

Guidelines Implementation Panel Report for: Expert Panel Report 3—Guidelines for the
Diagnosis and Management of Asthma

Partners Putting Guidelines Into Action



U.S. Department of Health and Human Services
National Institutes of Health
National Heart, Lung, and Blood Institute

**Guidelines Implementation Panel Report for: Expert Panel Report 3—Guidelines for the
Diagnosis and Management of Asthma**

Partners Putting Guidelines Into Action



U.S. Department of Health and Human Services
National Institutes of Health

NIH Publication No. 09-6147
December 2008



**National Heart
Lung and Blood Institute**
People Science Health

Table of Contents

Acknowledgments	1
Preface	3
Introduction	5
Background: How Can We Do Better?	5
Objectives of the GIP Report	5
Approach to Evidence Review	6
A Call to Action	6
Overview of the GIP Report	7
Convening the Panel	7
Developing the GIP Implementation Plan	7
Framework for Developing GIP Recommendations and Strategies	7
Core Themes	7
Guiding Principles of Patient-Centered Care	10
Priority Messages	10
Health Disparities: A Fundamental Issue	10
Framework for Mobilizing Asthma Partners into Action	10
Crosscutting Strategies	10
Overarching Implementation Approaches	11
Partnering for Success	11
Evaluating the GIP Implementation Plan	13
The GIP Implementation Plan: Recommendations and Strategies	15
Use Inhaled Corticosteroids	18
Communication	18
Systems Integration	19
Patient/Provider Support	19
Use a Written Asthma Action Plan	20
Communication	20
Systems Integration	22
Patient/Provider Support	22
Assess Asthma Severity	23
Communication	23
Systems Integration	24
Patient/Provider Support	25
Assess and Monitor Asthma Control	25
Communication	25
Systems Integration	27
Patient/Provider Support	27
Schedule Periodic Visits	29
Communication	29
Systems Integration	30
Patient/Provider Support	31

Control Environmental Exposures	32
Communication	32
Systems Integration	34
Patient/Provider Support	35

Appendices	37
A. Levels of Evidence for EPR-3 Recommendations	38
B. Patient-Centered Care Model	39
C. Health Disparities	42
D. Abbreviations	44

List of Figures	
Figure 1. Summary of GIP Priority Messages and the Underlying EPR-3 Recommendations*	8
Figure 2. Framework for Developing GIP Recommendations and Strategies By Message	9
Figure 3. Mobilizing Asthma Partners Into Action — Where Does My Organization Fit?	12
Figure 4. Overview: GIP Report Development Process	14
Figure 5. Integration of GIP Messages and Strategies for Dynamic Engagement of Stakeholders and a Comprehensive Implementation Approach	16
Figure 6. Menu of Implementation Activities — What Can My Organization Do?	17

Acknowledgments

NAEPP Guidelines Implementation Panel

The NAEPP is grateful to all the Guidelines Implementation Panel members for meeting the challenge of developing this report with tremendous dedication and zeal, and to Dr. Kevin Weiss for his outstanding leadership. A special thanks to the writing team for their extra effort to prepare this report.

Kevin B. Weiss, M.D., M.P.H., M.S., Chair *
American Board of Medical Specialties
Evanston, Illinois

David B. Callahan M.D. *
Centers for Disease Control and Prevention
Atlanta, Georgia

Michelle M. Cloutier, M.D. *
Connecticut Children's Medical Center
Hartford, Connecticut

Denise Dougherty, Ph.D.
Agency for Health Care Policy and Research
Rockville, Maryland

Kurtis S. Elward, M.D., M.P.H., F.A.A.F.P. *
Family Medicine of Albemarle
Charlottesville, Virginia

David Greenberg
Centers for Medicare and Medicaid Services
Baltimore, Maryland

Carol Jones, R.N., A.E.-C *
Certified Asthma Educator Consultant
Tucson, Arizona

Thomas J. Kallstrom, F.A.A.R.C., R.R.T., A.E.-C
American Association for Respiratory Care
Irving, Texas

Jim Krieger, M.D., M.P.H. +
University of Washington
Harborview Medical Center
Seattle, Washington

Marielena Lara, M.D., M.P.H. *
Research and Development Corporation
Santa Monica, California

Padmanbhan "Dan" Mukundan, M.D.
Access Community Health Network
Chicago, Illinois

Judith C. Taylor-Fishwick, M.Sc., AE-C
National Respiratory Training Center
Norfolk, Virginia

Gwendolyn Parker, M.D.
Blue Cross Blue Shield of Michigan
Southfield, Michigan

Gary S. Rachelefsky, M.D. *
David Geffen School of Medicine at UCLA
Los Angeles, California

Lawrence D. Robinson, Jr., M.D.
Drew University Medical School
Long Beach, California

Susan K. Ross R.N., AE-C ++
Minnesota Department of Health
St. Paul, Minnesota

James W. Stout, M.D., M.P.H., F.A.A.P.
Odessa Brown Children's Clinic
University of Washington
Seattle, Washington

The Writing Team:

* Authors of The GIP Implementation Plan:
Recommendations and Strategies

+ Author of appendix, Health Disparities

++ Author of appendix, Patient-Centered Care Model

Preface

The Guidelines Implementation Panel (GIP) Report was developed by a panel convened by the National Asthma Education and Prevention Program (NAEPP), coordinated by the National Heart, Lung, and Blood Institute (NHLBI) of the National Institutes of Health. This 17-member panel was selected to represent a wide range of asthma guideline end users. Members were selected to bring balance and diversity to the GIP report development process through sharing their unique experiences and varying perspectives. Their charge was to identify barriers to implementing the clinical practice recommendations of the *Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma* (EPR-3), particularly among primary care providers. The GIP was tasked to develop recommendations and strategies for overcoming the barriers, thereby improving acceptance and utilization of asthma guidelines overall.

Major emphases of the GIP Report are to close the disparity gap for quality asthma care and to promote the principles of patient-centered care which includes a medical home for patients and their participation with healthcare providers as full partners in care. At the heart of the GIP Report are six key messages derived from a summary of priority issues that was compiled by the asthma guidelines Expert Panel and submitted to the GIP. These issues were considered to be the most likely ones to result in significant impact on asthma care processes and outcomes if the broader asthma community were to focus its attention and resources on them.

The GIP Report was developed under the excellent leadership of Dr. Kevin Weiss, Panel Chair. The NHLBI is grateful for the tremendous dedication of time and outstanding work of all the members of the GIP as well as other stakeholder groups (patient education and advocacy groups, professional societies, voluntary health and government organizations) during various review cycles that helped to enhance the utility of this document.

Ultimately, the broad change in clinical practice depends on the influence of local primary care physicians and other health professionals who not only provide state-of-the-art care to their patients, but also communicate to their peers the importance of doing the same. The NHLBI and its partners will forge new initiatives based on this document to stimulate adoption of the GIP implementation recommendations and strategies at all levels, but particularly with primary care clinicians at the community level. We ask for the assistance of every reader in reaching our ultimate goal: improving asthma care and the quality of life for every person who has asthma.

Elizabeth G. Nabel, M.D.
Director, National Heart, Lung, and Blood Institute
National Institutes of Health

Introduction

Background: How Can We Do Better?

The National Asthma Education and Prevention Program (NAEPP) of the National Heart, Lung, and Blood Institute (NHLBI) recognizes the value of clinical practice guidelines in providing information and guidance on the best and most current evidence available to diagnose and manage asthma. Expert panels have been convened periodically by the NHLBI to conduct a systematic review of the scientific literature and to prepare a report that provides recommendations for making appropriate clinical decisions about asthma care. The third and most recent report, *Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma* (EPR-3) was released in August 2007.

The NAEPP further recognizes that in order for guidelines to reach their full potential in achieving positive patient outcomes, their recommendations must be widely accepted and utilized across a wide range of people and organizations. These intended users include medical professionals, office support staff, educators, administrators, policy makers, purchasers and payors of healthcare services — this includes people working across a range of healthcare settings (large and small) in both the private and public sectors.

The ultimate goal of the EPR-3 is to improve the quality of care and outcomes of people who have asthma. Achieving this goal requires understanding the current evidence regarding effectiveness of quality improvement efforts, and finding better ways to quickly and effectively translate knowledge into practice for both patients and healthcare providers. Currently, it is estimated that the average amount of time to get research findings utilized is 17 years. (Institute of Medicine (IOM) Report, *Crossing the Quality Chasm: A New Health System for the 21st Century*, 2001). In addition, the level to which new findings are incorporated into practice is highly variable.

To engage the intended users and close gaps between the scientific advances summarized in the guidelines and their practical application in the field, the NAEPP convened a Guidelines Implementation Panel (GIP). The GIP was tasked with preparing a companion report to the EPR-3, aimed at identifying the top 5 to 10 priority clinical practice recommendations of the EPR-3, shaping key messages around these priorities, and presenting clear and achievable strategies for overcoming known barriers to implementing these clinical practices. Another aim of the report is to motivate healthcare providers and their patients to implement asthma management practices that best align with quality asthma care and quality of life for people who have asthma.

Objectives of the GIP Report

This GIP Report has three major objectives.

- The *first objective* is to prioritize for NAEPP constituents and other intended users the top 5 to 10 priority messages of the asthma guidelines. The ultimate purpose is to provide focus, coordination, and reinforcement for eventual collaborative implementation initiatives.
- The *second objective* is to develop recommendations to improve guidelines implementation and to report strategies to make EPR-3 more useful. This objective targets asthma stakeholders (including primary care providers, clinicians, educators, leaders, and policy makers) across the full spectrum of intended users, including patient advocates as well. The GIP Report presents a menu of strategies for acting on selected key messages.
- The *third objective* is to have the GIP Report serve as a platform for planning of collaborative initiatives, and to define the NAEPP's role within the context of a broader asthma control initiative. The initiative will be designed to

promote partnerships and leadership among NAEPP's Coordinating Committee members and other stakeholders based on the role each individual organization wishes to play.

Viewed in this way, the GIP Report provides the substance and impetus to collectively focus intended users on several important issues of the EPR-3, that, if implemented widely, could have great impact on improving asthma control. The report describes ways to apply valuable lessons learned from past guidelines implementation efforts. As such, the GIP Report furnishes an opportunity and invites participation within the greater network of asthma stakeholders to: 1) direct or redirect resources toward a coordinated approach that focuses efforts on activities most likely to succeed; 2) seek ways to pool resources and collaborate with partners to extend outreach and impact; and, 3) assume leadership and a more prominent role within the asthma community for improving guidelines implementation.

This report is not an official regulatory document of any Government agency. It will be used as the platform to implement a national asthma control initiative.

Approach to Evidence Review

Successful implementation of the asthma guidelines can reduce morbidity and improve the quality of life for people who have asthma as well as promote efficiencies and economies of scale for health-care providers. The EPR-3 used an evidence-based approach to enhance acceptability by the widest range of intended users. Moreover, the guidelines synthesize the scientific evidence published in the last 10 years on a comprehensive range of topics related to asthma diagnosis and management. The guidelines then present conclusions and recommendations for clinical practice based on this systematic review.

Several of the research protocols cited and described in the EPR-3 have tested the outcomes of specific interventions to improve adoption and implementation of guidelines. Examples include: communicating medical treatments to patients; initiating systems changes for delivery of care; and defining and incorporating core components of

patient/provider education programs, tools, and techniques into routine care. Rather than conduct its own systematic review of asthma guidelines implementation research, the GIP used the evidence cited in the EPR-3 and some information from an Agency for Healthcare Research and Quality analysis of patient education and quality improvement programs in asthma, *Closing the Quality Gap: A Critical Analysis of Quality Improvement Strategies, 2007 (Volume 5—Asthma)*. Where the research was not robust, the GIP drew upon its professional expertise.

Furthermore, in instances where a recommended implementation strategy has a paucity of literature to fully inform its use, the GIP Report may suggest that a focus group or brief scan of newly published literature be conducted to gather additional knowledge prior to implementation. The objective of the GIP Report was to apply what is already known and widely accepted from the published body of literature on guidelines implementation.

A Call to Action

The immediate challenges ahead for improving asthma guidelines utilization are to convert what we know from guidelines' implementation, quality improvement, and health care systems research into useful tools, processes and pathways; to incorporate these resources into a system of quality care for patients; and, to build synergy for quality care delivery among asthma stakeholders. Quality asthma care must be readily and effectively delivered by healthcare practitioners and educators and augmented and reinforced by other stakeholders in the community. We invite you, as a committed asthma care clinician, community practitioner, educator, or decisionmaker, to review this report and assist in the larger effort of advancing asthma guidelines implementation and better ensuring asthma control for people who have asthma.

Overview of the GIP Report

Convening the Panel

In October 2005 the NAEPP appointed a Guidelines Implementation Panel (GIP). Members of the GIP were selected to represent a balanced yet diverse perspective of asthma stakeholders. An important charge to the GIP was to develop an Implementation Plan consisting of recommendations and strategies designed to identify and overcome barriers to implementing the EPR-3 clinical practice recommendations.

Developing the GIP Implementation Plan

The GIP coordinated preparation of its Implementation Plan with the work of the Expert Panel by selecting six priority messages from the EPR-3 to provide a focus for future implementation efforts. To prepare the report's recommendations and strategies, these six top-line messages are integrated with three core themes—communication, systems integration, and patient-provider support. The six priority messages selected were deemed to have sufficient leveraging power to positively impact patient outcomes. The three themes were identified by the GIP as being associated with successful healthcare interventions. Figure 1 lists the six priority messages accompanied by the specific EPR-3 clinical practice recommendation underlying each message. The level of evidence for each of the EPR-3 clinical practice recommendations is also given. A description of the various levels of evidence is provided in Appendix A.

The GIP examined each of the six priority messages with respect to the three core themes in order to determine target audiences, recommendations, and strategies for implementing each message. The format for presenting the GIP Implementation Plan follows this outline:

- Priority message
- Core theme

- Target audience
- Recommendation
- Strategy (including potential key partners)

Framework for Developing GIP Recommendations and Strategies

The framework for developing the recommendations and strategies of the GIP Implementation Plan is presented in Figure 2. The GIP considered each of the six priority messages with respect to each of the three core themes to develop appropriate recommendations and strategies for selected target audiences. The GIP also agreed that a fundamental element—the patient's perspective—was necessary to complete the framework. Thus, they identified several guiding principles of patient-centered care to serve as a filter for ensuring that the patient's needs and wants would always remain top priority.

The *core themes* and *guiding principles of patient-centered care* of the strategy development framework follow.

Core Themes

The three core themes identified by the GIP include:

- Communication—getting the messages out on a broad scale to all audiences, including both patients and providers, in a variety of settings.
- Systems Integration—designing and coordinating messages for essential players up, down, and across the operational tiers of a given health system as well as across multiple health systems; and, strengthening linkages between health and community systems.
- Patient/Provider Support—identifying the tools, techniques and other resources that would enhance guidelines implementation.

Summary of GIP Priority Messages and the Underlying EPR-3 Recommendations*

<p>MESSAGE: Inhaled Corticosteroids Inhaled corticosteroids are the most effective medications for long-term management of persistent asthma, and should be utilized by patients and clinicians as is recommended in the guidelines for control of asthma.</p> <p>EPR-3 Recommendation: The Expert Panel recommends that long-term control medications be taken on a long-term basis to achieve and maintain control of persistent asthma, and that inhaled corticosteroids (ICSs) are the most potent and consistently effective long-term control medication for asthma. (Evidence A).</p>	<p>MESSAGE: Asthma Control At planned followup visits, asthma patients should review level of control with their health care provider based on multiple measures of current impairment and future risk in order to guide clinician decisions to either maintain or adjust therapy.</p> <p>EPR-3 Recommendation: The Expert Panel recommends that every patient who has asthma be taught to recognize symptom patterns and/or Peak Expiratory Flow (PEF) measures that indicate inadequate asthma control and the need for additional therapy (Evidence A), and that control be routinely monitored to assess whether the goals of therapy are being met – that is, whether impairment and risk are reduced (Evidence B).</p>
<p>MESSAGE: Asthma Action Plan All people who have asthma should receive a written asthma action plan to guide their self-management efforts.</p> <p>EPR-3 Recommendation: The Expert Panel recommends that all patients who have asthma be provided a written asthma action plan that includes instructions for: (1) daily treatment (including medications and environmental controls), and (2) how to recognize and handle worsening asthma (Evidence B).</p>	<p>MESSAGE: Followup Visits Patients who have asthma should be scheduled for planned followup visits at periodic intervals in order to assess their asthma control and modify treatment if needed.</p> <p>EPR-3 Recommendation: The Expert Panel recommends that monitoring and follow up is essential (Evidence B), and that the stepwise approach to therapy – in which the dose and number of medications and frequency of administration are increased as necessary (Evidence A) and decreased when possible (Evidence C, D) be used to achieve and maintain asthma control.</p>
<p>MESSAGE: Asthma Severity All patients should have an initial severity assessment based on measures of current impairment and future risk in order to determine type and level of initial therapy needed.</p> <p>EPR-3 Recommendation: The Expert Panel recommends that once a diagnosis of asthma is made, clinicians classify asthma severity using the domains of current impairment (Evidence B) and future risk (Evidence C, and D*) for guiding decisions in selecting initial therapy.</p> <p><i>*Note: While there is not strong evidence from clinical trials for determining therapy based on the domain of future risk, the Expert Panel considers that this is an important domain for clinicians to consider due to the strong association between history of exacerbations and the risk for future exacerbations.</i></p>	<p>MESSAGE: Allergen and Irritant Exposure Control Clinicians should review each patient’s exposure to allergens and irritants and provide a multipronged strategy to reduce exposure to those allergens and irritants to which a patient is sensitive and exposed, i.e., that make the patient’s asthma worse.</p> <p>EPR-3 Recommendation: The Expert Panel recommends that patients who have asthma at any level of severity be queried about exposure to inhaled allergens, particularly indoor inhaled allergens (Evidence A), tobacco smoke and other irritants (Evidence C), and be advised as to their potential effect on the patient’s asthma. The Expert Panel recommends that allergen avoidance requires a multifaceted, comprehensive approach that focuses on the allergens and irritants to which the patient is sensitive and exposed – individual steps alone are generally ineffective (Evidence A).</p>

* At least one GIP priority message was selected to correlate with each of the four components of asthma care of the EPR-3:

- 1) Medications ————— Inhaled Corticosteroids
- 2) Education for a Patient/Provider Partnership ——— Asthma Action Plan
- 3) Assessment and Monitoring
 - Asthma Severity
 - Asthma Control
 - Followup Visits
- 4) Control of Environmental Factors ————— Allergen and Irritant Exposure Control

Framework for Developing GIP Recommendations and Strategies By Message

Patient-Centered Care			
Core Themes	Influencing Factors		
	Patients and Families: Knowledge/Skill	Health Systems: Providers/Technology	Environmental: Economic/Immediate Surroundings
	<p>Key Messages:</p> <ul style="list-style-type: none"> • Use Inhaled Corticosteroids. • Use Asthma Action Plans. • Assess Severity. • Assess Control. • Schedule Followup Visits. • Control Environmental Exposures. 	<p>Communication</p> <ul style="list-style-type: none"> • Target groups 	<p>Systems Intergration</p> <ul style="list-style-type: none"> • Target groups

Recommendations and Strategies

Guiding Principles of Patient—Centered Care

The guiding principles of patient-centered care identified by the GIP are as follows:

- **Patient Knowledge and Skills**—ensuring access to basic health information presented in the patient’s primary language and at an appropriate literacy level, and access to educational opportunities for developing appropriate self-management skills; encouraging and supporting a sense of responsibility for, confidence in, and importance of active participation in one’s own health care.
- **Healthcare Delivery Systems**—ensuring access to safe, effective care; promoting cultural competency of healthcare providers and performance measures that are tied to positive patient outcomes; utilizing up-to-date technology for patient/provider education and clinical information systems; and, encouraging each patient who has asthma to have a medical home.
- **Community Systems**—acknowledging the immediate environment as exerting important influence over health (e.g., home, workplace, school, etc.); acknowledging ambulatory and community-based services as preferable to institutional care when clinically appropriate; identifying valuable community resources to augment health care and to address the social and financial needs of patients; referring patients to agencies and services outside of the clinical setting.

A full description of the Patient-Centered Care Model can be found in Appendix B.

Priority Messages

The six priority messages were initially derived from a summary of overall EPR-3 priority issues prepared by the Expert Panel to address each of the four essential components of asthma care. GIP members developed an initial list of 22 potential messages from the Expert Panel’s priority issues summary. GIP members selected the six priority messages from the initial list of 22 based on the criteria of: strength of evidence as provided in EPR-3 for the guidelines recommendation underlying each message; and, feasibility of implementing the message. At least one priority message was selected to correlate with each of the four components of asthma care (see Figure 1). The six selected priority messages were considered to be most likely to produce a significant impact on

asthma care processes and outcomes if the asthma community were to focus attention and resources on active implementation.

Health Disparities: A Fundamental Issue

A fundamental issue to address in the context of all six messages is the reduction of asthma disparities. The burden of asthma is not uniform across all populations. People of racial and ethnic minorities and those of low socioeconomic status are disproportionately affected. Asthma prevalence is 25 percent higher among American Indian or Alaska Native children, 60 percent higher among African American children, and 140 percent higher among Puerto Rican children relative to White children. African American children have a 260 percent higher emergency department (ED) visit rate and a 250 percent higher hospitalization rate from asthma compared to White children.

Access to medical care for asthma and the quality of care provided is often lower among the minority and socioeconomically disadvantaged populations. Exposure to environmental factors that worsen asthma is also more frequent. These disparities in asthma burden and care suggest that culturally competent clinical and educational approaches are needed to implement the EPR-3 guidelines in high-risk groups.

A summary paper highlighting important issues affecting access to, and quality of, healthcare services among disparate populations was developed (see Appendix C). The purpose was to inform GIP discussions to better ensure that these important issues were addressed in the final recommendations and strategies for the six priority messages.

Framework for Mobilizing Asthma Partners into Action

Crosscutting Strategies

To facilitate navigation through the volume and variety of implementation strategies generated across all six messages, the GIP identified several crosscutting activities any one of which can be integrated across multiple messages to form one comprehensive intervention. Listing these crosscutting activities is intended to provide stakeholders with a short-hand view of the nature and range of GIP recommendations, thereby helping them more quickly assess which strategies best align with the activities of their organization.

The crosscutting activities include:

- Providing asthma self-management education to patients, their families, and their caregivers
- Providing clinical practice and communication skills-building education to clinicians and ancillary healthcare professionals
- Employing quality improvement strategies
- Supporting structures for asthma care financing
- Building new and utilizing existing communication networks

Overarching Implementation Approaches

Furthermore, the GIP identified three overarching approaches to effect implementation of the recommendations and strategies. These overarching approaches are intended to offer the utility needed to organize and coordinate efforts in carrying out the GIP Implementation Plan on a broad scale.

The overarching approaches are to:

- Stimulate and coordinate NAEPP initiatives, partnerships, and collaborative activities to facilitate implementation of the GIP Implementation Plan.
- Develop, implement, and evaluate a coordinated national asthma campaign to educate the public, patients, caregivers, healthcare practitioners, educators, employers, and administrators about the 6 priority messages of the EPR-3 as identified in the GIP Implementation Plan.
- Convene a national asthma policy forum to include entities such as commercial and public health plans, professional associations, experts in performance measurement, public and private healthcare financing organizations, patient advocacy groups, employers, workplace advocacy groups, state and local policy makers, environmental, school, and other national, state and local agencies. The forum would feature expertise in public health and health policy and promote the implementation of policies that advance the asthma guideline implementation initiative.

How well these overarching approaches align with an organization's mission, goals, and resources will help an organization determine where it best fits in the larger scheme of the GIP Implementation Plan.

The crosscutting activities paired with the overarching approaches form a conceptual framework that is useful in identifying appropriate and willing partners to help operationalize the GIP Implementation Plan. See Figure 3, Mobilizing

Asthma Partners Into Action—Where Does My Organization Fit?

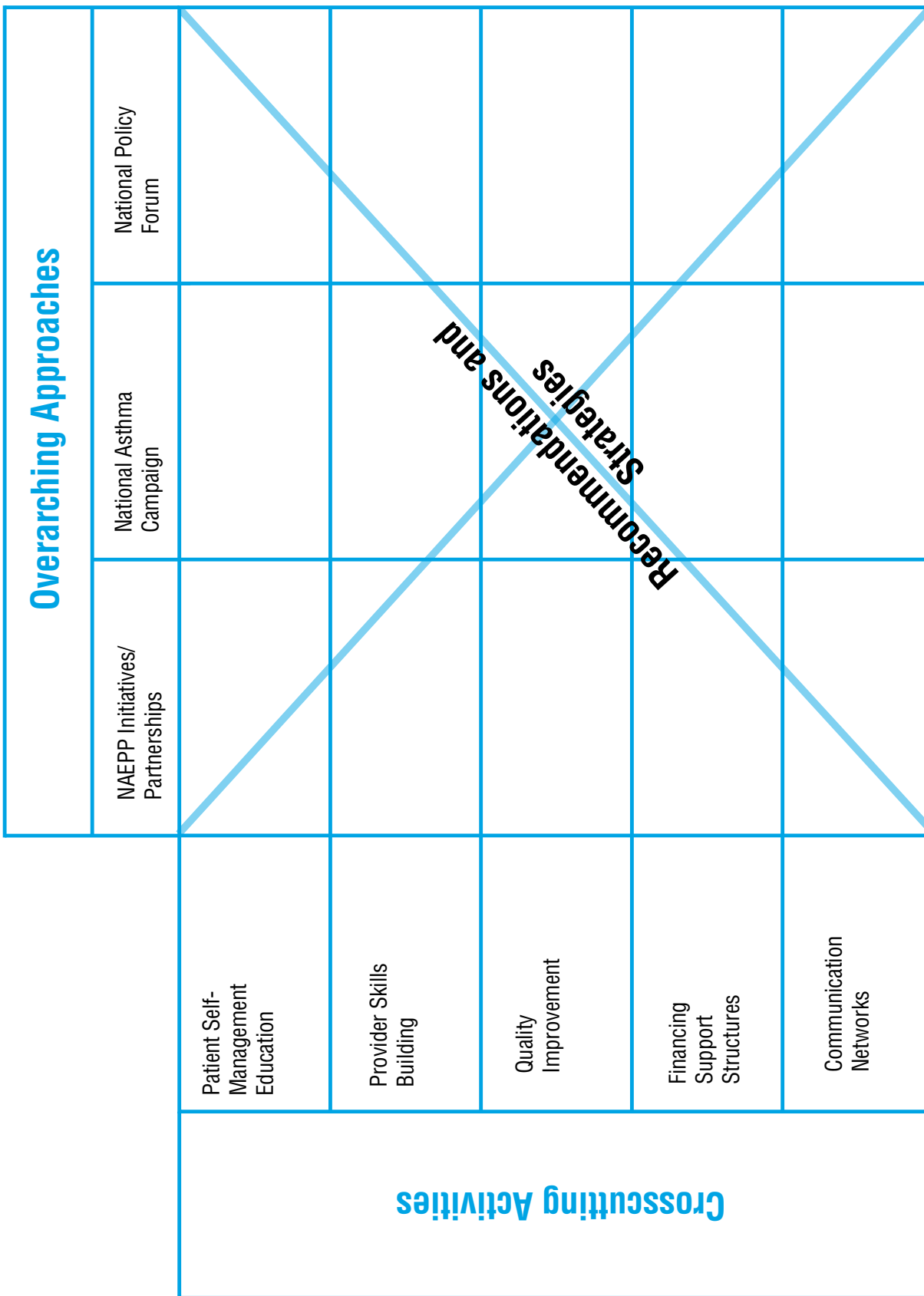
Partnering for Success

The asthma community has a diverse, dedicated and active group of stakeholders. A successful initiative for improving asthma control will require their broad participation, engagement and collaboration. Many potential partners are identified in the proposed strategies of the GIP Implementation Plan that follows. They include but are not limited to:

- Patients and their families
- Patient education and advocacy groups
- Clinicians and educators of various disciplines—doctors (primary care and specialists), nurses and nurse practitioners, respiratory therapists, pharmacists, physicians' assistants, asthma educators
- Professional associations
- Provider education groups
- Health care administrators and managers
- National accrediting agencies
- Hospitals and emergency departments
- Government health service agencies and programs
- Managed care organizations
- Commercial health plans and payors
- Experts in performance measurement
- Electronic Health Record companies
- State and local government agencies
- Schools/childcare centers, students and staff
- Community-based organizations—community centers, faith-based organizations
- Local asthma coalitions—peer educators, community health workers, public health doctors, nurses and other healthcare disciplines, epidemiologists and others engaged in population studies
- Academic centers, medical schools and training programs
- Media writers and editors
- Worksites, employees, health benefits managers, worker advocacy groups
- Private foundations, local businesses, corporations, pharmaceutical industry

It is important for these many partners to work together. Thus, in the spirit of collaboration, highlights from a draft of the GIP Report were presented at a meeting of the NAEPP Coordinating Committee and other asthma stakeholders

Mobilizing Asthma Partners Into Action — Where Does My Organization Fit?



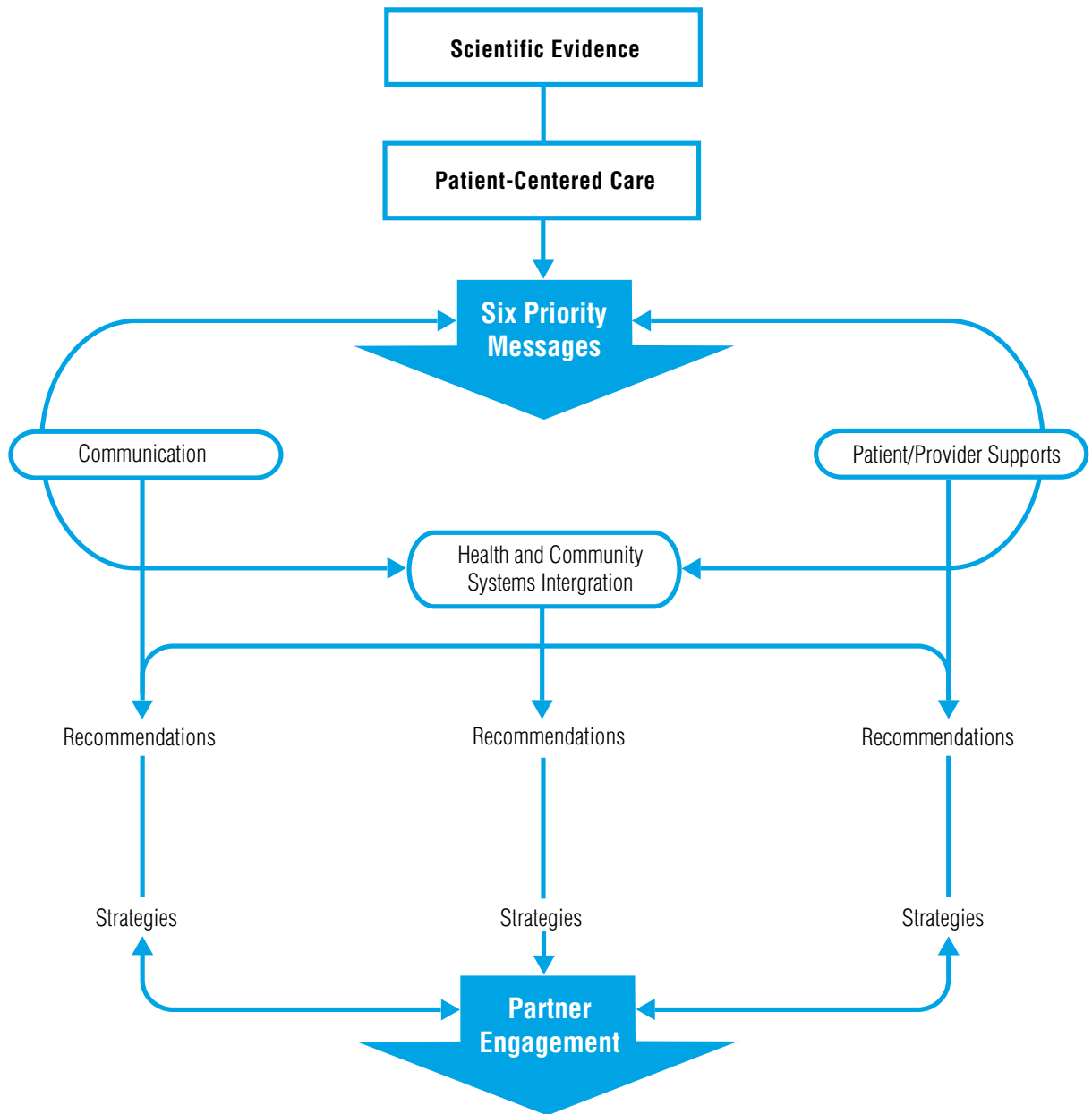
in October 2007. The report is intended to serve as a roadmap for prioritizing and initiating future NAEPP activities, and for identifying and cementing partnerships among various stakeholders who express interest in taking the lead on various sections of the GIP Implementation Plan. Sharing highlights was an effort to get the momentum started before final release of the report. The NAEPP will take the lead to implement a large-scale coordinated National Asthma Control Initiative and engage a broad stakeholder base in collaborative implementation activities.

Evaluating the GIP Implementation Plan

An overall evaluation and communication framework will be developed by the NHLBI with input from its partners. Partners who undertake implementation of the GIP strategies will be encouraged to formulate metrics for measuring their outcomes based on the framework. An NHLBI Web-based Pulmonary Knowledge Network has been proposed as an active system to monitor activities and facilitate coordination and communication among partners regarding progress on, and evaluation of, their guidelines implementation activities.

Figure 4 provides a graphic summary of the GIP Report development process and how the implementation phase is shaped to engage partners as active participants to help in the implementation of the GIP recommendations and strategies and thereby improve asthma control.

Overview: GIP Report Development Process



The GIP Implementation Plan: Recommendations and Strategies

Once the framework for developing recommendations and strategies was established, (see Figure 2) the GIP writing team began filling in the details. Writers first identified priority target audiences for each strategy and then several likely key partners for carrying out the strategy.

The GIP acknowledges that the ultimate target group intended to benefit from improved guidelines implementation is people who have asthma, particularly those at high risk. However, the recommendations and strategies proposed by the GIP are mostly targeted at intended users of the guidelines who are viewed not only as the adopters, but also as agents of change, i.e., the asthma stakeholders to be depended on for instituting the desired changes aimed at benefiting patients. As such, an identified target group is often also a key partner to help in planning and implementing the strategy. The GIP Implementation Plan does not attempt to specifically assign who should initiate and/or participate in implementing a particular strategy, but rather suggests a few traditional and likely partners for each. The plan invites and encourages *all* organizations to examine their organization's mission, goals, and resources to decide if, and what role, they wish to play (see Figure 3).

The GIP Implementation Plan is presented on the following pages by each of the six selected priority messages. Some stakeholders may choose to focus on just one message and one strategy to promote that message; others may choose to focus on multiple strategies to promote a single message. Still other stakeholders may take a more comprehensive approach and choose to focus on more than one message (maybe all six) using one or more strategies. Each stakeholder and stakeholder organization will determine the desired extent of their engagement. Figure 5 offers a graphic representation of how an organization may choose to implement one or multiple messages

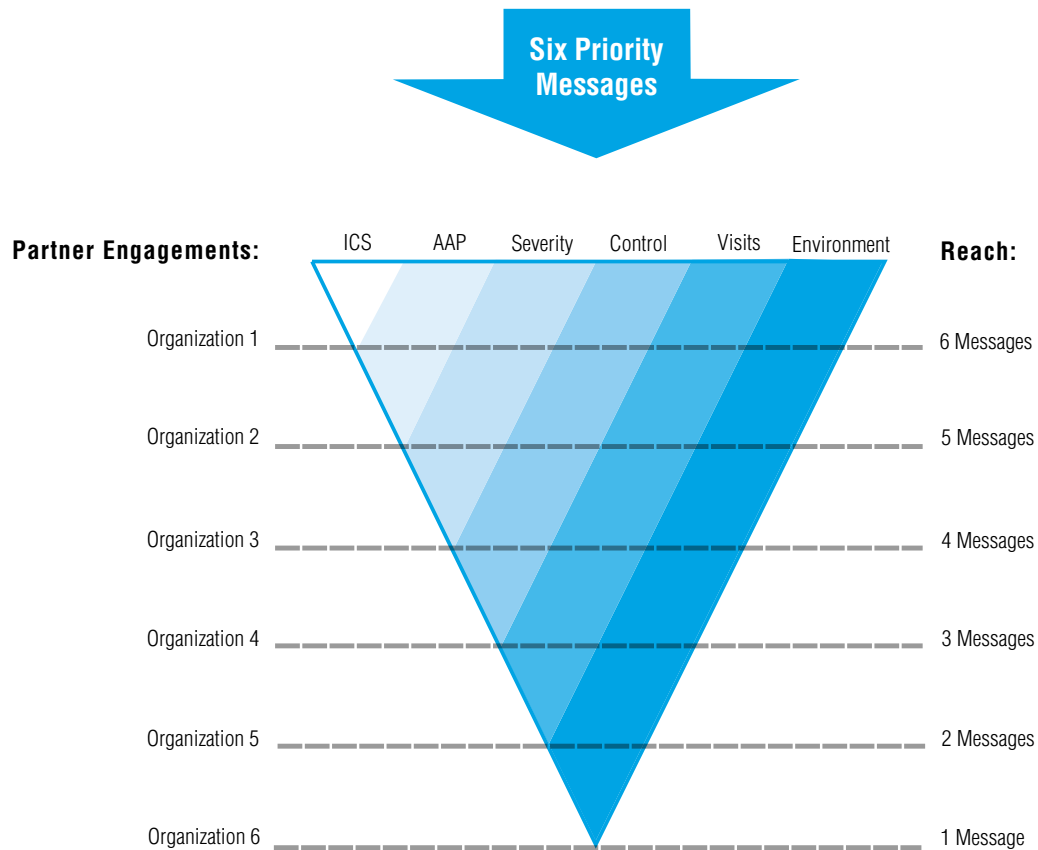
using either a single strategy or several strategies. A generalized list of strategies that could apply equally to the implementation of any of the six messages is provided. Figure 6 expands the generalized list of strategies to provide a drop-down menu of specific activities for each strategy. Organizations can use this menu as a quick reference to help determine which activities are compatible with what they are currently doing and/or that can easily be fit into the scope of their work. Or, organizations can use this menu to plan future activities that can be phased in. The desired outcome is for each stakeholder organization to find its own niche, but for the collective efforts of multiple organizations to cover the full gamut of messages and strategies—thus providing the framework for a comprehensive National Asthma Control Initiative (NACI).

Message: USE INHALED CORTICOSTEROIDS.

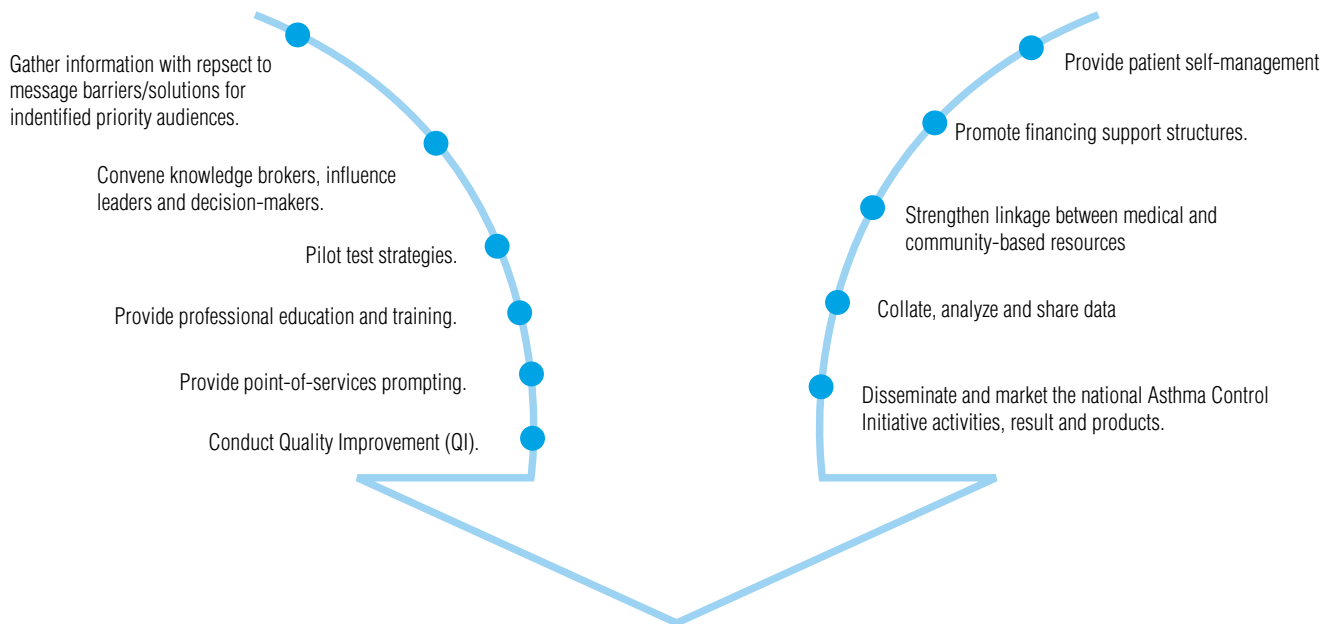
Inhaled corticosteroids are the most effective medications for long-term management of persistent asthma and should be utilized by patients and clinicians as is recommended in the guidelines for control of asthma.

Inhaled corticosteroids (ICS) are the most consistently effective, long-term control medications for persistent asthma. They are the preferred therapy for initiating long-term control medications. However, alternative options for medications are available to tailor treatment to individual patient circumstances, needs, and preferences; options and their appropriate use are presented in the EPR-3. Generally, ICSSs improve asthma control more effectively, in both children and adults, than any other single long-term control medication. The benefits of ICS outweigh the concerns about the potential risk of a small, non-progressive reduction in growth velocity in children, or other possible adverse effects.

Integration of GIP Messages and Strategies for Dynamic Engagement of Stakeholders and a Comprehensive Implementation Approach



Strategies to disseminate messages:



Key: ICS = Inhaled Corticosteroids
AAP = Asthma Action Plan

Menu of Implementation Activities — What Can My Organization Do?

<ul style="list-style-type: none"> ■ Gather information with respect to message barriers/solutions for identified priority audiences. <ul style="list-style-type: none"> • literature review • focus groups • leader interviews • surveys 	<ul style="list-style-type: none"> ■ Provide patient self-management education. <ul style="list-style-type: none"> • educational materials • materials adaptation – e.g. cultural, literacy, language • counseling – e.g., clinic, peer • group education • skills training – e.g., devices, empowerment • home visits
<ul style="list-style-type: none"> ■ Convene knowledge brokers, influential leaders and decisionmakers. <ul style="list-style-type: none"> • resource development • model policies • model benefits package • core element criteria – e.g., education tools, patient encounter forms, key clinical activities • basic quality care criteria • sample templates – e.g., action plans, clinical pathways • uniform measures – e.g., performance, outcomes • procedural guides – e.g., allergy testing, spirometry 	<ul style="list-style-type: none"> ■ Promote financing support structures. <ul style="list-style-type: none"> • developing a business case • reimbursement for education • basic quality care criteria • relevant CPT codes
<ul style="list-style-type: none"> ■ Pilot test strategies. <ul style="list-style-type: none"> • demonstration projects • clinical networks 	<ul style="list-style-type: none"> ■ Strengthen linkages between medical and community-based resources. <ul style="list-style-type: none"> • engage local coalitions • engage pharmacies • engage schools and child care centers • engage workplaces
<ul style="list-style-type: none"> ■ Provide professional education and training. <ul style="list-style-type: none"> • recertification training modules • academic detailing • problem-based/ skills development programs – CMEs • medical/nursing school curricula • tool kits ■ Provide point-of-service prompting. <ul style="list-style-type: none"> • electronic health record • visit encounter checklist/documentation notes • pocket guides • Personal digital assistant • standing orders • sample templates ■ Conduct Quality Improvement (QI). <ul style="list-style-type: none"> • provider feedback • incentives • plan-level quality measures • QI collaboratives • recertification QI modules 	<ul style="list-style-type: none"> ■ Collate, analyze and share data. <ul style="list-style-type: none"> • monitor, evaluate and report progress for intervention projects • monitor, evaluate and report adherence to guidelines – patients and providers • monitor, evaluate and report patient outcomes ■ Disseminate and market the National Asthma Control Initiative activities, results and products. <ul style="list-style-type: none"> • website • newsletters • meetings/events • email alerts

Communication

Rationale: Communicating the effectiveness, safety and importance of ICSs for asthma control and addressing concerns about their long-term use should occur at all levels of health care. It is also important for clinicians and educators to tailor their communications based on consideration of the patient's health literacy level; and, to develop a heightened awareness of health disparities and cultural barriers that facilitate more effective communication with minority (ethnic or racial) or economically disadvantaged patients regarding the use of asthma medications that may improve asthma outcomes. Patient-provider communication about ICS needs reinforcement and support throughout the healthcare system.

Patients and Their Families

Recommendation: Determine the most appropriate methods for teaching patients from diverse populations about the role of ICS in long-term asthma management.

Strategy 1: Through collaboration with stakeholders such as patient advocacy and educational groups and professional associations, refer to EPR-3 and search other recent literature to identify known barriers to conveying the ICS message to patients and their families. Scan for tested strategies and methods that have been shown to overcome these barriers.

Strategy 2: Within the context of social marketing and health communications techniques, use results of the scan to develop messages and media outreach activities that are tailored to the languages, literacy and health beliefs of intended audiences. Engage patients from the target group, as well as academic and commercial or marketing entities in this process. Pilot test the messages using patient focus groups and disseminate the final messages through various patient education channels, professional associations, media outlets, and partner engagement activities.

Prescribing Clinicians

Recommendation: Develop and deliver messages that enhance clinicians' understanding and willingness to prescribe ICS.

Strategy 1: Enlist the support of professional associations, specialty boards and provider education groups to develop multidimensional, interactive and practice-based continuing medical education (ME) and maintenance of certification (MOC) materials that convey the importance of ICS in the management of persistent asthma.

Strategy 2: Collaborate with stakeholders involved in creative marketing solutions, purveyors of health education Web sites and others who bring health communication expertise in developing concise and effective messages aimed at clinicians that promote the appropriate use of ICS, and that also resonate with other members of the healthcare team.

Strategy 3: Identify and/or develop model standing orders for patients on the use of ICS for persistent asthma and encourage asthma educators to inform patients about the orders. Also, disseminate these orders to physicians and others on the healthcare team to simplify prescribing ICS.

Payors and Pharmacy Benefits Managers

Recommendation: Garner interest and commitment among payors and pharmacy benefit managers (PBM) to play a major role in communicating messages about the effectiveness of using ICS for asthma control in patients who have persistent asthma; and, in recommending ICS use to health benefits purchasers as a cost-effective approach for achieving positive patient outcomes.

Strategy 1: In collaboration with health insurance organizations, such as America's Health Insurance Plans (AHIP) and Blue Cross Blue Shield Association (BCBSA), request that a group of payors/PBMs develop an effective approach to communicate the EPR-3 recommendations on the use of ICS.

Strategy 2: Consult with major purchasers of health benefits (i.e., large employers) and health actuaries to assist with developing messages that address the costs of effective asthma management and the relative costs of providing ICS with respect to patient outcomes.

Strategy 3: Work with health plans, payors and PBMs to develop an optimal formulary with standardized beneficial design for dissemination as a template.

System Integration

Rationale: Promoting appropriate use of ICS throughout the healthcare system supported by improved coding for asthma severity (see Systems Integration, Payors and Purchasers under Severity message) will reinforce efforts for use of ICS by patients and their providers, helping to eliminate barriers to their use at the system level.

National Accrediting Agencies

Recommendation: Develop and implement a new Healthcare Effectiveness Data and Information Set (HEDIS) measure that encourages the use of ICS in the management of persistent asthma.

Strategy 1: Convene a meeting and provide support to a National Committee on Quality Assurance (NCQA) working group to determine measurable outcomes of ICS use with an emphasis on continued use over the long term.

Strategy 2: Network with managed care organizations (MCOs) to develop broad support for a HEDIS measure for ICS use.

Government Health Service Agencies

Recommendation: Develop and implement policies and programs supporting the use of ICS in the management of persistent asthma.

Strategy 1: Engage relevant groups, e.g., clinical care advisory committees, medical certification and drug utilization review boards in the development of quality measures and pay-for-performance schema that include the appropriate use of ICS.

Strategy 2: In conjunction with such constituency groups as the State Medicaid Medical Directors, explore ways to identify and disseminate information on State initiatives that encourage the use of ICS, such as incentive programs and reimbursement schemes. Make States aware of evidence-based guidelines and innovative approaches to addressing common problems such as availability and prescribing of appropriate medications.

Medical Practice Oversight Groups

Recommendation: Identify and/or develop and distribute model policies for large medical practice oversight groups that support the use of ICS for patients with persistent, or not well-controlled, asthma.

Strategy 1: In conjunction with the American Medical Group Association (AMGA), convene a meeting of physician managers, medical group executives and clinic physicians to discuss and develop a model policy for ICS use.

Strategy 2: Through AMGA and its affiliated organizations, encourage the adoption of a model policy and provide consultation on its implementation to member medical groups.

Patient/Provider Support

Rationale: Asthma patients who understand the need for ICSs might still face barriers to their use. Methods, resources and systems that promote the ready availability and easy use of ICSs and of their delivery devices (e.g. spacers or holding chambers) should be accessible to patients and providers.

Patients and Their Families

Recommendation: Identify and reduce the barriers to ICS use among patients and their families.

Strategy 1: Through collaboration with stakeholders such as patient advocacy organizations, patient education groups and professional associations, review EPR-3 and existing literature on patients' reasons for consistently using or not using ICS daily therapy. Identify the main barriers to using ICS including, but not limited to, a lack of appreciation for the chronic nature of asthma and the need for daily therapy, misconceptions of the healthcare system, and lack of educational materials that are culturally and linguistically appropriate.

Strategy 2: Through the collaboration of professional associations, provider- and patient-education groups, address the identified barriers by promoting use of existing methods and resources and, if necessary, developing additional ones that encourage the consistent use of ICS. Work with patient education advocacy groups and professional associations to disseminate the resources.

Professional Associations

Recommendation: Eliminate barriers to physicians and other clinicians to appropriately prescribe ICS and encourage the use of ICS for persistent asthma.

Strategy 1: Convene a panel of formally trained asthma educators in collaboration with physicians, clinicians and midlevel providers to collect, review and develop point-of-contact methods and materials designed to enhance the use of ICS. Such could include patient reminders, electronic health record (EHR) clinical pathways, and tailored patient educational materials.

Strategy 2: Work collaboratively with professional associations and state asthma coalitions to disseminate these products through existing member networks using the most effective approaches.

Strategy 3: In collaboration with EHR vendors and informatics experts develop and distribute a clinical pathway template for asthma management that includes prompts to communicate and encourage appropriate use of ICS and standardized data collection elements that support evaluation of implementation activities and related practice-based research studies.

Patient Advocacy Groups

Recommendation: Develop messages and resources that will empower patients to seek and maintain treatment with ICS for long-term management of persistent asthma.

Strategy 1: Forge strong alliances among patient advocacy and education groups in collaboration with professional associations and other stakeholders. Through this alliance convene a virtual meeting of patient newsletter editors to collect and review existing materials for wider dissemination and, where appropriate, develop new content aimed at educating and empowering patients on interactions with their healthcare providers. Provide this information to editors of local chapters of advocacy groups.

Strategy 2: Through community organizations, the local medical community and professional associations, identify and/or develop presentation material to support a speaker's bureau of

clinicians, educators, patients, and family members who are available for meetings and public events to convey and reinforce the message of appropriate ICS use.

Strategy 3: Utilize a targeted national asthma campaign and social marketing initiative that includes the NAEPP and its partnering organizations to promote the six GIP messages, including the message on the importance of ICS for persistent or poorly controlled asthma as well as its safety and effectiveness in ongoing asthma management.

Message: USE WRITTEN ASTHMA ACTION PLANS.

All people with asthma should receive a written asthma action plan to guide their self-management efforts.

Many patients have difficulty recalling instructions for care that are given by their healthcare provider. A written asthma action plan (AAP) provides instruction and information on how to self-manage one's asthma daily, including taking medications appropriately, and identifying and avoiding exposure to allergens and irritants that can bring about asthma symptoms. In addition, the AAP provides information on how to recognize and handle worsening asthma, and when, how and who to contact in an emergency.

Communication

Rationale: To improve communication, AAPs need to be written clearly and implemented on many levels. First and foremost, clinicians should be able to choose a format for patient instruction that is consistent with their practice and their patient's needs. At the same time, however, clinicians should not have to create these plans anew. For children, these plans should be made simple and easy for schools, school nurses, and school-based health centers to use. Schools play a significant role in reinforcing use of a child's written AAP. In addition, AAPs should be easy for patients and their families to understand and presented in a format that encourages self-management. AAPs serve as the vehicle of coordination across multiple caregivers and as a linking mechanism between community and clinical sites. Communicating the policies that guide use of AAPs at various points of care will reinforce their use.

Prescribing Clinicians

Recommendation: Provide templates for written AAPs that include the core elements of action plans described in EPR-3, and that offer choices by age or setting (schools, workplace, childcare centers) and that are clear and easy to use. This set of sample templates will facilitate a standardized approach to developing an AAP for patients and ease of use by clinicians, thereby increasing his/her willingness to use it.

Strategy 1: Enlist the support of professional associations, clinicians and patient- and provider-education groups to review existing AAPs; and, as necessary, develop national prototypes of written AAPs that are simple, clearly understood, and easily tailored to meet the needs of diverse ethnic populations and patients.

Strategy 2: Obtain buy-in from primary care and medical specialty associations to support the production and dissemination of the prototype AAPs to clinicians.

Patients and Their Families

Recommendation: Identify patient and family needs and preferences regarding the content and format of written AAPs. Identify best ways to communicate with patients on the importance of action plans and how to ask their healthcare provider for them.

Strategy 1: Through patient advocacy groups and professional associations, gather information from the EPR-3 and other credible sources to identify and summarize messages and instructions that patients and families need to better manage their asthma.

Strategy 2: Collect and disseminate AAP templates that provide inclusion of the recommended core elements of an action plan as presented in EPR-3.

Strategy 3: Develop and promote the use of action plans that are culturally, educationally and linguistically meaningful to a diverse group of patients and their families. Coordinate this effort to reach patients with an outreach approach to healthcare providers (see Strategy 1 for Prescribing Clinicians, noted above).

Strategy 4: Work with patient advocacy and education organizations to encourage patients to ask their providers for an individualized AAP, or teach patients how to obtain a sample plan to take to their provider to develop an individualized AAP.

Schools, School Nurses, and School-Based Health Centers and Childcare Centers

Recommendation: Make available to schools, school nurses and/or school-based health centers or childcare centers, prototypes of the written AAPs that can be used for each student who has asthma.

Strategy 1: In collaboration with the NAEPP and its School Asthma Education Subcommittee convene a working group with representation from primary healthcare providers (family medicine, pediatrics and nursing), specialty associations, state-level health and education agencies, school boards, and school administrator organizations to identify and, if appropriate, develop a model policy and methods for implementing AAPs and facilitating communication and the sharing of written AAPs between primary care clinicians' offices and schools for the purpose of coordinating care. Also, identify and encourage the acceptance and use of standardized AAPs by school districts.

Strategy 2: In collaboration with professional associations, asthma educators, school educators, and nurses, identify existing and/or develop and implement a new educational program or workshop that addresses the use of AAPs for school personnel. This will enhance the education and skills of school staff, school nurses, and school-based health center staff in recognizing and managing asthma based on written AAPs and in understanding the policy issues related to AAPs.

Strategy 3: In collaboration with the NAEPP and its School Asthma Education Subcommittee, develop an enhanced Web page, or "community of practice" web site, that summarizes and makes accessible in one place school asthma information and resources, and that invites visitors to participate in a series of featured venues. Market the web page widely to participants who share in its common purpose and who will benefit from it.

Systems Integration

Rationale: Policies and programs that create accountability will better ensure the use of an AAP. Furthermore, EHRs that include written AAP will encourage and reinforce provider use. Personal Health Records, intended for use by the patient can support self-management of chronic conditions such as asthma.

Government Health Services Agencies

Recommendation: Engage decisionmakers to develop and implement policies and programs that promote the use of written AAP as part of basic care and coordination of care.

Strategy 1: Through collaboration of stakeholders working with Centers for Medicare and Medicaid Services (CMS), engage State Medicaid Medical Directors in a discussion about ways to encourage and increase the use of written AAP.

Strategy 2: Utilize a national asthma policy forum to facilitate and coordinate efforts that encourage leadership within government health service agencies to develop policies, quality improvements and pay-for-performance measures that include the use of written AAP for patients who have asthma.

Managed Care Organizations and Healthcare Payers

Recommendation: Engage decisionmakers to develop and implement policies and programs that promote the creation and distribution of written AAPs as a basic part of effective asthma care.

Strategy 1: Through the collaboration of (MCOs) and healthcare payors, convene a meeting of healthcare payors, benefits managers, key MCO representatives (managers, physicians and other prescribing clinicians, and medical group executives) to develop a model policy for the use of written AAPs.

Strategy 2: Pilot test the model policy, including a method for documenting that an AAP was provided (e.g., using an EHR) and a method for prompting timely updates of the AAP thus better ensuring compatibility with available medicines and benefits. Documentation will help to monitor any associated incentive programs.

Strategy 3: Utilize a national asthma policy forum to facilitate the distribution, and encourage the adoption and implementation, of a model policy for AAPs that embeds quality measures and pay-for-performance measures into the policy.

Electronic Health Record Companies

Recommendation: Facilitate the use of written AAPs by physicians and other clinicians by integrating plans into EHRs.

Strategy 1: Using an approach coordinated by EHR companies, develop and distribute a comprehensive written AAP that is easily understood by patients and their families; and, that is comprised of the core elements of an AAP as described in the EPR-3.

Strategy 2: Ascertain and act on ways to gain the interest and commitment of EHR companies to promote their module on the use of written AAPs for people who have asthma.

Patient/Provider Support

Rationale: The patient's goals, concerns, beliefs, and attitudes should be addressed, as these are keys to successful use of AAPs as a self-management tool. Sharing in the decisionmaking process with their healthcare provider will encourage patients to use the AAP. In addition, engaging other members on the patient's healthcare team, and practitioners and educators at alternative points of care (i.e., schools, pharmacies, etc.) will help to reinforce the importance of patient self management using an AAP.

Patients, Families and their Clinicians

Recommendation: Identify and reduce the barriers to use of written AAPs by patients and their families and create an environment of shared decision-making with clinicians.

Strategy 1: Patient advocacy, education groups and professional associations should refer to the EPR-3 and other credible sources to identify and summarize known barriers for using AAPs by patients and their families. This information can be used to inform clinicians on approaches to use for overcoming these barriers. If needed, search additional recent literature for strategies and methods that have been tested and shown to be effective in overcoming these barriers.

Strategy 2: Enlist asthma educators, patient advocacy groups, and other healthcare professionals to educate patients on the skills and rationale for self management and utilization of their AAPs.

Strategy 3: Encourage patient education programs to demonstrate techniques patients can use to request written AAPs from their providers and motivate them to use these techniques.

Pharmacists and Other Health-related Providers

Recommendation: Utilize multiple points-of-service, in particular pharmacies where patient encounters occur, to increase utilization of written AAPs.

Strategy 1: Convene a meeting of pharmacists, prescribing clinicians, nurse practitioners, asthma educators, and school nurses as well as patients and other related disciplines to discuss ways to improve dissemination and reinforcement of the use of written AAPs in a variety of settings.

Strategy 2: Work with pharmacists and healthcare providers to identify ways to better support the use of EHRs for reinforcing a patient's use of his/her written AAP.

Message: ASSESS ASTHMA SEVERITY.

All patients should have an initial severity assessment based on measures of current impairment and future risk* in order to determine type and level of initial therapy needed.

Asthma severity is the intrinsic intensity of the asthma disease process and is measured most easily and directly in a patient who is not receiving long-term control therapy. Information gathered in the assessment of asthma severity is used to characterize the patient's asthma in order to guide decisions for initiating therapy, after which the focus shifts to how well the patient is able to control his or her asthma by following the treatment plan. A severity assessment ensures the appropriate use of pharmacologic agents. Both asthma severity and asthma control are determined by the same measures in two domains: 1) current impairment, and 2) future risk. Once treatment is started, the results of the measures of impairment

and risk are used to monitor asthma control rather than severity. Monitoring the level of asthma control is used to adjust medication as needed.

Communication

Rationale: Clinicians should determine severity of asthma as part of their initial assessment of patients who have asthma. Asthma severity should be documented in the patient's record and the significance of this assessment explained to the patient. Patients should know that regardless of severity classification, all asthma is serious and requires patients to follow their treatment plans. Likewise, patients need to be able to communicate information to their healthcare providers about their asthma and how it affects their lives. This will help the healthcare provider to assess the level of impairment and risk for determining a patient's initial asthma severity and treatment requirements.

Primary Care Providers and Other Healthcare Clinicians

Recommendation: Encourage clinicians to document information in the patient's record with respect to measures of impairment and risk and also the resulting level of asthma severity that this combination of measures indicates. Encourage clinicians to explain to the patient the significance of asthma severity at diagnosis in developing an initial treatment plan and then how the emphasis shifts to monitoring control of asthma over the long term using the same measures of impairment and risk.

Strategy 1: Encourage collaboration among professional associations and other asthma stakeholders in setting up a clearinghouse of sample tools for assessing severity and initiating therapy accordingly in clinician-friendly formats. Develop and execute a plan for promoting these resources to primary healthcare providers and asthma specialists, and for assessing and explaining severity in different populations in a variety of settings.

Strategy 2: Through a collaboration of professional associations and other stakeholders,

**Note: While there is not strong evidence from clinical trials for determining therapy based on the domain of future risk, the guidelines Expert Panel considers that this is an important domain for clinicians to consider due to the strong association between history of exacerbations and the risk for future exacerbations.*

develop a range of innovative CME-based programs (webinars, teleconferences, CD-ROMs, grand rounds) to educate primary care clinicians and ED physicians and staff on how to assess asthma severity and articulate its significance to patients.

Patients and Their Families

Recommendation: Educate patients who have asthma about the role of asthma severity in their overall asthma management.

Strategy 1: Working with patient advocacy and education groups, professional associations and the NAEPP, convene a meeting to assess gaps in the availability of existing educational materials and resources for patients and families regarding asthma severity. Develop new educational materials and resources as needed with a focus on the domains of current impairment and future risk and their role in assessing asthma severity at diagnosis and then in monitoring level of asthma control once treatment is started. Disseminate resources through various channels available to educational groups and professional associations for use in patient education.

Strategy 2: Use a national campaign strategy and social marketing techniques to inform patients, their families and providers who care for them about the significance of assessing asthma severity at the time of a patient's initial assessment to help determine the appropriate treatment plan.

System Integration

Rationale: All healthcare providers should be educated about the asthma guidelines and how to assess a patient's asthma severity at initial diagnosis. In order to support the assessment of asthma severity, payors and purchasers of health benefits should understand the significance of asthma severity and the importance of the guidelines recommendation to assess it. Every healthcare professional who cares for people who have asthma should understand the concept of asthma severity and how to apply it in developing a treatment plan.

Education and Training Institutions

Recommendation: Educate clinicians-in-training (medical students, residents, nursing students, respiratory therapists, and pharmacists) on assessing asthma severity.

Strategy 1: Working through the American Association of Medical Colleges, incorporate the concept of assessing asthma severity into the medical school curriculum.

Strategy 2: Through collaborative efforts of the professional associations, boards for various medical disciplines, and the NAEPP, develop tools to incorporate evaluation of asthma severity into training and MOC programs of primary care providers and clinicians (family practice, pediatricians, physician assistants, nurses, pharmacists, and respiratory therapists).

Payors and Purchasers

Recommendation: Enlist payors and purchasers of services to promote the importance of assessing asthma severity by healthcare providers.

Strategy 1: Encourage healthcare providers who participate in Medicaid, Medicare and large MCOs to conduct routine assessment of asthma severity on patients during their initial visit. Implement incentives and provide feedback reports.

Strategy 2: Explore the ability to use International Statistical Classification of Diseases and Related Health Problems and Current Procedural Terminology structures to better classify asthma severity. Coding should be better developed with respect to the coding of asthma severity.

Strategy 3: Engage professional associations in partnership with the NAEPP to work with EHR companies to include assessment of asthma severity in their system.

Strategy 4: Work with ED personnel, professional associations and hospital administrators to develop a process for evaluating asthma severity of all patients who have untreated or poorly controlled asthma and who are seen in the ED. The process that is developed should include methods for ED personnel to commu-

nicate these severity level assessments to the patient's primary care provider.

Patient/Provider Support

Rationale: When being evaluated by healthcare providers, patients who have asthma should understand asthma severity and how it is assessed. They should expect that healthcare providers and clinicians who treat them understand the concept of asthma severity and how to apply it to a patient's overall care.

Patient Advocacy Groups and Patients with Asthma

Recommendation: All patients who are diagnosed with asthma at the time of their initial assessment should have a determination made of their asthma severity.

Strategy 1: Utilize a national asthma campaign to serve as an outreach arm to inform and educate patients and their families about all six priority messages, including basic information on why it is important for their provider to assess asthma severity when initiating therapy; and, on how to ask for and obtain an asthma severity assessment.

Asthma Educators

Recommendation: Utilize asthma educators to teach their peers and other clinicians and educators, as well as patients and families about the importance of assessing asthma severity as well as the measures of impairment and risk that are used to determine level of severity.

Strategy 1: Through the respective professional associations, patient advocacy and education groups in collaboration with the NAEPP's National Asthma Control Initiative, develop tools to be used by asthma educators to teach patients and families, healthcare providers, managed care providers, pharmacists and others about asthma severity.

Strategy 2: Develop interactive, problem-based Train-the-Trainer programs for members of asthma educator organizations that teach key guidelines recommendations related to the six GIP messages, including asthma severity.

Strategy 3: Disseminate the educator training programs and the accompanying tools through a national asthma campaign as well as through other NAEPP partnering organizations.

Message: ASSESS AND MONITOR ASTHMA CONTROL.

At planned followup visits, asthma patients should review level of asthma control with their healthcare provider based on multiple measures of current impairment and future risk in order to guide clinician decisions to either maintain or adjust therapy.

There is a new emphasis on the assessment and regular monitoring of asthma control to determine if the goals of therapy are being met and whether therapy needs to be adjusted. The EPR-3 emphasizes the distinction between classifying asthma severity and monitoring asthma control, namely, to assess asthma severity to initiate therapy and to assess asthma control to determine if therapy should be adjusted. Asthma control is the degree to which the manifestations of asthma are minimized by therapeutic interventions—that is, the degree to which the goals of therapy are met. Asthma control (just as asthma severity) includes the domains of current impairment and future risk. The concept of impairment includes frequency and intensity of symptoms, current or recent functional limitations experienced by the patient. The concept of risk includes the likelihood of either asthma exacerbations, progressive decline in lung function (or, for children, reduced lung growth), or risk of adverse effects from medication. The level of control achieved in response to treatment, including success of patient adherence to a realistic and goal-oriented treatment plan, dictates whether a treatment regimen can be maintained by the patient, or whether medication must be adjusted (stepped up or down). The emphasis of routine monitoring in the updated guidelines is clearly related to asthma control.

Communication

Rationale: In order to effectively communicate the role of assessing and monitoring asthma control in asthma management, clinicians and educators should understand patient perspectives on the concepts of impairment and risk and on the barriers patients face in implementing their treatment plans. Clinicians need tools and

resources to simplify presentation of the concept of control (impairment and risk) to patients and their families. Payors, PBMs, and Medicaid directors also need to understand the concept of control and its significance in asthma management since, through their direct access to high-risk populations, they have tremendous potential to impact asthma outcomes.

Patients and Their Families

Recommendation: Determine patients' understanding of asthma control and the importance of monitoring it in long-term asthma management.

Strategy 1: Engage patient advocacy groups, patient education groups, practice-based research networks, and other stakeholders to review the literature on barriers to patients assessing and monitoring well-controlled asthma (drawing upon studies cited in the EPR-3 and other credible sources). Conduct focus groups, if needed, to further identify barriers to patients monitoring asthma control; include patients with asthma of all types, but especially those who have had exacerbations of their asthma in the past 2 years. Develop a white paper to summarize the barriers and propose methods for overcoming them, including ways to effectively convey the control message to patients and their families.

Strategy 2: Support the use of established social marketing and health communications techniques to develop culturally appropriate messages and media outreach activities by drawing upon academic and commercial entities with expertise in this discipline.

Strategy 3: Utilize a national asthma campaign to implement a variety of social marketing and communication strategies that address all six messages, including asthma control.

Clinicians

Recommendation: Develop and deliver messages that enhance a clinician's willingness to assess asthma control using standard measures of impairment and risk, with emphasis on high-impact strategies, e.g., MOC processes and board exams that could be applied across all six priority messages.

Strategy 1: Conduct surveys or focus groups of clinicians and emergency medicine practitioners to evaluate the current clinical processes they use for determining a patient's level of asthma control and explore ways to incorporate these familiar practices within the new framework of impairment and risk.

Strategy 2: Pilot test the use of board exams and the MOC processes within primary care and emergency medicine disciplines as a vehicle to support incorporation of guidelines into practice. This would involve dissemination of the guidelines, application of practice redesign elements to foster sustained implementation of the guidelines, and development of metrics to assess impact.

Strategy 3: Enlist the support of professional associations, patient advocacy and education groups, medical boards and other stakeholders to develop and disseminate innovative strategies for CME, nursing, and other healthcare disciplines' education and MOC materials conveying the use of the EPR-3 recommendations for control in the management of asthma.

Managed Care Organizations, Payors and Pharmacy Benefits Managers

Recommendation: Identify gaps in existing tools, develop new tools as needed, and reach consensus on a standardized assessment tool for asthma control that incorporates the core concepts in EPR-3 of impairment and risk and that can be used in case management for monitoring of asthma control.

Strategy 1: Working with AHIP or BCBSA, convene a workshop of payors/PBMs aimed at developing an effective approach for communicating the EPR-3 recommendations on assessing and monitoring asthma control to payors and PBMs. Disseminate information on ways to implement the approach to constituents.

Strategy 2: Working through the NAEPP, coordinate a review of existing tools with MCOs and major purchasers of health care (e.g., large businesses, State governments, etc.); reach consensus among participants on a standardized tool, or template, for assessing and monitoring asthma control; develop new tools, if needed. The standardized tool would incorporate the core concepts of control, namely, impairment

and risk and could be used to monitor control during clinical and case management. Pilot test the tool, and also engage the NCQA as an ally to promote the piloted standardized assessment tool as an internal quality measure for use by MCOs. Adapt the tool to fit different populations and settings.

Strategy 3: Engage managed care entities to assess effective messaging techniques within their population reach in order to develop processes that better achieve effective self-assessment of asthma control by patients. Share this information with the broader MCO community.

Strategy 4: Through collaboration of the NAEPP and its partners, including possibly the IOM, develop a white paper on the effectiveness of MCOs to foster the implementation of guidelines through incentives, member outreach and provider collaboration. The paper should address how well MCOs foster enhanced disease management programs and should include an assessment of the effectiveness of these programs. Summarize and disseminate this information widely to Health Maintenance Organizations using a variety of formats.

Systems Integration

Rationale: Engage and collaborate with such entities as the NCQA and CMS to promote the asthma control message based on the domains of current impairment and future risk since these organizations exert far-reaching influence over employers' health benefits purchasing decisions.

National Committee for Quality Assurance

Recommendation: Develop and implement a HEDIS measure that officially states the process of assessing control for managed care populations.

Strategy 1: The NAEPP in collaboration with its partners will support a NCQA working group to identify the foundational elements of asthma control measurements, based on risk and impairment, which can be parlayed into a uniform control measure for direct comparison from one plan to another. This performance measure should be designed to assess how well MCOs track asthma control in their case-managed population and in their membership overall. By monitoring this performance measure, an

MCO will have demonstrated that it has integrated assessment of asthma control into its programs.

Strategy 2: Convene a meeting with MCOs to develop broad support for: 1) a HEDIS performance measure on asthma control assessment, 2) the use of standardized tools in clinical settings, and 3) the use of case management.

Centers for Medicare and Medicaid Services

Recommendation: Promote programs that encourage assessment of asthma control in Medicaid recipients.

Strategy 1: Encourage strategic alliances with local and regional asthma coalitions, the Department of Medical Assistance Services in each state, and public health departments to disseminate information about disease management and other programs that incorporate asthma control messages for all recipients.

Strategy 2: Explore development of a formal plan that specifies assessment and monitoring of asthma control is provided in Medicaid disease management programs and provider continuing education programs. Furthermore, provide incentives to routinely assess asthma control in delivery of asthma care.

Patient/Provider Support

Rationale: Although both providers and patients will readily mention asthma control as their primary goal for asthma management, they often neither employ a systematic way of assessing and regularly monitoring asthma control nor address the risks associated with lack of maintaining control. Physician organizations represent the clinicians, and oversee whether clinicians are performing or supervising appropriate assessment and monitoring of asthma patients. Patient advocacy groups represent those organizations that support the patient by helping to translate complex disease treatment steps into clear and simple self-management action messages, which include monitoring asthma control. Patients should monitor asthma control to better self-manage their disease.

Patients and their Families

Recommendation: Encourage the expectation among people who have asthma and their families

that asthma control can be attained and will be assessed during their followup health visits.

Strategy 1: Conduct focus groups in diverse populations to collect information on patients' understanding and beliefs related to asthma control and information on messaging related to monitoring asthma control as part of self management of their disease.

Strategy 2: Work with health communications experts, patient advocacy groups, and other stakeholders to develop culturally appropriate educational materials in a variety of formats and languages that address current knowledge, viewpoints, and potential misunderstandings of asthma control identified through the focus groups. Distribute these resources through the dissemination channels of patient and provider education groups and a national asthma campaign.

Professional Associations

Recommendation: Facilitate the ease with which physicians and other clinicians are more able to consistently and routinely conduct assessment of impairment and risk to determine their patients' level of asthma control within varied practice settings.

Strategy 1: Support sessions at professional association meetings that encourage participation in the development of decision support resources including Personal Digital Assistants, EHR clinical pathways, and patient educational materials designed to enhance the assessment and routine monitoring of asthma control.

Strategy 2: Partner with professional associations to distribute useful materials and strategies through their existing electronic and mail member networks to help increase assessment and monitoring of asthma control.

Strategy 3: In collaboration with EHR vendors, develop and test an EHR/electronic clinical pathway template for asthma management that includes standard assessment tools for asthma control, standard data elements to support implementation, and evaluation.

Strategy 4: Establish a partnership between the NAEPP and professional specialty boards to develop materials and strategies that can be incorporated into MOC programs.

Strategy 5: Convene stakeholders who have the expertise and resources to provide technical support for a series of quality improvement (QI) implementation studies. In collaboration with the NAEPP and its partners, develop these potentially high impact QI interventions to be tested by a partner organization or its practice-based research networks for effectiveness, transferability and sustainability. Facilitate assessment of QI interventions through grants and contracts offered by various government agencies or member programs in order to identify those with the highest possible impact.

Patient Advocacy Groups

Recommendation: Develop messages that will encourage patients to self monitor their level of asthma control and that will foster expectations that their asthma control shall be routinely assessed by their healthcare provider for the long-term management of their asthma.

Strategy 1: Convene a meeting of leaders in public or media communication to work with patient advocacy groups and patient/provider education groups to:

- Develop messages for patients concerning assessment and monitoring asthma control
- Develop content that can be provided to editors of State and local chapters of advocacy groups aimed at educating and empowering patients in preparation for interactions with their healthcare providers.

Strategy 2: Through community organizations, the local medical community and professional associations, develop presentation material to support existing or develop a new speakers' bureau of clinicians, other healthcare professionals, patients and family members who are available for meetings and public events to convey and reinforce the message of monitoring asthma control.

Message: SCHEDULE FOLLOWUP VISITS.

Patients who have asthma should be scheduled for planned followup visits at periodic intervals in order to assess their asthma control and modify treatment if needed.

Asthma is highly variable. Some patients with asthma may have severe asthma attacks without many symptoms between attacks. Others, however, may have frequent symptoms without having a severe asthma attack. Asthma may also vary according to the time of year. Because response to asthma therapy may vary, periodic monitoring of asthma control through clinical visits is essential to “step up” therapy (increase the dose, number of medications and frequency) as necessary; or, “step down” (decrease) when possible to the minimum medication necessary to maintain control. The interval between followup visits may also vary based on the level or duration of asthma control as well as the level of treatment required.

The frequency of monitoring is a matter of clinical judgment and will vary depending on several factors, including the level of asthma control. In general, patient visits should be scheduled at 2-to-6 week intervals while initiating therapy or stepping up therapy to achieve control; at 1-to-6 month intervals after asthma control is achieved in order to monitor if asthma control is maintained; and, at 3-month intervals if a step-down in therapy is anticipated.

Communication

Rationale: Patients and their families, clinicians, healthcare administrators and policymakers may lack knowledge and appreciation about the importance and benefit of periodic clinical followup of people who have asthma. Contributing factors include the complexity of the message related to routine “check ups” for asthma, even when the patient is feeling fine, versus the tendency to visit the doctor only during an asthma attack; and to a lack of belief in the benefits of preventive care. A message that focuses on mutually agreed-upon goals for therapy, objective measures of control, and the benefits of well-controlled asthma would be a motivational cue to patients for keeping their appointments.

Patients and Families

Recommendation: Implement a national asthma

campaign to educate, in particular, high-risk population segments about the importance of regularly scheduled outpatient followup in accordance with the EPR-3 for people who have asthma.

Strategy 1: Conduct social marketing and health communications research to develop accurate and consistent, consumer-friendly messages and identify appropriate media channels to reach people who have asthma from different cultural backgrounds and literacy levels.

Strategy 2: Conduct a pilot project for segments of the U.S. general public to evaluate the effectiveness of these messages in changing asthma knowledge, attitudes, and behaviors about periodic visits and other EPR-3 priority messages related to long-term management. The pilot project and its evaluation should examine the projected costs and benefits to expanding this pilot project to the entire population. Present the results of the pilot project as a business case for periodic visits.

Clinicians

Recommendation: Develop and deliver messages to primary care providers and ED clinicians regarding the importance of routine clinical followup for patients who have asthma.

Strategy 1: Work with professional associations, specialty organizations, certification boards, and educational training programs to include the message of periodic visits in their CME and MDC programs.

Strategy 2: Work with industry in developing and delivering effective educational and motivational strategies to promote periodic visits.

Purchasers and Payors

Recommendation: Increase awareness of the potential benefits of consistent outpatient followup among major purchasers of health benefits, payors, and health actuaries as a move toward broad-scale insurance coverage of periodic visits in routine asthma care.

Strategy 1: Conduct a series of interviews with private and public payors to assess and summarize potential benefits and barriers to the implementation of comprehensive outpatient insurance coverage for asthma.

Strategy 2: Work with patient advocacy groups to gather and disseminate existing information on the costs and benefits of periodic outpatient asthma care as compared to sporadic asthma care. This information will be disseminated to purchasers and payors in presenting a case for covered periodic asthma care. Include recommendations promoting appropriate reimbursement for services provided at routinely scheduled outpatient visits.

Systems Integration

Rationale: There are multiple barriers within the healthcare system and community that contribute to the lack of periodic clinical followup of patients who have asthma. Several major barriers include lack of monitoring systems to track patients who have asthma, insufficient incentives or prompts for patients to encourage adherence to treatment plans, and lack of consistent reimbursement for followup visits.

Clinical Practice Gatekeepers (Administrators/ Policy Makers), Private and Public

Recommendation: Implement patient monitoring and referral policies that will promote the increase of appropriate outpatient followup for persons who have asthma, with special attention to implementing close followup after an urgent care encounter for those whose asthma is not well controlled.

Strategy 1: Convene a group of medical directors, clinicians, and clinic administrative staff from varied healthcare settings to identify barriers to followup care and use this information to develop innovative strategies to overcome the barriers. An example of such a strategy is an automatic generation of lists of patients who are at higher risk and greater need for followup based on their lack of asthma control.

Strategy 2: Conduct a QI study in a few of the NAEPP's partner organizations to evaluate the effectiveness of several monitoring and referral strategies and their potential for broader dissemination and implementation. Identify the high impact strategies to replicate within an expanded implementation initiative.

Clinicians and Healthcare Providers

Recommendation: Develop, implement, and evaluate QI strategies that promote outpatient followup for asthma care.

Strategy 1: In collaboration with public and private healthcare providers and educators and their respective organizations, convene focus groups including clinicians from various types of clinical settings and disciplines (e.g., primary care physicians, nurse practitioners, specialists, physician's assistants, respiratory therapists, pharmacists) to generate QI strategies that are simple and feasible.

Strategy 2: Develop and implement strategies targeted to patients who have asthma and are discharged from the ED or hospital. These strategies could include staff education or a reminder system for the hospital and ED staff.

Strategy 3: Develop and implement strategies that use pharmacy databases and EHRs to establish reminder systems for clinicians working in different healthcare settings.

Strategy 4: Explore use of "alternative" followup appointments, e.g., "e-mail appointments" where e-mails are exchanged to see if an office visit or change in prescription is warranted.

Purchasers and Payors

Recommendation: Examine insurance coverage gaps and other barriers linked to the possible underutilization of routine outpatient followup visits and develop solutions to overcoming these barriers.

Strategy 1: Work through a national asthma policy forum, in coordination with the NAEPP, to convene a consortium of private and public healthcare purchasers and payors, as well as selected members from the GIP to examine systems barriers to appropriate utilization of outpatient followup visits. The consortium would develop and evaluate strategies designed to overcome the barriers.

Strategy 2: Conduct a study that compares current costs associated with utilization of outpatient clinics by asthma patients, who are seen across a variety of healthcare settings, with the current costs associated with inpatient hospital admissions for asthma (including cost of medications). Use the results to document whether costs of outpatient care are a barrier to

reimbursement for periodic clinical care; and/or whether costs explain the reason for a discrepancy in time intervals between actual followup visits and the intervals recommended in the EPR-3.

Strategy 3: Encourage consortium members to develop performance measures/benchmarks for appropriate followup care that are based on EPR-3 and that would be feasible to track for QI and performance measure purposes.

Strategy 4: Encourage consortium members to use the asthma outpatient care quality benchmarks to conduct a series of pilot studies. These studies would be used to evaluate the feasibility and benefit of strategies, such as pay-for-performance, to close the gaps that contribute to underutilization of outpatient follow up visits.

Patient/Provider Support

Patients and providers should follow the recommended actions for periodic visits, such as patient attendance at regularly scheduled clinical appointments and provider adjustment of medication (stepping up or down as needed), to facilitate meeting the goals of therapy and better control of asthma. If certain tools and resources, e.g., access to appropriate medications as determined by the physician, are made available to patients and providers, patient's motivation and willingness to follow through with recommended actions may be improved.

Patients with Asthma

Recommendation: Implement educational and motivational strategies that can be broadly disseminated among all patients who have asthma.

Strategy 1: Encourage healthcare providers to send patients hard-copy and electronic reminders, or telephone reminders of followup schedules, including a brief and easy-to-understand list of what to expect from their asthma followup appointment.

Strategy 2: Develop policies among healthcare insurance companies to provide incentives for outpatient followup clinical evaluation.

Strategy 3: Educate all persons who have asthma and their families about the importance

of outpatient followup care as part of a national asthma campaign and the broader NAEPP partnership activities.

Clinicians

Recommendation: Develop and provide clinicians with "user friendly" and practical tools to support their followup assessment of asthma control, adjustment (or maintenance) of medications, and review of patient self-management skills for patients who have asthma.

Strategy 1: Convene a working group of GIP members and community-based clinicians to identify barriers faced by clinicians that may affect their capacity and motivation in implementing periodic asthma check-up visits.

Strategy 2: In light of the identified barriers, determine how to clearly and simply present information from the EPR-3 on followup monitoring. Summarize this information and disseminate widely to a varied group of clinical audiences so they may adapt the information for use in their particular settings.

Strategy 3: Work with stakeholders, including the private sector and professional associations, to disseminate a targeted and simplified educational and motivational program to all clinicians that addresses the described barriers. This could include innovative CME activities informed by focus groups, as well as educational and motivational programs that integrate messages about periodic visits with other key messages from EPR-3 as well. This strategy could be carried out through a national asthma campaign in collaboration with the NAEPP and other interested partners,

Schools, School Nurses, and School-based Health Centers

Recommendation: Facilitate communication between primary care provider's offices and schools about students' AAP, the role and value of them, including the need for periodic followup visits as an integral element of the treatment.

Strategy 1: Working with the NAEPP School Education Subcommittee and the Center of Disease Control (CDC) working group on

AAPs, conduct focus groups consisting of school personnel and parents to identify barriers and explore ways that schools might facilitate students making and keeping clinic appointments for periodic asthma followup care.

Strategy 2: Working with the above groups, brainstorm strategies and tools that could be used to address these barriers. Strategies could include asthma clinic times after school or a requirement that proof of an asthma clinical evaluation be provided at the beginning of the school year.

Strategy 3: Pilot test the strategies and tools in selected schools and disseminate the results.

Message: CONTROL ENVIRONMENTAL EXPOSURES

Clinicians should review each patient's exposure to allergens and irritants and provide a multipronged strategy to reduce exposure to those allergens and irritants to which a patient is sensitive and exposed, i.e., that make a patient's asthma worse.

Evidence demonstrates that, for an allergen- and irritant-sensitive person who has asthma, substantially decreasing exposure to inhalant allergens may significantly reduce inflammation, symptoms, and the need for medication. Furthermore, certain respiratory irritants such as tobacco smoke and air pollution are associated with increased symptoms and increased use of healthcare services. Therefore, a patient's AAP should identify individual allergens and irritants that worsen the patient's asthma. This information may assist in avoiding unnecessary exposures to allergens/irritants, or at least be an alert to exposures that might indicate a need for increased therapy. Also, clinicians should consider a patient's success with efforts to reduce exposure to allergens and irritants as part of his/her decision to step up or down treatment for the long-term management of asthma. Exposure control of allergens and irritants at home, school or work is an important measure for achieving well-controlled asthma and is likely to improve the allergen- and irritant-sensitive patient's quality of life. Community resources, including in-home support for allergen and irritant reduction, are helpful in controlling environmental factors that can make asthma worse.

Communication

Rationale: Conducting an initial environmental assessment for patients who have asthma at any level of severity should provide information that the clinician can use to educate patients on actions to take toward reducing exposure to those allergens and irritants that worsen a patient's asthma. Using multiple approaches to reduce exposure to known allergens/irritants is imperative for effective exposure control since individual steps are generally ineffective.

Conducting a more detailed environmental assessment in the patient's home (or other settings where a patient spends considerable time, such as school or work) may also be useful for certain patients (e.g., those whose asthma is not well-controlled or whose asthma is work related).

For patients who have persistent asthma and are exposed to indoor allergens year round, followup steps to an initial environmental assessment may include allergy testing to determine sensitivity to allergens, with results considered in the context of the patient's overall medical history. Conducting skin or in vitro testing to confirm sensitivity helps to narrow the focus of a patient's allergen/irritant exposure control strategy to those factors that will have the greatest effect.

Clinicians

Recommendation: Provide clinicians with user-friendly, systematic and step-wise techniques and tools for evaluating a patient's environmental exposures and their possible role in the patient's asthma. These techniques/tools should include guidance to aid the clinician in determining when an initial environmental assessment by history alone is sufficient, and when a more complete in-home, school or work assessment is needed. The techniques/tools should also address when allergy testing and referral to a specialist is recommended based on EPR-3.

Strategy 1: As part of planning a national asthma campaign that addresses all six GIP messages, work in collaboration with the NAEPP and its partners to include a message encouraging clinicians to identify environmental factors that worsen a patient's asthma and to consider the patient's success with efforts to control factors capable of making asthma worse as part of the clinician's decision to step up or down

treatment for the long-term management of asthma.

Strategy 2: Convene a workshop of experts in environmental control, asthma specialists, primary care providers, asthma educators, patient advocacy groups, employers and worker advocates to review existing tools and, as needed, develop new tools and protocols. Proposed tools and protocols should address a variety of clinical settings and patient cultural/ethnic situations. The tools should be built upon the core elements of an environmental assessment identified in EPR-3. The tools should also offer selection criteria for complementary types of assessments (interview, in-home/at school or work), and for allergy skin or in vitro testing. Disseminate the resulting products to health-care practitioners who treat asthma.

Strategy 3: Convene a workgroup of primary care providers, allergists, representatives of health plans, and State Medicaid Medical Directors to explore barriers to allergy testing in primary care settings to reach consensus on, and implement policies for, supporting the use of allergy testing in accordance with EPR-3 recommendations; and, to facilitate referrals to specialists, as appropriate, for consultation or comanagement of patients.

Schools, School Nurses, Childcare Centers, and Schoolbased Health Centers:

Recommendation: Inform school/childcare personnel about the potential impact of their site's environment on students' management of their asthma. Provide education on allergens and irritants frequently found in schools/childcare centers and on what the role of school staff is in helping students and staff who have asthma with their exposure control strategies. Focus specifically on those environmental factors identified in AAPs on file for students who have asthma. Provide affordable, practical solutions for schools/childcare centers to use for allergen/irritant reduction.

Strategy 1: The NAEPP School Education Subcommittee in collaboration with interested professional associations, patient education groups, boards of education, and government agencies, should reference the EPR-3 to collate a

summary of the evidence regarding the impact of allergen and irritant exposure on asthma control that is tailored to a school audience. Identify and disseminate tools and strategies that have been proven to reduce allergens and irritants in school and childcare environments and improve students' asthma outcomes.

Strategy 2: Build upon existing (and establish new, if needed) methods and tools for contacting schools and childcare centers and orienting appropriate personnel on the importance of controlling environmental factors in the management of asthma.

Strategy 3: Engage asthma coalitions, professional associations, government agencies, asthma educators, school administrators, school educators and nurses at the State or local level to develop and implement a coordinated plan of action to reduce exposure based on proven approaches identified in Strategy 1 above.

Strategy 4: Establish a system of communication or leverage an existing network among designated school or childcare staff, asthma educators, the student and student's family, school staff who have asthma, and healthcare providers to help exchange information about and coordinate control of the allergens and irritants in the school or childcare setting that worsen asthma.

Workplace

Recommendation: Inform healthcare providers, patients, occupational specialists, health benefits managers, payors, employee unions/ associations, and healthcare coordinators at the workplace about allergens and irritants found in the workplace that may cause or exacerbate asthma. Provide education on preferred approaches for controlling exposure to these allergens and irritants. Encourage providers to document work exposures to allergens and irritants in the patient's medical record and make work-related asthma a reportable condition. Encourage population monitoring and registries.

Strategy 1: Summarize evidence cited in EPR-3 and other credible scientific literature that describes the impact allergens and irritants found in the workplace can have on asthma, and preferred approaches to controlling these

exposures. Disseminate the summary to stakeholders in various presentation formats and through their existing communication channels.

Strategy 2: Coordinate with the workshop strategy described above under Communications, Clinicians, Strategy 2 to review existing tools that assess the association between asthma symptoms and exposures in the work environment. Select sample(s), or develop a new tool, if needed, for dissemination to healthcare providers, patients, and worksites that is practical and easy to use.

Patients and Families

Recommendation: Develop and deliver messages to patients that help them understand the importance and ways of reducing exposure to allergens and irritants that can make asthma worse. Address with employers the barriers to and resources for changing workplace environments, including strengthening linkages to community resources.

Strategy 1: Engage partners to use social marketing and health communications approaches, possibly including focus groups with patients, for insight on messages, strategies and resources to effectively overcome barriers to controlling or eliminating allergen/irritant exposures in their immediate environments—home, school, childcare centers and work.

Strategy 2: Obtain feedback from focus groups on content and formatting of tips sheets for presenting environmental changes that would overcome barriers and that are readily achievable within the constraints of existing resources and current practices in the home, school, childcare centers and workplace.

Systems Integration

Rationale: Coordinate actions to control exposure to allergens and irritants among clinicians, public health providers, asthma educators, school and childcare staff, members of Boards of Education, employers, workplace staff, and health plan administrators. Encourage systems that document instructions given for identifying allergens/irritants to which a patient is sensitive in the patient's chart; and, that also document the environmental control measures a patient agrees to and is able

to take. Documentation increases patient and clinician accountability for the implementation of environmental control measures and provides data for monitoring such activities.

Commercial Health Plans and Healthcare Payors

Recommendation: Seek coordination and agreement among health plans and payors on actions taken with respect to environmental assessment, intervention, and monitoring, and on documenting these actions in the patient's medical chart. Documentation includes any referrals made to specialists for further testing.

Strategy 1: Convene managed care companies to work with NCQA to develop a HEDIS measure of environmental assessment and monitoring (including monitoring success with adherence to an allergen/irritant exposure control strategy); prepare a dissemination and implementation plan for the HEDIS measure and tools; garner broad support for use of the measure and accompanying implementation tools.

Strategy 2: Working through a national asthma policy forum, collaborate with the NAEPP and its partners to convene a workshop of professional associations, patient education groups, health plans/payors and other stakeholders to develop policies and protocols for referral and reimbursement of allergen/irritant-exposure control education, in-home education specifically tailored to the individual patient, in-home and at-work assessments, and in-home support.

Strategy 3: Convene a meeting of managed care companies to discuss and formulate strategies on how to incorporate and track environmental assessment activities in their pay-for-performance systems.

Electronic Health Record Companies

Recommendation: Embed assessment and monitoring of environmental factors at home, school and work and a patient-tailored exposure control strategy into the EHR. Build verification into the system that clinicians considered the patient's efforts to control factors capable of making asthma worse before stepping medication up/down in asthma patients who are not well controlled. The availability of resources for conducting environ-

mental assessments and educating patients on allergen/irritant exposure control within the EHRs will encourage clinician use and accountability.

Strategy 1: Encourage the NAEPP and its partners, working in collaboration with EHR companies, to establish agreed-upon samples of environmental- and occupational-assessment questions and exposure control strategies for inclusion in EHRs.

Strategy 2: Encourage EHR companies to create a system in the EHR that prompts the use of environmental/occupational assessment questions and exposure control strategies for clinicians to use with their asthma patients, e.g., prompts and decision supports.

Patient/Provider Support

Rationale: Provide education and resources to patients, families and caregivers to help reduce allergen exposure, emphasizing that this is an important component of asthma selfmanagement that should improve the patient's asthma control and quality of life. Patient concerns and obstacles faced in changing their environments to reduce allergen/irritant exposure must be considered in selecting and designing effective educational materials, programs and strategies. In order to enhance the implementation of exposure control measures, intervention tools and education should be provided to healthcare providers and asthma educators to assess exposure and sensitivity to allergens and irritants and to help them develop tailored allergen/irritant exposure control strategies.

Patients, Their Families and Caregivers

Recommendation: Provide resources (especially for patients with persistent asthma) that are deemed necessary for allergen and irritant reduction based on a patient's sensitivities and exposures. This applies to patients who are exposed to and sensitive to allergens, irritants and environmental tobacco smoke (ETS). Resources may include, but not be limited to: in-home supplies and services; programs on smoking cessation and ETS; information and referral to health, housing and social services; and, patient education programs and materials. These resources should be available in culturally sensitive venues and include low literacy and multi-lingual patient materials, programs and other strategies.

Strategy 1: Utilize results from the CDC Community Guide Task Force on Community Preventive Services (developed with representation from researchers, public health officials, health educators, certified

asthma educators, and people diagnosed with asthma) that reviews current evidence for in-home interventions and the tools used for implementation of such programs.

Strategy 2: Identify existing repositories for, or gather information on, environmental control education resources such as educational programs, print materials, videos, and computer-based applications. Use existing or develop new criteria to identify samples of "model" materials and programs that are posted to a virtual repository for asthma stakeholders. Disseminate information to stakeholders about the established Web site and the model materials and programs and other resources found there and how to access them.

Strategy 3: Encourage professional societies, government agencies and other NAEPP partners to disseminate their print materials to constituents on request and to post them on their respective Web sites for easy access by patients, providers and the public. Also, post video and computer-based programs on each organization's respective Web site, and consider links to resources on each other's sites.

Strategy 4: Encourage asthma specialists, nurse coordinators, asthma educators, and community healthcare professionals and workers to disseminate materials to patients and the public in local communities and make referrals for persons who have asthma to appropriate programs and services.

Strategy 5: Leverage existing asthma stakeholder networks and structures to create new channels of support for an overall national asthma campaign to promote the GIP messages. These new channels would utilize media (TV, magazines), patient advocacy groups, and State and local agencies to help disseminate messages including ETS and allergens and irritants that aggravate asthma.

Providers

Recommendation: Provide the appropriate support education and tools for assisting healthcare providers in the assessment of allergens and irritants. Encourage clinicians to include such assessment as a key clinical activity to asthma care.

Strategy 1: Prompt primary care providers via EHRs or office system prompts to obtain exposure and sensitivity information for indoor and outdoor environmental allergens and irritants to record in the patient's chart.

Strategy 2: Promote inclusion of exposure and sensitivity assessment of indoor and outdoor environmental allergens and irritants and the reduction methods advised for persons who have asthma as part of the curriculum of undergraduate, graduate and continuing education for physicians, nurses, respiratory therapists, asthma educators, and other related health care professionals. Different requirements should be developed for different categories of educators, such as professional-level educators, nurses, masters-trained educators, and community level workers.

Strategy 3: Develop training resources and protocols to promote allergy testing in primary care sites, including preparation to deal with possible anaphalaxis.

**Guidelines Implementation Panel Report for: Expert Panel Report 3—Guidelines for the
Diagnosis and Management of Asthma**

Partners Putting Guidelines Into Action

Ranking the Level of Evidence for Asthma Guidelines Recommendations

The system used to describe the level of evidence is as follows (Jadad et al. 2000):

- **Evidence Category A:** Randomized controlled trials (RCTs), rich body of data. Evidence is from end points of well-designed RCTs that provide a consistent pattern of findings in the population for which the recommendation is made. Category A requires substantial numbers of studies involving substantial numbers of participants.
- **Evidence Category B:** RCTs, limited body of data. Evidence is from end points of intervention studies that include only a limited number of patients, post hoc or subgroup analysis of RCTs, or meta-analysis of RCTs. In general, Category B pertains when few randomized trials exist, they are small in size, they were undertaken in a population that differs from the target population of the recommendation, or the results are somewhat inconsistent.
- **Evidence Category C:** Nonrandomized trials and observational studies. Evidence is from outcomes of uncontrolled or nonrandomized trials or from observational studies.
- **Evidence Category D:** Panel consensus judgment. This category is used only in cases where the provision of some guidance was deemed valuable, but the clinical literature addressing the subject was insufficient to justify placement in one of the other categories. The Panel consensus is based on clinical experience or knowledge that does not meet the criteria for categories A through C.

Jadad AR, Moher M, Browman GP, Booker L, Sigouin C, Fuentes M, Stevens R. Systematic reviews and meta-analyses on treatment of asthma: critical evaluation. *BMJ* 2000;320(7234):537-40

Establishing a Framework of Patient-centered Care for Developing the GIP Implementation Plan

In order to ensure consistency in recommendations, GIP members agreed that strategies should be patient focused and utilize a patient-centered chronic care model (CCM) concept. Core recommendations that build on quality initiatives must begin by considering the patient's wants and needs first. Many CCMs centralize the focus on system changes or healthcare provider functions or pathways. GIP members agreed that unless the patient is provided appropriate asthma education and is actively involved in his/her own care, the likelihood of asthma management being successful is less likely. GIP members also acknowledge that there are issues that exceed the resources of the sole practitioner/clinician. Therefore, using a team approach based on the patient CCM could improve the likelihood of successful treatment.

In order for a patient to actively and successfully participate in his/her own asthma management plan, clinicians should work inclusively by using resources that are outside the clinic office and are often underutilized. Referrals to outside agencies (both community and professional) require a clinician to be knowledgeable about what resources are available, affordable and accessible within the patient's community. Referrals to specific services may be provided by certified asthma educators, and can include case management through insurance, in-home asthma education and environmental evaluations through licensed home care agencies, school health office followup, social services and others. In addition, "healthcare services that are utilized and fit a patient centered model should also be safe, effective, timely, efficient, and equitable."¹

Patient-centered chronic care systems encourage patient, family and caregiver education that promotes effective self-management skills. "Self-management differs from telling patients what to do in that patients have a central role in determining their care, one that fosters a sense of responsi-

bility for their own health."¹ Effective support for patient self-management includes increasing patient participation in planning and individualized treatment plans with collaborative personal goal-setting. Treatment decisions need to be founded on evidence-based, nationally accepted guidelines and be mindful of the patient's personal values, beliefs and lifestyle. Health care organizations should work to integrate national guidelines into the day-to-day practice of the primary care providers in an accessible and easy-to-use manner and utilize quality measurement standards to reward positive health outcomes of patients. Furthermore, "the delivery of patient care requires not only determining what care is needed, but clarifying roles and tasks to ensure the patient gets the care; making sure that all the clinicians who take care of a patient have centralized, up-to-date information about the patient's status; and making followup a part of standard procedure."¹

Well developed and implemented patient-centered care models foster productive interactions between informed patients who are actively participating in their asthma care and providers with the proper resources and expertise to help guide them.

Improving Chronic Care

The central issues to improving chronic care through patient-oriented systems changes include:

- Patient Safety—Health system
- Cultural Competency—Delivery system design
- Care Coordination—Health system; Clinical information systems
- Community Policies—Community resources and policies
- Case Management—Delivery system design

In the above list each of these issues is paired with a functional aspect of the healthcare system which, if targeted for quality improvement, will likely result in positive change.

Below is a list of the five issues followed by an overall objective and specific strategies to achieve the objective.

(Adapted from Improving Chronic Illness Care², <http://www.improvingchroniccare.org>)

Patient safety—Health System

Create a culture, organization, and mechanisms that promote safe, high-quality care.

- Visibly support improvement at all levels of the organization, beginning with the senior leader.
- Promote effective improvement strategies aimed at comprehensive system change.
- Encourage open and systematic handling of errors and quality problems to improve care.
- Provide incentives based on quality of care.
- Develop agreements that facilitate care coordination within and across organizations.

Cultural competency—Delivery System Design

Self-Management Support

Empower and prepare patients to manage their health and healthcare.

- Emphasize the patient's central role in managing their health.
- Use effective self-management support strategies that include assessment, goalsetting, action planning, problemsolving and followup.
- Organize internal and community resources to provide ongoing self-management support to patients.

Care coordination—Health System and Clinical Information Systems

Decision Support

Promote clinical care that is consistent with scientific evidence and patient preferences.

- Embed evidence-based guidelines into daily clinical practice.
- Share evidence-based guidelines and information with patients to encourage their participation.
- Use proven provider education methods.
- Integrate specialist expertise and primary care.

Organize patient and population data to facilitate efficient and effective care.

- Provide timely reminders for providers and patients.
- Identify relevant subpopulations for proactive care.

- Facilitate individual patient care planning.
- Share information with patients and providers to coordinate care.
- Monitor performance of practice team and care system.

Community policies—Community Resources and Policies

Mobilize community resources to meet needs of patients.

- Encourage patients to participate in effective community programs.
- Form partnerships with community organizations to support and develop interventions that fill gaps in needed services.
- Advocate for policies to improve patient care and asthma-friendly community environments (e.g., no smoking policies).

Case management - Delivery System Design

Assure the delivery of effective, efficient clinical care and self-management support.

- Define roles and distribute tasks among team members.
- Use planned interactions to support evidence-based care.
- Provide clinical case management services for patients whose asthma is difficult to control, who have significant co-morbidities affecting their asthma, or have difficulties following their asthma action plan.
- Ensure regular followup by the care team.
- Give care that patients understand and that fits with their cultural background.

Summary of Patient Care Model/Improving Chronic Illness

While the GIP chose to base its recommendations for implementation on a patient-centered model, there is no one individual model that fosters change in the health care system. All models contain similar concepts and goals and employ strategies that seek changes from all entities involved in the complicated American health system. This guide seeks to encourage health systems, providers, supporting businesses and organizations, patients, their families and caregivers to seek high-quality care and to become involved in making changes in the current care system. Further information regarding the many concepts and models of the CCM can be found by accessing the listed resources.

References:

Excerpts from “Crossing the Quality Chasm:
A New Health System for the 21st Century,
Committee on Quality of Health Care in
America, Institute of Medicine, The National
Academies 2001.

“Improving Chronic Illness Care” —<http://www.improvingchroniccare.org/>

Bibliography:

- Institute for Healthcare Improvement
(www.IHI.org)
- Wagner EH. *Chronic disease management: what will it take to improve care for chronic illness?* *Eff Clin Pract.* 1998; 1:2-4
- Wagner EH, Austin BT, Davis C, Hindmarsh M, Schaefer J, Bonomi A. Improving chronic illness care: translating evidence into action. *Health Aff (Millwood).* 2001;20:64-78.

Health Disparities

A crosscutting theme of this GIP report that transcends all six messages is to reduce health disparities from asthma. The burden of asthma is not uniform across all populations. Low-income people and racial and ethnic minorities are disproportionately affected. Asthma prevalence is 25 percent higher among American Indian or Alaska Native children, 60 percent higher among black children and 140 percent higher among Puerto Rican children relative to white children. Black children have a 260 percent higher Emergency Department (ED) visit rate and a 250 percent higher hospitalization rate from asthma compared to white children. Despite the higher burden of disease among these populations, access to medical care for asthma and the quality of care provided is often lower among the minority and socio-economically disadvantaged populations. Exposure to asthma triggers is also more frequent. These disparities in asthma burden and care suggest that special efforts are needed to implement the EPR-3 guidelines in these populations.

All stakeholders involved in controlling asthma have a role to play in reducing asthma-related health disparities. The GIP suggests that the stakeholders consider the following strategies.

Improving the quality of medical care

Health Resources and Services Administration (HRSA) Federally Qualified Health Centers (FQHCs), public hospitals, insurers with low-income members, Medicaid agencies)

- Support quality improvement efforts among safety-net providers. These efforts may include registry development, electronic health records, quality improvement collaboratives, audit and feedback and organizational redesign.
- Assure the cultural appropriateness of care, including the cultural competence of

providers through the provision of training and toolkits, access to interpreters, adherence to Culturally and Linguistically Appropriate standards, and provision of translated and culturally relevant patient education resources.

- Help providers and patients develop more effective communication by training providers in cross-cultural, patient-centered methods and by teaching patients to bring their concerns and questions to their provider visits.

Improving self-management support

- Offer home visits by community health workers to patients with uncontrolled asthma (e.g., disseminate Integrated Condition Assessment System and Healthy Homes programs), (nongovernmental organizations (NGOs), local health departments, FQHCs).
- Provide community-based asthma education classes (NGOs, local health departments, FQHCs).
- Reimburse for self-management support (Medicaid, insurers).

Improving care coordination and case management

- Coordinate primary care with specialty care, schools and community resources through patient care coordinators or health system navigators (FQHCs, NGOs).
- Provide case management for patients with high risk for exacerbations (NGOs, local health departments, FQHCs, insurers).
- Reimburse for care coordination and case management (Medicaid, insurers).

Improving outreach and community education

- Increase awareness of asthma in low-income and racial/ethnic minority communities

through multilingual, culturally-relevant awareness campaigns (NGOs and local and state health departments).

- Develop common messages and media resources for local use.
- Increase awareness through deployment of community health workers/educators (NGOs, local health departments).
- Increase awareness of asthma among providers of social services to low income and racial/minority communities so that they can make appropriate referrals (local health departments).

Improving surveillance of disparities

- Report on quality and outcomes of asthma care by race/ethnicity, income and insurance status (health providers, insurers, healthcare quality organizations).
- Report on asthma prevalence, exposure to asthma triggers, urgent health services utilization (ED and hospital) and access to medical homes by race/ethnicity, income and insurance status (local, state and national public health agencies).

Improving control of environmental factors that affect asthma

- Provide resources for environmental control (e.g., bedding encasements, vacuums, cleaning supplies, High Efficiency Particulate Air filters) as part of comprehensive asthma education and trigger reduction programs (Insurers, Medicaid).
- Assure access to allergy testing by training safety net providers in skin testing or use of Radioallergosorbent Test testing (HRSA, insurers, local public health).

Improving housing quality

- Provide home environmental inspections for low income and racial/ethnic minority households (NGOs, local health departments, FQHCs).
- Offer advice and assistance to low income and racial/ethnic minority households, landlords and public housing agencies to remediate structural problems that contribute to increased exposure to asthma triggers (NGOs, local health departments, FQHCs).
- Improve local housing codes so that they reflect current knowledge of Healthy Homes building and maintenance practices

(local public health, local/state/national housing code organizations, local housing inspection agencies).

- Train local housing inspectors and other home visitors in the recognition of unhealthy indoor environmental conditions and in the procedures to refer households for assistance in remediation of these conditions (local public health).

Improving ambient air quality

- Locate schools and residential developments away from sources of ozone, particulate matter, nitrogen oxides, freeways, industrial sources and transportation hubs (local public health, local asthma coalitions, local zoning and planning agencies, local transit and transportation agencies, school districts).

Improving community capacity to control asthma

- Encourage collaborative partnerships for local asthma coalitions to enhance their ability to contribute to community awareness, integration of services across sectors, and facilitating accountability for addressing asthma disparities.

Akinbami LJ. The State of childhood asthma, United States, 1980–2005. Advance data from vital and health statistics; no 381, Hyattsville, MD: National Center for Health Statistics. 2006.

Abbreviations

AAP	Asthma Action Plan	MOC	Maintenance of Certification
AHIP	America's Health Insurance Plans	NAEPP	National Asthma Education and Prevention Program
AMGA	American Medical Group Association	NCQA	National Committee on Quality Assurance
BCBSA	Blue Cross and Blue Shield Association	NGO	Non-Government Organization
CCM	Chronic Care Model	NHLBI	National Heart, Lung, and Blood Institute
CDC	Centers for Disease Control and Prevention	PBM	Pharmacy Benefits Manager
CME	Continuing Medical Education	QI	Quality Improvement
CMS	Centers for Medicare and Medicaid Services		
ED	Emergency Department		
EHR	Electronic Health Records		
EPR-3	Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma, 2007		
ETS	Environmental Tobacco Smoke		
FQHC	Federally Qualified Health Centers		
GIP	Guidelines Implementation Panel		
HEDIS	Healthcare Effectiveness Data and Information Set		
HMO	Health Maintenance Organization		
ICS	Inhaled Corticosteroids		
IOM	Institute of Medicine		
MCO	Managed Care Organization		

For More Information

The National Heart, Lung, and Blood Institute (NHLBI) Health Information Center (HIC) is a service of the NHLBI of the National Institutes of Health. The NHLBI HIC provides information to health professionals, patients, and the public about the HIC treatment, diagnosis, and prevention of heart, lung, and blood diseases and sleep disorders. For more information, contact:

NHLBI Health Information Center
P.O. Box 30105
Bethesda, MD 20824-0105
Phone: 301-592-8573
TTY: 240-629-3255
Fax: 301-592-8563
Web site: <http://www.nhlbi.nih.gov>

DISCRIMINATION PROHIBITED: Under provisions of applicable public laws enacted by Congress since 1964, no person in the United States shall, on the grounds of race, color, national origin, handicap, or age, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity (or, on the basis of sex, with respect to any education program and activity) receiving Federal financial assistance. In addition, Executive Order 11141 prohibits discrimination on the basis of age by contractors and subcontractors in the performance of Federal contracts, and Executive Order 11246 States that no federally funded contractor may discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. Therefore, the National Heart, Lung, and Blood Institute must be operated in compliance with these laws and Executive Orders.



U.S. Department of Health and Human Services
National Institutes of Health



**National Heart
Lung and Blood Institute**
People Science Health

NIH Publication Number 09-7147
December 2008