### Diagnosis and Screening

#### Diagnostic Criteria
- Episodic symptoms of airflow obstruction or airway hyperresponsiveness are present
- Airflow obstruction is at least partially reversible
- Alternative diagnoses are excluded

**Methods to establish diagnosis are:**
- Detailed medical history
- Physical exam focusing on the upper respiratory tract, chest, and skin
- Spirometry to demonstrate obstruction and assess reversibility in children 5 years of age or older. Reversibility is determined either by an increase of Forced Expiratory Volume (FEV1) of ≥ 12% from baseline or by an increase ≥ 10% of predicted FEV1 after inhalation of a short acting bronchodilator.
- Additional studies as necessary to exclude alternate diagnoses


#### Risk Factors
- **Allergies or eczema**: Adults and children with allergies and eczema (or other atopic conditions) are at increased risk of asthma.
- **A family member with asthma**: A close relative (parent or sibling) with asthma increases the risk for developing asthma.
- **Workplace or household exposure**: Contact with chemical irritants or industrial dusts in the workplace may be associated with occupational asthma. Similarly, exposure to tobacco smoke and air pollution are associated with increased risk of asthma.

Source: NHLBI EPR 3, 2007

#### Screening Guidelines
- Not Applicable
Asthma Exacerbation Algorithm

Asthma Patient

Does the patient have the following?
- Worsening breathlessness
- Increased wheezing
- Nighttime coughing/awakenings
- Increased use of rescue inhaler
- Recent oral Prednisone burst
- ACT score < 19

Yes

Determine if this is an asthma exacerbation or exacerbation of comorbidity
- Review patient’s past medical history.
- Discuss with patient if she/he was recently given a new diagnosis.

No

Continue with current therapy for at least three (3) months or step-down asthma therapy after 3 months of control.

Checkpoint
Labs and Tests

Labs:
- CBC with diff
- IgE
- RAST or Regional Serum Allergen Panel

Tests:
- Pulmonary function tests with bronchodilator challenge (should include lung volume and DLCO)
- Consider CXR or CT scan if an overlapping pulmonary disease is suspected.

Asthma Exacerbation

Asthma Exacerbation Criteria
- Increase dyspnea > 2 days
- Increase daily need for rescue Albuterol lasting > 2 days
- Use of Prednisone by patient or prescribed by provider discretion
- Inability to sleep because breathlessness ≥ 1 day

Consider Referral

Mild Exacerbation
1 Criteria
- Continue Asthma Action Plan at home
- Monitor deterioration and need for rescue treatment by phone or clinic visit*

Moderate Exacerbation
2 Criteria
- Activate Asthma Rescue Plan at home: Increase Albuterol use ± Prednisone
- Monitor for deterioration
- Alert on-call primary care nurse

Severe Exacerbation
3 Criteria
- Urgent activation of Asthma Rescue Plan at home or hospital: Prednisone ± antibiotics ± PPN oxygen
- Proceed to Urgent Care or ER
- CXR r/o PNA & consider ABG
- Consider PNA, PE, MI, PTX

Consider Referral

Source: Tan L., Loma Linda University COPD Asthma Network (LLU CAN), 2018.
## Classifying Asthma Severity and Initiating Therapy in Adults

### Components of Severity

<table>
<thead>
<tr>
<th></th>
<th>Intermittent</th>
<th>Mild</th>
<th>Persistent</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>
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#### Symptoms
- **Nighttime awakenings**
  - Intermittent: 0
  - Mild: 1-2/month
  - Persistent: >2/month

#### Impairment
- **Inference with normal activity**
  - Intermittent: None
  - Mild: Minor limitation
  - Persistent: Some limitation

#### Lung Function
- **FEV\(^1\) (% predicted)**
  - Intermittent: Normal
  - Mild: ≥80%
  - Persistent: >80%

#### Risk
- **Asthma exacerbations requiring oral systemic corticosteroids**
  - Intermittent: 0-1/year
  - Mild: ≥2/year

### Recommended Step for Initiating Therapy

- **Step 1**: Treatment for the initial exacerbation
- **Step 2**: Treatment for the initial exacerbation
- **Step 3**: Treatment for the initial exacerbation
- **Step 4**: Treatment for the initial exacerbation

### Considerations
- Severity and interval since last asthma exacerbation.
- Frequency and severity may fluctuate overtime for patients in any severity category.

### Notes
- *Abbreviations: EIB, exercise-induced bronchoconstriction; FEV\(_1\), forced expiratory volume in 1 second; FVC, forced vital capacity; ICS, inhaled corticosteroids; SABA, short-acting beta-sympathomimetic.*
- *Normal FEV\(_1\)/FVC by age: 8-15 years, 88%; 16-35 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, hospitalization, or intensive 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.*

Source: NHLBI EPR 3, 2007
Medication Therapy

Stepwise Approach for Managing Asthma in ≥ 12 Years of Age and Adults

When to Refer to a Specialist

- Use asthma treatment algorithm on page 2 for recommendations to refer to Pulmonology.
Lifestyle Management And Member Education

- Ongoing patient education, including components of clinician follow-up, monitoring, reinforcement, and adherence strategies is recommended for improving asthma control.

- Written action plans (peak flow and/or symptom based) as part of an overall effort to educate patients in self-management are recommended, especially for patients who are not controlled on long-term controller medication and patients with a history of severe exacerbations.

- Attachment: Asthma Action Plan
  Source: Public Health Institute. Regional Asthma Management and Prevention Initiative, 2018

References and Resources:


Laren Tan, MD. Director Loma Linda University COPD & Asthma Network (LLU CAN), 2018.


Asthma Action Plan

**PROVIDER INSTRUCTIONS**

At initial presentation, determine the level of asthma severity

- Level of severity is determined by both impairment and risk and is assigned to the most severe category in which any feature occurs.

At subsequent visits, assess control to adjust therapy

- Level of control is determined by both impairment and risk and is assigned to the most severe category in which any feature occurs.
- Address adherence to medication, inhaler technique, and environmental control measures.
- Sample patient self-assessment tools for asthma control can be found at
  - [http://www.asthmacontrolcheck.com](http://www.asthmacontrolcheck.com)

Stepwise approach for managing asthma:

- Therapy is increased (stepped up) if necessary and decreased (stepped down) when possible as determined by the level of asthma severity or asthma control.

**ASTHMA MANAGEMENT RECOMMENDATIONS:**

- Ensure that patient/family receive education about asthma and how to use spacers and other medication delivery devices.
- Assess asthma control at every visit by self-administered standardized test or verbal history.
- Perform spirometry at baseline and at least every 1 to 2 years for patients ≥ 5 years of age.
- Update or review the Asthma Action Plan every 6 to 12 months.
- Perform skin or blood allergy tests for all patients with persistent asthma.
- Encourage patient/family to continue follow-up with their clinician every 1 to 6 months even if asthma is well controlled.
- Refer patient to a specialist if:
  - there are difficulties achieving or maintaining control
  - step 4 care or higher is required (step 3 care or higher for children 0-4 years of age) OR
  - immunotherapy or omalizumab is considered OR
  - additional testing is indicated OR
  - if the patient required 2 bursts of oral systemic corticosteroids in the past year or a hospitalization.

**HOW TO USE THE ASTHMA ACTION PLAN:**

**Top copy (for patient):**

- Enter specific medication information and review the instructions with the patient and/or family.
- Educate patient and/or family about factors that make asthma worse and the remediation steps on the back of this form.
- **Complete and sign the bottom of the form and give this copy of the form to the patient.**

**Middle copy (for school, childcare, work, etc):**

- Educate the parent/guardian on the need for their signature on the back of the form in order to authorize student self-carry and self-administration of asthma medications at school and also to authorize sharing student health information with school staff.
- **Provide this copy of the form to the school/childcare center/work/caretaker or other involved third party. (This copy may also be faxed to the school, etc.)**

**Bottom copy (for chart):**

- **File this copy in the patient’s medical chart.**

**FOR MORE INFORMATION:**

To access the August 2007 full version of the NHLBI Guidelines for the Diagnosis and Treatment of Asthma (EPR-3) or the October 2007 Summary Report, visit [http://www.nhlbi.nih.gov/guidelines/asthma/index.htm](http://www.nhlbi.nih.gov/guidelines/asthma/index.htm).
**My Asthma Plan**

**ENGLISH**

**Patient Name:**

**Medical Record #:**

**Provider’s Name:**

**DOB:**

**Provider’s Phone #:**

**Completed by:**

**Date:**

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<th>Controller Medicines</th>
<th>How Much to Take</th>
<th>How Often</th>
<th>Other Instructions</th>
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<th>Quick-Relief Medicines</th>
<th>How Much to Take</th>
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<th>Other Instructions</th>
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Special instructions when I am **doing well**, **getting worse**, or **having a medical alert.**

**Doing well.**
- No cough, wheeze, chest tightness, or shortness of breath during the day or night.
- Can do usual activities.

**Peak Flow** (for ages 5 and up):
- is _____ or more. (80% or more of personal best)

**Personal Best Peak Flow** (for ages 5 and up): _______

**Getting worse.**
- Cough, wheeze, chest tightness, shortness of breath, or
- Waking at night due to asthma symptoms, or
- Can do some, but not all, usual activities.

**Peak Flow** (for ages 5 and up):
- _____ to _____ (50 to 79% of personal best)

**Medical Alert**
- Very short of breath, or
- Quick-relief medicines have not helped, or
- Cannot do usual activities, or
- Symptoms are same or get worse after 24 hours in Yellow Zone.

**Peak Flow** (for ages 5 and up):
- less than _____ (50% of personal best)

**CAUTION.** Continue taking every day controller medicines, AND:
- Take ____ puffs or ____ one nebulizer treatment of quick relief medicine.
- If I am not back in the **Green Zone** within 20-30 minutes take ____ more puffs or nebulizer treatments. If I am not back in the **Green Zone** within one hour, then I should:
  - Increase
  - Add
  - Call
  - Continue using quick relief medicine every 4 hours as needed. Call provider if not improving in _____ days.

**MEDICAL ALERT! Get help!**
- Take quick relief medicine: _____ takes every _____ minutes and get help immediately.
- Take
- Call

**Health Care Provider:** My signature provides authorization for the above written orders. I understand that all procedures will be implemented in accordance with state laws and regulations. Student may self carry asthma medications: [ ] Yes [ ] No self administer asthma medications: [ ] Yes [ ] No (This authorization is for a maximum of one year from signature date.)

Healthcare Provider Signature

Date

©2008, Public Health Practice (PHPr)
Controlling Things That Make Asthma Worse

**SMOKE**

- Do not smoke. Attend classes to help stop smoking.
- Do not allow smoking in the home or car. Remaining smoke smell can trigger asthma.
- Stay away from people who are smoking.
- If you smoke, smoke outside.

**DUST**

- Vacuum weekly with a vacuum with a high efficiency filter or a central vacuum. Try to make sure people with asthma are not home during vacuuming.
- Remove carpet if possible. Wet carpet before removing and then dry floor completely.
- Damp mop floors weekly.
- Wash bedding and stuffed toys in hot water every 1-2 weeks. Freeze stuffed toys that aren’t washable for 24 hours.
- Cover mattresses and pillows in dust-mite proof zipped covers.
- Reduce clutter and remove stuffed animals, especially around the bed.
- Replace heating system filters regularly.
- Do not leave food or garbage out. Store food in airtight containers.
- Try using traps and poison baits, such as boric acid for cockroaches. Instead of sprays/bombs, use baits placed away from children, such as behind refrigerator.
- Vacuum up cockroach bodies and fill holes in with caulking or copper wool.
- Fix leaky plumbing, roof, and other sources of water.
- Use exhaust fans or open windows for cross ventilation when showering or cooking.
- Clean mold off hard surfaces with detergent in hot water and scrub with stiff brush or cleaning pad, then rinse clean with water. Absorbent materials with mold may need to be replaced.
- Make sure people with asthma are not in the room when cleaning.
- Fix leaky plumbing or other sources of water or moisture.
- Consider not having pets. Avoid pets with fur or feathers.
- Keep pets out of the bedroom of the person with asthma.
- Wash your hands and the hands of the person with asthma after petting animals.
- Avoid using strongly scented products, such as home deodorizers and incense, and perfumed laundry products and personal care products.
- Do not use oven/stove for heating.
- When cleaning, keep person with asthma away and don’t use strong smelling cleaning products.
- Avoid aerosol products.
- Avoid strong or extra strength cleaning products.
- Avoid ammonia, bleach, and disinfectants.
- Warm up before exercising.
- Plan alternate indoor activities on high pollen or pollution days.
- If directed by physician, take medication before exercise. (See Green Zone of Asthma Action Plan.)
SCHOOL AUTHORIZATION FORM
To be completed by Parent/Guardian and turned in to the school

AUTHORIZATION AND DISCLAIMER FROM PARENT/GUARDIAN: I request that the school assist my child with the asthma medications listed on this form, and the Asthma Action Plan, in accordance with state laws and regulations.

☐ Yes ☐ No.

My child may carry and self-administer asthma medications and I agree to release the school district and school personnel from all claims of liability if my child suffers any adverse reactions from self-administration of asthma medications:

☐ Yes ☐ No.

Parent/Guardian Signature ___________________________ Date ___________________________

AUTHORIZATION FOR USE OR DISCLOSURE OF HEALTH INFORMATION TO SCHOOL DISTRICTS

Completion of this document authorizes the disclosure and/or use of individually identifiable health information, as set forth below, consistent with Federal laws (including HIPAA) concerning the privacy of such information. Failure to provide all information requested may invalidate this authorization.

USE AND DISCLOSURE INFORMATION:

Patient/Student Name: ___________________________ / ___________________________ Date of Birth

I, the undersigned, do hereby authorize (name of agency and/or health care providers):

(1) ___________________________ (2) ___________________________ to provide health information from the above-named child’s medical record to and from:

_________________________ School or school district to which disclosure is made ___________________________ Address / City and State / Zip Code

_________________________ Contact person at school or school district ___________________________ Area Code and Telephone Number

The disclosure of health information is required for the following purpose:

________________________________________________________

Requested information shall be limited to the following: ☐ All health information; or ☐ Disease-specific information as described:

________________________________________________________

DURATION:

This authorization shall become effective immediately and shall remain in effect until __________ (enter date) or for one year from the date of signature, if no date entered.

RESTRICTIONS:

Law prohibits the Requestor from making further disclosure of my health information unless the Requestor obtains another authorization form from me or unless such disclosure is specifically required or permitted by law.

YOUR RIGHTS:

I understand that I have the following rights with respect to this Authorization: I may revoke this Authorization at any time. My revocation must be in writing, signed by me or on my behalf, and delivered to the health care agencies/persons listed above. My revocation will be effective upon receipt, but will not be effective to the extent that the Requestor or others have acted in reliance to this Authorization.

RE-DISCLOSURE:

I understand that the Requestor (School District) will protect this information as prescribed by the Family Equal Rights Protection Act (FERPA) and that the information becomes part of the student’s educational record. The information will be shared with individuals working at or with the School District for the purpose of providing safe, appropriate, and least restrictive educational settings and school health services and programs.

I have a right to receive a copy of this Authorization. Signing this Authorization may be required in order for this student to obtain appropriate services in the educational setting.

APPROVAL:

Printed Name ___________________________ Signature ___________________________ Date ___________________________

Relationship to Patient/Student ___________________________ Area Code and Telephone Number ___________________________
This Asthma Plan was developed by a committee facilitated by the Regional Asthma Management and Prevention (RAMP) Initiative, a program of the Public Health Institute. This publication was supported by Cooperative Agreement Number 1U58DP001016-01 from the Centers for Disease Control and Prevention. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of CDC. This plan is based on the recommendations from the National Heart, Lung, and Blood Institute’s, “Guidelines for the Diagnosis and Management of Asthma,” NIH Publication No. 07-4051 (August 2007). The information contained herein is intended for the use and convenience of physicians and other medical personnel and may not be appropriate for use in all circumstances. Decisions to adopt any particular recommendation must be made by qualified medical personnel in light of available resources and the circumstances presented by individual patients. No entity or individual involved in the funding or development of this plan makes any warranty or guarantee, express or implied, of the quality, fitness, performance or results of use of the information or products described in the plan or the Guidelines.

For additional information, please contact RAMP at (510) 302-3365, http://www.rampasthma.org.