



Complete Summary

GUIDELINE TITLE

Management of asthma in children 5 to 11 years.

BIBLIOGRAPHIC SOURCE(S)

Michigan Quality Improvement Consortium. Management of asthma in children 5 to 11 years. Southfield (MI): Michigan Quality Improvement Consortium; 2008 Jul. 1 p.

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Michigan Quality Improvement Consortium. Management of persistent asthma in adults and children older than 5 years of age. Southfield (MI): Michigan Quality Improvement Consortium; 2006 Aug. 1 p.

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SCOPE

DISEASE/CONDITION(S)

Asthma

GUIDELINE CATEGORY

Counseling
Evaluation
Management

Risk Assessment
Treatment

CLINICAL SPECIALTY

Allergy and Immunology
Family Practice
Pediatrics
Pulmonary Medicine

INTENDED USERS

Advanced Practice Nurses
Health Plans
Physician Assistants
Physicians

GUIDELINE OBJECTIVE(S)

- To achieve significant, measurable improvements in the management of asthma through the development and implementation of common evidence-based clinical practice guidelines
- To design concise guidelines that are focused on key management components of asthma to improve outcomes

TARGET POPULATION

Children 5 to 11 years of age with asthma

INTERVENTIONS AND PRACTICES CONSIDERED

Evaluation/Risk Assessment

1. Assessment of asthma severity including symptoms, interference with normal activity, short-acting beta₂-agonist use, night awakenings, lung function, and exacerbations requiring oral steroids
2. Assessment of asthma control

Management/Treatment

Step approach for asthma management

1. Patient education and environmental control
2. Step 1: short-acting beta₂-agonist as required
3. Step 2: low-dose inhaled corticosteroid; alternative: cromolyn, leukotriene receptor antagonist, nedocromil, or theophylline
4. Step 3: low-dose inhaled corticosteroid plus either a long-acting beta₂-agonist, a leukotriene receptor antagonist, or theophylline; or medium-dose inhaled corticosteroid

5. Step 4: medium-dose inhaled corticosteroid plus long-acting beta₂-agonist; alternative: medium-dose inhaled corticosteroid plus either a leukotriene receptor antagonist or theophylline
6. Step 5: high-dose inhaled corticosteroid plus long-acting beta₂-agonist; alternative: high-dose inhaled corticosteroid plus either a leukotriene receptor antagonist or theophylline
7. Step 6: high-dose inhaled corticosteroid plus long-acting beta₂-agonist plus oral systemic corticosteroid; alternative: high-dose inhaled corticosteroid plus oral systemic corticosteroid plus either a leukotriene receptor antagonist or theophylline
8. Considering consultation with asthma specialist at step 3

MAJOR OUTCOMES CONSIDERED

Not stated

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The Michigan Quality Improvement Consortium (MQIC) project leader conducts a search of current literature in support of the guideline topic. Computer database searches are used to identify published studies, existing protocols and/or national guidelines on the selected topic developed by organizations such as the American Diabetes Association, American Heart Association, American Academy of Pediatrics, etc. If available, clinical practice guidelines from participating MQIC health plans and Michigan health systems are also used to develop a framework for the new guideline.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Levels of Evidence for the Most Significant Recommendation

- A. Randomized controlled trials
- B. Controlled trials, no randomization
- C. Observational studies
- D. Opinion of expert panel

METHODS USED TO ANALYZE THE EVIDENCE

Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Using information obtained from literature searches and available health plan guidelines on the designated topic, the Michigan Quality Improvement Consortium (MQIC) project leader prepares a draft guideline to be reviewed by the medical directors' committee at one of their scheduled meetings. Priority is given to recommendations with [A] and [B] levels of evidence (see "Rating Scheme for the Strength of the Evidence" field).

The initial draft guideline is reviewed, evaluated, and revised by the committee resulting in draft two of the guideline. Additionally, the Michigan Academy of Family Physicians participates in guideline development at the onset of the process and throughout the guideline development procedure. The MQIC guideline feedback form and draft two of the guideline are distributed to the medical directors, as well as the MQIC measurement and implementation group members, for review and comments. Feedback from members is collected by the MQIC project leader and prepared for review by the medical directors' committee at their next scheduled meeting. The review, evaluation, and revision process with several iterations of the guideline may be repeated over several meetings before consensus is reached on a final draft guideline.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

External Peer Review
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

When consensus is reached on the final draft guideline, the medical directors approve the guideline for external distribution to practitioners with review and comments requested via the Michigan Quality Improvement Consortium (MQIC) health plans (project leader distributes final draft to medical directors' committee, measurement and implementation groups to solicit feedback).

The MQIC project leader also forwards the approved guideline draft to appropriate state medical specialty societies for their input. After all feedback is received from external reviews, it is presented for discussion at the next scheduled committee meeting. Based on feedback, subsequent guideline review, evaluation, and revision may be required prior to final guideline approval.

The MQIC Medical Directors approved this updated guideline in July 2008.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

The level of evidence grades (A-D) are provided for the most significant recommendations and are defined at the end of the "Major Recommendations" field.

Assess Asthma Severity to Decide Initial Therapy

Components of Severity		Intermittent	Persistent (Mild)	Persistent (Moderate)	Persistent (Severe)
Impairment	Symptoms	≤ 2 days/week	>2 days/week, not daily	Daily	Throughout day
	Nighttime awakenings	≤ 2x/month	3-4x/month	> 1x/week, not nightly	Often, 7x/week
	Short-acting beta ₂ -agonist use for symptoms	≤ 2 days/week	> 2 days/week, not daily	Daily	Several times daily
	Interference with normal activity	None	Minor limitation	Some limitation	Extremely limited
	Lung function:	Normal forced expiratory volume in one second (FEV ₁) between exacerbations			
	FEV ₁ or peak	> 80%	> 80%	60% - 80%	< 60%

Components of Severity		Intermittent	Persistent (Mild)	Persistent (Moderate)	Persistent (Severe)
	flow				
	FEV ₁ / forced vital capacity (FVC)	> 85%	> 80%	75% - 80%	< 75%
Risk	Exacerbations requiring oral steroids	0-1/year	≥ 2/year		
		<ul style="list-style-type: none"> Consider severity & interval since last exacerbation. Frequency & severity may fluctuate over time for patient of any severity class. Relative annual risk of exacerbations maybe related to FEV₁. 			
Recommended step for initiating treatment		Step 1	Step 2	Step 3	
		Re-evaluate control in 2 to 6 weeks and adjust therapy accordingly.			

On Follow-Up, Assess Asthma Control and Step Therapy Up or Down

Classification of Asthma Control					
Components of Control		Well-Controlled	Not Well-Controlled	Very Poorly Controlled	
Impairment	Symptoms	≤ 2 days/week, but not >1/day	>2 days/week or many times on ≤ 2 days/week	Throughout day	
	Nighttime awakenings	≤ 1x/month	≥ 2x/month	≥ 2x/week	
	Short-acting beta ₂ -agonist use for symptoms	≤ 2 days/week	> 2 days/week	Several times/day	
	Interference with normal activity	None	Some limitation	Extremely limited	
	FEV ₁ or peak flow	> 80%	60% - 80%	< 60%	
	FEV ₁ /FVC	> 80%	75% - 80%	< 75%	
Risk	Exacerbations	0-1x/year	≥2x/year		

Classification of Asthma Control				
Components of Control		Well-Controlled	Not Well-Controlled	Very Poorly Controlled
	requiring oral steroids			
	Treatment-related adverse effects	Intensity of medication-related side effects does not correlate to specific levels of control, but should be considered in overall assessment of risk.		
Recommended action for treatment		<ul style="list-style-type: none"> Maintain current step Regular follow-up every 1-6 months Consider step down if well-controlled ≥ 3 months 	Step up 1 step	<ul style="list-style-type: none"> Consider oral steroids Step up 1-2 steps
			<ul style="list-style-type: none"> Re-evaluate in 2-6 weeks Adjust therapy accordingly 	

Step Approach for Asthma Management (use lowest treatment level required to maintain control)

- Quick relief medication for all patients: Inhaled short-acting beta₂-agonist (SABA) as needed for symptoms **[A]**. Intensity of treatment depends on severity of symptoms; up to 3 treatments at 20-minute intervals as needed. Short course of systemic oral corticosteroids may be needed. Use of SABA >2 days a week for symptom control (not prevention of exercise-induced bronchospasm) indicates inadequate control and the need to step up treatment.
- Patient education and environmental control at each step
- Persistent asthma: Daily long-term control therapy **[A]**; consult with asthma specialist if step 4 or higher **[D]**; consider consultation at step 3 **[D]**

Intermittent Asthma

Step 1

Preferred: Short-acting beta₂-agonist as required

Mild Persistent Asthma

Step 2

Preferred: Low-dose inhaled corticosteroid **[A]**

Alternative: Cromolyn or leukotriene receptor antagonist; or nedocromil; or theophylline **[B]**

Moderate Persistent Asthma

Step 3

Preferred: Low-dose inhaled corticosteroid + either a long-acting beta₂-agonist, a leukotriene receptor antagonist, or theophylline; or medium-dose inhaled corticosteroid **[B]**

Step 4

Preferred: Medium-dose inhaled corticosteroid + long-acting beta₂-agonist **[B]**

Alternative: Medium-dose inhaled corticosteroid + either a leukotriene receptor antagonist or theophylline **[B]**

Severe Persistent Asthma

Step 5

Preferred: High-dose inhaled corticosteroid + long-acting beta₂-agonist **[B]**

Alternative: High-dose inhaled corticosteroid + either a leukotriene receptor antagonist or theophylline **[B]**

Step 6

Preferred: High-dose inhaled corticosteroid + long-acting beta₂-agonist + oral systemic corticosteroid **[D]**

Alternative: High-dose inhaled corticosteroid + oral systemic corticosteroid + either a leukotriene receptor antagonist or theophylline **[D]**

Definitions:

Levels of Evidence for the Most Significant Recommendations

- A. Randomized controlled trials
- B. Controlled trials, no randomization
- C. Observational studies
- D. Opinion of expert panel

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of evidence is provided for the most significant recommendations (See "Major Recommendations" field).

This guideline is based on the 2007 *National Asthma Education and Prevention Program Expert Panel Report 3, Guidelines for the Diagnosis and Management of Asthma*, National Heart, Lung and Blood Institute (www.nhlbi.nih.gov).

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Through a collaborative approach to developing and implementing common clinical practice guidelines and performance measures for asthma in children 5 to 11 years of age, Michigan health plans will achieve consistent delivery of evidence-based services and better health outcomes. This approach also will augment the practice environment for physicians by reducing the administrative burdens imposed by compliance with diverse health plan guidelines and associated requirements.

POTENTIAL HARMS

Treatment-related adverse effects

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

This guideline lists core management steps. Individual patient considerations and advances in medical science may supersede or modify these recommendations.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

Approved Michigan Quality Improvement Consortium (MQIC) guidelines are disseminated through email, U.S. mail, and websites.

The MQIC project leader prepares approved guidelines for distribution. Portable Document Format (PDF) versions of the guidelines are used for distribution.

The MQIC project leader distributes approved guidelines to MQIC membership via email.

The MQIC project leader submits request to website vendor to post approved guidelines to MQIC website (www.mqic.org).

The MQIC project leader completes a statewide mailing of the comprehensive set of approved guidelines and educational tools annually. The guidelines and tools are distributed in February of each year to physicians in the following medical specialties:

- Family Practice
- General Practice
- Internal Medicine
- Other Specialists for which the guideline is applicable (e.g., endocrinologists, allergists, pediatricians, cardiologists, etc.)

The statewide mailing list is derived from the Blue Cross Blue Shield of Michigan (BCBSM) provider database. Approximately 95% of the state's M.D.'s and 96% of the state's D.O.'s are included in the database.

The MQIC project leader submits request to the National Guideline Clearinghouse (NGC) to post approved guidelines to NGC website (www.guideline.gov).

IMPLEMENTATION TOOLS

Chart Documentation/Checklists/Forms
Tool Kits

For information about [availability](#), see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Living with Illness

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

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ADAPTATION

This guideline is based on the 2007 National Asthma Education and Prevention Program Expert Panel Report 3, Guidelines for the Diagnosis and Management of Asthma, National Heart, Lung and Blood Institute (www.nhlbi.nih.gov).

DATE RELEASED

2002 Aug (revised 2008 Jul)

GUIDELINE DEVELOPER(S)

Michigan Quality Improvement Consortium - Professional Association

SOURCE(S) OF FUNDING

Michigan Quality Improvement Consortium

GUIDELINE COMMITTEE

Michigan Quality Improvement Consortium Medical Director's Committee

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Physician representatives from participating Michigan Quality Improvement Consortium health plans, Michigan State Medical Society, Michigan Osteopathic Association, Michigan Association of Health Plans, Michigan Department of Community Health and Michigan Peer Review Organization

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Standard disclosure is requested from all individuals participating in the Michigan Quality Improvement Consortium (MQIC) guideline development process, including those parties who are solicited for guideline feedback (e.g., health plans, medical specialty societies). Additionally, members of the MQIC Medical Directors' Committee are asked to disclose all commercial relationships as well.

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This is the current release of the guideline.

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GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the [Michigan Quality Improvement Consortium Web site](#).

AVAILABILITY OF COMPANION DOCUMENTS

The following are available:

- Asthma action plan. Electronic copies available in Portable Document Format (PDF) from the [Michigan Quality Improvement Consortium Web site](#).
- Asthma control plan for children. Electronic copies available in Portable Document Format (PDF) from the [Michigan Quality Improvement Consortium Web site](#). See the related QualityTool summary on the [Health Care Innovations Exchange Web site](#).
- Michigan asthma resource kit (MARK). Electronic copies available in Portable Document Format (PDF) from the [Asthma Initiative of Michigan Web site](#).

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on April 14, 2004. The information was verified by the guideline developer on July 27, 2004. This NGC summary was updated by ECRI on December 10, 2004. This NGC summary was updated by ECRI on December 10, 2004. The updated information was verified by the guideline developer on January 21, 2005. This summary was updated by ECRI on December 5, 2005 following the U.S. Food and Drug Administration (FDA) advisory on long-acting beta2-adrenergic agonists (LABA). This NGC summary was updated by ECRI on October 13, 2006. The updated information was verified by the guideline developer on November 3, 2006. This NGC summary was updated by ECRI Institute on November 25, 2008. The updated information was verified by the guideline developer on December 4, 2008.

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