Final Contract Report

Asthma Health Disparities Collaborative Coalition Guide

This guide discusses the scientific foundation for the Michigan Asthma Health Disparities Collaborative and provides practical examples, tools, and materials that can be easily used or adapted by asthma coalitions in developing partnerships with federally qualified health centers.

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Background and Purpose of This Guide

Introduction

This *Asthma Health Disparities Collaborative Coalition Guide* discusses the scientific foundation for the Michigan Asthma Health Disparities Collaborative (HDC) and provides practical examples, tools, and materials that can be easily used or adapted by asthma coalitions in developing partnerships with federally qualified health centers (FQHCs).

This guide is a living document that presents information specific to activities by Michigan's Asthma HDC project at both the State level and coalition level. Examples of health systems changes are featured, using the Chronic Care Model as the framework. Available tools, resources, and materials are identified for potential health system changes. Evaluation information and evaluation tools are presented, as is information to spread and sustain change.

In preparing this guide, an extensive review was conducted of the scientific literature, other resources, and tools. (Many of these resources are available on the Health Disparities Collaboratives Web site.) Appendix A provides a list of sources used for this guide as well as other helpful Web sites. It is hoped that the efforts described in this document may serve as a guide for other coalitions seeking to implement process and outcome improvements for asthma care in their States and communities.

Asthma in Michigan

The Asthma Initiative of Michigan (AIM) was chartered to improve the quality of asthma care delivered to children and adults with asthma who are served by federally qualified health centers. This goal is important because[1]:

- Asthma is a significant challenge in Michigan. There are over 230,000 children and over 700,000 adults who currently have asthma.
- Asthma is costly. The disease costs approximately $224 million in direct medical costs alone, and an additional $170 million in indirect costs.
- Not all people with asthma in Michigan are receiving treatment according to the national guidelines. Consequently, preventable symptoms and events, like hospitalizations and death, continue to occur.
    o Only 30% of adults with asthma in Michigan have the recommended minimum two visits per year with a health care provider for routine asthma care.
    o In 2003, about 64% of people ages 5 to 65 in Medicaid with persistent asthma filled at least one prescription for appropriate asthma medicine—a long-term controller medicine.
- People with asthma in Michigan frequently experience symptoms.
    o Among children of middle and high school age who have been told in their lifetime that they have asthma, about 35% have had an asthma attack in the past year.
    o For adults who currently have asthma, 53% have had an attack in the past year and about 20% experience symptoms *daily.*
- The burden of asthma in Michigan is disproportionately distributed across age, race, income, and geographic region. Efforts to reduce the burden of asthma in Michigan must address these dramatic health disparities. These disparities include the following[2]:

    o Among children (under age 18)—
        ▪ Males are hospitalized for asthma at a rate 60% higher than females.
        ▪ Blacks are hospitalized for asthma at a rate 4.2 times that for Whites.
        ▪ Children living in low income areas are hospitalized for asthma at a rate 4.3 times that for children living in high income areas.
        ▪ Asthma deaths for Black children occur at a rate 6 times that for Whites.
    o Among children in Michigan's Medicaid population—
        ▪ The prevalence of persistent asthma is 40% higher for males than females.
        ▪ The prevalence of persistent asthma is 23% higher for Blacks than Whites.
        ▪ Blacks visit the ED for asthma at a rate 2.7 times that for Whites.
        ▪ Males are hospitalized for asthma at a rate 48% higher than females.
        ▪ Blacks are hospitalized for asthma at a rate 2.4 times that for Whites.
    o Among adults (age 18 and older)—
        ▪ The rate of asthma hospitalization for females is 2.4 times that for males.
        ▪ The rate of asthma hospitalization for Blacks is 4.2 times that for Whites.
        ▪ The rate of asthma hospitalization for adults living in low income areas is 4.1 times that for adults living in high income areas.
        ▪ Asthma deaths for females occur at a rate 50% higher than that for males.
        ▪ The rate of asthma deaths for Blacks is 4 times that for Whites.

- Asthma cannot be cured, but it can be controlled. People whose asthma is adequately managed should not experience sleep disruption, miss days of school or work, or have minimal need for emergency department visits or hospitalization because of their asthma.

Michigan Asthma Health Disparities Collaborative

State-Level Efforts

In 2005, the Asthma Initiative of Michigan, under the leadership of the Michigan Asthma Program, began to explore opportunities to support implementation of the Asthma Health Disparities Collaborative. At that time, there was only one Michigan-based FQHC that had implemented the Asthma HDC.

Over the course of a year, Michigan developed a model to expand the reach of the Asthma HDC, especially in areas with high asthma burden. This model used Michigan's existing infrastructure of regional/local asthma coalitions in combination with FQHCs that had existing experience with the Health Disparities Collaboratives. The model's strength is in linking these coalitions, which have asthma expertise, experience, and community linkages, to the FQHCs. The coalitions:
- Encourage the FQHCs to implement the Asthma Health Disparities Collaborative.
- Provide technical assistance, consultation, and other support to the FQHCs as they expanded into this new arena.

The Michigan Asthma Program provides the technical assistance, consultation, training, and other resources to assist the coalitions. The coalitions provide asthma-related technical assistance, consultation, and resources to the FQHCs to assist them in planning, testing, sustaining, and spreading[3] health system changes to improve the quality of asthma care.

The AIM charter sets the goal of creating partnerships between three asthma coalitions and six FQHCs to expand the Asthma Health Disparities Collaborative implemented from in three centers in 2007 to nine by August 30, 2009.

Michigan's approach to facilitate implementation of the Asthma Health Disparities Collaborative is decentralized and uses its existing infrastructure of regional and local asthma coalitions to serve as the primary liaison with the FQHCs. Diagram 1 illustrates this approach.

Diagram 1. Asthma Health Disparities Collaborative: Michigan Implementation, 2006-2007 (Decentralized Approach)

Revised 4-25-07
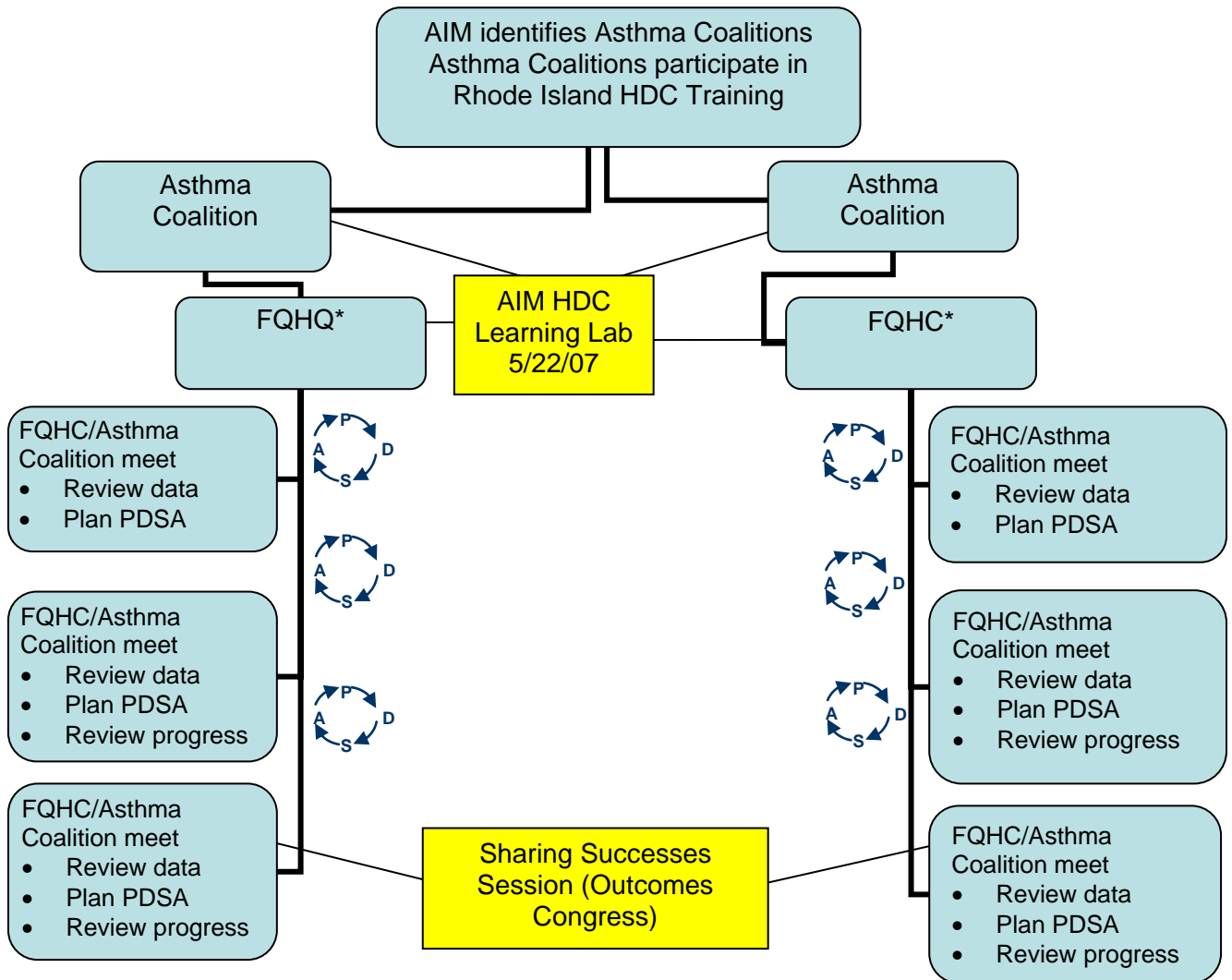
Key: AIM=Asthma Initiative of Michigan; FQHC= federally qualified health center; HDC=health disparities collaborative; PDSA=Plan, Do, Study, Act cycle.

HDC overview. The Health Disparities Collaboratives national effort is administered by the Health Resources and Services administration (HRSA) to improve the quality of primary health care by changing the health care system. These changes affect how providers deliver care; consumers manage their disease or condition; and communities partner to facilitate self-management and behavior change. By focusing on system-level changes, the HDC creates informed, activated consumers; prepared, proactive teams; a coordinated delivery of care; and information systems that track improved outcomes.

Since 1998, over 450 HRSA-supported health centers, primarily FQHCs, have participated in HDCs. Health centers select the track they would like to address, which may include a focus on diabetes, cardiovascular disease, asthma, cancer, depression, business redesign, or

prevention. In Michigan, more than 160 federally qualified health center clinics participate in the Health Disparities Collaborative. In 2006, three FQHCs were the first to begin the Asthma Collaborative in Michigan.

The HDC uses three health care improvement models: Learning Model (adapted from the Breakthrough Series Model), Chronic Care Model, and Improvement Model. Collectively, these three models produce health system changes that ultimately improve the quality of care. Each is described more fully below.

Learning Model. Figure 1 illustrates the Learning Model. It combines pre-work, learning, and action periods. Implementation of this model takes approximately 13 months. Participating health centers:
- Identify a multi-disciplinary team of 3-5 staff members.
- Dedicate at least 3 to 4 hours per week for team members to work on the HDC.
- Participate (team) in three Learning Sessions and a National Forum.
- Track national and local measures.

Figure 1. Learning Model
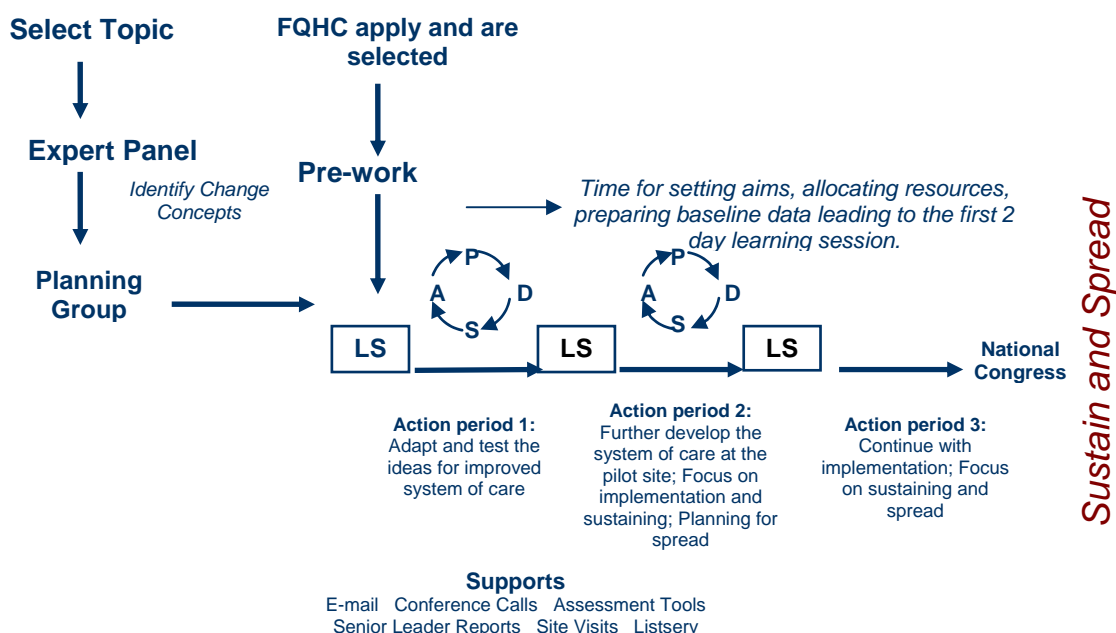
Key: FQHC=federally qualified health center; LS=learning session; PDSA=Plan, Do, Study, Act cycle.
Source: Adapted from: Figure 2, Breakthrough Series Model. In: *The Breakthrough Series: IHI's Collaborative Model for Achieving Breakthrough Improvement.* Institute for Healthcare Improvement; 2003.

The time between the learning sessions are called the action periods. During these periods, the health centers complete Plan-Do-Study-Act (PDSA) cycles. These cycles help the health centers "test" small changes, learn from their experience, and use what they learned to try new changes or continue and expand the existing change. During the action periods, health center teams also collect and submit data and progress reports, and participate in conference calls and listserv discussions. Throughout the action periods, the health centers receive technical assistance from HDC experts; in Michigan, the Michigan Primary Care Association, as the Midwest cluster leader, provides this assistance.

Chronic Care Model. The Chronic Care Model (Figure 2) works in six areas or components to achieve effective and sustainable health system change. Each of these components must be addressed for maximum results, and it is not recommended that any one component be addressed in isolation. The components are:

1. The health care organization.
2. Community resources and policies.
3. Self-management support.
4. Decision support.
5. Delivery system design.
6. Clinical information systems.

At the learning sessions, teams are introduced to and explore possible health system changes that can be made within each area.

Figure 2. Chronic Care Model
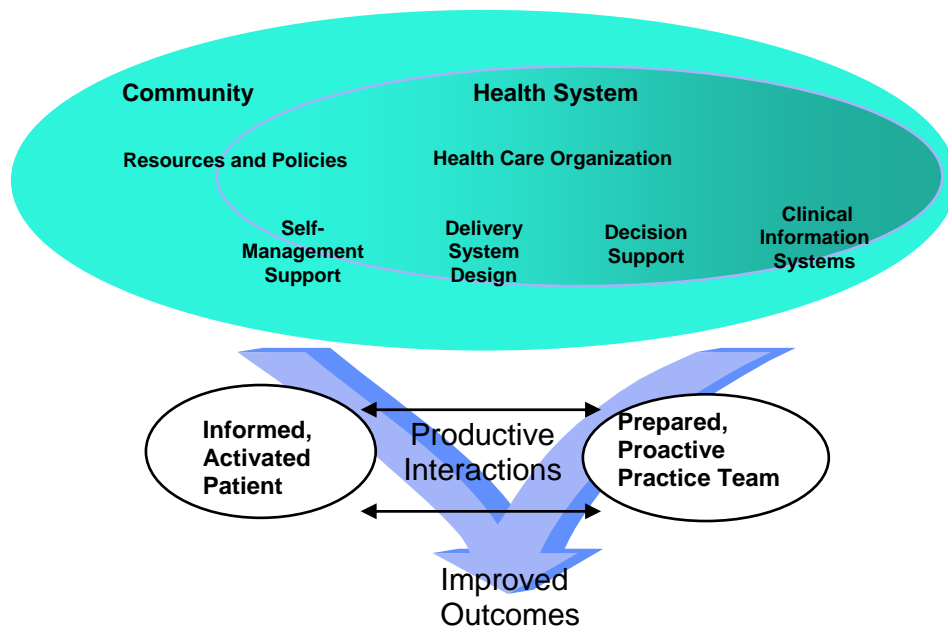
Source: Adapted from Wagner EH. Chronic disease management: what will it take to improve care for chronic illness? *Effective Clinical Practice* 1998;1:2-4. Used with permission.

Improvement Model. During the action periods, health system changes are tested by way of the Improvement Model (Figure 3), which uses PDSA cycles to answer these questions[4, 5]:

• What are we trying to accomplish?
• How will we know that a change is an improvement?
• What changes can we make that will result in improvement?

The health center uses the PDSA process to guide them to make small changes in a short period of time. Using this process, the health center can determine the feasibility and effectiveness of each change. Successful health system changes are then continued and

expanded. Changes that are sustained and spread ultimately result in transforming the health care system and improving overall quality of care.

Figure 3. Improvement Model
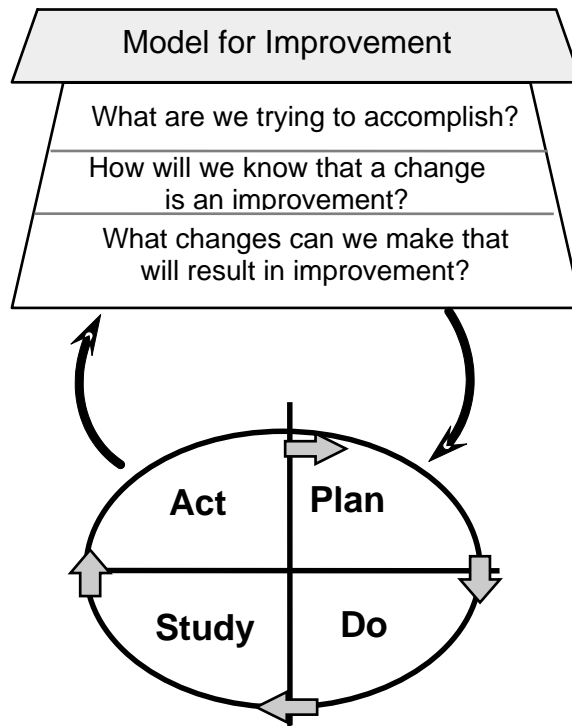
Asthma Collaborative measures. Measures were identified using a process consistent with determining measures for all of the Health Disparities Collaboratives. A planning group comprised of asthma care providers, academicians, and other asthma experts was convened. They were given the charge to identify measures that would indicate whether or not health center staff had made effective system changes to improve care for patients with asthma. Using information and data from the scientific literature, asthma guidelines, and other consensus documents, the planning group identified one asthma outcome measure—number of symptom-free days in the past 2 weeks—and three process measures—current severity assessment, appropriate treatment with anti-inflammatory medication, and current self-management goal.

The three process measures reflect evidence-based practices that lead to improved health outcomes. In addition, because self-management is a key component of the Chronic Care Model, the self-management goal measure is common across all Health Disparities Collaboratives. Collectively, improvements in all the required measures would reflect improvements in the health care delivery system and improved quality of care.[6] The goals (or

targets) represent achievable levels by well-organized health centers or come from evidence-based guidelines.[7]

To keep the data collection system manageable, only four core measures were required. Seven additional measures were identified as reflecting improvements in the health care system; these were recommended but were not required. Required and recommended measures are:

Required
1. Current severity assessment (Goal: 90% or more).
2. Appropriate treatment with anti-inflammatory medication (Goal: 95% or more).
3. Current self-management goal (Goal: 70% or more).
4. Number of symptom-free days in previous 2 weeks (Goal: 10 or more days).

Recommended
5. Exposure to environmental tobacco smoke.
6. Evaluation of environmental triggers.
7. Emergency department/urgent care visits for asthma.
8. Average lost workdays and/or school days.
9. Establishment of personal best peak flow.
10. Influenza immunization annually.
11. Depression screening (12 months)

Further information on these measures—including definitions, data gathering plans, and reference sources—is available from the Health Disparities Collaboratives Web site at http://www.healthdisparities.net/hdc/html/collaboratives.topics.asthma.aspx.

Learning Partnership for decreasing asthma disparities. In 2005, the Agency for Healthcare Research and Quality (AHRQ) developed an initiative to address the disproportionate burden and work toward the elimination of disparities in pediatric asthma. Michigan was one of six States that participated in this initiative.

The foundation of the initiative was the formation and maintenance of a Learning Partnership. This Partnership had several purposes including:
• Creating and reinforcing relationships among key stakeholders and other leading States.
• Providing forums that encourage the use of evidence-based knowledge and strategic decisionmaking.
• Identifying measures, indicators, and data sources to assist States in measuring progress towards reducing disparities in pediatric asthma.
• Assisting State asthma coalitions to understand, document, and share experiences and lessons learned.

Involvement in the Learning Partnership included conference calls, site visits, a learning institute, various forms of technical assistance, and a milestone meeting. Michigan's participation helped the Michigan Asthma Program to improve its critical thinking about asthma disparities, possible evidence-based strategies, and ways in which addressing disparities could be integrated into existing programming. The Learning Partnership heightened the Michigan Asthma Program's interest in working to expand the Asthma Health Disparities Collaborative within Michigan FQHCs.

Simultaneously, the Michigan Asthma Program was reviewing Michigan's Diabetes Prevention and Control Program's model of supporting the Diabetes Health Disparities Collaborative. This model features six regional diabetes outreach networks that form partnerships with the FQHCs

that implement Diabetes Collaboratives. These networks work with participating FQHCs to examine their data and identify opportunities for health system changes. Depending on the proposed changes, the networks provide consultation, technical assistance, and resources to help the health centers implement the Collaborative. The Michigan Asthma Program decided to replicate this model by working through the regional asthma coalitions to create a partnership among the Michigan Primary Care Association, the Michigan Asthma Program, the asthma coalitions, and FQHCs that builds health center capacity to implement the Asthma HDC. In addition, this partnership will enhance the spread of the Asthma Collaborative within the health center as well as into other health centers.

In 2007, two asthma coalitions will assist a FQHC in their catchment area to initiate the Asthma HDC. Each of these FQHCs had prior experience with implementing the Diabetes Collaborative but had not yet moved toward the Asthma Collaborative. This effort is expected to increase the number of Michigan-based FQHCs implementing the Asthma Collaborative from 3 to 5 in 2007 with further expansion expected in 2008, as an additional coalition becomes involved and new FQHCs are recruited.

Although each center will be responsible for implementing the Asthma HDC and make the health system changes, the asthma coalitions and Michigan Asthma Program have important facilitating roles which are consistent with those defined over the past 5 years by the 50 State Diabetes Prevention and Control Programs[8] and include:

- Training—Provide individual technical assistance, support for learning sessions, conference calls, and listservs on the asthma HDC, each of its components, and related quality improvement strategies.
- Resources—Identify or provide resources and tools to facilitate health care system changes.
- Clinical information system support—Provide technical assistance or training to assist with tracking, interpreting, and reporting asthma HDC data.
- Community linkage—Provide consultation and linkages to community resources and policies.
- Sustainability and spread—Provide technical assistance and support to maintain and expand center staff understanding the collaborative process.[9]

Examples of Asthma HDC system improvements documented in the literature are presented in Appendix C.

Coalition-Level Efforts

This section highlights information, examples, and tools to determine how coalitions can best partner with a FQHC. One of the primary guiding documents is the Asthma Health Disparities Collaborative Module, illustrated in Table 1, developed by the Michigan Asthma Program. Coalitions working with the Asthma HDC can use this module to define their scope of work and track their progress.

Table 1. Asthma Health Disparities Collaborative Module

Program goal: Improving systems of asthma care.
Objective: Improve Michigan's primary care system to achieve optimal asthma management.
Strategy: Improve asthma knowledge and competency of health care practitioners, with a high priority on those serving disparate populations.

Community interventions - key activities	Needed resources	Person/ group responsible	Target date or timeline (period)			Performance indicators	Anticipated outcomes
			1st	2nd	3rd		
Maintain and strengthen partnership(s) with FQHC previously committed to implementing the Asthma Health Disparities Collaborative (HDC).			X	X	X	• Number of meetings (in person or via phone) between coalition and FQHC • Partnership plan or description of activities • Number of providers participating in FQHC. • Number of patients served by participating providers.	Coalition – FQHC partnership is strengthened facilitating implementation of the asthma HDC. Asthma HDC spread to additional health care providers within FQHC. Increased number of patients provided quality asthma care.
Engage additional FQHCs to partner with the asthma coalition in implementing the asthma collaborative.	MPCA and DON, as needed to establish partnership *Michigan Asthma HDC Reference Guide* and data showing the benefits of participating in the asthma HDC				X	• Name(s) of FQHCs that have agreed to participate in an Asthma Disparities Collaborative • Partnership plan or description of activities • FQHCs agreement to share process and aggregate outcome data.	A partnership is established with at least one additional FQHC that agrees to conduct an Asthma Disparities Collaborative.
Provide technical assistance, consultation, training, resources, linkages to community resources, etc. to assist the FQHC in making health system changes as part of the asthma HDC.	*Michigan Asthma HDC Coalition Guide* Coalition resources		X	X	X	• Number of technical assistance and consultation contacts • Number of training, resources, etc. provided to FQHC	FQHCs are supported by the Coalition and receive helpful resources as they make health system changes.
Review asthma HDC data – including results from "Plan-Do-Study-Act" (PDSA) cycles – with FQHC. Work with FQHC to identify new PDSA cycles to make or expand health system changes.	FQHC process and aggregate outcome data		X	X	X	• Number of contacts with FQHC to review PDSA cycles and outcome data • Number and description of PDSA • Asthma HDC measures for FQHC	FQHCs use their asthma HDC data and lessons learned to plan and expand PDSA cycles in order to improve quality of asthma care.
Participate in a Learning Lab, along with other Coalitions and participating FQHCs to share successes and lessons learned.	Learning Lab coordinated by State		X			• Attendance at Learning Lab • Coalition and FQHC presentation	Participating coalitions and FQHC share with and learn from each other in order to improve quality of asthma care.
Present HDC experience at the April 2008 Asthma Summit.	April 2008 Asthma Summit			X		• Presentation	Coalitions and other partners examine asthma HDC

Community interventions - key activities	Needed resources	Person/ group responsible	Target date or timeline (period)			Performance indicators	Anticipated outcomes
			1st	2nd	3rd		
	coordinated by State						results.
Strategic Use of Media - Key Strategies and Activities							
Explore opportunities through a press release, newspaper article or letter to an editor to recognize a FQHC's effort to improve the care of its asthma patients through the Asthma Collaborative.	Procedure to submit		X	X	X	• Copy of article, letter to the editor or press release. • For a press release, names of media that picked it up	Recognition given to the FQHC
Policy - Key Strategies and Activities							
Provide training, resources, & technical assistance to FQHCs that choose to implement asthma collaborative.	Information and materials from the Disparities Learning Session		X	X	X	• Dates FQHCs received asthma training & resources.	FQHC(s) will conduct an Asthma Disparities Collaborative
Surveillance and Evaluation - Key Strategies and Activities							
During initial meeting with the FQHC, request that the aggregate data from the Asthma Collaborative will be shared with the coalition and MDCH.	MPCA, as needed.		X	X	X	• FQHC agreement to share process and aggregate outcome data	FQHC will agree to share process & outcome data from the Asthma Collaboratives
Discuss data with FQHC and identify opportunities for the coalition to facilitate health system changes to improve quality of asthma care.	FQHC data and coalition resources			X	X	• Data collected, analyzed, & evaluated to determine successes • Additional PDSA cycles	Improved asthma care

Source: Michigan Department of Community Health, Michigan Asthma Program. Asthma Health Disparities Collaborative Module. Lansing, MI; April 2007.

Coalition role. As previously described, the FQHCs will be responsible for implementing the Asthma HDC though health system changes. Given this charge, what is the role of the asthma coalition? The coalition's role is to coach and guide the FQHCs to make health system changes most likely to result in improvements. The technical assistance provided by coalitions to FQHCs will further increase the likelihood that FQHCs will reach their targets and achieve their objectives. In addition, coalitions can provide asthma expertise and work with the Asthma Initiative of Michigan to facilitate the FQHCs in learning from each other.

Developing charter and aim statements. The Health Disparities Collaboratives Web site provides extensive information on the reasoning behind developing a charter and aim statement and the steps to take in doing so. Each asthma coalition is encouraged to work with the FQHC to develop a written charter and/or aim statement as one of the first steps to implementation of the Asthma HDC. This effort will help the asthma coalition and FQHC to focus on specific actions and defines the health care providers and patients with asthma that will participate.

The charter or aim statement should be time specific and measurable. The aim and measures should be realistic but not too easy to achieve, and they should reflect targets that are not possible given the current system of care. The aim should cover the components of the Chronic Care Model (described more fully below) and emphasize that health system change is the purpose.

A team's charter should include the following[10]:
- What is expected to happen?
  - System to be improved.
  - Setting or subpopulation of patients.
  - Timeframe.
- Why is it important to do this?
  - How does it impact patients?
  - Why is important for the organization (e.g., mesh with organization's strategic plan)?
  - What data/analysis supports the choice?
- What does the team want to accomplish?
  - Anticipated outcomes.
  - Specific, numerical goals to be attained.
  - Business case (financial, throughput, cost, productivity impact).
- Guidance for the activities, such as strategies for the effort and limitations (optional).

Below are two examples of charter statements:
- The clinic practice initially will redesign the system of care of our asthma population patients by implementing the six components of the care model. We will focus on decision support so that 95% will have a severity assessment at last contact, 95% of patients with persistent asthma are on a respiratory anti-inflammatory medications, 70% will have a written asthma action plan, half of our patients will decrease exposure to environmental tobacco smoke, the average number of symptoms free days will increase by 10 days out of 14 days.
- Redesign the system of care to provide improved care to our patients with asthma so that 90% of the pediatric asthma patients have a documented current severity assessment and 95% have appropriate treatment with anti-inflammatory medication within 6 months of implementation. We will accomplish this goal by implementing the components of the Care Model.

Below are two examples of aim statements[11]:
- Implement components of the Chronic Care Model to show a 40% increase in symptom-free days, 50% decrease in emergency department visits, 90% of patients with persistent asthma to be treated with anti-inflammatory medications, and at least 90% of patients to have a written asthma action plan.
- An organizational approach to caring for the population of patients with asthma will be implemented using the Chronic Care Model so that there are 90% of patients with persistent asthma being treated with maintenance anti-inflammatory medications. At least 90% of clients with asthma will have an asthma flow sheet and action plan in their chart and 50% of clients with asthma will have an asthma trigger avoidance plan.

Project tree diagram. Once the asthma coalition and the FQHC have identified a health system change, they may want to construct a project tree diagram (Diagram 2). A tree diagram is used to break a project down into tasks or activities that must be carried out to complete the project or achieve an objective. When the tree is carefully and thoroughly constructed, it provides a better understanding of the true scope of the project—in this case, a proposed health system change. It also helps the team focus on specific tasks that are needed to get something done.
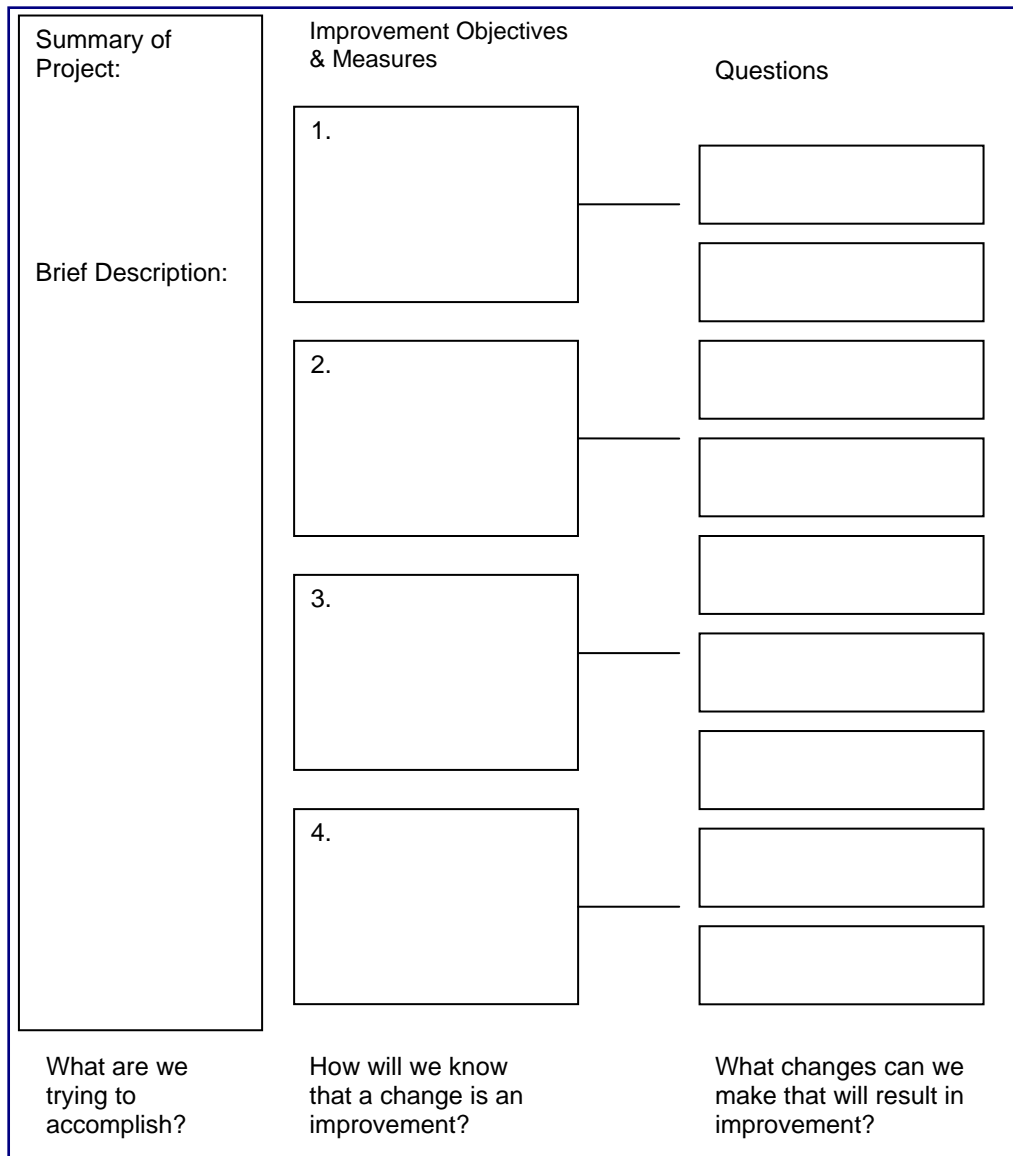
The steps in building a tree diagram are**[12]**:
- Be sure everyone agrees on main goal before beginning.
- Be succinct.
- Think of the main tasks involved in accomplishing the goal. Add them to the tree.
- For each task node, think of the subtasks that will be required, and add them to the tree.

- Determine if anything has been forgotten.
- As the team works through the project toward the goal, change the colors of nodes that are finished, so an indication of progress is clear.

Among the benefits of a project tree diagram are:
- It facilitates a view of several strategies for achieving the aim of the improvement project.
- The likelihood that essential items will be omitted is reduced.
- It provides an opportunity for dialogue and agreement among team members.
- Information can be used in charter development.

Diagram 2. Project Tree Diagram (based on Health Disparities Collaborative Model)

Summary of Project: Brief Description:	Improvement Objectives & Measures	Questions
	1.	
	2.	
	3.	
	4.	
What are we trying to accomplish?	How will we know that a change is an improvement?	What changes can we make that will result in improvement?

Using the Chronic Care Model for Health System Change

Tools and Other Resources

The Health Disparities Collaborative features FQHCs testing, sustaining, and spreading health system changes in all six of the Chronic Care Model components. Implementation of the HDC over the past several years has provided an extensive pool of examples, tools, and resources that those new to the effort are free to use or modify. In addition, the Asthma Initiative of Michigan, the asthma coalitions, and other asthma-related organizations contribute a wealth of asthma-related tools and resources.

By examining the HDC resources and those from the asthma world, asthma coalitions and FQHCs can draw upon what is available, select what they believe will work best, make any necessary modifications, and go forward with their work with the Asthma HDC. Table 2 provides a sample list of potential health system changes and associated resources.

Table 2. List of potential health system changes and associated resources

Health system change	Resources/support	
	National	**State/coalition**
Health care organization: Create a culture, organization and mechanisms that promote safe, high quality care.		
Assist senior leadership in determining the value of improving chronic care	Business Case Studies: www.improvingchroniccare.org Preparing for an Executive review of Improvement Projects: www.ihi.org/IHI/Topics/LeadingSystemImprovement/Leadership/Tools/ExecutiveReviewofProjectsIHI+Tool.htm	
Make improving chronic care part of the health center's vision, mission, goals, and performance improvement and business plans.	Leaders' Guide-Developing the Business Case for Planned Care: http://www.healthdisparities.net/hdc/hdcsearch/isysquery/0079f1ee-2ec2-441a-9652-f4a4b1cd1722/3/doc/ Changing Practice, Changing Lives: The Health Disparities Collaboratives, Training and Promotional Videos: www.healthdisparities.net	
Orient new clinicians to the collaborative	Asthma Health Disparities Collaborative Training Manual for Chronic Conditions: http://www.ihi.org/IHI/Topics/ChronicConditions/AllConditions/Tools/HealthDisparitiesCollaborativesTrainingManualforChronicConditions.htm Texas Association of Community Health Centers Distance Learning Tool with training modules for the Collaborative. These courses may be used by individuals to become oriented to the Care Model, learn how to apply the model to any of the targeted chronic illnesses, or simply as a Collaborative training tool and resource. To access, go to http://classroom.tachc.org and select "Request an Account."	
Embed measurement and monitoring in work flow.	Senior Leader Monthly Report Form: http://www.healthdisparities.net/hdc/hdcsearch/isysquery/78429fb9-4b8c-4543-92af-eaeb35602044/14/doc/ Example of Senior Leader Report: http://www.healthdisparities.net/hdc/hdcsearch/isysquery/ec4f2412-bf58-461e-ac04-4c207cfe21f8/21/doc/	
Assess organizational	Indicators of Cultural Competence in Health Care	

Health system change	Resources/support	
	National	**State/coalition**
and individual understanding of culturally and linguistically effective care.	Delivery Organizations: An Organizational Cultural Competence Assessment Profile: http://www.hrsa.gov/culturalcompetence/indicators/default.htm#conclusion Andrulis D. *Cultural Competence Self-Assessment Protocol for Community Health Centers*: http://healthdisparities.net/hdc/hdcsearch/isysquery/dff4e565-a108-4b4c-a826-6e84c418bfb6/5/doc/	
Financial or organizational incentives to participate in quality improvement	Pay for Performance Incentive Programs in Healthcare 2003: http://www.leapfroggroup.org/media/file/Leapfrog-Pay_for_Performance_Briefing.pdf	
Self-management support: Empower and prepare patients to manage their health and health care.		
Consumer/patient asthma education	National Asthma Education and Prevention Program: www.nhlbi.nih.gov/about/naepp Medline Plus Asthma Tutorial: www.nlm.nih.gov/medlineplus/tutorials/asthma/htm/index.htm National Institute of Allergy and Infectious Diseases, How to create a dust free bedroom: www.niaid.nih.gov/factsheets/dustfree.htm Starlight, Starbright Children's Foundation, *Quest for the Code*®: http://www.starlight.org/site/c.fuLQK6MMIpG/b.2667067/k.4368/Quest_for_the_Code_Now_Online.htm (online asthma game that helps children and teens learn how to manage their asthma, find coping tips and get advice.) Environmental Protection Agency: http://www.epa.gov/ebtpages/humahealtheffectsasthma.html	Michigan Asthma Resource Kit, Patient Section: http://www.getasthmahelp.org/mark%20patient%20files.asp
Emphasize and educate the patient and family about their role in the management of asthma: • Simple messages from primary care provider • Consistent approach • Culturally and linguistically appropriate	American Lung Association *Open Airways for Schools*, www.lungusa.org/site/pp.asp?c=dvLUK9O0E&b=44142#volunteers The Group Health Center for Health Studies (CHS) Readability Toolkit (2006) helps to create materials that patients and health care consumers can understand: http://www.improvingchroniccare.org/downloads/readabilitytoolkit_seconded_092606.pdf Health Disparities Collaboratives Web site has several sources on health literacy and limited literacy: http://www.healthdisparities.net/hdc/hdcsearch/isysconcept/Special%20Populations%20%26%20Considerations/Health%20Literacy%20%26%20Limited%20Literacy/ Office of Minority Health Web site has culturally appropriate patient education materials: www.omhrc.gov	
Use effective self-management support strategies that include assessment, goal	Assessment: • American Lung Association Asthma Control Test (also available in Spanish): http://www.asthmacontrol.com/	Goal Setting: • Asthma Action Plans: http://www.getasthmahelp.org/actionplan_components.asp

Health system change	Resources/support	
	National	**State/coalition**
setting, action planning, problem solving, and followup	• Holyoke Health Center Northeast Cluster. Asthma and Environmental Self-Assessment: http://www.healthdisparities.net/hdc/hdcsearch/isysquery/c98d1c1f-5ac8-4db7-91f5-febe10a4c65d/1/doc/ Goal Setting: • Importance Ruler and Confidence Ruler* • Self-management support tool, http://improvingchroniccare.org/downloads/healthy_changes_plan.doc Shared Care Plan: http://www.ihi.org/NR/rdonlyres/D100E7F6-2314-4533-8D0B-B7AB926DA47D/353/Tool_SharedCarePlan1.doc Asthma Peak Flow Diary: www.pedipress.com/dap_apfd_eng.html Supporting Self Management With the 5 A's: http://www.ihi.org/IHI/Topics/PatientCenteredCare/SelfManagementSupport/EmergingContent/SupportingSelfMgmt5AsClinicianPatientInteractions.htm	Asthma Peak Flow: • Peak Flow Tracking Sheet: http://www.getasthmahelp.org/MARK%20Patient/Peak%20Flow%20Tracking%20chart.pdf • Peak Flow Diary with Instructions: http://www.getasthmahelp.org/MARK%20Patient/Peak%20flow%20diary%20w_directions.pdf
Delivery system design: Assure the delivery of effective, efficient clinical care and self-management support.		
Use the registry data to review care and plan visits [see clinical information system]	Whitney M Young Jr. Health Center, Albany, NY. Integrating Your Asthma Registry in Daily Care: http://www.healthdisparities.net/hdc/hdcsearch/isysquery/5be2039a-d447-4cd5-8bcc-7c89557dceac/1/doc/	
Define roles and distribute tasks among team members to optimize staff efficiency and promote a multi-disciplinary care system.	Huddle List: http://www.healthdisparities.net/hdc/hdcsearch/isysquery/09257609-3615-4caa-af13-1d0b957e00ed/1/doc/ Staff Suggestions for Huddle Contributions: http://www.healthdisparities.net/hdc/hdcsearch/isysquery/09257609-3615-4caa-af13-1d0b957e00ed/2/doc/	
Use planned visits to support evidence-based cares: • Visit initiated by health center • Typically 20-40 minutes long • Reviews care priorities • Occurs at regular intervals as determined by patient and provider • Team members have clear roles and tasks • Delivery of clinical management and patient support	Asthma Visit Flow Sheet: http://www.midwestclinicians.org/files/health/tools/ds_asthmaflow.pdf (condensed) Asthma Clinical Visit Flow Sheet: http://www.midwestclinicians.org/files/health/tools/ds_asthmaclinicalflow.pdf Group Visit Starter Kit: http://www.healthdisparities.net/hdc/hdcsearch/isysquery/f8beb25b-9a2b-49d8-b5c1-3babc4682f0a/11/doc/ Planning Group Visits for High Risk Patients, American Academy of Family Physicians: http://www.aafp.org/fpm/20000600/33plan.html	

Health system change	Resources/support	
	National	**State/coalition**
are the key aspects of care		
Make designated staff responsible for and ensure regular followup • Wide variety of methods [in-person, email, phone], whichever the patient prefers • Make sure followup occurs; missed followup destroys trust • Use outreach and community opportunities		Asthma coalitions link to volunteers and others who can assist with followup.
Provide or link to clinical case management services		Coalitions provide or locate asthma clinical case management services in community
Provide or link to lay-educator led education		MI Partners on the PATH (Chronic Disease Self-Management Program) www.mipath.org Support Groups: http://www.aafa.org/esg_results.cfm?state=MI
Create a system to identify and vaccinate all patients with asthma for influenza.		FQHCs use Michigan Childhood Immunization Registry to track influenza immunization for children with asthma.
Linkage to emergency department for followup from ED visits		FLARE: Emergency Department Discharge Asthma Instructions: http://www.getasthmahelp.org/FLARE.asp
Provide care that patients understand and that fits their culture	Indicators of Cultural Competence in Health Care Delivery Organizations: An Organizational Cultural Competence Assessment Profile: http://www.hrsa.gov/culturalcompetence/indicators/default.htm#conclusion Andruiis D. *Cultural Competence Self-Assessment Protocol for Community Health Centers*: http://healthdisparities.net/hdc/hdcsearch/isysquery/dff4e565-a108-4b4c-a826-6e84c418bfb6/5/doc/	
Decision support: Promote clinical care that is consistent with scientific evidence and patient preferences.		
Embed evidence-based guidelines into daily clinical practice	National Asthma Education and Prevention Program Expert Panel Report 2: Guidelines for the Diagnosis and Management of Asthma: www.nhlbi.nih.gov/guidelines/asthma/asthgdln.htm National Guideline Clearinghouse: www.guideline.gov Shenandoah Valley Medical System, Inc. Asthma Progress Note: http://www.healthdisparities.net/hdc/hdcsearch/isysquery/2d28c0b5-3566-48eb-bcf5-ae4f8afa983e/1/doc/	Michigan Asthma Resource Kit, Professional Section: http://www.getasthmahelp.org/mark%20pro%20files.asp Michigan Quality Improvement Consortium Asthma Guidelines for Primary Care: http://www.mqic.com/guid.htm

Health system change	Resources/support	
	National	**State/coalition**
Referral to specialist to integrate specialist expertise and primary care • Practice agreements • Real-time consultation • Email exchanges		
Provide skill oriented interactive training programs for all staff	Provider Training in *Choices and Change:* www.bayerinstitute.com One Minute Asthma Training: http://www.pedipress.com/omat_main.html Texas Association of Community Health Centers Distance Learning Tool with training modules for the Collaborative. To access, go to: http://classroom.tachc.org and select "Request an Account."	Coalition provides, obtain resources, or otherwise assists with provider education
Share guidelines and information with patients • Wallet card • Decisionmaking tools	One Minute Asthma, 7th Edition: http://pedipress.com/book_oma.html	
Develop refill protocol to identify overuse of beta antagonists		
Clinical Information systems: Organize patient and population data to facilitate efficient and effective care.		
Patient registry to identify population and to facilitate individual patient care planning.		Midwest Clinician Network, Patient Electronic Care System (PECS) registry: http://www.midwestclinicians.org/health/reg_report.htm [based at the Michigan Primary Care Association]
Develop processes for use of the registry, including designating personnel or volunteers to enter, assure data integrity, and maintain the registry.	Using Monthly Health Center Data: http://www.healthdisparities.net/hdc/hdcsearch/isysquery/f2b271a1-4430-4866-849f-62287e8103b9/12/doc/ Senior Leader Monthly Report Form: http://www.healthdisparities.net/hdc/hdcsearch/isysquery/78429fb9-4b8c-4543-92af-eaeb35602044/14/doc/	
Use the registry to generate reminders and care planning tools for patients and providers		Midwest Clinician Network, Patient Electronic Care System (PECS) registry: http://www.midwestclinicians.org/health/reg_report.htm [based at the Michigan Primary Care Association]
Conduct monthly identification of poor controlled asthma via billing data; identify relevant subpopulations for proactive care		Midwest Clinician Network, Patient Electronic Care System (PECS) registry: http://www.midwestclinicians.org/health/reg_report.htm [based at the Michigan Primary Care Association]
Facilitate individual patient care planning	Huddle List: http://www.healthdisparities.net/hdc/hdcsearch/isysquer	

Health system change	Resources/support	
	National	**State/coalition**
	y/09257609-3615-4caa-af13-1d0b957e00ed/1/doc/	
Data analysis to monitor performance of practice team and care system	Using Monthly Health Center Data: http://www.healthdisparities.net/hdc/hdcsearch/isysquery/f2b271a1-4430-4866-849f-62287e8103b9/12/doc/	Midwest Clinician Network, Patient Electronic Care System (PECS) registry: http://www.midwestclinicians.org/health/reg_report.htm [based at the Michigan Primary Care Association]
Community resources and policies: Mobilize community resources to meet patient needs.		
Link to community, evidence-based resources • Referral system • Incentives for patient participation • Promotion and marketing of community services	Freedom from Smoking online: http://www.ffsonline.org/	*Power Breathing, Wee Wheezers & Wee Wheezers At Home,* and other programs and services offered by the Asthma & Allergy Foundation of America, Michigan Chapter: http://www.aafamich.org/services.html Michigan Tobacco Quit Line: 1-800-480-QUIT (1-800-480-7848) AIM Community Web site, including links to asthma coalitions: www.getasthmahelp.org American Lung Association of Michigan: http://www.alam.org/ Asthma coalitions to provide referral and community information, as requested by the FQHC.
Form partnerships with community organizations to support and develop programs that meet gaps		"Never Judge a Book by Its Cover, and Other Important Lessons About Asthma" school packets: http://www.getasthmahelp.org/intro_schools.asp
Form partnerships with community organizations to obtain donations/resources for educational materials, provider education, medications, equipment, and other necessary supplies/materials	Pharmaceutical companies. Community foundations. Prescription assistance programs.	Asthma coalition to provide links to possible pharmaceutical, foundation, and community partners to assist with providing educational materials, equipment, and other supplies.
Advocate for policies to improve care		Involve FQHC in MAAC and its subcommittees.

Note: National and State/coalition resources are listed in all areas in which they are appropriate.
* Examples of importance and confidence rulers are presented in Appendix D.

Case Studies/Other Ideas

Below is presented a health center case study for each of the six Chronic Care Model components. Additional ideas of health system changes—as identified in the literature, presentations, case studies, and other resources—are also included (go to Table 2 for some of these resources). Collectively, these provide asthma coalitions and FQHCs with practical options for identifying potential health system changes and developing PDSA cycles. The examples presented below are not meant to be prescriptive because each FQHC will require an

approach that is unique to its current environment and clientele. <u>Appendix E</u> presents additional findings from studies on the Chronic Care Model.

Health care organization. Hill Health Center in New Haven, CT generated a significant amount of media support for the center's newly developed pediatric asthma program that, in turn, generated internal pride among administrators, providers, and staff. This recognition resulted in renewed commitment and support by the center's administration for the efforts to improve asthma care specifically and chronic care overall.

In addition to this case study example, other ideas for consideration include the following:
- Involve the senior leader in developing an aim statement or ask the senior leader for feedback on the draft statement.
- Gain the senior leader's interest with reports and feedback.
- Involve the senior leader in marketing the outcomes in the community for partnership development.
- Have the senior leader, physician champion, or team leader regularly report progress and results to Board of Directors:
  - o Provide a straightforward report that everyone can understand; avoid technical and clinical jargon.
  - o Provide patients' own words or reactions, whenever possible, or discuss provider satisfaction.
- Place storyboards in places visible to staff and patients.
- Have physician champion share tested tools and interventions at provider meetings to engage interest and involvement to prepare for the efforts to sustain and spread.
- Choose a physician champion with the following characteristics:
  - o Commitment to improve/change the system.
  - o Ability to articulate needs of team without alienating others.
  - o Willingness to be a team member.
- Enlist the person responsible for quality in the organization as a team member.
- Orient new clinicians to the collaborative—develop an orientation format for training clinicians who will be newly joining the collaborative.

Self-management support. La Casa-Quigg Newton Clinic in Denver, CO scheduled planned visits at specific intervals, depending on the patient's asthma severity and devoted a large part of these visits to education about patient self-care. In addition, outreach workers conducted followup on missed appointments.

In addition to this case study example, other ideas for consideration include the following:
- Have patients bring materials and asthma management tools (inhalers, spacers, and peak flow meters) with them to every visit for review of use and technique.
- Use group visits and social support group visits in disease self-management programs.

Delivery system design. G.A. Carmichael Family Health Center in Canton, MS linked with the respiratory therapy department of local community college to contract with students to provide asthma education to patients at a school-based clinic. The college students assisted patients with creating scrapbooks, thereby eliciting personal, individual feelings and concerns about asthma along with teaching them self-management skills and emphasizing the importance of goals.

In addition to this case study example, other ideas for consideration include the following:
- The care team reviews charts at beginning of day, considers what each patient needs and divides the tasks among the team members.

- Make pre-visit phone calls.[13] Remind patients of visit; talk about self-management goals, see how they are doing; ask them to bring medications; identify what you will be discussing tomorrow and see if there is anything they would like to specifically address.
- Define roles and distribute tasks among team members. Define and develop the team as a unit. Determine process for care and assign team members to tasks. Match the work to the individual's licensure and capability. Cross train staff and use protocols and standing orders for care. Determine back-up staff for each task.
- Use planned interactions to support evidence-based care. Use one-on-one visits to review current status, deliver evidence-based services and optimize disease control; use group visits to deliver care to interested patients; predict clinical needs of patients (using clinical information systems):
  o Invite patients with chronic care needs in for a planned visit.
  o Use registry to proactively contact patients for followup.
  o Have nurses do stepped protocols for appropriate patients.
  o Have nurses do self-management support for patients in need of self-monitoring skills.
  o Inform paints of visit agenda at beginning of visit; check to see if it meets their expectations.

Decision support. Franktown Community Health Center in Franktown, VA integrated the National Asthma Education and Prevention Program asthma guidelines into the care process. In addition to providing technical assistance, consultation, and collaborative care, an asthma specialist and her colleagues held an educational session for providers, clinical staff, and school nurses. Guidelines are now incorporated into all visits, posted in exam rooms, and highlighted in quarterly newsletters.

In addition to this case study example, other ideas for consideration include the following:
- Laminate logarithms and put on wall in exam rooms.
- Use structured assessment/encounter form to diagnose and determine severity of all patients as well as guide decisionmaking.
- Use flow sheets, pathways, or checklists to embed guidelines into daily practice.
- Use an asthma assessment form that is easy to follow which includes all selected measures, and provides medical staff with pertinent medical information when assessing asthma patients.
- Integrate depression screening if warranted.

Clinical information systems. Prairie Community Health in Isabel, SD began a monthly conference call with the team to review registry numbers and the progress the team was making toward their aim. A data comparison was made between participating and nonparticipating providers to "gently prod" nonparticipating providers to become involved.

In addition to this case study example, other ideas for consideration include the following:
- Develop a consistent, methodical process in writing to assure that all data are entered into the registry. Train appropriate staff and volunteers.
- Keep manual data entry to a minimum. Whenever possible, transfer information electronically from systems like appointments and billing.
- Schedule and produce reports to care team, managers, asthma coalitions, Asthma Initiative of Michigan, and others.
- Before a patient visit, print out current information from the registry. Determine a process of how to identify patients that are scheduled for a visit which ensures this information is printed and included on the patient chart at time of visit.
- Periodically generate a list of patients who are missing a service or have a service that is overdue.

- Use the registry to generate lists of high-risk patients for specialized care and followup (e.g., smokers, recent ED visits)
- Divide the population of asthma patients into categories (e.g., ethnicity, language, insurance, needs/limits, homelessness, etc.) to identify and respond to special needs.
- Conduct monthly identification of poorly controlled asthma via billing data for hospitalizations, ED visits, medication use/misuse, and no-shows for outpatient visits

Community resources and policies. Ben Archer Health Center in Hatch, NM negotiated a reduced price for peak flow meters from the manufacturer and contacted pharmaceutical companies for support with educational materials. The center used community outreach workers to provide training on triggers in the home and worked with a local hospital to provide self-management support. Other center efforts included working with: (1) the local health department and American Lung Association to provide training to health educators, community health workers, and community leaders; (2) school administrators to develop new policies for prescription use and treatment at schools; and (3) a local pharmacy to put reminders with any metered dose inhaler or asthma medication for patients to follow up with their primary care provider.

In addition to this case study example, other ideas for consideration include the following:
- Create a list of resources and develop a resource notebook or computer database of resources.
- Contact local library for available resources on asthma.
- Enlist support of pharmacies in noting too frequent refills of metered dose inhalers for beta agonists.
- Find sources for interpreters to assist with education, training materials, etc.
- Share successes and challenges with partner organizations.
- Request funding from service organizations for specific items, equipment, or services
- Develop a communication plan between school nurses and the primary care team for a written asthma action that includes timely and ongoing feedback
- Develop and distribute asthma educational materials so that children and parents receive consistent information both at school and from their physician.

Evaluation and Spread

Evaluation Tools

The Asthma HDC process and outcome measures are the primary mechanism used by the FQHCs to track the changes resulting from their health system improvements. Other mechanisms may be used to complement these evaluation efforts, including the following:

- Documentation of PDSA cycles—Sample forms are presented in Appendix F.
- Team Assessment Tool—This 23-question document is used to evaluate teams participating in any Health Disparities Collaborative. It can be downloaded at: http://www.healthdisparities.net/hdc/hdcsearch/isysquery/f1072916-6865-4fca-aadb-d0724cef0047/22/doc/.
- Assessment of Chronic Illness Care, Organizational Assessment—This written assessment to measure organizational support for implementing the Chronic Care Model can be downloaded at: http://www.improvingchroniccare.org/downloads/acic_v3.5a.doc.
- Patient Assessment of Chronic Illness Care—This written assessment to measure the health center's support for implementing The Chronic Care Model from the patient' viewpoint can be downloaded at: http://www.improvingchroniccare.org/downloads/2004pacic.doc.pdf.

Spreading and Sustaining Change

After a FQHC has tested a health system change that was found to be successful, the next step is to spread and sustain the change with other providers in the health centers as well as with other health centers. Before moving forward with this step, though, it is best for the FQHC to assess whether or not it is ready to successfully spread to another provider, chronic disease, or site. The Health Disparities Collaboratives Web site (www.healthdisparities.net) has a tool that can help the FQHC examine key issues and improve its current work plan. The tool requires organizations to answer 10 questions using a 5-point scoring scale. For each question, there are discussion points, recommendations, and a space to record an action plan.

Massoud and colleagues point out that how well health care providers and their organizations are able to spread new ideas and innovations is critical in closing the gap between *best* practice and *common* practice.[14] Asthma Coalitions and FQHCs are strongly encouraged to review this concept as they move to spread and sustain their changes.

Other helpful tips on how to assure that health system changes are maintained include:
- Establish and document standard processes (document the flow of the new process).
- Make changes to job descriptions, policies, procedures, and forms.
- Address supply, equipment, and design issues.
- Use measurements and audits. Use data to monitor the success of the change and the spread; avoid slippage.
- Pay attention to orientation and training (provide training to existing staff and incorporate into ongoing orientation of new staff).
- Assign ownership; that is, determine who is responsible for day-to-day ownership and maintenance work of new process.
- Hold senior leaders accountable for the efforts to sustain and spread the change and remove inhibitors that might allow slippage back to the old system.
- Address the social aspects of change (appreciation, publicity and praise, resistance, etc.)[10]:
  - Provide information on reasons for the change.
  - Empathize with anxiety; do not expect to eliminate it.
  - Show how change supports the organization's aim.
  - Put it in historical perspective
  - Link to needs of patient/family/community.
  - Reframe as opportunity.
  - Provide mechanism for questions/comments.
- Provide specific information on how the change will affect people:
  - Share results from testing.
  - Be prepared for questions.
  - Study rational objections and be prepared to address them.
  - Include members of team who tested in presentations.
- Get consensus on resources and other support for implementation:
  - Define plan with milestone and dates.
  - Ask leaders and key people to publicly support.
  - Express confidence in those asked to carry out change.
- Publicize the change:
  - Use symbolism, stores, pictures, etc.
  - Summarize key points and agreements as made.
  - Show appreciation for those developing and testing change.
  - Take advantage of significant events (crisis, inspection, complaint) and tie to implementation.

The Asthma Initiative of Michigan is currently working on developing a plan for 2007-2008 that involves regular conference calls among the coalitions and FQHCs. Each call will focus on a different aspect of the Chronic Care Model or another specific issue or item. Using a focused-format will facilitate in-depth conversations, increasing the likelihood that coalitions and FQHCs can learn from one another.

A Final Word

To facilitate changes in the systems of asthma care, especially among health care providers who serve populations experiencing the highest asthma health disparities, the Asthma Initiative of Michigan developed and is implementing a decentralized Asthma Health Disparities Collaborative) model.   Using its existing infrastructure of regional and local asthma coalitions, Michigan's FQHCs are being encouraged to implement the Asthma HDC—an evidence-based initiative that reaches the most vulnerable populations. This guide provides the coalitions and the FQHCs with the scientific and background information, practical examples, tools, and resources to help them make health system changes that will improve quality of care for Michigan residents with asthma.

Appendix A. List of Data Sources and Other Helpful Web Sites

Web Sites Reviewed for This Report

Agency for Healthcare Research and Quality
http://www.ahrq.gov

American Lung Association of Michigan
http://www.alam.org/

Asthma Initiative of Michigan
http://www.getasthmahelp.org

Health Disparities Collaboratives
http://www.healthdisparities.net

Improving Chronic Illness Care
http://www.improvingchroniccare.org

Institute for Healthcare Improvement
http://www.ihi.org

National Heart, Lung, and Blood Institute, National Institutes of Health
http://www.nhlbi.nih.gov/index.htm

Additional Web Sites

Allies Against Asthma
http://www.asthma.umich.edu/

Asthma and Allergy Foundation of America-Michigan Chapter
http://www.aafamich.org/

Michigan Primary Care Association
http://www.mpca.net

RAND - Improving Chronic Illness Care Evaluation
www.rand.org/health/ICICE

Appendix B. Glossary of Selected Terms

Definitions for the terms used in this report are reproduced in part from the Health Disparities Collaboratives Web site. The complete glossary of terms is available at: http://www.healthdisparities.net/hdc/hdcsearch/isysquery/96d40bff-2f51-4083-a7bd-3909f0f70ffa/2/doc/.

Action period. Time between learning sessions when teams work on improvement in their organizations.

Aim/aim statement. A written, measurable, and time-sensitive statement of the accomplishments a team expects to make from its improvement efforts.

Chronic Care Model. A model that represents a system of health care for people with chronic disease and an approach to re-designing health care to mirror that ideal system. It was developed by Improving Chronic Illness Care.

Clinical information system. A system that incorporates the development of a comprehensive, integrated information system that is "patient-centered," includes patient registries, a practice management system including billing system, an electronic health record, personal health records.

Collaborative. A systematic approach to health care quality improvement in which organizations and providers test and measure practice innovations, then share their experiences in an effort to accelerate learning and widespread implementation of best practices.

Learning session. A 3-day meeting during which participating organization teams meet with faculty and collaborate to learn key changes in the topic area, including how to implement them, an approach for accelerating improvement, and a method for overcoming obstacles to change.

Model for Improvement. A process improvement approach, developed by Associates in Process Improvement, which helps teams accelerate adoption of proven, effective changes. The model includes use of "rapid-cycle improvement" (PDSA cycles).

PDSA cycle. Another name for a cycle (structured trial) of a change, which includes four phases: Plan, Do, Study, and Act.

Pre-work. Time before first learning session when teams prepare for work in the Collaborative.

Registry. A list or database set of records that contain individual patient information. "Registry size" refers to the count of patients represented in the list.

Senior leader report. The standard format for reporting monthly progress in the Collaborative.

Spread. The intentional and methodical expansion of the number and type of people, units, or organizations using the improvements.

Storyboard. Board that displays information about a team and its progress; it is displayed at learning sessions to help create an environment conducive to sharing and learning from the experiences of others.

Team. Group of individuals, usually from multiple disciplines, who drive and participate in the improvement process.

Appendix C. Examples of Asthma HDC System Improvements

This appendix lists improvements that have been noted in the scientific and resource literature of the type of improvements Asthma Collaboratives might expect.

Health Disparities Collaboratives national data from 2002 report the following: Proper use of inhaled anti-inflammatory medication improved from 30% to 80%, and the percentage of patients who reported symptom-free days improved from 30% to 76%.

> **Source**: Health Disparities Collaboratives. HDC Topics: Asthma. Available at: http://www.healthdisparities.net/hdc/html/collaboratives.topics.asthma.aspx. Accessed March 5, 2007.

Schonalau and colleagues conducted a pre-post evaluation of 185 patients in six intervention clinics (Asthma HDC) and three control clinics. The intervention included a 2-day educational session for clinic teams followed by three PDSA action periods over the course of a year. Study results were reported in 2005 indicating that patients in the intervention group were more likely than patients in the control group to:
- Monitor their peak flow (57% vs. 24%).
- Have a written action plan (43% vs. 27%).
- Be satisfied with provider communication (62% vs. 39%).

> **Source**: Schonlau M, Smith RM, Chan KS, et. al. Evaluation of a quality improvement collaborative in asthma care: does it improve processes and outcomes of care? *Ann Fam Med.* 2005;3(3):200-208.

Kaiser Permanente, Northern California (KP-NC) serves 3 million people in the northern California region. Using the Chronic Care Model, including chronic care management, KP-NC saw a drop in the emergency department visit rate for asthma from 10 per 1000 persistent patients with asthma in 1996 to 4 per 100 in 2000.

> **Source**: Bodenheimer T, Wager EH, Grumbach K. Improving primary care for patients with chronic illness. *JAMA.* October 9,2002;288(14):1775-79.

With support from the Robert Wood Johnson Foundation, RAND/UC-Berkeley evaluated the organizational and patient-level impact of participation in the Asthma HDC for children and adolescents in nine geographically dispersed health centers. Results showed significantly increased scores on the general health quality of life (0 to 100-point) scale. Failure to receive appropriate asthma medications according to the child's level of disease severity decreased general health-related quality of life by 6.16 points. Inappropriate treatment of asthma also significantly decreased asthma-specific health related quality of life by 9.8 points.

> **Source**: Mangione-Smith R, Schonlau, M, Chan KS, et al. Measuring the effectiveness of a collaborative for quality improvement in pediatric asthma care: does implementing the chronic care model improve processes and outcomes of care? *Amb Pediatrics.* 2005;5:75-82

In February 2000, the Institute for Healthcare Improvement and the Robert Wood Johnson Foundation National Program, "Improving Chronic Illness Care" (ICIC*)* began a 13-month collaborative that focused on asthma and depression. Of the participating community health centers, 23 selected asthma as their area of focus. The five most common measures tracked by the asthma teams included:
- Symptom-free days
- Urgent care and/or emergency room visits.
- Use of written asthma/self-management plan.

- Use of maintenance anti-inflammatory medications.
- School/work absences.

Participating teams reported the following results:
- In 22 centers, the percentage of patients with persistent asthma who were treated with maintenance anti-inflammatory medications increased from 10% to 70%.
- In 1 center, the percentage of patients on the registry with an asthma action plan on medical chart rose from 0% to 100%.
- In school-based centers, the average number of school days missed in the last 3 months declined from 0.9 day to 0.1 day.

Source: Institute for Healthcare Improvement. Breakthrough Series Collaborative on Improving Care for People with Chronic Conditions: February 2000-February 2001. *Summary Report on Asthma Teams.* Available at: http://www.healthdisparities.net. Accessed Jan. 31, 2007

Appendix D. Sample Importance and Confidence Rulers

The following two rulers can be used by providers and patients in the goal setting session.

Importance Ruler

As a goal is discussed, assess the importance of achieving the goal from the patient's perspective. If the importance is below 7, it may not be worth pursuing at this time, and another goal may need to be identified.

1	2	3	4	5	6	7	8	9	10
Not Important			Unsure		Somewhat Important				Very Important

Confidence Ruler

Determine if the patient has confidence he or she can achieve the goal. If the patient rates his or her confidence level below 7, the following steps can be taken:
1. Ascertain the barriers to achieving the goal and determine if additional information, support, or resources could help the patient to achieve the goal. If others are identified, reassess confidence level based on the additional assistance.
2. Determine if the goal needs to be renegotiated. Consider breaking the goal down into subcomponents and have the patient work on one of the subcomponents. Alternatively, go back to initial goal setting and identify a different goal.

1	2	3	4	5	6	7	8	9	10
Not Confident			Unsure		Somewhat Confident				Very Confident

Appendix E. Selected Findings From Research on the Chronic Care Model

This appendix presents highlights from the scientific literature on each of the six components of the Chronic Care Model, as well as on the Chronic Care Model overall. The information presented here is not meant to be a comprehensive review of the literature but rather to illustrate various health system changes and their related impact or outcomes.

Chronic Care Model

Tsai and colleagues completed a meta-analysis of interventions to improve care for chronic illnesses. This analysis was to determine whether interventions that incorporate at least one element of the Chronic Care Model result in improved outcomes for specific chronic illnesses and if any elements were essential for improved outcomes. The meta-analysis on 112 studies revealed that interventions with at least one element of the model had consistently beneficial effects on clinical outcomes and processes of care across all conditions studied. The effects on quality of life were mixed, with only the congestive heart failure and depression studies showing benefit.

> **Source**: Tsai AC, Morton SC, Mangione CM, Keeler EB. A meta-analysis of interventions to improve care for chronic illnesses. *Am J Manag Care.* 2005 Aug;11(8):478-88.

Wagner and colleagues analyzed descriptive and pre-post data from 23 health care organizations participating in the 13-month (August 1998-September 1999) diabetes collaborative. Both chart review and self-report data on care processes and clinical outcomes suggested improvements were based on health system changes made during the collaborative. Many of the organizations with the greatest improvements were community health centers, which had the fewest resources and the most challenged populations.

> **Source**: Wagner EH, Glasgow RE, Davis C, et al. Quality improvement in chronic illness care: a collaborative approach. Seattle, WA: MacColl Institute for Healthcare Innovation. Accessed on www.improvingchroniccare.org on December 12, 2006.

Health Care Organization

Although little research is currently available linking health care organization components to direct improvement in health outcomes, there is evidence that shows an indirect relationship. Evidence that implementation of the Chronic Care Model does result in improved quality of care and improved health outcomes has been noted elsewhere. The following are some examples of the indirect linkage.

Visible leadership support. Ovretveit and colleagues noted in their comprehensive review of research in quality collaboratives that health care systems would be unlikely to achieve quality improvement that would be significant or sustained in the absence of visible and real support from senior leaders. Some examples of senior leader support include visiting clinical sites, reviewing monthly reports, providing resources, and problem-solving for innovators. Eventually, the support of change in pursuit of better quality care should become part of the organization's culture.

> **Source**: Ovretveit J, Bate P, Cleary P, et al. Quality collaboratives: lessons from research. *Qual Saf Health Care*. 2002;11:345–351.

Provider incentives. A 2002 report from the National Health Care Purchasing Institute noted that provider incentives can be used effective to improve health care quality and delivery. A

range of incentive models was examined. Although financial incentive models were the most well known, there were several nonfinancial models, especially those that leveraged the power of peer pressure. Organizations also combined several incentive models to create a stronger motivation force for health care improvement.

> **Source**: Bailit Health Purchasing LLC. *Provider Incentive Models for Improving Quality of Care*. Washington, DC: National Health Care Purchasing Institute; March 2002.

Self-Management Support

Asthma action plan and other self-management strategies. Lieu and colleagues examined opportunities for intervention by identifying outpatient management practices associated with increased risk of hospitalization or emergency department (ED) visits among children under age 14 with asthma. Parents of children hospitalized during the study period were less likely than those with no hospitalization or ED visit to have a written asthma management plan and to report washing bed sheets in hot water at least twice a month. Children with hospitalization were also more likely to have a nebulizer.

> **Source:** Lieu TA, Quesenberry CP Jr, Capra AM, et al. Outpatient management practices associated with reduced risk of pediatric asthma hospitalization and emergency department visits. *Pediatrics.*1997;100(3 Pt 1):334-41.

Asthma action plan. All asthma consensus statements recommend the use of a written action plan as a central part of asthma management, but a recent systematic review of randomized trials examined the independent effect of a written action plan in children and adolescents and compared the effect of different written action plans. Four trials involving 355 children were reviewed. Children using symptom-based action plans had lower risk of exacerbations which required an acute care visit. Children assigned to peak flow-based action plans reduced by a half day the number of symptomatic days per week.

> **Source**: Bhogal S, Zemek R, Ducharme FM. Written action plans for asthma in children. *Cochrane Database Syst Rev*. 2006 Jul 19;3:CD005306.

Self-management education. This Cochrane review of 36 trials was conducted to examine the strength of evidence to test whether health outcomes are influenced by education and self-management programs when coupled with regular health practitioner review. Self-management education reduced hospitalizations, emergency room visits, unscheduled visits to the doctor, days off work or school, and nocturnal asthma. Researchers concluded that education in asthma self-management which involves self-monitoring by either peak flow or symptoms, coupled with regular medical review and a written action plan, improves health outcomes for adults with asthma. Also, training programs that enable people to adjust their medication using a written action plan appear to be more effective than other forms of asthma self-management.

> **Source**: Gibson PG, Powell H, Couglan J, et. al. Self-management education and regular practitioner review for adults with asthma. *Cochrane Database Syst Rev*. 2003;(1):CD001117.

Health coaching. This study tested the efficacy of coaching to reduce environmental tobacco smoke (ETS) exposure among Latino children with asthma. After asthma management education, families were randomly assigned to no additional service (control condition) or to coaching for ETS exposure reduction (experimental condition). Approximately 1½ hours of asthma management education was provided; experimental families also obtained seven coaching sessions (approximately 45 minutes each) to reduce ETS exposure. At 4 months post-coaching, parents in the coached group reported their children exposed to significantly

fewer cigarettes than parents of control children. Reported prevalence of exposed children decreased to 52% for the coached families but only to 69% for controls.

> **Source**: Hovell MF, Meltzer SB, Wahlgren DR, et. al. Asthma management and environmental tobacco smoke exposure reduction in Latino children: a controlled trial. *Pediatrics.* 2002 Nov;110(5):946-56.

Delivery System Design

Physician education and nurse-led planned care. This study compared two interventions (peer-lead physician education vs. nurse-led planned care plus peer leader education) across a 2-year period in real-world primary care practices. Results demonstrated that an organized approach to pediatric asthma care that includes the services of a nurse plus peer leader education (planned care intervention) can significantly reduce asthma symptom days by 12%, or an average of 13 days per year. According to parent reports, planned care subjects also had greater controller adherence compared with usual care subjects.

> **Source**: Lozano P, Finkelstein JA, Carey V, et. al. A multisite randomized trial of the effectiveness of physician education and organizational change in chronic asthma care: health outcomes of the pediatric asthma care patient outcomes research team II study. *Arch Pediatr Adolesc Med.* 2004;158:875-83.

Group visits. The group visit model is one possible solution to the limitations observed in the current primary care structure and the demands of the growing chronic illness load. An electronic review of all group visit articles published from 1974 to 2004 was conducted via the PubMed® and MedLine® databases. Although the heterogeneity of the studies presented some limitations, there was sufficient data to support the effectiveness of group visits in improving patient and physician satisfaction, quality of care, quality of life, and in decreasing emergency department and specialist visits.

> **Source**: Jaber R, Braksmajer A, Trilling JS. Group visits: a qualitative review of current research. *J Am Board Fam Med.* 2006 May-Jun;19(3):276-90.

Clinician prompting. This randomized controlled trial examined whether clinician prompting regarding a child's symptom severity and guideline recommendations at the time of an office visit improved the delivery of preventive asthma care. Children were randomly assigned to a clinician-prompting group (single-page prompt) or a standard-care group (no prompt given). Children in the clinician-prompting group were more likely to have had preventive measures at the visit compared with children in the standard-care group. These measures included delivery of an action plan, discussions about asthma, and recommendations for an asthma followup visit.

> **Source**: Halterman JS, Fisher S, Conn KM, et al. Improved preventive care for asthma: a randomized trial of clinician prompting in pediatric offices. *Arch Pediatr Adolesc Med.* 2006 Oct;160(10):1018-25

Decision Support

Referral to asthma specialist. Asthma-specialist care was compared to generalist care on the rate of relapse of asthma ED visits and hospitalizations as well as on asthma control. Subjects ages 6-59 with asthma presenting for acute ED care for asthma received either referral to an asthma specialist in the allergy department with comprehensive ongoing asthma care (experimental group) or continued outpatient management from generalist physicians (control group). Compared with the control group, the intervention group had a 75% reduction in the

number of subjects with asthma awakenings per night, an almost 50% reduction in asthma ED relapses, and a greater use of inhaled corticosteroids and cromolyn.

> **Source**: Zeiger RS, Heller S, Mellon MH, et al. Facilitated referral to asthma specialist reduces relapses in asthma emergency room visits. *J Allergy Clin Immunol.*1991 Jun; 87(6):1160-8

Provider (resident) training. Researchers conducted a pre- and post-training survey of 41 intervention residents to assess residents' implementation of the Chronic Care Model. The change in implementation for intervention residents was compared with that of 77 primary care residents not receiving this training. Asthma-related ED use by patients cared for by intervention residents was compared with that of other asthma patients. At baseline, residents in both groups reported inconsistent application of key elements of the model. At posttest, intervention-group residents reported significantly greater increases in access to asthma guidelines, the proportion of patients receiving written asthma management plans, and residents' access to information on community asthma programs than comparison-group residents. The number of asthma-related ED visits dropped significantly among patients treated by intervention residents.

> **Source**: Green J, Rogers VW, Yedidia MJ. The impact of implementing a chronic care residency training initiative on asthma outcomes. *Acad Med.* 2007 Feb;82(2):161-7

Clinical Information Systems

There is a shortage of published research linking this component to direct improvement in health outcomes and quality of care, but some evidence, as in the following example, shows an indirect relationship.

Bates and colleagues reported that an information system was useful for measuring care. In addition, it served as a useful tool for improving quality of care when used as for decision support. Investigators reported significant benefits in reducing the unnecessary use of laboratory testing, quickly reporting abnormal test results to key providers, preventing and detecting adverse drug events, changing prescription patterns to reduce drug costs, and providing critical pathways to providers.

> **Source**: Bates DW, Pappius E, Kuperman GJ, et al. Using information systems to measure and improve quality. *Int J Med Inform.* 1999 Feb-Mar;53(2-3):115-24.

Community Resources and Policies

Community partnerships. This study evaluated the effectiveness of a school-based asthma case management approach with medically underserved inner city children. Fourteen elementary schools with high rates of asthma-related hospital use were randomized to either a nurse case-management intervention or a usual care condition. In intervention schools, nurse case managers conducted weekly group sessions incorporating the "Open Airways" curriculum, followed up on students' school absences, and coordinated students' asthma care. In usual-care schools, students received routine school nursing services. Students in the intervention schools had fewer school absences than their usual-care counterparts (4 vs. 8 days, respectively) and experienced significantly fewer ED visits and fewer hospital days.

> **Source**: Levy M, Heffner B, Stewart T, Beeman G. The efficacy of asthma case management in an urban school district in reducing school absences and hospitalizations for asthma. *J Sch Health.* 2006 Aug;76(6):320-4.

Lay workers. Use of community health workers to obtain health, social, and environmental information from Black inner city children with asthma was one component of a larger intervention study designed to reduce morbidity in this group. A subset of 140 school-aged children with asthma was recruited and enrolled in a program to receive home visits by health workers for the purposes of obtaining medical information and teaching basic asthma education to the families. Data gathered by the workers led researchers to conclude that appropriately recruited and trained lay workers were effective in obtaining useful medical information and providing basic asthma education in the home.

Source: Butz AM, Malveaux FJ, Eggleston P, et. al. Use of community health workers with inner-city children who have asthma. *Clin Pediatr (Phila).* 1994 Mar;33(3):135-41.

Appendix F. Sample Plan-Do-Study-Act Cycle Report Forms

Asthma Initiative of Michigan/Asthma Health Disparities Collaborative: Draft Form

(*Note*: Adapted from Chronic Care Model, the Model of Improvement, and Their Application to Reducing Disparities in Pediatric Asthma: A Faculty Workshop—Training Workbook)

Chronic Care Model component [check the component that is being addressed]
- ☐ Health Care Organization
- ☐ Self-Management Support
- ☐ Delivery System Design
- ☐ Decision Support
- ☐ Clinical Information Systems
- ☐ Community Resources and Policies

Health Center: _____ Asthma Coalition: _____

PDSA Cycle Number: _____ PDSA Cycle Timeframe: _____

Trimester Report: ☐ First ☐ Second ☐ Third
Fiscal Year: _____

Purpose of Cycle and Summary of Proposed Health System Change:
_____
_____
_____
_____

PLAN: The change, data collection, and predicted outcome

The Change
⇨ What are we testing?

⇨ Who are we testing the change on?

⇨ When are we testing?

⇨ Where are we testing?

Predictions
⇨ What do we expect to happen?

Data

⇨   What data do we need to collect?

⇨   Who will collect the data?

⇨   When will the data be collected?

⇨   Where will the data be collected?

STUDY: Complete analysis of data, summarize what was learned, and compare data to predictions

ACT: What adjustments to the change or the method of test should we make before the next test cycle?

What will the next test cycle be?

Are we ready to implement the change we tested?

Are we ready to spread the change we tested? If so, how?

PDSA Worksheet

(*Note*: Used by Michigan Primary Care Association, Michigan Asthma HDC Learning Lab, May 22, 2007)

Health Center:

Date:_____   Initiated by:_____   Cycle#_____

CARE MODEL COMPONENT: OrgHC   Comm   DelSysD   DecSupp   SelfMgt   CIS

Purpose of this cycle:

PLAN the change, prediction(s) and data collection	
The Change:	
What are we testing?	
On whom are we testing the change?	
When are we testing?	
Where are we testing?	
Prediction(s):	
What do we expect to happen?	
Data:	
What data do we need to collect?	
Who will collect the data?	
When will the data be collected?	
Where will data be collected?	
DO: Carry out the change/test, collect data, and begin analysis	
What was actually tested?	
What happened?	
Observations:	
Problems:	
STUDY: Complete analysis of data. Summarize what was learned and compare to prediction (Use back of form to elaborate.)	
ACT	
What adjustments to the change or method of test should we make before the next cycle?	
Are we ready to implement the change we tested?	
What will the next test cycle be? (use back of form to elaborate)	

Endnotes

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[2] Wasilevich EA, Lyon-Callo S, Dombkowski KF. *Disparities in Michigan's Asthma Burden.* Lansing MI: Bureau of Epidemiology, Michigan Department of Community Health; 2005.

[3] The theory and application of *spread* is part of the theory on diffusion of innovations. See: Rogers EM. *Diffusion of Innovations.* 5th ed. New York: Free Press; 1995.

[4] Langley G, Nolan K, Nolan T, et al. *The Improvement Guide: A Practical Approach to Enhancing Organizational Performance.* San Francisco: Jossey-Bass, 1996.

[5] The Model for Improvement was developed by Associates in Process Improvement. Further information is available at: http://www.ihi.org/IHI/Topics/Improvement/ImprovementMethods/HowToImprove/; and in *The Breakthrough Series: IHI's Collaborative Model for Achieving Breakthrough Improvement.* Boston: Institute for Healthcare Improvement; 2003, pp. 6-7.

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[12] Skymark Corporation: Project Tree Diagram. Available at: http://www.skymark.com/resources/tools/tree%20diagram.asp. Accessed May 20, 2007.

[13] A sample script that can be adapted when telephoning patients to schedule a visit is available on the Improving Chronic Illness Care Web site at: http://www.improvingchroniccare.org/index.php?p=Planned_Visits&s=48.

[14] Massoud MR, Nielsen GA, Nolan K, et al. A Framework for Spread: From Local Improvements to System-Wide Change. IHI Innovation Series White Paper. Cambridge, MA: Institute for Healthcare Improvement; 2006. Available at: http://www.ihi.org/NR/rdonlyres/661BCB93-1FED-4ADB-86FE-4DDD84445AFD/0/AFrameworkforSpreadWhitePaper2006.pdf.