



Creating a Medical Home for Asthma



An Asthma Management
Program for
Healthcare Providers

Introduction and Background

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Web site address: <http://www.nyc.gov/html/doh/html/cmha/introduction.html>

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New Jersey City University Health Sciences Department

<http://www.njcu.edu/dept/ProfStudies/hs/default.htm>



New York City Department of Health and Mental Hygiene

<http://www.nyc.gov/html/doh/home.html>



National Heart, Lung, and Blood Institute

<http://www.nhlbi.nih.gov/>



RTI International

<http://www.rti.org/>

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About the Developers

Led by Dr. David Evans, the development team for *Creating a Medical Home for Asthma* included pediatricians, asthma specialists, a health educator, and an educational psychologist. The following is a list that provides a brief description of their positions, interests, and contact information.

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Consultant (formerly Assistant Commissioner for Child and Adolescent Health)
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Dr. Ramos-Bonoan is a pediatrician interested in improving the quality of pediatric care in public health settings. She was Medical Director of the Child Health Clinics when the CMHA program was developed.

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Acknowledgments

The development of *Creating a Medical Home for Asthma (CMHA)* involved active collaboration among several public and private organizations, including the New York City Department of Health's Bureau of Child Health (BCH), Columbia University College of Physicians and Surgeons, and the Medical and Health Research Association of New York City, Inc. With funding from the National Heart, Lung, and Blood Institute (NHLBI, Grant No. HL56348), the CMHA project staff developed, pilot-tested and evaluated the original version of this program in a controlled study from 1990 to 1995.

Following publication of the findings, the Centers for Disease Control and Prevention (CDC) selected the CMHA program for inclusion in its program to translate effective intervention programs into a form that can be disseminated to health and public health professionals for widespread use. CDC contracted with Research Triangle Institute (RTI) to work with the CMHA team to translate the CMHA program and materials into a web-based application program. The New York City Department of Health and Mental Hygiene (NYCDOHMH) agreed to serve as the Internet host for the program.

In addition to the individuals and organizations listed on the title page, many individuals have contributed to the development, review and translation of the CMHA program. They are:

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Ranjani Manjunath

We also acknowledge the contributions of several hundred staff members of the 45 Child Health Clinics and the central administrative office, who worked hard to introduce and sustain this program in the clinics throughout New York City. Above all, it is their commitment to improving the quality of care for asthma that has made this program a success.

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Background

Program Description

Creating a Medical Home for Asthma (CMHA) is an asthma management program that encourages public health clinics to implement a team-based approach to pediatric asthma management and care. The team-based approach encourages all clinic personnel to work together as a team to effectively deliver patient-centered asthma management and care. Therefore, CMHA is designed to offer a training program that teaches clinic staff—including physicians, nurses, laboratory technicians, clerical staff, and receptionists—strategies to increase communication between the patient and health care provider, as well as to deliver effective asthma treatment using the latest treatment protocols.

Program History

In 1990, a team of investigators from Columbia University, led by Dr. David Evans, received a grant from the National Heart, Lung, and Blood Institute (NHLBI, Grant No. HL56348) to develop the *Creating a Medical Home for Asthma* program in collaboration with the New York City Department of Health and Mental Hygiene and the Medical and Health Research Association of New York City, Inc. At the start of the study, the New York City Department of Health's Bureau of Child Health (BCH), now part of the Health and Hospitals Corporation of New York City, operated 45 Child Health Clinics that provided primary and preventive care to approximately 100,000 children, primarily from low-income African-American and Latino families.

Historically, these clinics emphasized preventive medicine, but because of the undersupply of primary care services for children in New York City, BCH decided in 1987 to begin providing continuing care for acute and chronic illnesses. Prior to this decision, clinic staff reviewed the medical records and discovered that only 2% of registered patients had been given a diagnosis of asthma by BCH physicians. This was far less than the expected rate of 5-10% in this urban minority population. They also found that BCH physicians referred many patients to local hospital emergency departments for treatment of asthma, and that the care rendered in the clinics was largely episodic and did not include the use of new therapies for asthma such as anti-inflammatory agents. To improve services for patients with asthma, BCH approached the Columbia University Asthma Health Education Research group and proposed a collaboration to improve the quality of care for asthma in BCH.

Following a pilot study to develop the CMHA training program, CMHA was tested in a controlled study in which 11 clinics received the program, and another 11 clinics served as controls. Follow-up data were collected over a two-year period to evaluate the program. Following the program, training teams were formed from BCH staff working in the 11 clinics that received the CMHA program, to extend the program to the 11 control clinics and the other BCH clinics that had not taken part in the study. In this way, the program was sustained and made a regular part of the Child Health Clinic system.

Study findings showed that in both the first and second follow-up years, the program clinics had significantly greater positive changes than control clinics on measures of access, continuity, and quality of care (Evans et al., 1997). The program clinics identified 1,065 new patients, an increase of 87% compared to the previous year, while the number of new patients in the control clinics remained unchanged. Asthma patients in the program clinics were more likely than those in control clinics to return for care the following year, and made a greater number of scheduled visits for asthma care, a positive marker for preventive care. Program clinic physicians were more likely to treat patients with anti-inflammatory therapy, and to prescribe spacer devices to help families administer medicine to the children successfully. Physicians and nurses who received the training were both more likely than controls to provide asthma education to their patients, show patients how to modify their therapy in response to changes in symptoms, and provide further guidelines for changing therapy.

A complete bibliography can be found at the end of this document and on the CMHA website: for readers interested in more detailed information about the study results. The bibliography also provides sources for other studies used to support the information contained in this and other documents related to the CMHA program.

Asthma: A National Perspective

Public attention has recently focused on asthma because its prevalence, morbidity, and mortality have increased greatly since 1980, with children under five years old experiencing the highest rate of increase. These increases have been especially marked in low-income urban areas. Several published reports indicate that asthma may stem from greater exposure to indoor allergens or irritants, greater exposure to outdoor environmental irritants, and changes in the immune systems of children.

Based on the results of national studies, there are several reasons asthma has become a national priority.

Asthma Is a National Epidemic

Asthma affects an estimated 17 million Americans, or 6.4% of the U.S. population, with children accounting for almost 5 million of the nation's asthma sufferers. Between 1980 and 1995, the prevalence of asthma in children in the United States increased 74% (Mannino, 1998).

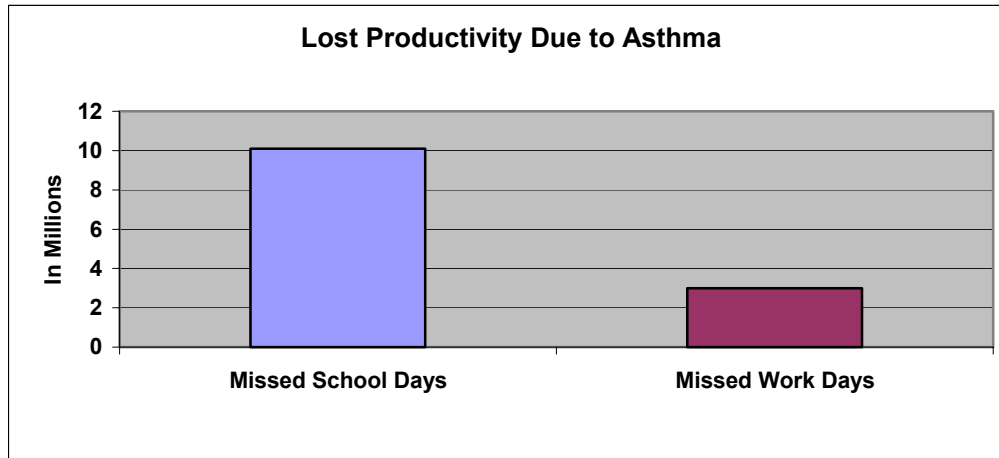
Minority populations have a higher prevalence of asthma than other groups. In 1998, National Health Interview Survey data reported that the prevalence of asthma attacks among black non-Hispanic children was approximately 30% higher than among white non-Hispanic children. During this same time, the prevalence among Hispanic children increased rapidly. The report also noted that the prevalence of asthma in Hispanics was about 17% greater than among their white counterparts.

Minority populations also experience greater morbidity or chronic illness and hospitalization due to asthma. A study in New York City showed that among children and young adults with asthma, the hospitalization rate for African-Americans and Hispanics was five times greater than for non-Hispanic whites (Carr, Zeitel, & Weiss, 1992).

Asthma Is a Burden on the Quality of Life

Pediatric asthma has a tremendous impact on school absences, work disruption, and limited recreational activities that negatively affect the quality of life for children with asthma and their family. Affecting people of all races, ages, ethnicities, and socioeconomic groups, asthma imposes serious burdens on daily life, and results in significant losses in productivity for children and their caregivers. Asthma is the leading cause of school absenteeism due to chronic illness and the second most important respiratory condition leading to home confinement for adults. Each year, asthma causes more than 18 million days of restricted activity, and millions of visits to physicians' offices and emergency rooms. Studies have shown that children with asthma lose an extra 10 million school days each year; this problem is compounded by an estimated \$1 billion in lost productivity for their working parents (Figure 1).

Figure 1: Lost Productivity Due to Asthma in 2001

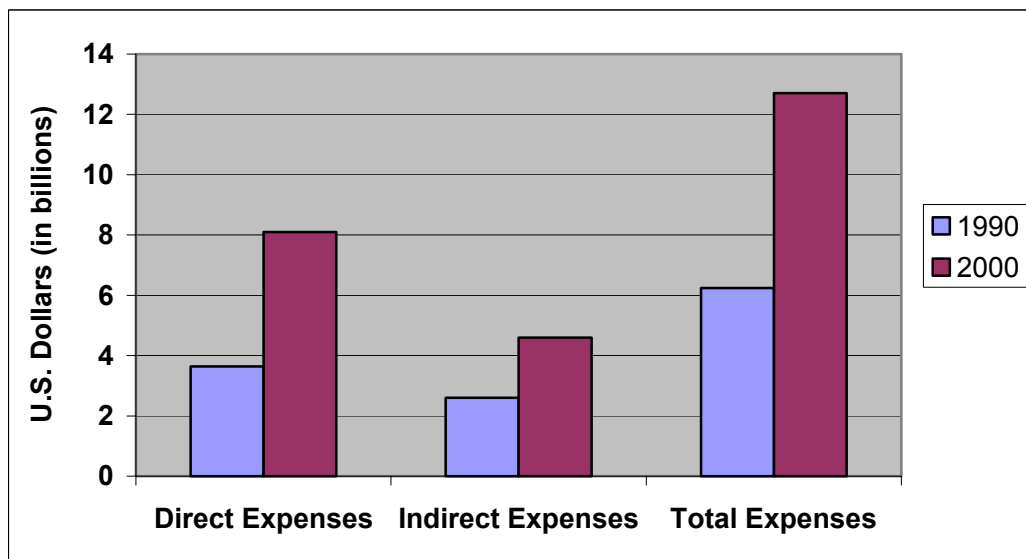


Source: American Lung Association, 2001

Asthma Is Costly and a Burden on the Health Care System

The treatment of children with chronic asthma places a heavy strain on the health care system, in terms of both economic costs and hospital usage. Data from 1990 showed that asthma posed severe economic costs on the health care system that year—an estimated \$3.6 billion in direct medical expenditures (i.e., hospital care, medications, and physicians’ services) and an estimated \$2.6 billion in indirect expenditures (i.e., school days lost, workdays lost, and mortality) with a combined total of more than \$6.2 billion in health care costs. By 2000, these combined costs had increased to more than \$12 billion, with \$8.1 billion of that amount in direct medical expenditures and \$4.6 billion in indirect expenditures (Figure 2).

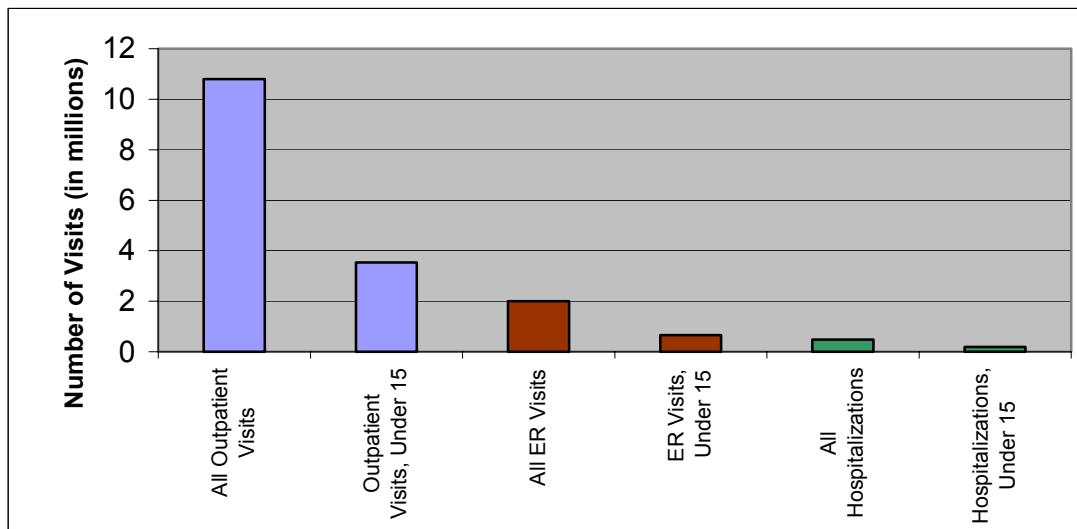
Figure 2: A Comparison of 1990 and 2000 Economic Costs of Asthma



Source: National Heart Lung and Blood Institute, 2001

In 1996, asthma was responsible for 9.9 million visits to health care providers per year, over 1.9 million emergency room visits per year, and 474,000 hospitalizations per year. By 1999, asthma was responsible for 10.8 million outpatient visits to private physicians' offices and hospital clinics (33% of these involved children under 15), approximately 2 million emergency room visits (33% involved children under 15), and 478,000 hospitalizations (40% involved children under 15), as illustrated in Figure 3.

Figure 3: 1999 Health Care Use Associated with Asthma, for Adults and Children (<15 yrs)



Source: Centers for Disease Control and Prevention, 2002

Asthma Can Be Controlled

Many of the previously mentioned outcomes and costs associated with asthma are preventable with appropriate medical care and patient education. The most recent report of the 2002 expert panel for The Guidelines for Diagnosis and Management of Asthma developed by the National Heart, Lung, and Blood Institute recommend four strategies that can reduce the frequency and severity of asthma attacks. They are:

- Assessment and monitoring of symptoms associated with asthma,
- Identification and control of environmental and other triggers to limit exposure to allergens,
- Use of appropriate medication to manage asthma, and
- Education of the patient and family in asthma care.

The report also recommends secondary prevention through use of appropriate therapy, written treatment plans, and patient education and outreach which can help patients to manage their asthma successfully on a daily basis.

In addition, two large-scale national programs provide resources for asthma control. First, in 1992, the National Heart, Lung, and Blood Institute established the National Asthma Education and Prevention Program (NAEPP) to coordinate efforts to educate people with asthma, health care professionals, and the public on how to identify and control asthma. The NAEPP program includes information about the following initiatives that can be accessed at the NAEPP website: http://www.nhlbi.nih.gov/about/naepp/naep_pd.htm

- Guidelines for the Diagnosis and Management of Asthma were developed and are periodically updated by an expert panel.
- The Model Asthma Management Program provides user-friendly guides for treating and educating patients.
- The Global Initiative for Asthma is a collaborative effort to provide treatment guides and educational materials worldwide in easily translatable formats, plus information about the costs of therapy.

Second, in 1999, the Centers for Disease Control and Prevention (CDC), in support of its Healthy People 2010 objectives, developed the following programs for asthma education and management that target several areas:

- The National Asthma Control Program stimulates the implementation of asthma programs across the nation through state health agencies that emphasize tracking, monitoring, and intervention related to asthma. The National Asthma Control Program also provides intervention programs that focus on reducing asthma prevalence in major metropolitan and inner-city areas.
- The Americans Breathing Easier Program emphasizes asthma education interventions in schools across the nation to reduce the number of asthma-related school absences.

Both researchers and federal sponsors believe that as many of these asthma education and outreach programs evolve nationwide, the severity of asthma as an epidemic will decrease, resulting in a reduced burden of asthma for patients, families, and the health care system.

Rationale for the CMHA Program

Creating a Medical Home for Asthma was designed to improve pediatric asthma care within public health clinics. It promotes a team-based approach to asthma management, and includes strategies to improve communication among the clinic staff, as well as with the parent or caregiver of a child with asthma.

This program stems from recent studies demonstrating the lack of continuity of care for children with asthma. Several studies reported that many patients were given episodic care rather than continuous care for their chronic asthma and were provided insufficient patient education.

As noted earlier, research findings also indicated that physicians were under-diagnosing asthma in minority children by as much as 50%. This was associated with increased levels of morbidity in low-income minority children, when compared to the expected rate of asthma in an urban minority population. These findings suggested that clinics and other providers of care needed to focus on implementing better strategies to improve the current care of asthma.

Program Goals

The strategies described in the CMHA program are based largely on the National Asthma Education and Prevention Program Guidelines for the Diagnosis and Management of Asthma. The NAEPP supports the use of screening procedures to identify new cases and health education to improve family management of asthma.

Thus, the goals of the CMHA program are to:

- Provide continuing care in primary and specialized clinics to greater numbers of individuals with asthma, with a focus on pediatric asthma;
- Improve the health status of the children suffering from asthma through appropriate treatment, including patient education and family self-management; and
- Improve quality of life for the entire family through communication about asthma between the family and the entire clinic staff.

Underlying Assumptions

The rationale for this program was based on the premise that effective communication between physicians and families about asthma management and treatment will likely reduce asthma symptoms and decrease use of emergency health services.

The program rationale also relied on the following assumptions:

- There are many children with asthma who are registered in public health clinics throughout the United States and who might not be receiving continuing medical care for asthma from any health care provider.
- Asthma is a chronic disease that requires an ongoing relationship between the clinician and the patient.
- Not all clinicians are aware of the elements, such as communication techniques and teaching skills, necessary to maintain the ongoing relationship with the patient.
- Clinicians seeing patients with asthma need to change the way they work to take advantage of recent research regarding the patient's self-management of asthma.

Based on goals and assumptions described earlier the development team created the CMHA program to help resolve some of the issues that affect children and families in underserved communities.

The CMHA Philosophy

Creating a Medical Home for Asthma is centered on the *system of care* philosophy, which views asthma management as a collaborative effort focused on providing organized, coordinated, asthma education and treatment. Thus, a “medical home” is created whereby families develop a relationship with the health care provider and receive continuous and comprehensive care for their children’s asthma.

Further, CMHA is a comprehensive education program that incorporates concepts from many different disciplines. It is designed to promote learning from multiple perspectives, which makes it applicable for all types of health care employees, including non-clinical staff, such as administrative employees.

The system of care philosophy provides a foundation to guide the development of a systematic approach to delivering effective asthma care. Described below, these guiding principals incorporate key strategies that facilitate the development of a team-based approach to asthma management and care within the health care clinic. The manual titled “Getting Started with CMHA” describes each in more detail as it relates to coordinating the CMHA program.

Creating a Medical Home for Asthma

Guiding Principles and Key Strategies

- Identify an individual as an advocate or “champion” of the program who can promote and coordinate implementation of the program.
- Conduct a careful needs assessment of the problems and desired outcomes for asthma care, including an assessment of barriers to change and positive assets for change within both the clinic and the community.
- Obtain the commitment of top leadership to the change process.
- Involve all clinic personnel in the learning process to develop a team approach to CMHA.
- Use interactive learning strategies to actively engage clinic staff in identifying and overcoming barriers to change and to help them take ownership of the program.
- Make supervisory staff part of the intervention team with initial training that prepares them to realize the goals of the program through supervisory action.
- Base asthma care on current best practices guidelines for asthma care as recommended in the NAEPP guidelines.
- Recognize that adherence to treatment guidelines is not enough for a successful CMHA program. The key ingredients are teamwork and coordination of care among staff, and the development of partnerships among clinic staff and patients that enable patients to learn how to control asthma.

The CMHA Training Website

The CMHA website is designed to provide the necessary materials to conduct the CMHA training program, to prepare for implementation into the clinic setting, and to support evaluation. The website and program materials are meant to serve as a guide for program coordinators and staff in public health clinics or health care organizations who are interested in adopting the program.

The CMHA program website includes the following documents:

The ***Introduction and Background*** provides the background and program history of the development of CMHA, results of the evaluation, and the philosophy and rationale for the program. It provides the reader with a comprehensive overview of the program and each component.

The ***Getting Started*** manual provides guidance on how to obtain the information necessary to prepare for implementing the CMHA program in your healthcare setting. It also presents the steps involved obtaining support from management, and includes a PowerPoint presentation to help demonstrate the value of the program to decision makers.

The ***Instructor's Guide*** details all instructions, content, handouts, and agenda for the sessions that are provided with the training program.

The ***Program Handbook*** is distributed to the participants of the training as it contains the key learning principles, handouts, and agenda of the program.

The ***Implementation Guide*** offers guidance on adapting and implementing the CMHA training program in a clinic. It defines the procedures or steps to follow for creating a management plan and successfully integrating the principles of the program. It also provides the necessary forms and plans that accompany implementation of the program.

Finally, the ***Evaluation Plan*** offers a framework to measure the results and success of the training program in the clinic.

Each of the above documents represents a “unique section” on the website. Other sections on the website provide additional resources and materials that can be used to supplement the information provided in the program documents. The other sections include information regarding supplemental “components”, such as:

- Links to informative asthma-related sources
- Program related references
- Treatment plans and clinic forms

The CMHA program materials are available on the website and are formatted in HTML so the full text can be viewed on-line. Materials are also available in Microsoft Word and Adobe Acrobat, and can be downloaded for use in hardcopy format. Also, the program materials listed above were developed as a series of manuals that should be used in the order in which they are presented. Each manual builds on the information provided from the previous and may not be fully understood if viewed out of order. The exception to this ordering is the Instructor's Guide and Program Handbook. Since these are intended for training purposes, they should be used simultaneously.

For additional information on the CMHA program or to request technical assistance, please contact:

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