s Phone Number: _________________________________

Emergency Contact: ______________________________________ Emergency Contact Phone: ______________________________

My triggers are: ☐ Pollen ☐ Air pollution ☐ Mold ☐ Dust mites ☐ Smoke
☐ Strong smells ☐ Cockroaches ☐ Exercise ☐ Animals ☐ Colds
☐ Food _____________________________________________ ☐ Other __________________________________________________

My asthma level is: ☐ 1 Intermittent ☐ 2 Mild Persistent ☐ 3 Moderate Persistent ☐ 4 Severe Persistent

My child feels GOOD (Green Zone)

☐ Take asthma long-term control medicine everyday.
Medicine: ____________________________________________ How taken: ___________________ How much: _________ When: ________ times a day
__________________________________________ _____________ _____________ _____________
__________________________________________ _____________ _____________ _____________

15-20 minutes before exercise or sports, my child should take _____ puffs of ____________ using a spacer.

My child does NOT feel good (Yellow Zone)

Have your child TAKE _____ puffs of quick-relief medicine. If not back in the Green Zone within 20 to 30 minutes, take ______ more puffs.
Medicine: ____________________________________________ How taken: ___________________ How much: _________ When: ________ hours
__________________________________________ _____________ _____________ _____________
__________________________________________ _____________ _____________ _____________

KEEP USING long-term control medicine.
Medicine: ____________________________________________ How taken: ___________________ How much: _________ When: ________ times a day
__________________________________________ _____________ _____________ _____________
__________________________________________ _____________ _____________ _____________

Call your doctor if quick-relief medicine does not work OR if these symptoms happen more than twice a week.

My child feels AWFUL (Red Zone)

Get help now! Have your child take these quick-relief medicines until child gets emergency care:
Medicine: ____________________________________________ How taken: ___________________ How much: _________ When: ________ times a day
__________________________________________ _____________ _____________ _____________
__________________________________________ _____________ _____________ _____________
__________________________________________ _____________ _____________ _____________

Get emergency care/Call 911 if your child can’t walk or talk because it is too hard to breathe OR if drowsy OR if lips or fingernails are gray or blue. DO NOT WAIT!

Peak Flow Numbers: Under __________

*Send a copy of your child’s action plan to their teachers and the school nurse.

Physician signature: __________________________ Date: __________________________

Sign Here
EL PLAN DE ACCIÓN CONTRA EL ASMA DE MI HIJO

Nombre: __________________________________________ Fecha de nacimiento: ____________________

Nombre del médico: _____________________________ Número de teléfono del médico: ____________________

Contacto para emergencias: ______________________ Telefóno del contacto para emergencias: ______________

Los desencadenantes de mi hijo son:
□ Polen □ Contaminación atmosférica □ Moho □ Ácaros del polvo
□ Humo □ Olores fuertes □ Cucarachas □ Ejercicio □ Animales
□ Resfriados □ Alimentos □ Otro ________________

El nivel de mi asma es: □ 1 Intermitente □ 2 Persistente □ 3 Moderado Persistente □ 4 Severo Persistente

Mi hijo se siente BIEN (zona verde)
• Su respiración es buena, y
• No tiene tos, opresión en el pecho ni sibilancia, y
• Puede trabajar y hacer ejercicio fácil

Valores del flujo máximo: __________ a __________

Tome medicamentos de control del asma a largo plazo todos los días.
Medicamento: ____________________________ Cómo se toma: ____________________________ Cuánto: ________ veces por día
____________________________________________________________________________________________
____________________________________________________________________________________________

Entre 15 y 20 minutos antes de hacer ejercicio o practicar deportes, mi hijo debe inhale ___________ dosis de ___________ con un espaciador.

Mi hijo NO se siente bien (zona amarilla)
• T os o sibilancia, o
• Opresión en el pecho, o
• Dificultad para respirar, o
• Me despierto por la noche, o
• No puedo hacer todas las actividades (trabajo y ejercicio)

Valores del flujo máximo: __________ a __________

Haga que su hijo INHALE ____ dosis de medicamento de alivio rápido. Si no vuelve a la zona verde dentro de los 20 a 30 minutos siguientes, debe inhale ___ dosis más.
Medicamento: ____________________________ Cómo se toma: ____________________________ Cuánto: ________ veces por día
____________________________________________________________________________________________
____________________________________________________________________________________________

SIGA USANDO medicamentos de control a largo plazo.
Medicamento: ____________________________ Cómo se toma: ____________________________ Cuánto: ________ veces por día
____________________________________________________________________________________________
____________________________________________________________________________________________

Llame a su médico si el medicamento de alivio rápido no funciona O si estos síntomas se presentan más de dos veces por semana.

Me siento MUY MAL (zona roja)
• El medicamento no me ayuda, o
• Mi respiración es dificultosa o acelerada, o
• No puedo hablar o caminar bien, o
• Dolor en el pecho, o
• Se asusta

Valores del flujo máximo: Menos de __________

¡Obtenga ayuda ahora! Haga que su hijo tome estos medicamentos de alivio rápido hasta que reciba atención de emergencia:
Medicamento: ____________________________ Cómo se toma: ____________________________ Cuánto: ________ veces por día
____________________________________________________________________________________________
____________________________________________________________________________________________

Obtenga atención de emergencia/Llame al 911 si su hijo no puede caminar o hablar porque le cuesta demasiado respirar O se siente somnoliento O tiene los labios o las uñas de color gris o azul. ¡NO ESPERE!

*Envíe una copia del plan de acción de su hijo a sus maestros y a la enfermera de la escuela.

Firma del médico: ____________________________ Fecha: ____________________
Asthma Controllers

Steroidal
- AeroBid® flunisolide
- AeroBid-M® flunisolide
- Azmacort® triamcinolone acetonide
- QVAR® beclomethasone dipropionate HFA
- Beclovent® beclomethasone dipropionate, USP

Leukotriene Modifier
- Singulair® montelukast sodium

Long-Acting Beta2-Agonist
- Serevent Diskus® salmeterol xinafoate inhalation powder
- Foradil® Aerolizer™ formoterol fumarate inhalation powder

Non-Steroidal
- Intal® cromolyn sodium
- Cromoly® sodium inhalation solution, USP
- Tilade® nedocromil sodium

Dual Component Therapy
- Flovent® fluticasone propionate
- Flovent Rotadisc® fluticasone propionate inhalation powder
- Pulmicort Turbuhaler® budesonide inhalation powder
- Pulmicort Respules® budesonide Inhalation suspension
- Zyflo® Filmtab® zileuton
- Accolate® zafirlukast

Supported in part by a contract from NIH/NHLBI and a grant from The California Endowment

(9/03)

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Asthma Relievers

Short-Acting Beta₂-Agonist

- Alupent®
  - metaproterenol sulfate
- Proventil HFA®
  - albuterol
- Ventolin HFA®
  - albuterol sulfate HFA
- Zenith Goldline®
  - albuterol

Anticholinergic

- Atrovent®
  - ipratropium bromide
- Dey, L.P.®
  - albuterol sulfate inhalation solution
- Generic
  - albuterol
- Theo-Dur®
  - theophylline
- Xopenex™
  - levalbuterol HCl inhalation solution
- Combivent®
  - ipratropium bromide / albuterol sulfate

Methylxanthine

- Martec®
  - albuterol
- Ventolin HFA®
  - levalbuterol tartrate
- Pro Air® HFA
  - albuterol sulfate

Provided by the Central California Asthma Project (559) 446-2323 or (800) 586-4872 (rev. 5/07)
Home visits provide an opportunity to educate and equip asthma patients with the tools to effectively manage their disease in concert with a physician’s care. This checklist—designed for home care visitors—provides a list of questions and action steps to assist in the identification and mitigation of environmental asthma triggers commonly found in and around the home. The checklist is organized into three sections—building information, home interior and room interior. The room interior is further subdivided by categories (such as bedding and sleeping arrangements, flooring, window treatments, and moisture control). This will allow the home care visitor to focus on the specific activities or things in a room—in particular the asthma patient’s sleeping area—that might produce or harbor environmental triggers. The activities recommended in this checklist are generally simple and low cost. Information on outdoor air pollution follows the checklist. The last page includes information on U.S. Environmental Protection Agency (EPA) resources and an area for the home care visitor to record a home visit summary.

If the patient's sensitivities to allergens (such as dust mites, pests, warm-blooded pets and mold) and irritants (such as secondhand smoke and nitrogen dioxide) are known, the home care visitor should begin by focusing on relevant areas. This checklist covers the following allergens and irritants, which are commonly found in homes. Information is also provided on chemical irritants—found in some scented and unscented consumer products—which may worsen asthma symptoms.

### Dust Mites

**Triggers:** Body parts and droppings.

**Where Found:** Highest levels found in mattresses and bedding. Also found in carpeting, curtains and draperies, upholstered furniture, and stuffed toys. Dust mites are too small to be seen with the naked eye and are found in almost every home.

### Pests (such as cockroaches and rodents)

**Triggers:** Cockroaches – Body parts, secretions, and droppings. Rodents – Hair, skin flakes, urine, and saliva.

**Where Found:** Often found in areas with food and water such as kitchens, bathrooms, and basements.

### Warm-Blooded Pets (such as cats and dogs)

**Triggers:** Skin flakes, urine, and saliva.

**Where Found:** Throughout entire house, if allowed inside.

### Mold

**Triggers:** Mold and mold spores which may begin growing indoors when they land on damp or wet surfaces.

**Where Found:** Often found in areas with excess moisture such as kitchens, bathrooms, and basements. There are many types of mold and they can be found in any climate.

### Secondhand Smoke

**Trigger:** Secondhand smoke – Mixture of smoke from the burning end of a cigarette, pipe or cigar and the smoke exhaled by a smoker.

**Where Found:** Home or car where smoking is allowed.

### Nitrogen Dioxide (combustion by-product)

**Trigger:** Nitrogen dioxide – An odorless gas that can irritate your eyes, nose, and throat and may cause shortness of breath.

**Where Found:** Associated with gas cooking appliances, fireplaces, woodstoves, and unvented kerosene and gas space heaters.
## Building Information
(This information may be helpful to determine reasonable mitigations.)

<table>
<thead>
<tr>
<th>What type of building does the patient live in?</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ House</td>
</tr>
<tr>
<td>☐ Duplex</td>
</tr>
<tr>
<td>☐ Apartment</td>
</tr>
<tr>
<td>☐ Mobile home</td>
</tr>
<tr>
<td>☐ Other ___________________________</td>
</tr>
</tbody>
</table>

*Notes:*

<table>
<thead>
<tr>
<th>Does the patient own or rent?</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Own</td>
</tr>
<tr>
<td>☐ Rent</td>
</tr>
</tbody>
</table>

*Notes:*

### Home Interior

#### Secondhand Smoke

<table>
<thead>
<tr>
<th>Does anyone smoke in the home or car?</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Y</td>
</tr>
<tr>
<td>☐ N</td>
</tr>
</tbody>
</table>

- Keep the home and car smoke-free.
- Do not allow visitors to smoke in the home.
- Take the smoke-free home pledge and post a smoke-free home decal or magnet to show that the house is a “smoke-free” zone.

*Notes:*

### Warm-blooded Pets (such as cats and dogs)

<table>
<thead>
<tr>
<th>Is the patient’s asthma worse when around warm-blooded pets?</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Y</td>
</tr>
<tr>
<td>☐ N</td>
</tr>
</tbody>
</table>

- If possible, remove the pet from the home or keep the pet outside.
- If this is not possible, keep the pet out of the patient’s sleeping area and off of the furniture.

*Notes:*

### Consumer Products

<table>
<thead>
<tr>
<th>Is the patient’s asthma worse when around chemicals or products with strong odors (such as cleaners, paints, adhesives, pesticides, air fresheners, or cosmetics)?</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Y</td>
</tr>
<tr>
<td>☐ N</td>
</tr>
</tbody>
</table>

- Limit patient’s exposure as much as possible by minimizing product use, using products only when patient is not present, or trying alternative products.
- If products are used, carefully follow manufacturer’s instructions on the label and make sure the area is well ventilated.

*Notes:*

### Heating and Cooling Systems

<table>
<thead>
<tr>
<th>Does the heating and cooling system use filters?</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Y</td>
</tr>
<tr>
<td>☐ N</td>
</tr>
</tbody>
</table>

- If so, replace the filters quarterly.
- Use filters with higher efficiency than standard furnace filters, such as upgraded pleated filters, if heating or cooling system manufacturer’s specifications allow.

*Notes:*

2
### HOME INTERIOR (continued)

#### Questions

<table>
<thead>
<tr>
<th>Question</th>
<th>Answers</th>
<th>Action Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the heating system use a fuel-burning appliance (such as an oil or gas furnace)?</td>
<td>☐ Y ☐ N</td>
<td>▲ Have the heating system - including furnaces, flues and chimneys - professionally inspected annually. ▲ Promptly repair cracks or damaged parts.</td>
</tr>
</tbody>
</table>

**Notes:**

Are supplemental heating sources used? (Check all that apply)  ☐ Fireplace  ☐ Wood-burning stove  ☐ Unvented kerosene or gas space heater  ☐ Other_____________________

- Properly ventilate the room where a fuel-burning appliance is used. Consider using appliances that vent to the outside whenever possible.
- Never use a gas-cooking appliance as a heating source.
- If using a fireplace, make sure it is properly vented to help ensure smoke escapes through the chimney.
- If using a wood-burning stove, make sure that doors are tight-fitting. Use aged or cured wood only and follow the manufacturer's instructions for starting, stoking, and putting out the fire.
- If using an unvented kerosene or gas space heater, follow the manufacturer's instructions for proper fuel to use and keep the heater properly adjusted.

**Notes:**

Are there air conditioning window units?  ☐ Y ☐ N  ▲ Run window air conditioner with the vent control open to increase the outdoor ventilation rate during the cooling season.

**Notes:**

### ROOM INTERIOR

#### Bedding and Sleeping Arrangements

What does the patient sleep on? (Check all that apply)  ☐ Mattress with box springs  ☐ Sofa  ☐ Other_____________________

- Cover patient's mattress in a dust-proof (allergen impermeable) zippered cover. Clean cover according to manufacturer's instructions.
- If it is necessary for the patient to sleep on upholstered furniture such as a sofa, then cover furniture with washable slipcovers or sheets and vacuum furniture regularly (including removing cushions and vacuuming in cracks and crevices).

**Notes:**

What types of bedding does the patient use? (Check all that apply)  ☐ Bedspread (e.g., comforter, quilt)  ☐ Blankets  ☐ Pillows  ☐ Sheets  ☐ Other (e.g., sleeping bag)

- Choose washable bedding.
- Wash bedding regularly in hot water and dry completely.
- Cover patient's pillow in a dust-proof (allergen impermeable) zippered cover. Clean cover according to manufacturer's instructions.

**Notes:**
<table>
<thead>
<tr>
<th>Questions</th>
<th>Answers</th>
<th>Action Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Flooring</strong></td>
<td></td>
<td><em>MAY REQUIRE ADDITIONAL TIME AND/OR RESOURCES.</em></td>
</tr>
</tbody>
</table>
| What type of floor covering is present? (Check all that apply) | | - If carpeting is present, vacuum carpets, area rugs, and floors regularly.  
  - If possible, use a vacuum cleaner with a high efficiency filter.  
  - Mop hard surface floors regularly.  
  - Wash throw rugs regularly in hot water. Dry completely.  
  - Clean baseboards regularly using a damp cloth with warm, soapy water.  
  - Someone besides the patient should vacuum, sweep, empty the dust canister and change the vacuum bag.  
  - If possible, the patient should stay out of rooms when they are being vacuumed or swept.  
  - If the patient vacuums, sweeps, empties the dust canister, or changes the vacuum bag, he or she should wear a dust mask. |
| Flooring | Carpeting, Hardwood floor, tile, or vinyl flooring, Throw rugs, Other _____________________ | |
| Upholstered Furniture and Stuffed Toys | | |
| Is there upholstered furniture present? | Y, N | - Cover upholstered furniture with washable slipcovers or sheets.  
  - Vacuum upholstered furniture regularly, including removing cushions and vacuuming in cracks and crevices.  
  - If replacing furniture, consider purchasing a non-upholstered furniture - such as vinyl, wood, or leather - that can be easily wiped down. |
| Upholstered Furniture and Stuffed Toys | | |
| Are stuffed toys present? | Y, N | - Choose washable stuffed toys, and wash frequently in hot water. Dry completely.  
  - Limit the number of stuffed toys in patient's bed and sleeping area. |
| Window Treatments | | |
| What window coverings are present? (Check all that apply) | Curtains or drapes, Blinds, Shades, Other _____________________ | - Vacuum drapes regularly.  
  - Wash and dry curtains regularly.  
  - Dust window sills, blinds, and shades regularly using a damp cloth with warm, soapy water. Dry completely.  
  - If possible, replace curtains or drapes with plastic, vinyl, wood, or aluminum blinds. |
| Window Treatments | | |
| Cooking Appliances | | |
| Are gas cooking appliances used? | Y, N | - When cooking with a gas appliance, turn on an exhaust fan or open a window.  
  - Avoid misuse of the appliance by following the manufacturer's instructions for operation. |
| Notes: | | |
| Notes: | | |
| Notes: | | |
| Notes: | | |
| Notes: | | |
| Notes: | | |
## Moisture Control

<table>
<thead>
<tr>
<th>Questions</th>
<th>Answers</th>
<th>Action Steps</th>
</tr>
</thead>
</table>
| Is there evidence of water damage, moisture, or leaks (such as damp carpet or leaky plumbing)? | □ Y □ N | ▪ Dry damp or wet items within 24-48 hours to avoid mold growth.  
▪ Fix water leaks (such as leaky plumbing) as soon as possible.  
▪ Replace absorbent materials, such as ceiling tiles and carpet, if mold is present.  
▪ Use air conditioner or dehumidifier to maintain low indoor humidity. If possible, keep indoor humidity below 60% (ideally between 30-50%) relative humidity. |

### Notes:

- Open a window or turn on an exhaust fan when there is excessive moisture in the room, such as when showering or cooking.  
- Scrub mold off hard surfaces with detergent and water. Dry completely.  
- Clean up mold and dry surfaces completely before painting or caulking.  
- Replace absorbent materials, such as ceiling tiles and carpet, if mold is present.

<table>
<thead>
<tr>
<th>Questions</th>
<th>Answers</th>
<th>Action Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you see or smell mold or mildew (such as in the bathroom on tub, shower, walls, or windows)?</td>
<td>□ Y □ N</td>
<td></td>
</tr>
</tbody>
</table>

### Notes:

- Use humidifier only when conditions require it, use the correct setting to maintain indoor relative humidity between 30-50 percent, and clean humidifier reservoirs regularly.  
- Use low mineral content water to prevent the build-up of scale and dispersal of minerals into the air.  
- Follow manufacturer’s instructions for use, maintenance, and replacement of any materials supplied with the humidifier.

<table>
<thead>
<tr>
<th>Questions</th>
<th>Answers</th>
<th>Action Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are humidifiers used in the patient’s house?</td>
<td>□ Y □ N</td>
<td></td>
</tr>
</tbody>
</table>

### Notes:

- Increase ventilation or air movement by opening doors and/or windows when practical. Use fans as needed.  
- Run the bathroom exhaust fan or open the window when showering.  
- Use exhaust fans or open windows whenever cooking or washing dishes.  
- Vent appliances properly according to manufacturer’s specifications.

<table>
<thead>
<tr>
<th>Questions</th>
<th>Answers</th>
<th>Action Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are rooms and moisture-producing appliances—such as stoves, clothes dryers, or dishwashers—properly vented (including venting to the outside if specified by the manufacturer)?</td>
<td>□ Y □ N</td>
<td></td>
</tr>
</tbody>
</table>

### Notes:
### Pest Control

<table>
<thead>
<tr>
<th>Questions</th>
<th>Answers</th>
<th>Action Steps</th>
</tr>
</thead>
</table>
| Is there evidence of cockroaches and/or rodents (such as droppings or dead specimens in traps)? | □ Y □ N | - Clean all surfaces where you have seen pests.  
- Use poison baits, boric acid, or traps to kill pests.  
- Minimize use of sprays. If sprays are used: limit the spray to the infested area, carefully follow the instructions on the label, make sure there is plenty of fresh air where the spray is being used and, if possible, keep patient out of the room. |

### Notes:

<table>
<thead>
<tr>
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<th>Answers</th>
<th>Action Steps</th>
</tr>
</thead>
</table>
| Are there food crumbs or open or unsealed food? | □ Y □ N | - Clean all food crumbs or spilled liquids right away.  
- Store food in sealed containers.  
- Remove food, bags, newspapers, and empty boxes, cans, and bottles from the sleeping area.  
- Put all garbage in plastic trash bags. Seal trash bags and put them into garbage cans with fitted lids every day. |

### Notes:

<table>
<thead>
<tr>
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<th>Answers</th>
<th>Action Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are there holes or gaps between construction materials and pipes that could allow pests to enter the house?</td>
<td>□ Y □ N</td>
<td>- Seal holes or gaps between construction materials and pipes, or ask the owner to do so.</td>
</tr>
</tbody>
</table>

### Notes:

<table>
<thead>
<tr>
<th>Questions</th>
<th>Answers</th>
<th>Action Steps</th>
</tr>
</thead>
</table>
| Is there evidence of standing water or leaks? | □ Y □ N | - Dry damp or wet items within 24-48 hours to avoid mold growth.  
- Avoid standing water in house plant containers and drip pans.  
- Fix water leaks (such as leaky plumbing) as soon as possible. |

### Outdoor Air Pollution

Exposure to air pollution (mainly ozone and particle pollution) can trigger asthma attacks. The Air Quality Index (AQI) is a tool to provide the public with clear and timely information on local air quality and whether air pollution levels pose a possible health concern. The AQI is reported and forecasted every day in many areas throughout the U.S. on local weather reports and through national media. Asthma attacks are most likely to occur the day after outdoor pollution levels are high.

People can take simple steps to reduce their exposure to outdoor air pollution. When the AQI reports unhealthy levels:

- Limit physical exertion outdoors.
- Consider changing the time of day of strenuous outdoor activity to avoid the period when air pollution levels are high or consider postponing sports activities to another time.
- Reduce the intensity of the activity, or spend less time engaged in strenuous activities. For example, coaches can rotate players more frequently in strenuous sports, like soccer. Resting players reduces their exposure to air pollution.

To learn more about and access the AQI, visit www.epa.gov/airnow.
Educational Resources:
To learn more about EPA’s programs on:

- Asthma and steps you can take to remove environmental triggers from the home, visit [www.epa.gov/asthma](http://www.epa.gov/asthma).
- Secondhand smoke and how to make your home and car smoke-free, visit [www.epa.gov/smokefree](http://www.epa.gov/smokefree) or call the smoke-free home pledge number at 1-866-SMOKE-FREE (1-866-766-5337).
- Household pest management and how to apply integrated pest management at home, visit [www.epa.gov/pesticides/controlling/home.htm](http://www.epa.gov/pesticides/controlling/home.htm).

To order materials at no cost on:

- Asthma and secondhand smoke, call EPA’s Indoor Air Quality Information Line at 1-800-438-4318.
- Household pest management, call EPA’s National Center for Environmental Publications at 1-800-490-9198.

**SUMMARY**

Use this space to record triggers identified and mitigations recommended. You are encouraged to provide this information to the patient’s health care provider.
August 18, 2014

Dr. Name:

L.A. Care Health Plan’s asthma disease management program, L.A. Cares About Asthma®, has identified the member below as having persistent asthma. Our database has identified you as the member’s physician. We are asking your assistance in appropriately classifying the member’s asthma severity. Attached for your reference is a table listing the classification criteria for asthma, based on the 2007 NHLBI Asthma Guidelines. The Guidelines also emphasize the importance of patients having a written Asthma Action Plan from their physician; please check whether this patient has an up-to-date, written Asthma Action Plan completed.

Please complete the form below and return it to us 5 business days via fax at 213-438-4860 or email at asthmadm@lacare.org. If you have any questions, please contact one of nurses at 213-694-1250 x 5426.

<table>
<thead>
<tr>
<th>PATIENT NAME: Name</th>
<th>PATIENT DOB: DOB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of Most Recent Visit</td>
<td>Asthma Classification</td>
</tr>
<tr>
<td>No Asthma</td>
<td>Intermittent</td>
</tr>
<tr>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>

About the Program
L.A. Care Health Plan offers a no-cost asthma disease management program called L.A. Cares About Asthma® to our Healthy Kids, Medicare Advantage (HMO SNP), In-Home Supportive Services, and Medi-Cal members directly enrolled with L.A. Care. Eligible members who are identified with asthma according to our data are automatically enrolled into the program and receive regular health education and/or telephonic coaching.

Providers are an important part of L.A. Cares About Asthma®. You can help facilitate coordination of care for our members by classifying your patients’ asthma severity, completing an Asthma Action Plan with your patients, and reviewing clinical practice guidelines to improve assessment and treatment of asthma. To refer an L.A. Care patient to the program, call 213-694-1250 x5426 or email asthmadm@lacare.org. For more information or to order free patient educational material, schedule a free group educational class at your office, download or order a free provider toolkit, or take a free 90-minute CME course on asthma ($100 stipend award), visit www.lacare.org/providers.
### Components of Severity

<table>
<thead>
<tr>
<th>Impairment</th>
<th>Classification of Severity (Youths ≥ 12 years and adults)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intermittent</td>
</tr>
<tr>
<td><strong>Impairment</strong></td>
<td></td>
</tr>
<tr>
<td>Normal FEV/FVC</td>
<td></td>
</tr>
<tr>
<td>8-19 yr 85%</td>
<td></td>
</tr>
<tr>
<td>20-39 yr 80%</td>
<td></td>
</tr>
<tr>
<td>40 –59 yr 75%</td>
<td></td>
</tr>
<tr>
<td>60 –80 yr 70%</td>
<td></td>
</tr>
<tr>
<td>Symptoms</td>
<td>≤ 2 days/week</td>
</tr>
<tr>
<td>Nighttime awakenings</td>
<td>≤ 2x/month</td>
</tr>
<tr>
<td>Short acting beta2-agonist use for symptom control (not prevention of EIB)</td>
<td>≤ 2 days/week</td>
</tr>
<tr>
<td>Interference with normal activity</td>
<td>None</td>
</tr>
<tr>
<td>Lung function</td>
<td>*Normal FEV1 between exacerbations; *FEV1 &gt; 80% predicted; *FEV1/FVC normal</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk</td>
<td></td>
</tr>
<tr>
<td>Exacerbations requiring oral systemic corticosteroids</td>
<td>0–1/year (see note)</td>
</tr>
</tbody>
</table>

### Components of Severity

<table>
<thead>
<tr>
<th>Impairment</th>
<th>Classification of Severity in Children 5-11 years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intermittent</td>
</tr>
<tr>
<td><strong>Impairment</strong></td>
<td></td>
</tr>
<tr>
<td>Normal FEV/FVC</td>
<td></td>
</tr>
<tr>
<td>8-19 yr 85%</td>
<td></td>
</tr>
<tr>
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<td></td>
</tr>
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<td>≤2 days/week</td>
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<tr>
<td>Short -acting beta2-agonist use for symptom control (not prevention of EIB)</td>
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<tr>
<td>Interference with normal activity</td>
<td>None</td>
</tr>
<tr>
<td>Lung function</td>
<td>*Normal FEV1 between exacerbations; *FEV1 &gt; 80% predicted; *FEV1/FVC normal</td>
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<tr>
<td>Risk</td>
<td></td>
</tr>
<tr>
<td>Exacerbations requiring oral systemic corticosteroids</td>
<td>0–1/year (see note)</td>
</tr>
</tbody>
</table>

Relative annual risk of exacerbations may be related to FEV.
5 Step Provider Education Plan for Asthma Patients

Step # 1: Develop comprehensive asthma management plan; revise as necessary

Step # 2: Fill out a written “Asthma Action Plan”; revise as necessary

Step # 3: Teach (using as much printed images/graphics as possible and audiovisuals):
- What is asthma, including: definition, simple anatomy, how an asthma exacerbation (flare-up) starts; what happens in the airways and lungs during an asthma exacerbation; what to do when an exacerbation starts; asthma warning signs/symptoms; how to prevent exacerbations; asthma triggers/starters; environmental control;
- Use of medications and how they work: the difference between “quick relief” and “prevention/controller” medicines
- Use and care of devices
- Running, playing and sports
- School and daycare

Step # 4: Assess patient’s understanding of all of the above and ability to demonstrate this understanding and demonstrate correct use of Asthma Action Plan, medications and devices.

Step # 5: Schedule “Asthma Supervision Visits” and “Follow-up Visits”

If controlled:
- Visit = 10 – 15 minutes
- If patient demonstrates understanding and correct use of Asthma Action Plan, medications and devices, then schedule “asthma supervision” visit in 7-10 weeks (Asthma control significantly worsens if interval between supervision visits is more than 10 weeks...even for intermittent and well-controlled asthma. “Visits” can be in-person and (if indicated) sometimes by phone.
- Follow-up reminder phone call by same person who presented information

If not well controlled:
- Follow-up phone call in 3-5 days by same person who presented information – adjust “follow-up” and “asthma supervision” appointments as necessary

If very poorly controlled:
- A more thorough assessment required – with modified management plan and follow-up visit – discharge with “follow-up” visit in 7-10 days
- Follow-up reminder phone call in 3-5 days by same person who presented information

Developed by Craig A. Jones, MD, L.A. Care Health Plan and QueensCare Family Clinics.
# Asthma Resources for Healthcare Providers

## National and California

<table>
<thead>
<tr>
<th>Organization</th>
<th>Description</th>
<th>Contact Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Allergy and Asthma Network-Mother’s of Asthmatics, Inc.</strong></td>
<td>• Patient education, support for parents with asthma, information available in Spanish.</td>
<td>1-800-878-4403 <a href="http://www.aanma.org">http://www.aanma.org</a></td>
</tr>
<tr>
<td><strong>American Academy of Allergy, Asthma and Immunology</strong></td>
<td>• Diagnosis, treatment, support organizations, resources, asthma in the news, section for kids.</td>
<td>1-800-822-2762 <a href="http://www.aaaai.org">http://www.aaaai.org</a> (Select Patient/Public Resource Center)</td>
</tr>
<tr>
<td><strong>American Academy of Family Physicians</strong></td>
<td>• Links to asthma resources and publications.</td>
<td><a href="http://www.aafp.org">http://www.aafp.org</a></td>
</tr>
<tr>
<td></td>
<td>• Link to article: “Developing and Communicating a Long-Term Treatment Plan for Asthma” by Mellins et al.</td>
<td><a href="http://www.aafp.org/afp/20000415/2419.html">http://www.aafp.org/afp/20000415/2419.html</a></td>
</tr>
<tr>
<td><strong>American College of Allergy, Asthma, and Immunology</strong></td>
<td>• Asthma education and resources for patients and providers.</td>
<td>1-800-842-7777 <a href="http://www.acaai.org">http://www.acaai.org</a> <a href="http://www.acaai.org/Member/Practice_Resources/manual.htm">http://www.acaai.org/Member/Practice_Resources/manual.htm</a></td>
</tr>
<tr>
<td><strong>American Lung Association</strong></td>
<td>• Fact sheets, publications, and asthma summer camp information.</td>
<td>1-800-586-4872 <a href="http://www.lungusa.org">http://www.lungusa.org</a></td>
</tr>
<tr>
<td><strong>American Lung Association of California</strong></td>
<td>• Asthma information for health professionals and the community.</td>
<td><a href="http://www.californialung.org">http://www.californialung.org</a></td>
</tr>
<tr>
<td><strong>American Medical Association</strong></td>
<td>• Patient education, publications, and resources.</td>
<td><a href="http://www.ama-assn.org">http://www.ama-assn.org</a></td>
</tr>
<tr>
<td><strong>Asthma Coalition of Los Angeles</strong></td>
<td>• Brings together prevention and clinical care stakeholders to address policy and systems change.</td>
<td><a href="http://www.asthamacoalitionla.org">http://www.asthamacoalitionla.org</a></td>
</tr>
<tr>
<td></td>
<td>• Link to Coalition’s policy paper: “Controlling Asthma in Los Angeles County: A Call to Action.”</td>
<td></td>
</tr>
</tbody>
</table>
| **Asthma and Allergy Foundation of America** | Online catalog of asthma and allergy resources.  
  Links to patient education programs.  
  Toll free help-line to request literature & physician referrals. | 1-800-7-ASTHMA  
 [http://www.aaafa.org](http://www.aaafa.org) |
| **Asthma and Allergy Foundation of America – Southern California Chapter – Local Resource** | Community and professional education programs for all ages, quarterly newsletters and certified pollen count information.  
 Sponsors Breathmobiles, Senior programs, and Asthma camp. | 5900 Wilshire Blvd., Suite 2330. Los Angeles, CA 90036  
 Tel. (800) 624-0044  
 Fax. (323) 937-7815  
 [http://aafacal.org](http://aafacal.org) |
| **Asthma and Schools** | Asthma-related resources for school personnel working with grades K-12.  
 Simple, searchable database links to educational materials, medical information, websites, and other resources. | [http://www.asthmaandschools.org](http://www.asthmaandschools.org) |
| **Asthma Clinical Research Network (ACRN)** | Clinical trials for evaluation of new and existing therapeutic approaches. | [http://www.acrn.org](http://www.acrn.org) |
| **Asthma Community Network** | An online network for community-based asthma programs and organizations that sponsor them. | [http://www.asthmacommunitynetwork.org](http://www.asthmacommunitynetwork.org) |
| **BREATHE California of LA County – Local Resource** | School enrichment programs in Long Beach, Wilmington and Carson – available for implementation in schools or youth-program setting for all ages.  
 Worksite smoking cessation program.  
 Advocacy – Children’s Breathing Rights Act.  
 Youth volunteers – peer advocacy training. | 5858 Wilshire Blvd., Suite #300  
 Los Angeles, CA 90036  
 Tel. (323) 935-8050  
 Fax. (323) 935-1873  
| **California Department of Health Services** | Information on statewide asthma efforts, materials and resources.  
 Links to all asthma programs within CDHS  
 Strategic Plan for Asthma in California  
 Environmental Health Investigations Branch | [http://www.dhs.ca.gov/ps/deodc/ehib/asthma/](http://www.dhs.ca.gov/ps/deodc/ehib/asthma/)  
| Asthma Resources for Healthcare Providers  
National and California |
|--------------------------|
| **California Smokers’ Helpline** | Tobacco cessation helpline | English: 1-800-NO-BUTTS  
Spanish: 1-800-456-6386  
Cantonese: 1-800-838-8917  
Korean: 1-800-556-5564  
Mandarin: 1-800-838-8917  
Vietnamese: 1-800-778-8440  
http://www.californiasmokershelpline.org |
| **Center for Disease Control and Prevention** | Links to asthma resources and publications | http://www.cdc.gov/search.do?action=search&queryText=Asthma |
| **Center for Health Care Strategies, Inc.** | Asthma education and resources.  
Achieving better Care for Asthma Toolkit. | http://www.chcs.org/  
http://www.chcs.org/publications3960/publications_show.htm?doc_id=208926 |
| **Community Action to Fight Asthma** | Asthma resources and publications | http://cchealth.org/topics/asthma/cafa_dec_2003.php |
| **Community Clinic Association of Los Angeles County (CCALAC) – Local Resource** | Pediatric asthma work group for clinicians from community clinics. | 1055 Wilshire Blvd. Suite 1400  
Los Angeles, CA 90017  
(213) 201-6510 Work  
(213) 201-6519 Fax  
http://www.ccalac.org |
| **Global Initiative for Asthma** | Asthma education and resources for patients and providers. | http://www.ginasthma.com/ |
| **L.A. Care Health Plan** | Asthma-related health education materials and resources. | Health Promotion Services Department  
1055 W. 7th Street, 10th Floor  
Los Angeles, CA 90017  
Tel: (213) 694-1250  
Fax: (213) 623-8987  
www.lacare.org |
| **Long Beach Alliance for Children with Asthma (LBACA) – Local Resource** | Community health workers provide in-home visits, education, and environmental home assessments to identify and reduce triggers for patients in Long Beach, Wilmington, San Pedro & Carson.  
Free community asthma classes  
Physician Asthma Care Education to improve asthma management skills of physicians and their staff.  
Patient education materials. | 2651 Elm Avenue, Suite 100  
Long Beach, CA 90806  
Tel: (562) 427-4849  
Fax: (562) 427-8438  
www.lbaca.org |
| **Los Angeles County Department of Public Health** | Asthma resources, publications, and asthma coalition activities. | http://publichealth.lacounty.gov/mch/AsthmaCoalition/healthcarepro |
Asthma Resources for Healthcare Providers  
National and California

<table>
<thead>
<tr>
<th>Resource</th>
<th>Information</th>
<th>Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>Los Angeles Unified School District (LAUSD) Asthma Project – Local Resource</td>
<td>● Information on asthma activities in LAUSD.</td>
<td><a href="http://www.asthmala.com/">http://www.asthmala.com/</a></td>
</tr>
</tbody>
</table>
| The National Asthma Education and Prevention Program (NAEPP) of the National Heart, Lung, and Blood Institute (NHLBI) National Institute of Health (NIH) | ● Links for research (scientific database), education (patient and medical) and communication (chat rooms, on-line forums).  
● Link to The NHLBI Healthy People 2010 Gateway with Asthma information.  
http://emall.nhlbihin.net  
http://hp2010.nhlbihin.net/asthma.html |
| The National Center for Education in Maternal and Child Health           | ● Maternal and child health information on asthma.                                                                        | http://www.mchlibrary.info/documents/asthma.html                     |
| National Jewish Medical and Research Center (Lung Line)                  | ● Asthma patient education materials available.  
● Personal interactive diary to help track symptoms, medicines and quality of life; graphs show progress and relationship of symptoms, medicines and quality of life. | 1-800-222-LUNG  
http://www.njc.org                                                        |
| Regional Asthma Management & Prevention (RAMP)                           | ● Resources, asthma action plans and asthma policy updates.                                                              | 180 Grand Ave. Suite 750  
Oakland, CA 94612  
Phone: (510) 302-3365  
Fax: (510) 451-8606  
http://www.rampasthma.org/                                               |
| U.S. Environmental Protection Agency                                     | ● Provides asthma resources and publications for schools and the environment.                                            | http://www.epa.gov/asthma/                                            |
**Asthma Resources for Healthcare Providers**  
**National and California**

| Community on World Asthma Day and Awareness Month.  
| Links to Asthma-related publications and resources. | [http://www.epa.gov/asthma/publications.html](http://www.epa.gov/asthma/publications.html)  
| California:  
| U.S. EPA, Region 9  
| Mail Code (Air-6)  
| 75 Hawthorne Street  
| San Francisco, CA 94105  
| (415) 947-4192 |
What is asthma?

- Asthma is a disease that affects the lungs and makes it hard to breathe.
- Asthma runs in families and is not contagious (you can’t catch it from someone else).
- Asthma is a lifetime condition that can’t be cured, but it can be controlled!

Triggers

Triggers are things that bother the airways and can cause your asthma to flare up. When asthma is triggered, and you don’t act right away, you could have an asthma attack. Talk to your doctor to learn how to stay away from triggers whenever you can.

Here are some common triggers:
- Pets
- Mold
- Dust, dust mites
- Pollen—grass, trees, plants and weeds
- Pests—cockroaches, bed bugs, and mice
- Certain foods
- Changes in weather
- Colds and the flu
- Exercise
- Smoke
- Strong emotions
- Strong smells
- Pollution

Asthma warning signs

Here are some common signs that your asthma is getting worse:
- Trouble breathing
- Coughing (during the day, night, or with exercise)
- Wheezing (a whistling noise when you breathe)
- Tightness in your chest
- Trouble sleeping at night (coughing, short of breath, chest tightness or pain)
- A drop in your peak flow reading (if you don’t have a peak flow meter, ask your doctor to prescribe you one)

See your doctor often, even when you are feeling well!

SIGNS OF AN ASTHMA EMERGENCY

- Having lots of trouble breathing, walking or talking because you are short of breath
- Asthma warning signs aren’t getting better
- Lips and/or nails are turning blue
What to do in an asthma emergency

- Take quick-relief medicine (use a “rescue inhaler”) right away and follow your Asthma Action Plan.
- Get help if you can’t breathe!
- **Call 911** or go to the nearest emergency room or urgent care center if asthma signs do not improve right away after taking your quick-relief medicine.

Asthma medicines and what they do

1. Quick-relief medicine *(rescue inhaler)*
   - Opens the airways fast to stop an asthma attack once there are asthma warning signs.
   - Sometimes your doctor will have you take it before exercise or if you know you will be around one of your asthma triggers.
   - If you need to use your quick-relief medicine more than 2 times a week, let your doctor or nurse know.

2. Controller medicine *(controller inhaler)*
   - Helps cut down swelling, tightening, and mucus
   - Must be taken every day, even when you feel good and have no asthma signs!
   - Don’t give up! The medicine may take up to 2 weeks to start working.

How to control your asthma

- See your doctor often, even if you are feeling well!
- Talk to your doctor about your asthma triggers and medicines.
- Ask your doctor to make an Asthma Action Plan with you so you know what to do when you have asthma warning signs.
- Take your medications exactly as your doctor tells you.
- Use a peak flow meter to see how your asthma is doing each day. If you need a peak flow meter, ask your doctor to prescribe you one.

What happens when asthma is controlled

- You can do your normal activities (including exercise) without trouble breathing.
- You have few or no asthma symptoms.
- You can breathe!

We Can Control Asthma Now! L.A. Cares About Asthma® is here to help!

If you have any questions or would like to speak with a nurse about your asthma, call L.A. Cares About Asthma® at **1-888-200-3094** (TTY 1-888-448-6894)
Monday - Friday, 8am - 4pm, or email us at asthmadm@lacare.org.

L.A. Care Health Plan is a Coordinated Care Plan with a Medicare contract and a contract with the California Medicaid program. Enrollment in L.A. Care Health Plan depends on contract renewal.
Todo sobre el asma
¡Ahora podemos controlar el asma!

¿Qué es el asma?
• El asma es una enfermedad que afecta los pulmones y dificulta la respiración.
• El asma suele heredarse y no es contagiosa (usted no se puede contagiar el asma de otra persona).
• El asma dura toda la vida y no puede curarse, pero puede controlarse!

Desencadenantes
Los desencadenantes son cosas que irritan las vías respiratorias y pueden hacer que el asma empeore. Cuando se desencadena el asma y usted no actúa de inmediato, puede tener un ataque de asma. Hable con su médico para aprender cómo mantenerse alejado de los desencadenantes siempre que sea posible.

Estos son algunos desencadenantes comunes:
• Mascotas
• Moho
• Polvo, ácaros del polvo
• Polen-césped, árboles, plantas y mala hierba
• Insectos o animales dañinos-cucarachas, chinches y ratones
• Ciertos alimentos
• Resfrios y gripe
• Ejercicio
• Humo
• Emociones fuertes
• Olores fuertes
• Contaminación
• Cambios climáticos

Señales de advertencia del asma
Estas son algunas señales comunes de que su asma está empeorando:
• Dificultad para respirar
• Tos (durante el día, la noche, o al hacer ejercicio)
• Sibilancia (un sonido de silbido cuando respira)
• Opresión en el pecho
• Dificultad para dormir por la noche (tos, falta de aliento, opresión o dolor en el pecho)
• Un descenso en la lectura de su flujo espiratorio máximo (si no tiene un medidor del flujo máximo, pídale a su médico que le recete uno)

SEÑALES DE UNA EMERGENCIA ASMÁTICA
• Tiene mucha dificultad para respirar, caminar o hablar porque le falta el aliento
• Las señales de advertencia del asma no mejoran
• Los labios o las uñas comienzan a ponerse morados
Qué hacer en una emergencia asmática

• Tome la medicina de alivio rápido (use un “inhalador de rescate”) de inmediato y siga su plan de acción para el asma.
• ¡Obtenga ayuda si no puede respirar!
• **Llame al 911** o vaya a la sala de emergencias o al centro de atención urgente más cercano si los síntomas de asma no mejoran de inmediato después de tomar su medicina de alivio rápido.

Las medicinas para el asma y lo que hacen

1. Medicina de alivio rápido (*inhalador de rescate*)
   • Abre las vías respiratorias rápidamente para detener el ataque de asma una vez que se presentan las señales de advertencia del asma.
   • A veces su médico le pedirá que la tome antes de hacer ejercicio o si sabe que estará cerca de uno de sus desencadenantes del asma.
   • Avísele a su médico o enfermero si usted necesita usar su medicina de alivio rápido más de 2 veces a la semana.

2. Medicina de control (*inhalador de control*)
   • Ayuda a disminuir la inflamación, la opresión y la mucosidad
   • Debe tomarse todos los días, ¡incluso cuando se siente bien y no tiene síntomas de asma!
   • ¡No se dé por vencido! La medicina puede tardar hasta 2 semanas en comenzar a funcionar.

Cómo controlar su asma

• Vea a su médico con frecuencia, ¡incluso aunque se sienta bien!
• Hable con su médico sobre sus factores desencadenantes y medicinas para el asma.
• Pídale a su médico que confeccione con usted un plan de acción para el asma para que usted sepa qué hacer cuando se presenten síntomas de advertencia del asma.
• Tome sus medicamentos exactamente como se lo indica su médico.
• Use un medidor del flujo máximo para ver cómo está su asma cada día. Si necesita un medidor del flujo máximo, pídale a su médico que le recete uno.

Qué pasa cuando se controla el asma

• Puede realizar sus actividades normales (incluyendo ejercicio) sin dificultad para respirar.
• Tiene pocos o ningún síntoma de asma.
• ¡Puede respirar!

¡Ahora podemos controlar el asma! **L.A. Cares About Asthma® está aquí para ayudarle!**

Si tiene alguna pregunta o desea hablar con un enfermero sobre su asma, llame a **L.A. Cares About Asthma® at 1-888-200-3094** (TTY 1-888-448-6894) de lunes a viernes, entre las 8am y las 4pm, o envíenos un correo electrónico a asthmadm@lacare.org.

L.A. Care Health Plan es un plan de atención médica coordinada que tiene contratos con Medicare y el programa Medicaid de California. La inscripción en L.A. Care Health Plan depende de la renovación del contrato.
5 Things to Know About Asthma

1. Learn about asthma.
   - Asthma is a lung disease. It causes the airways to tighten and swell.
   - Asthma can cause you to cough, wheeze, or feel short of breath.

2. Know your medicines and how to use them.
   - Use **Controller** medicine every day, even when you are feeling good.
     - A controller medicine is needed if you:
       - Have trouble breathing more than twice a week during the **day**
       - Have trouble breathing more than twice a month during the **night**
   - Use **Quick-Relief** medicine during an asthma attack. It’s important to have this medicine with you at all times.
     - Know how to use a spacer or nebulizer to help you take all full dosage.

3. Learn what makes your asthma worse.
   - Triggers are things that make your asthma worse. This may be smoke, pets, dust, pollen, colds or things around you.
   - If you have asthma symptoms when exercising, use your quick relief medicine **before** you exercise.

4. Keep track of your symptoms.
   - Write down your symptoms and share with your doctor.
   - A **peak flow meter** may help if you’re over 5 years old.

   - Have an **asthma action plan**. This written plan will help you know what to do during an asthma emergency.
   - Talk to your doctor about your asthma action plan at each visit.

Call L.A. Care if you have questions about asthma.

**Asthma Resource Line** 1-888-200-3094
**TTY Line** 1-888-448-6894
**L.A. Care’s 24/7 Nurse Advice Line** 1-800-249-3619
5 cosas que debe saber sobre el asma

1. Aprenda sobre el asma.
   - El asma es una enfermedad de los pulmones. Provoca tensión e hinchazón en las vías respiratorias.
   - El asma puede causarle tos, silbidos en el pecho o falta de aliento.

2. Conozca los medicamentos y aprenda cómo usarlos.
   - Utilice los medicamentos de control todos los días, incluso cuando se sienta bien.
     - Usted necesita un medicamento de control si:
       - Tiene problemas para respirar más de dos veces a la semana durante el día
       - Tiene problemas para respirar más de dos veces al mes durante la noche
   - Utilice los medicamentos de alivio rápido durante los ataques de asma. Es importante que lleve consigo este medicamento en todo momento.
   - Saber cómo utilizar un espaciador o nebulizador le ayudará a aprovechar la dosis completa.

3. Aprenda qué cosas hacen que empeore su asma.
   - Los causantes son las cosas que hacen que el asma empeore. Estos factores pueden ser el humo, los animales domésticos, el polvo, el polen, los resfriados o las cosas a su alrededor.
   - Si experimenta síntomas de asma cuando realiza ejercicio físico, use el medicamento de alivio rápido antes de ejercitarse.

4. Lleve un registro de sus síntomas.
   - Anote los síntomas y comparta esta información con su médico.
   - Un medidor de flujo máximo puede ser útil para quienes tienen más de 5 años de edad.

5. Tenga un plan de acción contra el asma
   - Tenga un plan de acción contra el asma. Este plan escrito le ayudará a saber qué hacer durante un ataque de asma.
   - Hable con el médico sobre su plan de acción contra el asma en cada visita.
What are asthma triggers?

Asthma triggers are things that make asthma symptoms worse. Not everyone’s triggers are the same. You may have a lot of triggers or just one. Here is a list of triggers and where they can be found.

<table>
<thead>
<tr>
<th>Triggers:</th>
<th>Where they can be found:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pets</td>
<td>Pets can trigger asthma symptoms anywhere in the home. Pets without fur and feathers such as fish and turtles are better choices.</td>
</tr>
<tr>
<td>Cats, dogs</td>
<td></td>
</tr>
<tr>
<td>Mold</td>
<td>Found in damp places. Kitchens, bathrooms, and basements are common places.</td>
</tr>
<tr>
<td>Dust</td>
<td>Can be found anywhere inside the home.</td>
</tr>
<tr>
<td>Dust Mites</td>
<td>The highest levels are found in bedding. Also found in carpeting, cloth furniture, and stuffed toys.</td>
</tr>
<tr>
<td>Pests</td>
<td>Found by food, water, and trash. The kitchen is a common place.</td>
</tr>
<tr>
<td>Cockroaches, mice</td>
<td></td>
</tr>
<tr>
<td>Pollen</td>
<td>Found outdoors, even in the city. Pollen is blown from place to place by the wind.</td>
</tr>
<tr>
<td>Trees, grass and flowers</td>
<td></td>
</tr>
<tr>
<td>Smog</td>
<td>Found in the air outdoors, mostly in the summer. Places with lots of cars and factories have higher levels.</td>
</tr>
<tr>
<td>Cold Weather</td>
<td>Found outdoors, mostly in the morning, evening, and during the winter.</td>
</tr>
<tr>
<td>Strong Smells</td>
<td>Can be found anywhere. Paint, cleaning products, perfume, and candles can trigger asthma symptoms.</td>
</tr>
<tr>
<td>Foods</td>
<td>Milk, eggs, nuts, and shellfish are common allergens.</td>
</tr>
<tr>
<td>Exercise</td>
<td>Exercising in cold weather is more likely to cause symptoms.</td>
</tr>
<tr>
<td>Illness</td>
<td>You can get sick at any time, but are more likely to get sick during winter.</td>
</tr>
<tr>
<td>Tobacco Smoke</td>
<td>Can be found anywhere. Smoke is more likely to cause asthma symptoms if someone in the home smokes.</td>
</tr>
</tbody>
</table>

How can I avoid my asthma triggers?

The first step is to know what triggers your asthma. Fill-out the “How to Avoid My Asthma Triggers” checklist on the back page. No matter what triggers your asthma, follow your asthma action plan. Talk to your doctor if you do not have an asthma action plan.
# How to Avoid My Asthma Triggers

## Pets (dogs, cats)
- Keep pets outside.
- Do not let pets in the bedroom.
- Choose a pet without fur or feathers.
- Wash pets each week.

## Smog
- Check the Air Quality Index at [www.airnow.gov](http://www.airnow.gov).
- Stay indoors if the air quality is poor.
- Use an air conditioner in your home and car.

## Mold
- Fix water leaks.
  *(Talk to your landlord if needed).*
- Keep windows open. Use a fan.
- Mix 3 tablespoons bleach per 1 quart water and wipe moldy surfaces.

## Cold Weather
- Wear a scarf over your nose and mouth.
- Stay indoors as much as you can.

## Dust
- Clean with a damp cloth.
- Vacuum each week.
- Use HEPA filter bags.
- Remove carpets.
  *(Talk to your landlord if needed).*

## Strong Smells
- Keep windows open when cleaning.
- Do not use hairspray or perfume.
- Choose unscented candles.

## Dust Mites
- Use dust mite proof covers on mattresses and pillows.
- Wash bedding and stuffed toys each week in hot water.

## Foods
- Do not eat foods you are allergic to.
- Talk to your doctor if you think you have a food allergy.

## Pests (cockroaches, mice)
- Do not leave food or trash out.
- Put food in air tight containers.
- Clean up crumbs and spills right away.

## Tobacco Smoke
- Do not smoke. Do not let others smoke in your home or car.
- If you need help quitting, talk to your doctor. Call 1-800-NO-BUTTS.

## Pollen (from trees, grass, flowers)
- Check the air pollen count at [www.pollen.com](http://www.pollen.com).
- Stay indoors if pollen counts are high.
- Keep windows closed.

## Exercise
- Take quick-relief medicine before exercising if told to do so by your doctor.
- Warm-up for 10-15 minutes to get your heart rate up slowly.

## Illness
- Follow your asthma action plan if you get sick.
- Get a flu shot each year. Ask your doctor if you need a pneumonia shot.
¿Qué son los desencadenantes del asma?

Los desencadenantes del asma son factores que empeoran los síntomas de asma. Los desencadenantes no son los mismos para todas las personas. Una persona puede tener muchos desencadenantes o uno solo. A continuación, encontrará una lista de desencadenantes y los lugares donde pueden estar presentes.

<table>
<thead>
<tr>
<th>Triggers:</th>
<th>Where they can be found:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mascotas</td>
<td>Las mascotas pueden provocar síntomas de asma en cualquier parte de la casa.</td>
</tr>
<tr>
<td>Gatos, perros</td>
<td>Las mascotas sin pelos ni plumas, como los peces y las tortugas, son mejores opciones.</td>
</tr>
<tr>
<td>Moho</td>
<td>Presente en lugares húmedos. Las cocinas, los baños y los sótanos son lugares comunes.</td>
</tr>
<tr>
<td>Polvo</td>
<td>Puede estar presente en cualquier parte del interior de la casa.</td>
</tr>
<tr>
<td>Ácaros del polvo</td>
<td>Los niveles más altos están presentes en la ropa de cama. También están presentes en las alfombras, los muebles con tela y los juguetes de peluche.</td>
</tr>
<tr>
<td>Plagas Cucarachas, ratones</td>
<td>Presentes cerca de los alimentos, el agua y la basura. La cocina es un lugar común.</td>
</tr>
<tr>
<td>Polen Árboles, césped y hierbas</td>
<td>Presente al aire libre, incluso en la ciudad. El polen es transportado de un lugar a otro por el viento.</td>
</tr>
<tr>
<td>Contaminación en el aire</td>
<td>Presente al aire libre, mayormente en el verano. Los lugares con muchos automóviles y fábricas tienen niveles más altos.</td>
</tr>
<tr>
<td>Clima frío</td>
<td>Presente al aire libre, mayormente en la mañana, la noche y durante el invierno.</td>
</tr>
<tr>
<td>Olores fuertes</td>
<td>Pueden estar presentes en cualquier lugar. La pintura, los productos de limpieza, el perfume y las velas pueden provocar los síntomas de asma.</td>
</tr>
<tr>
<td>Alimentos</td>
<td>La leche, los huevos, los frutos secos y los mariscos son alérgenos comunes.</td>
</tr>
<tr>
<td>Ejercicio</td>
<td>Hacer ejercicio cuando hace frío aumenta las probabilidades de que aparezcan síntomas.</td>
</tr>
<tr>
<td>Enfermedad</td>
<td>Las personas pueden enferмarse en cualquier momento, pero es más probable que esto suceda durante el invierno.</td>
</tr>
<tr>
<td>Humo de tabaco</td>
<td>Puede estar presente en cualquier lugar. Es más probable que el humo provoque síntomas de asma si alguien en la casa fuma.</td>
</tr>
</tbody>
</table>

¿Cómo puedo evitar mis desencadenantes del asma?

El primer paso es saber qué provoca su asma. Complete la lista de verificación “Cómo evitar mis desencadenantes del asma” incluida en la parte de atrás. Sin importar qué provoca su asma, siga su plan de acción contra el asma. Hable con su médico si no tiene un plan de acción contra el asma.
### Mascotas (perros, gatos)
- Mantenga las mascotas fuera de su casa.
- No deje que las mascotas entren en el dormitorio.
- Elija una mascota sin pelos ni plumas.
- Bañe a las mascotas todas las semanas.

### Contaminación en el aire
- Consulte el Índice de calidad del aire en www.airnow.gov.
- Quédese adentro si la calidad del aire es mala.
- Use un aire acondicionado en su hogar y automóvil.

### Clima frío
- Use una bufanda para cubrirse la nariz y la boca.
- Quédese adentro tanto como pueda.

### Moho
- Repare las pérdidas de agua. (Hable con el propietario de su vivienda, si es necesario).
- Mantenga las ventanas abiertas. Use un ventilador.
- Mezcle 3 cucharadas de cloro por cada cuarto de galón de agua y use la mezcla para limpiar las superficies que tengan moho.

### Olores fuertes
- Mantenga las ventanas abiertas cuando limpie.
- No use laca ni perfume.
- Elija velas sin perfume.

### Polvo
- Límpie con un trapo húmedo.
- Pase la aspiradora todas las semanas. Use bolsas de filtro HEPA.
- Quite las alfombras. (Hable con el propietario de su vivienda, si es necesario).

### Alimentos
- No coma alimentos que le provoquen alergia.
- Hable con su médico si cree que tiene una alergia alimentaria.

### Ácaros del polvo
- Use sábanas y fundas a prueba de ácaros del polvo en los colchones y las almohadas.
- Lave los artículos de la cama y los juguetes de peluche todas las semanas con agua caliente.

### Plagas (cucarachas, ratones)
- No deje alimentos ni basura afuera.
- Ponga los alimentos en recipientes herméticos.
- Limpie las migas y los líquidos derramados de inmediato.

### Polen (de los árboles, el césped, las flores)
- Quédese adentro si la concentración de polen es alta.
- Mantenga las ventanas cerradas.

### Humo de tabaco
- No fume. No deje que otras personas fumen en su casa o automóvil.
- Si necesita ayuda para dejar de fumar, hable con su médico. Llame al 1-800-NO-BUTTS.

### Enfermedad
- Siga su plan de acción contra el asma si se enferma.
- Vacúnese contra la gripe todos los años. Pregúntele a su médico si necesita vacunarse contra la neumonía.
How to Use an Asthma Action Plan

Everyone with asthma should have an Asthma Action Plan. This written plan will help you know what to do during an asthma flare-up. You and your doctor or your child’s doctor will complete this Asthma Action Plan together.

An Asthma Action Plan tells you:

☑ How to use the peak flow number to know if your or your child’s asthma is in control.
☑ How to deal with asthma symptoms.
☑ What medicine to take and when to take it.
☑ When to go to a doctor or to get urgent care.

Keep a copy of your Asthma Action Plan at work, your child’s school, and other places where you or your child spend a lot of time.

Review your Asthma Action Plan with your doctor every 3 to 6 months.

Questions?
Call L.A.Cares About Asthma®
1-888-200-3094 (TTY 1-888-448-6894)
Monday - Friday 8am - 4pm
asthmadm@lacare.org

An Asthma Action Plan provides a color guide for your asthma control.

I feel GOOD (Green Zone)
• Breathing is good, and
• No cough, tight chest, or wheeze, and
• Can work and exercise easily

I DO NOT feel good (Yellow Zone)
• Cough or wheeze, or
• Hard to breathe, or
• Tight chest, or
• Wake up at night, or
• Can’t do all activities (work & exercise)

I feel AWFUL (Red Zone)
• Medicine does not help, or
• Can’t talk or walk well, or
• Feel scared, or
• Breathing is hard or fast, or
• Chest pain

www.lacare.org
Tenga un Plan de Acción Contra el Asma

Todas las personas que padecen de asma deberían tener un Plan de Acción Contra el Asma. Tener un plan detallado por escrito le ayudará a saber qué debe hacer durante un ataque de asma. Usted, su médico o el médico del niño crearán juntos este Plan de Acción Contra el Asma.

El Plan de Acción Contra el Asma le indica:

- Cómo utilizar el número de flujo máximo para saber si su o el asma de su niño está en control
- Cómo tratar con los síntomas de asma
- ¿Qué medicamento debe tomar y cuándo tomarlo?
- Cuando ir al médico o a la sala de emergencias

Guarde una copia de su plan de acción contra el asma en el trabajo, en la escuela de su hijo, o en cualquier otro lugar donde tanto usted como su hijo pasen mucho tiempo.

Revise su Plan de Acción Contra el Asma con su médico cada 3 a 6 meses.

¿Tiene alguna pregunta? Llame a L.A.Cares About Asthma® al 1-888-200-3094 (TTY 1-888-448-6894) lunes a viernes 8 a.m. a 4 p.m. asthmadm@lacare.org

<table>
<thead>
<tr>
<th>Me siento BIEN (Zona Verde)</th>
<th>Me siento MUY MAL (Zona Roja)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Su respiración es buena</td>
<td>El medicamento no me ayuda</td>
</tr>
<tr>
<td>No tiene tos, opresión en el pecho ni sibilancia</td>
<td>No puedo hablar o caminar bien</td>
</tr>
<tr>
<td>Puede trabajar y hacer ejercicio</td>
<td>Me asusto</td>
</tr>
<tr>
<td></td>
<td>Mi respiración es dificultosa y acelerada</td>
</tr>
</tbody>
</table>

Un Plan de Acción Contra el Asma es una guía de color para su control del asma.

La1040 SP 05/14
You & Your Asthma Medicine

If you or your kids have asthma, one of the best things you can do is take your medicine. The key is to take the right medicine, the right way, at the right time.

There are two kinds of asthma medicine:

1. **Controller Medicine.**
   This type of medicine is taken each day. Take it even if you feel fine. It works by reducing swelling and mucus in the airways. If you take this medicine each day you will have less asthma symptoms.
   - Flovent (fluticasone)
   - QVAR (beclomethasone)
   - Advair (fluticasone-salmeterol)
   - Symbicort (budesonide/formoterol)
   - Pulmicort Flexhaler (budesonide)
   - Asmanex (mometasone)
   - Singulair (montelukast)

2. **Quick Relief Medicine.**
   You take this type of medicine when you are having asthma symptoms such as coughing or wheezing. It works fast by relaxing the muscles around the airways. You should not need to use it more than once a week. If you do, your doctor may need to make changes to your daily controller medicine. If you use quick relief medicine when you should be using controller medicine, it will not work as well when you really need it.
   - ProAir HFA (albuterol)
   - Ventolin HFA (albuterol)
   - Foradil (formoterol)

Get to Know Your Pharmacist
When you pick up your medicines you can ask questions or talk to the pharmacist. You can also call the pharmacist on the phone. Get to know your pharmacist today!

Having an asthma action plan helps you manage your asthma. It tells you what to do when you’re feeling fine. It also tells you what to do when you’re having asthma symptoms. Talk to your doctor if you do not have an asthma action plan.

To learn more or talk to an asthma nurse call 1-888-200-3094. TTY 1-888-448-6894.
Su medicamento para el asma y usted

Si usted o sus niños padecen de asma, una de las mejores cosas que puede hacer es tomar su medicamento. La clave es tomar el medicamento correcto, de la manera correcta y a la hora correcta.

Existen dos tipos de medicamento para el asma:

1. Medicamento de control
   Este tipo de medicamento se toma cada día. Tómelo aunque se sienta bien. Funciona al reducir la hinchazón y la mucosa en las vías respiratorias. Si toma este medicamento todos los días, tendrá menos síntomas de asma.
   - Flovent (fluticasone)
   - QVAR (beclomethasone)
   - Advair (fluticasone-salmeterol)
   - Symbicort (budesonide/formoterol)
   - Pulmicort Flexhaler (budesonide)
   - Asmanex (mometasone)
   - Singulair (montelukast)

2. Medicamento para un alivio rápido
   Usted toma este tipo de medicamento cuando está teniendo síntomas de asma tales como tos o respiración sibilante. Funciona rápidamente al relajar los músculos alrededor de las vías respiratorias. No se supone que necesite usarlo más de una vez por semana. Si lo necesita, su médico podría necesitar hacer cambios a su medicamento de control que toma diario. Si usa un medicamento de alivio rápido en lugar de usar un medicamento de control, no funcionará tan bien cuando realmente lo necesite.
   - ProAir HFA (albuterol)
   - Ventolin HFA (alburterol)
   - Foradil (formoterol)

Conozca a su farmacéutico
   Cuando recoja sus medicamentos, puede hacer preguntas o hablar con el farmacéutico. También puede llamar al farmacéutico por teléfono. ¡Conozca a su farmacéutico hoy!

Tener un plan de acción contra el asma le ayuda a controlar su asma. Le dice qué hacer cuando se siente bien. También le dice qué hacer cuando tiene síntomas de asma. Hable con su médico si no tiene un plan de acción contra el asma.

Para aprender más o para hablar con el personal de enfermería de asma, llame al 1-888-200-3094. TTY 1-888-448-6894.
How to Use a Peak Flow Meter

A peak flow meter tells you how well your lungs are working. It measures the force of air as you breathe out. It works even before you feel asthma symptoms. If you don’t have a peak flow meter, get one from L.A. Care at no cost to you. Ask your doctor for a prescription.

Using a peak flow meter is easy:

**STEP 1**
- Make sure the marker is at 0.
- Stand or sit up.

**STEP 2**
- Take a deep breath.
- Quickly close your lips around the tube.
- Do not cover the hole with your tongue.
- Blow out as hard and fast as you can.

**STEP 3**
- Mark your score on a peak flow tracking sheet.
- Repeat the test two more times and mark each score.
- Circle the best (highest) reading.
  This is your peak flow number for the day.

**STEP 4**
- Track your peak flow numbers on a peak flow log. Try to take the readings at the same time of the day and record your three results each day.

Your Personal Best Peak Flow Number

Your personal best is your highest peak flow number over 2 weeks when you are feeling well. Use this number to compare to other peak flow readings. This will tell you how you are doing over time. Talk to your doctor about your peak flow results.

**Personal Best Peak Flow Number: _______________**
Understanding Your Numbers

Think of your peak flow readings as a stop light. Look at the table below and determine which zone you are in. Your personal best peak flow number may be different than someone else's.

**STEP 1**

First, find your personal best peak flow number in the **blue** (first) column.

<table>
<thead>
<tr>
<th>Your Personal Best Peak Flow number is:</th>
<th>You are in the Green Zone if your peak flow number is:</th>
<th>You are in the Yellow Zone if your peak flow number is:</th>
<th>You are in the Red Zone if your peak flow number is:</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>above 80</td>
<td>between 80 and 50</td>
<td>below 50</td>
</tr>
<tr>
<td>125</td>
<td>above 100</td>
<td>between 100 and 63</td>
<td>below 63</td>
</tr>
<tr>
<td>150</td>
<td>above 120</td>
<td>between 120 and 75</td>
<td>below 75</td>
</tr>
<tr>
<td>175</td>
<td>above 140</td>
<td>between 140 and 88</td>
<td>below 88</td>
</tr>
<tr>
<td>200</td>
<td>above 160</td>
<td>between 160 and 100</td>
<td>below 100</td>
</tr>
<tr>
<td>225</td>
<td>above 180</td>
<td>between 180 and 113</td>
<td>below 113</td>
</tr>
<tr>
<td>250</td>
<td>above 200</td>
<td>between 200 and 125</td>
<td>below 125</td>
</tr>
<tr>
<td>275</td>
<td>above 220</td>
<td>between 220 and 138</td>
<td>below 138</td>
</tr>
<tr>
<td>300</td>
<td>above 240</td>
<td>between 240 and 150</td>
<td>below 150</td>
</tr>
<tr>
<td>325</td>
<td>above 260</td>
<td>between 260 and 163</td>
<td>below 163</td>
</tr>
<tr>
<td>350</td>
<td>above 280</td>
<td>between 280 and 175</td>
<td>below 175</td>
</tr>
<tr>
<td>375</td>
<td>above 300</td>
<td>between 300 and 188</td>
<td>below 188</td>
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<tr>
<td>400</td>
<td>above 320</td>
<td>between 320 and 200</td>
<td>below 200</td>
</tr>
<tr>
<td>425</td>
<td>above 340</td>
<td>between 340 and 213</td>
<td>below 213</td>
</tr>
<tr>
<td>450</td>
<td>above 360</td>
<td>between 360 and 225</td>
<td>below 225</td>
</tr>
<tr>
<td>475</td>
<td>above 380</td>
<td>between 380 and 238</td>
<td>below 238</td>
</tr>
<tr>
<td>500</td>
<td>above 400</td>
<td>between 400 and 250</td>
<td>below 250</td>
</tr>
<tr>
<td>525</td>
<td>above 420</td>
<td>between 420 and 263</td>
<td>below 263</td>
</tr>
<tr>
<td>550</td>
<td>above 440</td>
<td>between 440 and 275</td>
<td>below 275</td>
</tr>
<tr>
<td>575</td>
<td>above 460</td>
<td>between 460 and 288</td>
<td>below 288</td>
</tr>
<tr>
<td>600</td>
<td>above 480</td>
<td>between 480 and 300</td>
<td>below 300</td>
</tr>
</tbody>
</table>

**GREEN ZONE**
Doing Well

**YELLOW ZONE**
Call your doctor

**RED ZONE**
Call 911. Get help NOW!

**Example:** Mr. Smith's personal best peak flow number is **450**. Today his peak flow number is above 360 (green zone). Good news, he is doing well!

Follow your asthma action plan whether you're in the **green**, **yellow**, or **red** zone. Talk to your doctor if you do not have an asthma action plan.

To learn more or talk to an asthma nurse call 1-888-200-3094. TTY/TDD 1-888-448-6894 M-F 8am-4pm.
Cómo usar el medidor del flujo máximo

El medidor del flujo máximo le permite saber cómo están funcionando los pulmones. Mide la fuerza del aire al exhalar y funciona incluso antes de que sienta algún síntoma de asma. Si no tiene un medidor del flujo máximo, obtenga uno sin cargo a través de L.A. Care. Pídale una receta a su médico.

Usar el medidor del flujo máximo es fácil:

**PASO 1**
- Asegúrese de que el marcador esté en 0.
- Párese o siéntese.
- Respire profundo.
- Coloque los labios rápidamente alrededor del tubo.
- No cubra el orificio con la lengua.
- Sople lo más fuerte y rápido que pueda.

**PASO 2**
- Registre el valor en un registro de control del flujo máximo.
- Repita la prueba dos veces más y registre los valores respectivos.
- Marque con un círculo el mejor resultado (el más alto). Ese será su valor del flujo máximo de ese día.

**PASO 3**
- Apunte sus valores del flujo máximo en un registro de control del flujo máximo. Trate de medir el flujo máximo a la **misma hora** del día y de registrar sus **tres resultados todos los días**.

**Su valor del flujo máximo récord**

Su récord es el valor del flujo máximo más alto a lo largo de 2 semanas en las que se sienta bien. Use este valor para compararlo con otras mediciones del flujo máximo. De este modo, sabrá cómo está evolucionando con el tiempo. Comparta con su médico las mediciones del flujo máximo.

**Valor del flujo máximo récord:** _______________
**Explicación de los valores**

Imagínese que las mediciones del flujo máximo son como un semáforo. Consulte la tabla que se incluye a continuación y determine en qué zona se encuentra. Su valor del flujo máximo récord puede diferir del de otra persona.

### PASO 1

Primero, busque su valor del flujo máximo récord en la columna azul (la primera).

<table>
<thead>
<tr>
<th>Si su valor del flujo máximo récord es:</th>
<th>Usted está en la Zona verde si su valor del flujo máximo es:</th>
<th>Usted está en la Zona amarilla si su valor del flujo máximo está:</th>
<th>Usted está en la Zona roja si su valor del flujo máximo es:</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>más de 80</td>
<td>entre 80 y 100</td>
<td>menos de 50</td>
</tr>
<tr>
<td>125</td>
<td>más de 100</td>
<td>entre 100 y 120</td>
<td>menos de 63</td>
</tr>
<tr>
<td>150</td>
<td>más de 120</td>
<td>entre 120 y 140</td>
<td>menos de 75</td>
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<tr>
<td>175</td>
<td>más de 140</td>
<td>entre 140 y 160</td>
<td>menos de 88</td>
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<td>200</td>
<td>más de 160</td>
<td>entre 160 y 180</td>
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<td>entre 180 y 200</td>
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<td>entre 200 y 220</td>
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<td>entre 220 y 240</td>
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<td>300</td>
<td>más de 240</td>
<td>entre 240 y 260</td>
<td>menos de 163</td>
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<td>325</td>
<td>más de 260</td>
<td>entre 260 y 280</td>
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<td>más de 320</td>
<td>entre 320 y 340</td>
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<td>425</td>
<td>más de 340</td>
<td>entre 340 y 360</td>
<td>menos de 225</td>
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<tr>
<td>450</td>
<td>más de 360</td>
<td>entre 360 y 380</td>
<td>menos de 238</td>
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<tr>
<td>475</td>
<td>más de 380</td>
<td>entre 380 y 400</td>
<td>menos de 250</td>
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<td>entre 400 y 420</td>
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<td>525</td>
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<td>550</td>
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<td>entre 440 y 460</td>
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<td>575</td>
<td>más de 460</td>
<td>entre 460 y 480</td>
<td>menos de 300</td>
</tr>
<tr>
<td>600</td>
<td>más de 480</td>
<td>entre 480 y 500</td>
<td>menos de 312</td>
</tr>
</tbody>
</table>

### PASO 2

Luego, siga la fila hasta encontrar en qué zona está el valor del flujo máximo hoy: verde, amarilla o roja.

**Ejemplo:** El valor del flujo máximo récord del Sr. Smith es 450. Hoy, su valor del flujo máximo es más de 360 (zona verde). ¡Significa que está bien!

Siga su plan de acción contra el asma ya sea que se encuentre en la zona verde, amarilla o roja. Hable con su médico si no tiene un plan de acción contra el asma.

Para obtener más información o para hablar con una enfermera especializada en asma, llame al 1-888-200-3094. TTY/TDD 1-888-448-6894 lunes a viernes 8am-4pm.
Peak Flow Tracking

Use your peak flow at the same time each day. Mark all three scores. Circle the best (highest) number. Use this number to find out if you are in the green, yellow or red zone. Follow your asthma action plan. Talk to your doctor if you do not have an asthma action plan.

**Example Peak Flow Number for the day is:** 450

**Personal Best Peak Flow Number (highest peak flow number over 2 weeks):**

**Highest peak flow number for the day**

Week 1

<table>
<thead>
<tr>
<th>Date:</th>
<th>S</th>
<th>M</th>
<th>T</th>
<th>W</th>
<th>T</th>
<th>F</th>
<th>S</th>
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<tbody>
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<td></td>
<td>750</td>
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Registro de flujo máximo

Mida su flujo máximo a la misma hora todos los días. Marque los tres resultados. Marque con un círculo el mejor valor (el más alto). Use este valor para determinar si está en la zona verde, amarilla o roja. Siga su plan de acción contra el asma. Hable con su médico si no tiene un plan de acción contra el asma.

Ejemplo:

Semana 1
Fecha: __________

Valor del flujo máximo más alto del día

Semana 2
Fecha: __________

Valor del flujo máximo más alto del día

Valor del flujo máximo récord (valor del flujo máximo más alto a lo largo de 2 semanas):

El valor del flujo máximo del día del ejemplo es: __________
Spacers

- A spacer helps more medicine get to your lungs.
- Like a metered dose inhaler, a spacer must be used correctly.

Spacers help:
- Reduce the taste of asthma medicines.
- Prevent coughing when you take your medicine.
- Prevent side effects from long-term inhaled medications.

Like a metered dose inhaler, a spacer must be used correctly.

1. Remove mouthpiece from the inhaler.
2. Insert the inhaler into the spacer.
3. Shake the inhaler four or five times.
4. Breathe out.
5. Place the mouthpiece of the holding chamber between your teeth and above your tongue and close your lips around it.
6. Press down on inhaler once.
7. Take a slow deep breath.
8. Hold your breath for 5 or 10 seconds after inhaling.
9. Remove the mouthpiece from your mouth to exhale.
10. Wait at least 1 minute before taking a second puff, if needed.

Spacers can be used with a mask for small children or babies. Using a spacer for babies or small children is the same as steps 1-4 above, then:

- Place the mask firmly over the child’s nose and mouth.
- Press down on the inhaler once.
- Encourage the child to take 5-6 normal breaths.
- Don’t lift the mask off the child’s face until they breathe in the medicine.
- Remove the mask.
- Wait at least one minute before a second puff, if needed.

Inhalers and spacers should NEVER be shared and should be cleaned often.

To clean a spacer:
- Remove the canister (medicine) from inhaler device. Never soak the canister part of an inhaler.
- Soak the inhaler and the spacer in 1 part vinegar and 3 parts water for 30 minutes. Do not scrub the spacer.
- Air-dry the spacer and the inhaler.
Espaciador

• Ayuda a llevar más medicamento hasta los pulmones, reduciendo el desperdicio de medicamento

¿Por qué se recomienda usar un espaciador?
- Ayuda a eliminar el sabor del medicamento
- Reduce los efectos del medicamento como: la tos refleja (se provoca cuando la medicina choca en la garganta) y las infecciones orales debidas al contacto directo del medicamento (especialmente los corticoesteroïdes)

Espaciador con boquilla (recomendado para mayores de 5 años de edad)
Instrucciones de uso:
1. Desapare el inhalador
2. Agite el inhalador 4 o 5 veces
3. Ponga el inhalador en el espaciador
4. Ponga el espaciador en la boca entre los dientes, sin que la lengua tape la boquilla
5. Dispare el inhalador solamente una vez
6. Inhalé lento y profundamente a través del espaciador
7. Sostenga la respiración por 10 segundos después de haber inhalado el medicamento ó respire normalmente 5-6 veces sin agregar más medicamento
8. Retire el espaciador para sacar el aire
9. Si debe usar más de una dosis de medicamento, espere un minuto y repita los pasos
10. Si el espaciador hace un ruido (silba), la próxima vez deberá inhalar más lento

Espaciador con mascarilla (recomendado para niños de 0-5 años de edad)
Instrucciones de uso:
1. Siga los pasos 1-3 del anterior
2. La mascarilla debe cubrir nariz y boca
3. Dispare el inhalador solamente una vez
4. Sostenga la respiración por 10 segundos después de haber inhalado el medicamento ó respire normalmente 5-6 veces sin agregar más medicamento
5. Una vez que haya terminado, retire la mascarilla
6. Si debe usar más de una dosis de medicamento, espere un minuto y repita los pasos

Limpieza:
- El espaciador NUNCA debe compartirse
- Se debe limpiar antes de usarlo por primera vez
- Sumerja el espaciador en una solución 1 parte de vinagre y 3 partes de agua durante 30 minutos de preferencia cada semana
- No talle el espaciador
- Deje que se seque

Financiado por la
Talk With Your Doctor About Asthma!

Use these tips to get ready for your next doctor visit.

 ✓ Write down your questions. Don’t be afraid to ask questions. Your doctor is there to help you control your asthma.

 ✓ Keep a list of your triggers. Write down what makes your asthma worse (triggers) and how you react (coughing, wheezing, hard time breathing).

 ✓ Bring all your medicines and your Asthma Action Plan to each visit. An Asthma Action Plan tells you when and how to use your medicines. If you don’t have one, ask your doctor.

 ✓ Ask for health education materials. Health education materials tell you what asthma is and how you can control it.

 ✓ Call your doctor if you have questions. If you get home and have more questions, call your doctor’s office and ask to speak to someone who can help.

See the back for sample questions to ask your doctor
Sample Questions to ask your Doctor

- What is asthma?
- How can I control my asthma?
- What caused it? Is there a cure?
- When do I take my medicines?
- Do the medicines have side effects? What are they?
- What is an Asthma Action Plan?
- What is a spacer? How do I use it?
- What is a peak flow meter? How do I use it?
- Do I need to have the flu shot?
- Do you have health education materials about asthma?
- When is my next visit?
- Do I need a referral to a specialist?

Write your questions below. Bring this to your next doctor visit.

1. __________________________________________
2. __________________________________________
3. __________________________________________
4. __________________________________________
5. __________________________________________

Call L.A. Care if you have questions about asthma.

Asthma Resource Line  1-888-200-3094 | 8am - 4pm Monday - Friday  (TTY 1-888-448-6894)
L.A. Care’s 24/7 Nurse Advice Line 1-800-249-3619
asthmadm@lacare.org
Hable con su médico acerca del asma

Use estos consejos al prepararse para su próxima cita médica.

- **Escriba sus preguntas.** No tenga miedo de hacer preguntas. Su médico está ahí para ayudarle a controlar el asma.

- **Tenga una lista de sus causantes del asma.** Escriba qué ocasiona el asma (causantes) y cómo usted reacciona (si tose, tiene un zumbido sibilante o tiene dificultad para respirar).

- **Lleve todas sus medicinas y su plan de acción contra el asma a cada cita médica.** Tener un plan de acción contra el asma le indica cuándo y cómo usar sus medicinas. Si no tiene un plan, pregúntele a su médico.

- **Pida materiales de educación de la salud.** Los materiales de educación de la salud le explican lo que es el asma y cómo puede controlarla.

- **Llame a su médico si tiene preguntas.** Si al llegar a casa se da cuenta que tiene más preguntas, llame al consultorio de su médico y solicite hablar con alguien que pueda ayudarle.

Consulte el reverso para ver ejemplos de preguntas que debe hacerle a su médico.
Ejemplos de preguntas que debe hacerle al médico

- ¿Qué es el asma?
- ¿Cómo puedo controlar mi asma?
- ¿Cuáles fueron sus causas? ¿Hay alguna cura?
- ¿Cuándo debo tomar mis medicinas?
- ¿Qué es un Plan de acción contra el asma?
- ¿Qué es un espaciador?
- ¿Qué es un medidor del flujo máximo? ¿Cómo se usa?
- ¿Las medicinas tienen efectos secundarios? ¿Cuáles son?
- ¿Tiene materiales de educación de la salud sobre el asma?
- ¿Cuándo es mi próxima cita?

¿Qué deseo preguntarle a mi médico en mi próxima cita?

1. _________________________________________________________
2. _________________________________________________________
3. _________________________________________________________
4. _________________________________________________________
5. _________________________________________________________

Llame a L.A. Care si tiene preguntas acerca del asma.

Línea de ayuda sobre el asma 1-888-200-3094   Línea TTY 1-888-448-6894
Línea de ayuda de enfermeras 24/7 de L.A. Care 1-800-249-3619