



## Guideline for Disease Management in Correctional Settings

### ADOLESCENT ASTHMA

#### **Recommended Resources to Support Evidence-Based Practice and Quality Improvement**

NCCHC issues guidelines to assist correctional health care clinicians in evidence-based decision making. For specific clinical practice guidelines and recommendations, please see the resources listed on page 4.

#### **Introduction**

Although clinical guidelines are important decision support for evidence-based practice, to leverage the potential of guidelines to improve patient outcomes and resource use, NCCHC recommends that health care delivery systems also have components including primary care teams, other decision support at the point of care (such as reminders), disease registries, and patient self-management support. These components have been shown to improve outcomes for patients with chronic conditions. In addition, we recommend establishment of a strategic quality management program that supports ongoing evaluation and improvement activities focused on a set of measures that emphasize outcomes as well as process and practice. For information on the chronic care model, model for improvement, and outcomes measures, see the resources listed on page 4.

#### **Adolescent Asthma Care in Corrections**

Assessment of adolescents for asthma is especially important because there is evidence that early treatment to prevent inflammation may prevent progressive development of irreversible lung disease. The elements used to make the diagnosis include history, symptomatic episodes such as wheezing or coughing, physical examination with findings of obstruction on observation and auscultation, and, in some cases, abnormal diagnostic results. Diagnostic tests include pulmonary function and chest X rays to rule out other diseases that cause pulmonary obstruction. Peak flow meter reading can be a useful screening tool, but in cases of uncertain diagnosis pulmonary function tests remain necessary.

To manage asthma successfully in the correctional environment, NCCHC recommends categorizing patients according to the severity of their illness. It is critical that all patients be categorized on entry to the system and reassessed on an ongoing basis.

The object is to assist the patient in diminishing the frequency of symptoms. This includes:

- Decreasing the frequency and severity of asthma episodes
- Having no or minimal side effects while receiving optimal medications
- Preventing emergency visits and hospitalizations
- Diminishing effects on daily activities, such as school, work, and exercise
- Minimizing nocturnal symptoms, including coughing, wheezing, and sleep disruption
- Maintaining normal or near-normal pulmonary function
- Preventing progression to acute respiratory failure and death

All patients with asthma must be taught to report symptoms promptly so that treatment can be initiated and an acute severe deterioration in clinical status can be prevented or, if present, detected and treated. In addition, the patient should express satisfaction with asthma care received.

The initial history should include age of onset, description of episodic symptoms (wheeze, chest tightness, shortness of breath), triggers (smoking in the home, pets, allergies), frequency of emergency room visits, intubations for asthma, frequency of hospitalizations, prior use of inhaled steroids, prior use of systemic steroids, current medication use including the number of puffs and canisters of beta-agonist inhalers per month and the number of puffs of inhaled steroids per day, and the personal best peak flow measure at home. The history also should include questions regarding atopy (allergic rhinitis, allergic conjunctivitis, atopic dermatitis), sinus infections, allergies, seasonal attacks, smoking history, history compatible with gastrointestinal reflux, and family history of asthma and other atopic disease.

The physical examination should include a complete set of vital signs, a full physical exam with a focus on the respiratory exam (including ear, nose, throat, and lung), skin, and a peak expiratory flow measurement.

A chest X ray is necessary for first-time wheezing to rule out other causes of wheezing. It also is helpful when there are questions about the diagnosis. Using the information collected from the intake history, physical exam, and chest X ray, the patient's severity of disease should be documented based on clinical features before treatment is provided (see Table 1).

<b>Table 1. Severity</b>				
The clinician should assess disease severity to initiate treatment for patients who are not currently taking long-term control medications.				
Components of Control	Degree of Severity			
		Persistent		
	Intermittent	Mild	Moderate	Severe
Short-acting beta-agonist inhaler use	< 2 days a week	> 2 days a week but not daily	Daily	Several times a day
Symptoms	≤ 2 days a week	> 2 days a week but not daily	Daily	Throughout the day
Nighttime awakenings	≤ 2 times a month	3-4 times a month	> 1 time a week but not nightly	Often, 7 times a weeks
Interference with normal activity	No limitation	Minor limitation	Some limitation	Extreme limitation
Lung function/ FEV <sub>1</sub>	> 80% predicted	> 80% predicted	60%–80% predicted	< 60% predicted
Source: National Asthma Education and Prevention Program, Expert Panel Report 3, Summary Report, Guidelines for the Diagnosis and Management of Asthma, p. 44. <a href="http://www.nhlbi.nih.gov/guidelines/asthma/asthsumm.pdf">http://www.nhlbi.nih.gov/guidelines/asthma/asthsumm.pdf</a>				

Indications for referral to a specialist include a history of ongoing problems with control, uncertainty of diagnosis, or severe disease, including patients with hospitalization for asthma in the past year. At each follow-up visit, the clinician should record the degree of control (see Table 2).

<b>Table 2. Control</b>			
At each follow-up visit, the clinician should record the degree of control as good, fair, or poor (the National Asthma Education and Prevention Program uses “well controlled,” “not well controlled,” and “very poorly controlled”).			
Components of Control	Good Control (Well Controlled)	Fair Control (Not Well Controlled)	Poor Control (Very Poorly Controlled)
Beta-agonist inhaler use	No more than one canister per month	No more than one canister per month	More than one canister per month
Visits to an on-site urgent care center or community emergency department or hospital	None	No more than one in past month	More than one per month
Nighttime awakenings from asthma symptoms	None	No more than once a week	More than three times a week

In the past, cromolyn or nedocromil was often tried first in children with mild or moderate persistent asthma because it was felt that these medications were often effective anti-inflammatory therapies and have no known long-term systemic effects. However, recently their routine use has fallen into disfavor, especially for adolescents. Special consideration of growth, school, and social development must be made for children and younger adolescents. The potential but small risk of adverse effects on linear growth from the use of inhaled steroids is well balanced by their efficacy. The clinician should be aware that allergic rhinitis and sinusitis often exacerbate asthma and these conditions should be treated. A screen with an IgE level when an allergy consult is not readily available or delayed may indicate whether nasal steroids or an antihistamine would be useful. Patients with persistent nasal congestion or difficult to control asthma should have sinus radiographs to rule out sinusitis.

Basic education for adolescent patients with mild intermittent and all of the more severe categories of asthma include the following:

- Teach basic facts about asthma, including inhaler/spacer/holding chamber techniques. Discuss the role of medications.
- Develop a self-management plan.
- Develop an action plan for when and how to take rescue actions, especially for those with a history of severe exacerbations.
- Discuss appropriate environmental control measures to avoid exposure to known allergens and irritants.
- Teach self-monitoring and refer to group education, if possible.
- Review and update the self-management plan.
- For patients with severe persistent asthma, provide individual education and counseling.

**Quality Improvement Measures**

The following quality improvement measures are suggested, but they are not intended to be a complete list necessary to ensure a successful chronic asthma management program in a juvenile correctional setting. We recommend that the improvement measures for a patient population be reported at a facility level and at a provider or team level.

- When the level of control is categorized as fair or poor, or the status of the patient is listed as worsened under the assessment part of the SOAP note, the treatment plan includes a strategy for gaining better control by working with the patient.
- For each patient, the ratio of the number of beta-agonist inhaler canisters issued to the number used within a given time period (e.g., 1 month) is determined. This ratio does not exceed a one-to-one ratio per month.
- The number of asthma patients eligible for flu vaccination equals the number who are offered flu immunizations.
- The percentage of documented peak flow meter readings in assessing acute attacks is documented.
- Urgent care and hospital admissions are reviewed under the facility's continuing quality improvement program.
- Asthma deaths, one of the most common and preventable deaths in correctional settings, are an opportunity to learn. Mortality reviews are completed on every asthma-related death.

### Recommended Resources to Support Evidence-Based Practice and Quality Improvement

RESOURCE	Expert Panel Report 3 (EPR-3): Guidelines for the Diagnosis and Management of Asthma (October 2007)
SOURCE	National Asthma Education and Prevention Program; National Heart, Lung, and Blood Institute; National Institutes of Health
URL	<a href="http://www.nhlbi.nih.gov/guidelines/asthma">http://www.nhlbi.nih.gov/guidelines/asthma</a>
RESOURCE	Chronic Care Model: Meet the Needs of Specific Populations
SOURCE	Based on the model developed by Ed Wagner MD, MPH, MacColl Institute for Healthcare Innovation, Group Health Cooperative of Puget Sound, and the Improving Chronic Illness Care program. Available from the Institute for Healthcare Improvement
URL	<a href="http://www.ihl.org/knowledge/Pages/Changes/MeettheNeedsofSpecificPopulations.aspx">http://www.ihl.org/knowledge/Pages/Changes/MeettheNeedsofSpecificPopulations.aspx</a>
RESOURCE	How to Improve / Model for Improvement
SOURCE	Associates in Process Improvement. Available from the Institute for Healthcare Improvement
URL	<a href="http://www.ihl.org/IHI/Topics/Improvement/ImprovementMethods/HowToImprove">http://www.ihl.org/IHI/Topics/Improvement/ImprovementMethods/HowToImprove</a>
RESOURCE	Measures
SOURCE	Institute for Healthcare Improvement
URL	<a href="http://www.ihl.org/knowledge/Pages/Measures/default.aspx">http://www.ihl.org/knowledge/Pages/Measures/default.aspx</a>
RESOURCE	HEDIS & Quality Measurement
SOURCE	National Committee for Quality Assurance
URL	<a href="http://www.ncqa.org/tabid/59/Default.aspx">http://www.ncqa.org/tabid/59/Default.aspx</a>

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 For the latest version, go to  
<http://www.ncchc.org/resources/clinicalguides.html>