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<b>Management of Asthma</b>	<b>ACA Standards: 4-4359M, 4-4367</b>		
<b>Donald Sutmiller, DO, Chief Medical Officer Oklahoma Department of Corrections</b>		<b>Signature on File</b>	

## Management of Asthma

### I. Asthma Identification

- A. Asthma is characterized by episodic symptoms of airflow obstruction resulting in wheezing, shortness of breath, tightness in the chest or cough.
- B. Airflow obstruction in asthma is at least partially reversible (the degree of reversibility is a major factor in clinically distinguishing asthma from Chronic Obstructive Pulmonary Disease).
- C. Asthma can be diagnosed clinically as repeated, episodic signs and symptoms of airflow obstruction, which are reversed by inhaled beta<sub>2</sub>-agonist use. When the diagnosis is in doubt, spirometry can be done. Spirometry in asthma shows the following:
  1. Airflow obstruction
  2. FEV1 < 80% predicted
  3. FEV1/FVC <65%
  4. Reversibility

5. FEV increases >12% after using an inhaled beta<sub>2</sub>-agonist

## II. Initial Evaluation

The initial evaluation should confirm the diagnosis of asthma and determine the presence of coexisting conditions such as COPD, infection, heart disease and allergies that may contribute to symptoms. Documentation of the chronic illness will be documented in accordance with [OP-140137](#) entitled “Chronic Illness Management” and on [DOC 140137 B](#) entitled “Chronic Illness Management Treatment Plan” form.

### A. History

1. Episodic wheezing, cough, shortness of breath or chest tightness, age of onset, hospitalizations, intubations
2. Symptoms may be worse at night or in the presence of allergens, irritants, or exercise
3. Presence and character of sputum
4. History of allergic rhinitis or atopic dermatitis
5. History of smoking
6. History of heart disease
7. Seasonal pattern of symptoms
8. Medication history

### B. Examination

1. Complete set of vital signs (weight, temperature, pulse, respiration, blood pressure)
2. Expiratory wheezing or prolonged expiratory phase of respiration
3. Hyperexpansion of the chest
4. Heart murmur, S3 or S4, Jugular Venous Distention, dependent edema
5. Peak expiratory flow rate (PEFR or “peak flow”) – a baseline should be established when the patient is relatively free of symptoms, upon which to compare subsequent measurements.

C. Lab and other Diagnostic Studies

1. Chest X-ray – may show hyperexpansion; also look for infiltrates, cardiomegaly, venous congestion, interstitial fluid, and emphysematous changes.
2. CBC (DLO 1759)

D. Determine the severity of asthma

<b>Class</b>	<b>Peak flow (percent of personal best)</b>	<b>Frequency of beta<sub>2</sub>-agonist use</b>	<b>Nights with Symptoms</b>
Severe persistent	<60%	Several times daily	Frequent
Moderate persistent	60% - 80%	Daily	>5 times per month
Mild persistent	>80%	3 – 6 times per week	3 – 4 times per month
Mild intermittent	>80%	<2 times per week	<2 times per month

III. Treatment

A. Treatment for asthma shall be as follows:

1. Control factors that contribute to asthma severity
  - a. Smoking cessation
  - b. Allergen/Irritant avoidance
  - c. Treatment of gastroesophageal reflux symptoms
  - d. Medications – caution with use of aspirin, NSAID's and beta-blockers

B. Pharmacologic Agents

1. Long-term control medications
  - a. Inhaled steroids (e.g. – Q Var)

- b. Long acting inhaled beta<sub>2</sub>-agonist (e.g. – Serevent) when used alone can increase mortality. Long acting inhaled beta 2 agonist should be used in combination with inhaled steroid (Advair).
- c. Leukotriene modifiers (e.g. – Accolate)
- d. Sustained – release Theophylline (alternative, not preferred)
- e. Mast cell stabilizers – Chromolyn, Nedocromil

2. Quick relief medications

- a. Short acting inhaled beta<sub>2</sub>-agonist (preferred)
- b. Oral steroids
- c. Inhaled anticholinergics (in special circumstances)

C. Stepwise Approach to Therapy

- 1. All patients need to have a short-acting inhaled beta<sub>2</sub>-agonist to take as needed for symptoms
- 2. Patients with any severity of persistent asthma (see table) require daily long-term control medications.

Class	Long-term control medication
Severe Persistent Step 4-6	Medium to High dose inhaled steroid AND Long-acting inhaled beta <sub>2</sub> -agonist AND leukotriene modifier or theophylline. May further add long term oral corticosteroids Consider referral to asthma specialist
Moderate Persistent Step 3	Low to medium dose inhaled steroid <u>plus</u> long-acting inhaled beta <sub>2</sub> -agonist (PREFERRED); or Medium dose inhaled steroid and leukotriene modifier or theophylline if needed
Mild Persistent Step 2	Low dose inhaled corticosteroid OR Cromolyn or Nedocromil inhaler, leukotriene modifier, or sustained released theophylline

Mild Intermittent Step 1	No long-term control medication needed Short acting beta 2 agonist
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3. Once control is achieved, therapy can be gradually stepped down to the lowest level required to maintain control
4. If control is not maintained, therapy should be stepped up. **Use of short-acting beta<sub>2</sub>-agonist > 2 times a week indicates need to increase long-term control medication**
5. A short course of oral steroids may be needed at any time in any step.
6. Long-acting beta<sub>2</sub>-agonist tablets or sustained-release theophylline can be substituted for long-acting inhaled beta<sub>2</sub>-agonist (but are not preferred)
7. Teach, demonstrate, and observe proper use and technique with metered dose inhalers, as these devices are improperly used by many uninstructed patients.
8. When applicable, teach, demonstrate and observe proper use and technique on use of hand held nebulizer.

#### IV. Goals of Therapy

- A. Maintain PEFr >80% of personal best
- B. Maintain normal activity levels
- C. Minimize emergency room visits or hospitalizations
- D. Minimize sleep disruption and missed work due to asthma symptoms
- E. Decrease frequency/severity of asthma episodes
- F. Minimize use of quick-relief inhalers (< 1x/day, < 1 canister/month)
- G. If patient meets all goals of treatment without a need for asthma medications for 6 months a provider can discharge them from Chronic Clinic enrollment.

#### V. Routine Follow-Up

Once goals of therapy have been reached and the patient is stable, routine follow-up in chronic clinic should be arranged as follows:

A. Chronic clinic visit

1. Review medication regimen – inhaler technique, frequency of beta<sub>2</sub>-agonist use, side effects
2. Complete Asthma Score with inmate – see Attachment B. If score is less than 19 asthma may not be under control. Control should aim for 20 or more.
3. Interval history – nighttime symptoms, triggers, missed work
4. Exam – PEFr, lung sounds, is wheezing present
5. Patient education – use of inhaler, PEFr monitoring, quick-relief vs. long-term control medications.
6. Categorize in accordance with “Severity Classification of Common Chronic Illness” ([OP-140137](#), [Attachment A](#)).
7. Step-up or step-down therapy as needed

B. Annually

1. Interval history – as above
2. Complete physical exam
3. Oral exam by provider with referral to dental as needed

C. Vaccines

1. Influenza (annually)
2. NOTE: Pneumococcal vaccine was discontinued as a recommendation from the CDC for individuals with asthma. It may be given at the discretion of the provider

VI. References

Based on Expert Panel Report 2: Guidelines for the Diagnosis and Management of Asthma – from the National Heart, Lung, and Blood Institute; and the National Asthma Education and Prevention Program (NAEPP)

Expert Panel Report: Update on selected topics 2002

American Lung Association – Asthma Control test and Know Your Asthma Score. (Asthma Control Test is a trademark of QualityMetric Incorporated Copyright 2002)

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OP-140137 entitled "Chronic Illness Management"

VII. Action

The chief medical officer, Medical Services will be responsible for compliance with this procedure.

Any exceptions to this procedure will require prior written approval from the director.

This procedure will be effective as indicated.

Replaced: Medical Services Resource Manual 140137-01 entitled "Management of Asthma" dated April 23, 2010.

Distribution: Medical Services Resource Manual

Referenced Forms	Title	Located In
<a href="#">DOC 140137 B</a>	"Chronic Illness Management Treatment Plan- Asthma"	<a href="#">OP-140137</a>
Attachments		
<a href="#">Attachment A</a>	"Severity Classification of Common Chronic Illness"	<a href="#">OP-140137</a>
<a href="#">Attachment B</a>	"Asthma Score"	Attached