CCHCS Care Guide: Asthma

Summary

**Goals**

| Shortness Of Breath, Wheeze, Cough | < 2 Days / Week |
| Night Time Awakenings | ≤ 2 Times / Month |
| Activity Interference | None |
| SABA* Use For Symptom Control | ≤ 2 Days / Week |
| FEV1* or Peak Flow | > 80% Predicted or Personal Best |
| Exacerbations Requiring Oral Steroids | 0-1 Per Year |

**Alerts**

- Losing control: ↑ symptoms, ↑ SABA use, ↓ PEF*, etc.
- SaO2 < 92%
- Can’t speak more than one to two words per breath
- PEF < 50% predicted or personal best
- Silent chest, cyanosis, confusion, or coma

**Diagnosis Criteria/ Evaluation**

<table>
<thead>
<tr>
<th>Severity Classification</th>
<th>Intermittent</th>
<th>Persistent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptom Frequency</td>
<td>≤ 2 days/week</td>
<td>&gt; 2 days/week but not daily</td>
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<tr>
<td>Nighttime Awakenings</td>
<td>≤ 2 times/month</td>
<td>3-4 times/month</td>
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<tr>
<td>Interference with Normal Activity</td>
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<td>Spirometry</td>
<td>Normal FEV1 between exacerbations</td>
<td>FEV1 &gt; 80% predicted</td>
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<td>Lung Function</td>
<td>FEV1 / FVC* normal</td>
<td>FEV1 / FVC* normal</td>
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<td></td>
<td>FEV1 &gt; 80% predicted</td>
<td>FEV1 &gt; 60% predicted but &lt; 80% predicted</td>
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<td></td>
<td>FEV1 / FVC normal</td>
<td>FEV1 / FVC reduced ≤ 5% daily</td>
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<tr>
<td></td>
<td>FEV1 ≥ 60% predicted</td>
<td>FEV1 / FVC reduced &gt; 5%</td>
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</table>

**Examination Including:**

- Medications, smoking history, hospitalizations/intubations due to asthma; known triggers; seasonal variability; vaccination history
- Spirometry if diagnosis in question (Pre and post bronchodilator should see ≥ 12% [and 200 ml] increase in FEV1)
- Exam including heart and lung, complete vitals (BP, P, RR, SaO2, T, Ht/Wt). Obtain baseline peak flow. Consider peak flow at follow up if signs or symptoms of increased severity of asthma
- Differential diagnosis: other pulmonary diseases, cardiac disease, infectious disease, airway obstruction, etc

**Treatment Options**

- Step up therapy if not well controlled.
- Step down therapy if well controlled > 3 months on current therapy.
- Start ICS if symptoms associated with objective evidence of worsening disease (e.g., TTA or ER visit with documented evidence of asthma, abnormal vital signs, decrease in peak flow with good effort, abnormal spirometry, wheezing, or decreased or abnormal breath sounds:)
  - > 2 days of symptoms/use of SABA per week
  - 3-4 nocturnal awakenings per month
  - Exacerbations requiring oral steroids
- Consider GERD treatment if frequent exacerbations occur or if persistent cough not improving
- Consider intermittent use of ICS for flares with mild persistent asthma
- Use spacers
- Asthma exacerbation: oral steroid burst: 40-60 mg prednisone daily for five to seven days
- Assign severity to the most severe category in which any feature occurs considering both impairment and risk
- Smoking cessation

**Monitoring**

- If patient has achieved treatment goals and is clinically stable on at least two consecutive encounters, the patient may be reevaluated every 180 days unless the PCP determines the patient needs more frequent monitoring.
- If recent exacerbation, follow closely until patient is clinically improved.
- If not at treatment goal, use clinical judgment for more frequent monitoring timeframe.
- Consider documenting PEF rate on asthma related chronic care visits.
- Document and monitor medication adherence.

*Definition of Terms:
- SABA - Short Acting Beta Agonist
- LABA - Long Acting Beta Agonist
- ICS - Inhaled Corticosteroids
- EIB - Exercise Induced Bronchospasm
- LTRA - Leukotriene Receptor Antagonist
- PEF - Peak Expiratory Flow
- FEV1 - Forced Expiratory Volume in One Second
- FVC - Forced Vital Capacity

Information contained in the Care Guide is not a substitute for a health care professional’s clinical judgment. Evaluation and treatment should be tailored to the individual patient and the clinical circumstances. Furthermore, using this information will not guarantee a specific outcome for each patient. Refer to “Disclaimer Regarding Care Guides” for further clarification.

Please see page 2 of this Care Guide for FDA Black Box Warning/Public Health Advisory on the use of LABAs.


Quick Relief Medication for All Patients:
- SABA as needed for symptoms. Intensity of treatment depends on severity of symptoms: Up to 3 treatments at 20 minute intervals as needed. Short course of oral corticosteroids may be needed.
- Use of SABA >2 days a week for symptom relief (not for prevention of EIB) generally indicates inadequate control and the need to step up treatment
- NHI alternate drugs: LTRA*, montelukast or theophylline (see page 5)

Adapted for correctional setting from NHI Guidelines National Asthma Education and Prevention Program Expert Panel 3 2007

Please see page 2 of this Care Guide for FDA Black Box Warning/Public Health Advisory on the use of LABAs.

March 2013


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WARNING: The following is not reflected in the 2007 NIH Guidelines.

Due to concerns about the potential for Long Acting Beta Agonists (LABAs) to cause an increased risk of fatal and near-fatal asthma attacks the Federal Drug Administration required a Black Box Label for LABAs and issued a public health advisory on February 18, 2010 stating:

- The use of LABAs is contraindicated without the use of an asthma controller medication such as inhaled corticosteroid. Single-agent LABAs should only be used in combination with an asthma controller medication; they should not be used alone.
- LABAs should be used for the shortest duration of time required to achieve control of asthma symptoms and discontinued, if possible, once asthma control is achieved. Patients should then be maintained on an asthma controller medication.
- LABAs should only be used long-term in patients whose asthma cannot be adequately controlled on asthma controller medications.
- Pediatric and adolescent patients who require a LABA in addition to an inhaled corticosteroid should use a combination product containing both an inhaled corticosteroid and a LABA to ensure compliance with both medications.

(The recommendations above apply to the use of LABAs in treatment of asthma - they do not apply to treatment of COPD)

Discussion:

- According to UP TO DATE January 24, 2011, "Many experts believe that inhaled glucocorticoids diminish or prevent the potential risk of long-acting beta agonists, while others believe the data are insufficient to warrant this conclusion. However, despite these potential risks in small numbers of patients, salmeterol in combination with inhaled glucocorticoids significantly reduces exacerbation rates in the majority of adults. Thus, as with all medications, the proper balance between risk and benefit with combination therapy should be individually evaluated and prospectively monitored over time."

Conclusion:

CCHCS Clinical Guidelines Committee recommends the following (based on the 2007 NIH Asthma Treatment Guidelines and the FDA recommendations):

- LABAs should not be used to treat mild intermittent or mild persistent asthma.
- LABAs should never be used as monotherapy and should always be combined with an inhaled corticosteroid.
- In the management of non-adherent patients who required LABAs and ICS, a combination LABA/ICS should be prescribed to ensure compliance and avoid LABA monotherapy.
- Discontinue LABA (or discontinue combination ICS and LABA) whenever possible once asthma is stable.
CCHCS Care Guide: Asthma

CHRONIC ASThma

ASSIGN SEVERITY CLASSIFICATION TO EACH PATIENT

INTERMITTENT
- Symptoms ≤ 2 times/week
- Nighttime symptoms ≤ 2 times/month
- Asymptomatic and normal PEF between exacerbations
- Exacerbations brief (hours to days)
- FEV1 or PEF ≥ 80% predicted

MILD PERSISTENT
- Symptoms ≥ 2 times/week but not daily
- Nighttime symptoms three to four times per month
- Exacerbations cause minor activity limitations
- FEV1 or PEF > 80% predicted

MODERATE PERSISTENT
- Daily symptoms
- Daily use of SABA
- Nighttime symptoms more than once per week
- Exacerbations cause some activity limitations
- Exacerbations may last many days
- FEV1 or PEF 60% to 80% predicted

SEVERE PERSISTENT
- Continual symptoms
- History of intubation or ICU admission
- ≥ 2 hospitalizations in past year for asthma
- Extreme physical limitations
- Frequent exacerbations
- Frequent nighttime symptoms
- FEV1 or PEF < 60% predicted and variability > 30%

INITIAL TREATMENT RECOMMENDATIONS BASED ON SEVERITY

INTERMITTENT TREATMENT
- Generally no ICS, unless seasonal use needed
- “Rescue” SABA two puffs up to four times daily as needed

MILD PERSISTENT TREATMENT
- Low dose continuous ICS or consider intermittent use of ICS for flares
- “Rescue” SABA two puffs, four times daily as needed

MODERATE PERSISTENT TREATMENT
- Medium dose ICS
- “Rescue” SABA two puffs four times daily as needed

SEVERE PERSISTENT TREATMENT
- High dose ICS
- “Rescue” SABA two puffs four times daily PRN
- Consider short-term addition of LABA (salmeterol one puff twice daily), or combination ICS + LABA (Dulera®)
- Note Black Box warning

ICS Dosing:
Fluticasone (Formulary agent- Flovent HFA®):
- Strengths: 44, 110 or 220 mcg/puff
- “Low” Dose: 44-110 mcg twice daily
- “Med” Dose: 220 mcg twice daily
- “High” Dose: 440 mcg twice daily
- Consider tapering to lower dose when patient stable.

NIH Asthma Guidelines (NIH, 2007)

Abbreviations:
- ICS: Inhaled Corticosteroid
- PEF: Peak Expiratory Flow
- FEV1: Forced Expiratory Volume in one second
- EIB: Exercise Induced Bronchospasm

Assessment:
- History and physical including PEF
- If needed, confirm diagnosis with spirometry
- Patient education including nursing verification of correct inhaler technique
- Identify triggers-seasonal? URI? Fumes?
- May use ACAT form (see page 7) completed by patient, nurse, or PCP to identify asthma symptoms. Reports of EIB alone, without objective evidence of EIB, is not an indication for continued use of SABAs or ICS

Follow-up as clinically indicated (but at least every 180 days) with history, clinical assessment, and PEF when indicated

Contributors:
- Linda Loeb, RN
- Debra Echols, PharmD
- Stephanie J. D. Yoon, DO
- H. Randles Sharretts, MD

Adapted for correctional setting: National Asthma Education and Prevention Program Expert Panel Report2: Guidelines for the Diagnosis and Management of Asthma
http://www.nhlbi.nih.gov/guidelines/asthma/asthgdln.htm

SUMMARY
DEcISION SUPPORT
PATIENT EDUCATION/SELF MANAGEMENT

“Decreased peak flow with good respiratory effort, decreased O2 saturation from baseline or <95%, wheezing and/or decreased or abnormal breath sounds on exam, or typical spirometry changes
PEF performed and documented at baseline and repeated with objective evidence of uncontrolled disease.”
**ACUTE ASTHMA**

**Initial Assessment**
- Brief history – severity of symptoms, current medications, response to self treatment, time of onset, trigger, and risk factors.
- Physical Exam – PEF, heart and respiratory rate, O₂ saturation and breath sounds.

**Signs of Mild to Moderate Exacerbation**
- **PEF > 50% best or predicted**
- **Speech minimally to moderately impaired**
- **Respiration < 25 breaths/minute**
- **Pulse < 110 beats/minute**

**SABA 2-6 puffs with or without spacer* or 2.5 mg by nebulizer every 20 minutes up to 3 doses**
- Consider oral steroid
- Reassess response every 20 minutes for first hour

**Response to above therapy?**
- **YES**
  - **PEF > 80% and sustained response for 2-4 hours after last treatment.**
- **NO**
  - **PEF 50-79%**
    - Continue SABA 2-6 puffs with or without spacer* or 2.5 mg by nebulizer every 20 minutes
    - Consider adding 2.5 mg of ipratropium by nebulizer

**Signs of Severe or Life Threatening Exacerbation**
- **Unable to perform PEF or PEF < 50%**
- **SaO₂ < 92%**
- **Silent chest, cyanosis, weak respiratory effort**
- **Bradycardia, dysrhythmia or hypotension**
- **Exhaustion, confusion, or coma**
- **Inability to complete sentence in one breath**
- **Respiratory rate > 25 breaths/minute**
- **Pulse ≥ 110 beats/minute**

**Arrange Emergency Transport to Nearest Hospital**
- **Oxygen**
- **IV Access**
- **Prednisone 40-60 mg orally immediately**
- **Inhaled high dose SABA + ipratropium every 20 minutes or continuously via oxygen driven nebulizer**

**PCP should see patient within 48 hours after hospital discharge**

**Does patient have sustained improvement (PEF > 80%) allowing return to general population housing?**
- **YES**
  - **Consider oral steroid course**
  - **Consider adding or increasing dose of ICS**
  - **Consider reclassifying severity**
  - **Follow-up with PCT within five days**
- **NO**
  - Transfer to higher level of care if not improving or improvement not sustained

**Ensure patient has “rescue” SABA Inhaler**
- Consider spacer
- PCT follow-up within 5 calendar days

**ABBREVIATIONS:**
- **ICS:** Inhaled Corticosteroid
- **PEF:** Peak Flow
- **PCT:** Primary Care Team

*If patient has difficulty using MDI consider using spacer

**References:**
  - [http://www.ncchc.org/resources/clinicalguides/asthma.pdf](http://www.ncchc.org/resources/clinicalguides/asthma.pdf)
## Medications

<table>
<thead>
<tr>
<th>Medication Class</th>
<th>Medication</th>
<th>Dose</th>
<th>Side Effects</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SHORT ACTING BETA AGONIST (SABA)</strong></td>
<td>levalbuterol inhaled (Xopenex HFA®)</td>
<td>MDI 90 mcg/puff 1-2 puffs every 4-6 hrs 200 puffs/ inhaler</td>
<td>tachycardia, palpitations, tremor, hyperglycemia, hypokalemia, lactic acidosis, rare paradoxical bronchospasm</td>
<td>Rescue inhaler. Encourage proper use. Orders for SABA for asthma should include the indication. Recommend that prescribers write “standard asthma” for the sig. The typewritten sig will state: Asthma rescue inhaler – NOT FOR DAILY USE. If Asthma flares, use two puffs by mouth every six hours as needed. Talk to primary healthcare provider if using more than twice a week. This inhaler should last at least 90 days. KOP.</td>
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<tr>
<td></td>
<td>albuterol 2.5 mg / 3 ml solution (nebulizer)</td>
<td>2.5 mg / nebulizer treatment up to 3 to 4 times per day</td>
<td>See above</td>
<td></td>
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<tr>
<td><strong>LONG ACTING BETA AGONIST (LABA)</strong></td>
<td>salmeterol inhaled (Serevent®)</td>
<td>50 mcg every 12 hrs Attempt taper once patient is stable Do NOT use for acute asthma symptoms 60 doses / diskus</td>
<td>Headache, neuromuscular and skeletal pain, throat irritation/ inflammation</td>
<td>Black box warning: LABAs increase risk of asthma-related death. Should only be used as adjuvant therapy in patients not adequately controlled on high dose inhaled corticosteroids or whose disease requires two maintenance therapies. Use higher doses of LABA with caution in patients with CAD, arrhythmias, or HTN. Contraindicated in status asthmaticus.</td>
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<tr>
<td><strong>INHALED CORTICOSTEROID (ICS)</strong></td>
<td>fluticasone inhaled (Flovent®)</td>
<td>44, 110, 220 mcg / puff MDI 88 to &gt; 440 mcg twice daily Low dose: 44-110 mcg twice daily Med dose: 220 mcg twice daily High dose: 440 mcg twice daily 120 puffs / inhaler</td>
<td>Headache, arthralgia, throat inflammation, vomiting, dry mouth, cough, hoarseness, oral candidiasis, rare paradoxical bronchospasm, rare cases of hypersensitivity, angioedema</td>
<td>Contraindicated in status asthmaticus Rinse mouth after use</td>
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<tr>
<td></td>
<td>beclomethasone (QVAR®)</td>
<td>40-80 mcg twice daily Max 640 mcg/day 200 puffs/inhaler</td>
<td>See above</td>
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<td>trimcinonide (Azmacort®)</td>
<td>2 puffs three-four times daily or 4 puffs twice daily 240 puffs / inhaler</td>
<td>See above</td>
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<tr>
<td></td>
<td>mometasone (Asmanex Twisthaler®)</td>
<td>220 mcg once daily in evening, 220 mcg twice daily or 440 mcg once daily in PM (counter in device tells remaining doses)</td>
<td>See above</td>
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<tr>
<td><strong>CORTICOSTEROID ORAL</strong></td>
<td>Prednisone tablets</td>
<td>5 mg, 10 mg, 20 mg (to be used in burst fashion during exacerbation) 40-60 mg orally daily for 5-10 days No taper needed for short treatment interval [≤ 10 days]</td>
<td>GI upset, psychiatric disturbances, bruising, immunosuppression, hypertension, fluid retention</td>
<td>Contraindicated in systemic fungal infections; avoid administration of live or live attenuated vaccines with immunosuppressive doses of prednisone</td>
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<tr>
<td><strong>COMBINATION INHALER MEDICATIONS</strong></td>
<td>ICS + LABA Mometasone + formoterol (Dulera®) HFA-MDI</td>
<td>Low to moderate dose: 100 mcg / 5 mcg High dose: 200 mcg / 5 mcg</td>
<td>Headache, URI, throat irritation, oral candidiasis, neuromuscular and skeletal pain, menstruation symptoms Use higher doses of LABA with caution in patients with CAD, arrhythmias, or HTN</td>
<td>Black box warning: long-acting beta-2 adrenergic agonists (LABA) increase risk of asthma-related death. Attempt taper of LABA when patient is stable for three months, consider dose reduction of ICS after LABA discontinued.</td>
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<tr>
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<td>ICS + LABA Fluticasone + salmeterol (Advair Diskus®)</td>
<td>120 puffs / inhaler (counter in device tells remaining doses)</td>
<td>See above</td>
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<tr>
<td></td>
<td>montelukast (Singulair®)</td>
<td>10 mg orally each evening</td>
<td>Headache, dizziness, fatigue, fever, rash</td>
<td>Possible association between leukotriene inhibitor use and neuropsychiatric events including agitation, aggression, anxiety, dream abnormalities, hallucinations, depression, insomnia, irritability, restlessness, suicidal thinking and behavior (including suicide) and tremor.</td>
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<tr>
<td><strong>OTHER ASTHMA MEDICATIONS</strong></td>
<td>theophylline 100, 200, 300, 400, 450, 600 mcg ER (bronchodilator)</td>
<td>Restricted Formulary</td>
<td>Tachycardia, flutter, headache, insomnia, restlessness, nausea, diaphoresis, vomiting, tremor, difficulty urinating in men with prostatism. Significant drug interactions occur with phenytoin and cinetidine.</td>
<td>Use with caution in patients with cardiovascular disease, especially tachyarrhythmias; hyperthyroidism; pectus carinatum; history of seizures. May exacerbate these conditions. Monitor for signs and symptoms of theophylline toxicity (e.g., persistent or repetitive vomiting, tremor, tachycardia, confusion, seizures)</td>
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<tr>
<td></td>
<td>ipratropium inhaled (Atrovent HFA®) 17mcg/puff Ipratropium solution: 500 mcg / 2.5 ml</td>
<td>8 puffs every 20 minutes as needed for up to 3 hours (give with SABA) 200 puffs / inhaler Nebulizer: 2.5 ml every 20 minutes for 3 doses for acute asthma in combination with SABA</td>
<td>URI symptoms, bronchitis, cough, headache, dizziness, dyspnea, tachycardia, dry mouth, nausea. Rare: rash, itching.</td>
<td>Used with SABA via oxygen driven nebulizer for acute asthma exacerbations. Anticholinergic effects may worsen BPH or narrow-angle glaucoma.</td>
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</tbody>
</table>
SPECIALTY REFERRAL GUIDELINES

**GENERALLY REFER PATIENTS TO PULMONOLOGIST WHO HAVE:**

1. Asthma with complications or comorbidity (e.g., CO₂ retention, recent history of mechanical ventilation)
2. Continued asthma symptoms after maximal treatment, (e.g., multiple ER visits despite therapy)
3. Chronic corticosteroid use (e.g., on oral steroids > 4 weeks, or prolonged high-dose ICS used)

**DETAILED CRITERIA CAN BE FOUND ON INTER-QUAL SMART SHEETS**

PEAK FLOW PREDICTED - MEN

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These values represent average normal values within 100 L/min. Predicted values for African American and Hispanic minorities are approximately 10 percent lower. Redrawn from Lemiere, GC, et al, Am Rev Respir Dis 1963, 88:644.

PEAK FLOW PREDICTED - WOMEN

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These values represent average normal values within 80 L/min. Predicted values for African American and Hispanic minorities are approximately 10 percent lower. Redrawn from Lemiere, GC, et al, Am Rev Respir Dis 1963, 88:644.
SUMMARY
DECISION SUPPORT
PATIENT EDUCATION/SELF MANAGEMENT

CCHCS Care Guide: Asthma

March 2013

STATE OF CALIFORNIA
ASTHMA CONTROL ASSESSMENT TOOL (ACAT)
CDCR 7230-ACAT(02/13)

1. Over the past 2 weeks, how often have you had breathing difficulties?

<table>
<thead>
<tr>
<th></th>
<th>All the time.</th>
<th>Each day.</th>
<th>Many of the days.</th>
<th>Some of the days.</th>
<th>My breathing has not been difficult.</th>
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</table>

2. While sleeping, how often has your asthma caused you to wake up over the past 2 weeks?

<table>
<thead>
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<th>Most of the nights.</th>
<th>About half of the nights.</th>
<th>Three or four times.</th>
<th>Once or twice.</th>
<th>Not at all in the last two weeks.</th>
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<td>POINTS</td>
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</tbody>
</table>

3. Over the past 2 weeks, how often have you needed to use your rescue inhaler?

<table>
<thead>
<tr>
<th></th>
<th>More than twice a day.</th>
<th>Daily, but no more than twice a day.</th>
<th>About half the days.</th>
<th>One or two days.</th>
<th>I don’t need to use it.</th>
</tr>
</thead>
<tbody>
<tr>
<td>POINTS</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

4. How do you feel your asthma is doing?

<table>
<thead>
<tr>
<th></th>
<th>Bad.</th>
<th>Not so good.</th>
<th>OK.</th>
<th>Very good.</th>
<th>Great!</th>
</tr>
</thead>
<tbody>
<tr>
<td>POINTS</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

5. Over the past 2 weeks, has your asthma kept you from doing what you needed or wanted to do?

<table>
<thead>
<tr>
<th></th>
<th>Yes, affects what I do most of the time.</th>
<th>Yes, affects what I do sometimes.</th>
<th>Just a bit.</th>
<th>No, my asthma doesn’t slow me down.</th>
</tr>
</thead>
<tbody>
<tr>
<td>POINTS</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

6. In the past month, has your asthma caused you so much breathing difficulty that you became frightened?

Yes [subtract 5 points] This needs to be explored further with your provider.
No [no change in score]

TOTAL SCORE (add points for questions 1 thru 5, subtract 5 points for question 6, if “yes”)

Score > 20: Good control
Score 15-19: Not good control
Score < 15: Poor control

Completed by: (Initial) Patient
Date:
____ Health care staff
____ PCP

PCP Printed Name:
PCP Signature:

Institution:
Housing Unit:

1. Disability Code:
☐ TAME score ≤ 4.0
☐ Additional time
☐ DPH ☐ DPV ☐ LD
☐ Equipment ☐ SLI
☐ DPS ☐ DNH
☐ Louder ☐ Slower
☐ DNS ☐ DDP
☐ Basic ☐ Transcribe
☐ Other*
4. Comments:

☐ Not Applicable

Add chronic notes

2. Accommodation:
☐ P/H asked questions
☐ P/H summed information
☐ Please check one:
☐ Not reached ☐ Reached

3. Effective Communication:

CDCR #:
Last Name:
First Name: MI:
DOB:
What is Asthma?

Asthma is a disease that affects your airways. Airways are the tubes that carry air in and out of your lungs. There are different kinds of asthma:

- **Intermittent**: You may have symptoms that come and go and are very mild. You do not need a “controller” inhaler, but you may sometimes need to use a “rescue” inhaler
- **Persistent**: You have worse symptoms that happen more often. You need a “controller” inhaler to keep from having symptoms
- **Exercise Related**: You only have symptoms when you exercise. You may need to use your “rescue” inhaler before starting to exercise

What Causes Asthma?

- Can be common in your family
- Is more common in people with allergies
- Pollution can either cause asthma or make it worse
- Being exposed to certain diseases as a child adds to the chance of getting asthma

What are the Symptoms of Asthma?

When you have asthma you may:
- Wheeze—make a loud or soft whistling sound when you breathe
- Cough a lot
- Feel short of breath
- Have trouble sleeping because of coughing or having a hard time breathing
- Get tired quickly during exercise
- Have symptoms that are worse at night

How is Asthma Diagnosed?

- Your health care provider will ask you about your medical history and examine you.
- Breathing tests may be needed to see how fast or deeply you breathe. Another test tells how much air is moving in and out of your lungs.

How is Asthma Treated?

Asthma causes the muscles around your airways to tighten. This shrinks the airways and makes breathing harder.

**RESCUE INHALER- XOPENEX® (levalbuterol)**
- Tightening or narrowing of the airways can happen fast, but it can also get better fast using a “rescue” inhaler.
- You should only need this type of inhaler once in a while. If you are using it daily, see your health care provider

**CONTROLLER INHALER– FLOVENT® OR DULERA®**
Asthma also causes long term swelling inside the airways. This swelling narrows the airway and makes breathing harder.
- The swelling is there most of the time, but a “controller” inhaler can help keep it down and keep your airways open. Use your controller inhaler every day or as directed by your health care provider.
### PATIENT EDUCATION/SELF MANAGEMENT

#### How Do I Avoid Asthma Attacks?

- Don’t Smoke
- Be aware of things that can trigger an asthma attack and try to avoid them, such as strong emotions like anger, depression, or anxiety.
- Try not to catch a cold or the flu. Wash your hands often and get a flu shot every year
- Plan ahead and refill your prescription before it runs out

#### What Do I Do During an Asthma Attack?

1. Use your “rescue” inhaler right away. XOPENEX® (levalbuterol)
2. Sit down and loosen any tight fitting clothing. Do not lie down.
3. If you are not breathing better right away, take one puff of your “rescue” inhaler every minute for five minutes or until you are breathing better.
4. If you are not breathing better in five minutes, seek medical attention immediately.

#### Tell Your Health Care Provider How You Are Doing with Your Asthma

| Green Zone | No trouble breathing  
|Doing Well | Can do usual activities |
| Yellow Zone | Cough, wheeze, chest tightness, or shortness of breath  
|Asthma is Getting Worse | Waking at night due to asthma symptoms  
| | Can do some, but not all, normal activities |
| Red Zone | Very short of breath  
|Medical Alert | Quick-relief medicines have not helped (Not breathing better after using “rescue” inhaler every minute for five minutes)  
| | Cannot do normal activities  
| | Symptoms are the same or worse after 24 hours in the Yellow Zone |

**CONTACT MEDICAL/CUSTODY TO BE SEEN IMMEDIATELY**

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A big part of your asthma control depends on you. Health care staff is here to help you, but you must do your part to help them give you the best care possible.
TWO WAYS TO USE AN INHALER

Open Mouth: many doctors prefer this, but some patients find it harder
The only difference is you do not put the inhaler in your mouth (Step 4 below)

1. Shake the inhaler well before use (three or four shakes)
2. Remove the cap.
3. Breathe out, away from your inhaler.
4. Hold the inhaler about 1-2 inches from your mouth.
5. Start to breathe in slowly, at the same time press the top of your inhaler to spray one puff and keep breathing in slowly until you've taken a full breath.
6. Hold your breath for about 10 seconds, then breathe out slowly.

If using controller (steroid) inhaler, rinse mouth after using.

Closed Mouth: Follow these six steps (see pictures 1-6)
1. Shake the inhaler well before use (three or four shakes)
2. Remove the cap.
3. Breathe out, away from your inhaler.
4. Bring the inhaler to your mouth. Place it in your mouth between your teeth and close your mouth around it. (Do not let tongue block the inhaler opening)
5. Start to breathe in slowly. Press the top of your inhaler to release one puff and keep breathing in slowly until you've taken a full breath.
6. Remove the inhaler from your mouth, and hold your breath for about 10 seconds, then breathe out.
If using controller (steroid) inhaler, rinse mouth after using.
HINTS: WHEN YOU FIRST USE YOUR INHALER/CLEANING YOUR INHALER

The first time you use your inhaler (or if you have not used it in 7-10 days), point it away from you and press the top of the inhaler to “spray” 2-3 “puffs” to be sure the inhaler is working well.

To clean your rescue inhaler:
- Take the metal canister out of the plastic case.
- Wash the plastic case twice a week with mild soap and water. Rinse with running water.
- Shake off excess water.
- Air dry.
- Put the plastic case and metal canister together when completely dry.

To clean your daily controller (steroid) inhaler:
- Remove the cap. Keep the canister in the case.
- Wipe the opening where the metal canister meets the plastic case with a damp cloth.

USING A SPACER

A “spacer” is a tube that you use with your inhaler to help the medication get into your lungs better. Not everyone needs a spacer, but if you are having trouble using your inhaler, your nurse or doctor may recommend you use a spacer.

How to use spacer:
1. Remove the cap from the inhaler and from the spacer device. Shake well.
2. Insert the inhaler into the open end of the spacer (opposite the mouthpiece).
3. Place the mouthpiece of the spacer between your teeth and seal your lips tightly around it.
4. Breathe out completely.
5. Press the inhaler one time (one puff).
6. Breathe in slowly and completely through your mouth. If you hear a horn-like sound, you are breathing too quickly and need to slow down.
7. Hold your breath for at least 10 seconds to allow the medication to get into your lungs.
8. If your dose is more than one puff then wait at least one minute before doing another puff.
9. When finished, put the caps back on the inhaler and spacer.
10. If you are using a controller (steroid) inhaler rinse your mouth with water.