

Asthma in Michigan - A Blueprint for Action

*Recommendations of the
Michigan Asthma Strategic Planning Initiative Task Force*

May 2001

Support for the development and publication of this report was provided through a grant from GlaxoSmithKline Inc.

Dear Colleague:

It is with pleasure that I join the Michigan Asthma Strategic Planning Initiative Task Force in presenting this report, *Asthma in Michigan -- A Blueprint for Action*, to the citizens of Michigan. This report responds to our increasing concern over the past several years as the numbers of people with asthma, especially children, have grown rapidly. This has been true not only in Michigan, but across the United States, and indeed, throughout much of the industrialized world.

We are well aware of the fact that asthma places a heavy burden on those who have the disease, as well as on those around them. It exacts a disproportionately high toll in the black community.

Asthma is one of the leading causes of preventable hospitalizations among residents and one of the leading causes of school absences in Michigan. We estimate that we spend more than \$10 million a year in Michigan on hospitalizations for childhood asthma alone.

The recommendations in this report represent a broad public health approach to this significant health issue. They are designed to: increase the public's awareness about the seriousness of this disease; establish a blueprint to improve the quality of health care available to persons with asthma in Michigan; and ensure that persons with asthma have access to the patient education necessary to manage their own care.

We need to learn more about the prevalence and burden of asthma so we can better target our efforts and evaluate their impact. We will use our knowledge of today and our findings of tomorrow to do all we can to control this serious disease and to lessen its impact on our citizens.

I want to extend my sincere appreciation to the task force leadership and members for the many hours they worked together to develop this blueprint for action. We in the department look forward to continuing to work together with task force members, local coalitions, health care providers, persons with asthma, and others to ensure the residents of our state a future bright with promise for the control and eventual prevention of asthma.

Cordially,

James K. Haveman, Jr.

Michigan Asthma Strategic Planning Initiative Task Force

TASK FORCE CO-CHAIRS

Noreen M. Clark, PhD*; Dean and Marshall H. Becker Professor, School of Public Health, UM.

B. David Wilson, MD*; Assistant Clinical Professor, College of Human Medicine, MSU; *Michigan State Medical Society*.

CLINICAL CARE SUBCOMMITTEE

Co-Chairs:

Randall Brown, MD, MPH*; UM Medical Center; *American Thoracic Society; Detroit Asthma Coalition*

Gary Kirk, MD*; DeVos Children's Hospital, *Pediatric Asthma Network of West Michigan*

Karen Meyerson, RN, BSN*; Asthma Resource Center for Children, *Pediatric Asthma Network of West Michigan*

Ricardo Z. Vinuya, MD*; Children's Hospital of Michigan; WSU, *Detroit Asthma Coalition*

Members:

Maria Batacan, RN, MSN, CS; St. John Asthma Center

Christine Karl Card, RN; Blue Care Network

Sandra DeJong, RN, MSN; Borgess Medical Center, *Kalamazoo Asthma Coalition*

Homer Engert, BS, RRT; Saint Mary's Mercy Medical Center, *Michigan Society for Respiratory Care*

John Escott, MD; Michigan Academy of Family Physicians

Bruce Frandsen, MS; Michigan Chapter, Asthma and Allergy Foundation of America

Pamela A. Georgeson, DO; Gross Pointe Allergy and Asthma Center, *Michigan Osteopathic Association*

Douglas N. Homnick, MD, MPH; MSU Kalamazoo Center for Medical Studies, *Kalamazoo Asthma Coalition*

Richard Honicky, MD; Department of Pediatrics and Human Development, MSU

Martin Hurwitz, MD; Allergy and Immunology; University of Michigan Hospital

Terry Joiner, MD; Ypsilanti Health Center, UM Health System; *Washtenaw County Asthma Coalition*

Karen Kain, MS, RRT; Munson Medical Center, *Lower Northwest Michigan Asthma Coalition*

Marshall G. Katz, MD; Midwest Health Plan; Medical Directors' Committee, Michigan Association of Health Plans

Geoffrey M. Linz, MD; Ingham Regional Medical Center; *Mid-Michigan Asthma Coalition*

Dianne Miller, RPh; Michigan Pharmacists Association

Brian Nolan, MD; Hurley Asthma Center; *Childhood Asthma Task Force*

Giovannino Perri, MD; Medical Services Administration, MDCH

Larry Rawsthorne, MD; Physicians Health Plan, *Mid-Michigan Asthma Coalition*

Max Robins, DO; Medical Services Administration, MDCH

Mary Scoblic, RN, MN; Community Living, Children and Families Administration, MDCH

Mehrdad Shafa, MD; Quality, Management, Blue Cross Blue Shield of Michigan

Denise Shangle, RRT; Asthma Resource Center for Children, *Pediatric Asthma Network of West Michigan*

Douglas Slater, MD; Mercy Family Medicine

* Denotes MASPI Executive Committee member

Errol Soskolne, MD; Department of Pediatrics, St. Joseph Mercy Hospital; *Washtenaw Asthma Coalition*

Karla J. Stoermer, BSN, RN, C; Washtenaw County Health Dept.; *Michigan Nursing Assoc; Washtenaw Asthma Coalition*

Ron Tomas, MD; Clinical Services, SelectCare

Colleen Vallad-Hix, DO; College of Osteopathic Medicine, MSU

EDUCATION SUBCOMMITTEE

Co-Chairs:

Susan Blonshine, RRT, RPFT, FAARC*; TechEd Consultants; Pediatric Pulmonary Lab., MSU

Ellen Metzgar, RN, BSN*; Saint Mary's Mercy Medical Center, *Pediatric Asthma Network of West Michigan*

Jennifer Pickett, MPH*; American Lung Association of Michigan; *Detroit Asthma Coalition*

Members:

Lise Anderson, MPH; Partnership to Control Asthma in Public Schools, UM; *Detroit Asthma Coalition*

Cheryl Anderson Small, MSN; Office of Minority Health, MDCH

Suresh Anne, MD; *Childhood Asthma Task Force*

Theresa Bergquist, RRT; Spectrum Health; *Pediatric Asthma Network of West Michigan*

Fayette Bright, BA; Air and Radiation Division, Environmental Protection Agency, Region 5

Jan Burdick, RRT; Cardio-Pulmonary Services, Battle Creek Health Systems

Jane Burton, MSW; Patient Education, Asthma Airways Center, Briarwood Medical Group, UM Health System

Cynthia Colquitt; Air and Radiation Division, Environmental Protection Agency, Region 5

Robert DeYoung, PharmD; Saint Mary's Mercy Medical Center, Advantage Health; *Pediatric Asthma Network of West MI.*

Jo Dickert, RN, BA, MPH/HC; Cardiac and Pulmonary Rehabilitation, Foote Hospital Inc.; *Jackson School Asthma Project*

Kirsten Galka, BSN, MPH, RN; Health and Welfare Committee, Michigan Parent-Teacher Assoc.; *Livonia Public Schools*

Elizabeth Haller, MEd; Physical Education, Michigan Department of Education

Alisa Hamilton, BA; Office of Services for the Aging

Anne Hamilton, RRT; Pulmonary Rehabilitation, Bay Medical Center, *Tri-County Asthma Coalition*

Jacquetta Hinton; Office of Minority Health, MDCH

Barbara Jepson-Taylor, RN, MSN; Care Coordination Department, Physicians Health Plan

Anntinette McCain, RN, BSN, MAT; Office of Physical Education and Health, Detroit Public Schools

Marc McMorris, MD; University of Michigan Medical Center; *Washtenaw Asthma Coalition*

Connie Meade, RN, BSN; Lansing School District; *Michigan Association of School Nurses; Mid-Michigan Asthma Coalition*

Alexis Murphy-Morris; Genesee County CAA Head Start; *Childhood Asthma Task Force*

Mary Jo Reilly, MS; Sentinel Events Notification, System for Occupational Risks, Department of Medicine, MSU

Sheila Rettig, RN, BS; Grants Administration, Metro Health - Bretton Plaza; *Pediatric Asthma Network of West Michigan*

Paula Sans-Hammer, RRT; Pulmonary Rehabilitation, Detroit Medical Center - Harper Hospital

Rosanne Schultz, RN, BSN; District Health Dept. #4, *Northeast Lower Michigan Asthma Coalition*

Colleen Shefferly; 4 Asthma Education; *Camp Michi-Mac (Board Member); Detroit Asthma Coalition*

Rosalie Stein, BS, MS; Jewish Federation of Grand Rapids; East Grand Rapids School Board; *Pediatric Asthma Network*
Judy Zick, RN, BSN; Lansing School District Nursing, *Mid-Michigan Asthma Coalition*

ENVIRONMENTAL QUALITY SUBCOMMITTEE

Co-Chairs:

Rich Badics, RS, MS*; Washtenaw County Dept. of Infrastructure & Environment, *Washtenaw Asthma Coalition*
Elliot Levinsohn*; American Lung Assoc. of Michigan, *Coalition for Healthy Air in Michigan's Public & Private School*

Members:

John Dowling, MA, LPC; Tobacco Section, Health Promotions and Publications, MDCH
Beth Franco, RN, BSN; Health Relations, Michigan Education Special Services Assoc., *Michigan Assoc. of School Nurses*
Mary Lee Hultin, MS, RS; Toxicologist, Air Quality Division, MDEQ
Michael Lane; Environmental Health and Safety Department, UM Flint
Elizabeth Lorenzi, RN, BSN; MI Education Special Services Assoc.; *MI. Assoc of School Nurses; Mid-MI. Asthma Coalition*
Jim Moore*; Director of Programs, American Lung Association of Michigan
Connie Morbach, MS, CHMM; Sanit-Air and Environmental Compliance Solutions
Jerome Nriagu, PhD; Environmental Health Sciences, School of Public Health, UM; *Washtenaw Asthma Coalition*
John Peck, CIH; Bureau of Safety and Regulation, Michigan Department of Consumer & Industry Services
Thomas Robins, MD, MPH; Department of Environmental Health Sciences, School of Public Health, UM.
Sherryl Schultz, PhD, CIH, CSP; Industrial & Engineering Technology Department, CMU.
MaryAnn Suero, PhD; Children's Health, Environmental Protection Agency, Region 5
Daniel R. Thorell, Jr., MS, RS; Environmental Health Div., Genesee County Health Dept.; *Childhood Asthma Task Force*
Helen Tsiapas, BA; Indoor Air Program, Air and Radiation Division, Environmental Protection Agency, Region 5

SURVEILLANCE & EPIDEMIOLOGY SUBCOMMITTEE

Co-Chairs:

Christine Joseph, PhD*; Biostatistics & Research Epidemiology, Henry Ford Health System; *Detroit Asthma Coalition*
Kenneth Rosenman, MD*; Professor of Medicine, Department of Medicine, MSU

Members:

Kimberly Barber, MS; Research & Sponsored Programs, Saginaw Cooperative Hospitals, Inc.; *Tri-County Asthma Coalition*
Maurice C. Barone, PhD; Division for Vital Statistics & Health Records, MDCH
Tim Bolen, MS; Chronic Disease Epidemiology, Kent County Health Department
Michael Cabana, MD, MA, MPH; Pediatrics & Communicable Diseases, UM Health System
Kevin Dombkowski, BS, MS; Division of General Pediatrics, UM
Margaret Freundl, MSN, RN, CS; Disease Management, St. John Health System; *Detroit Asthma Coalition*
Kathleen Harkness, MSN, RN; Midwest Health Plan; *Michigan Association of Health Plans*
Wilfried Karmaus, Dr.Med., MPH; Department of Epidemiology, MSU

Harry McGee, MPH; Epidemiology Services Division, Bureau of Epidemiology, MDCH

Susan McIntosh, RS; Environmental Health, Ingham County Health Department

Richard Nowak, MD, MBA; Emergency Medicine, Henry Ford Hospital; *Detroit Asthma Coalition*

Ann Rafferty, PhD; Epidemiology Services Division, Bureau of Epidemiology, MDCH

Mat Reeves, BVSc, PhD; Department of Epidemiology, MSU

Georgiana M. Sanders, MD; Pediatrics & Communicable Diseases and Internal Medicine, UM Health System

Adreanne Waller, MPH; Washtenaw County Department of Public Health; *Washtenaw Asthma Coalition*

Kenneth Wilcox, MD, DrPH; Retired, Bureau of Epidemiology, MDCH; *Detroit Asthma Coalition*

MASPI COMMITTEE STAFF

Clinical Care:

Joanne G. Hogan, PhD; Epidemiology Services Division, MDCH

Loretta Neville, BSN, MSA; Health Promotion and Disease Prevention, MPHI

Education:

Karma Common, MPH; Health Promotions and Publications, MDCH

Cheryl Schott, MPH; Division of Chronic Disease & Injury Control, MDCH

Environmental Quality:

Robert L. Wahl, DVM, MS; Division of Environmental Epidemiology, MDCH

Executive:

Jean Chabut, BSN, MPH; Division of Chronic Disease & Injury Control, MDCH

Amy Slonim, PhD; Health Promotion and Disease Prevention, MPHI

Surveillance & Epidemiology:

Sarah Lyon-Callo, MA, MS; Consultant, MPHI

Editor:

Carol L. Genee

Industry Participants:

Brian Fillingham; Regional Corporate Health Manager, Care Management Division, GlaxoSmithKline Inc.

John Mayer, RPh; Market Development Manager, GlaxoSmithKline Inc.

Table of Contents

Preface	9
Introduction	10
Michigan’s Response to Asthma.....	10
The MASPI Plan: Drawing Upon Our Collective Expertise.....	11
MASPI Strategic Plan for Action	15
Section One: Foundation for Michigan Asthma Activities	16
MDCH Responsibilities	17
Local Coalition Activities	17
Asthma Communication Network	17
Asthma Data Needs.....	18
Section Two: Training for Clinical Diagnosis, Disease Management, and Education Services	21
Section Three: Access to and Coordination of Health Care and Education Services.....	24
Access to Asthma Care	25
Coordinated Care Strategies for Persons with Asthma.....	26
Patient Education Programs and Materials	27
Section Four: Environmental Action.....	28
Indoor Environments	29
Environmental Tobacco Smoke.....	30
Occupational Asthma.....	31
Outdoor Environments.....	31
Section Five: Community Action	33
Schools.....	33
Public Awareness.....	34
References	35
Appendices	39
Appendix A: Asthma Overview	40
Appendix B: Michigan’s Response to Asthma.....	43

Acronyms Used in This Plan

<p>ALAM American Lung Association of Michigan</p> <p>BRFSS Behavioral Risk Factor Surveillance Survey</p> <p>CATF Childhood Asthma Task Force (Genesee)</p> <p>CDC Centers for Disease Control and Prevention</p> <p>DAC Detroit Asthma Coalition</p> <p>DHHS Department of Health and Human Services</p> <p>ED Emergency Department</p> <p>EQR External Quality Review</p> <p>EPA U.S. Environmental Protection Agency</p> <p>ETS Environmental Tobacco Smoke</p> <p>HIPAA Health Insurance Portability & Accountability Act</p> <p>IAQ Indoor Air Quality</p> <p>IOM Institute of Medicine</p> <p>LPH Local public health</p> <p>LHD Local health departments</p> <p>MAAC Michigan Asthma Advisory Committee</p> <p>MASC Michigan Asthma Steering Committee</p> <p>MASPI Michigan Asthma Strategic Planning Initiative</p>	<p>MDCH Michigan Department of Community Health</p> <p>MDE Michigan Department of Education</p> <p>MDEQ Michigan Department of Environmental Quality</p> <p>MHHA Michigan Health and Hospital Association</p> <p>MMAC Mid-Michigan Asthma Coalition</p> <p>MPHI Michigan Public Health Institute</p> <p>MSA Medical Services Administration (Medicaid)</p> <p>MSU Michigan State University</p> <p>NHLBI National Heart, Lung, and Blood Institute</p> <p>PANWM Pediatric Asthma Network of West Michigan</p> <p>SENSOR Sentinel Event Notification Systems for Occupational Risks</p> <p>TAC Tri-County Asthma Coalition</p> <p>UM University of Michigan</p> <p>UMSPH University of Michigan School of Public Health</p> <p>WAST Washtenaw Asthma Surveillance Team</p> <p>WSU Wayne State University</p>
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Preface

Over 17 million Americans cope with asthma every year. Asthma is a serious public health threat for which a cure remains elusive. Although we know a great deal more about it today than we did 20 years ago, much remains to be learned, particularly about the causes of this debilitating, chronic disease.

However, we are developing a wealth of research findings on how to manage the disease and control its symptoms, enabling people with asthma to enjoy a good quality of life. A number of effective interventions exist that control asthma symptoms and reduce the number of trips to the emergency department or hospitalizations. Central to these interventions are: educating persons with asthma and their caregivers about the disease and successful self-management; implementing programs to improve access to best practice care, diagnosis, and asthma management; and teaching a wide range of health care providers and environmental specialists on the control and reduction of environmental triggers for asthma.

To implement these interventions, we must understand more about the extent of the problem, how to address it, and how to assess the success of our efforts. Thus, we must have in place the surveillance and environmental epidemiology capacity to track variations in the prevalence and severity of asthma, its risk factors and triggers; and to monitor the improvements in access and quality of asthma management and control efforts.

Obviously, successful interventions must involve input from all stakeholders -- from governmental agencies to local asthma coalitions to health care providers and payers to persons with asthma. Michigan is fortunate

to have a wide range and depth of individuals and organizations working to reduce the impact of asthma. That is why MASPI Task Force members built their recommendations using successful models from asthma or other disease activities that already exist in our state, paying close attention to the advantages of integrating and coordinating new efforts with the work of asthma coalitions or other groups and agencies.

It is important to note that all the recommendations in this strategic plan are patient-focused, reflecting the fact that 90 percent of the day-to-day control of asthma is in the hands of patients. Every recommendation has been developed to improve the quality of life for persons with asthma and their families and caregivers. The recommendations were developed to maximize the potential for impact, assure feasibility, and foster linkages among issues and stakeholders.

The success of this plan will be measured in the amount of change it produces in our state. It is only through the collaborative efforts of all stakeholders that we will achieve our goals. We invite you to join us as we take the next steps toward lessening the impact of this disease and making a real difference in the quality of life of persons with asthma.

MASPI Task Force Co-Chairs



Noreen M. Clark, Ph.D.



B. David Wilson, M.D.

Introduction

Asthma is a chronic inflammatory disease of the lungs characterized by a narrowing of the bronchial tubes, swelling of the bronchial tube lining, and mucus secretion that can block the airway, making breathing difficult and repeatedly creating symptoms such as shortness of breath, wheezing, tightness or discomfort in the chest, and dry cough (NHLBI 1997).

As yet, there is no cure for the disease, but recent advances in the understanding of asthma have led to the development of protocols to control the inflammatory condition associated with the disease and, thus, enable persons with asthma to enjoy a good quality of life. Proper treatment is extremely important, even for those individuals who may not experience acute attacks of asthma. Without it, permanent pathological damage to the airway can occur -- even in instances in which no symptoms are present. With proper treatment, the airflow obstruction is at least partially reversible and the symptoms subside, making breathing easier (NHLBI 1997).

Asthma is one of the most common chronic medical conditions in our country today. The U.S. Department of Health and Human Services considers the steady rise in asthma cases to be of epidemic proportions. Data from the Centers for Disease Control and Prevention and the Michigan Department of Community Health on the impact of asthma indicates:

- The number of people with asthma rose 75 percent from 1980 to 1994 and the number of children under 4 years old with asthma increased by 160 percent in the United States.
- Asthma causes more than 1.5 million emergency department visits and 500,000 hospitalizations each year nationally. In Michigan, 17 of 10,000 residents are hospitalized each year.
- Boys and women are hospitalized more often than girls and men.
- Blacks are three times as likely as whites to be hospitalized with asthma or to die from the disease.
- We will spend over six billion dollars on asthma in the year 2000 in the United States.
- In every classroom with 30 children, at least two will have asthma.
- Asthma is one of the leading causes of school absenteeism from a chronic illness.
- Occupational asthma is the leading work-related lung disease in the United States and is responsible for as much as 20 percent of adult-onset asthma.

(More information on the impact of asthma and progression of the disease is included in Appendix A.)

Michigan's Response to Asthma

Michigan has a rich heritage of individuals and organizations working to control asthma in our state and lessen the impact of the disease. Michigan's resources include state government activities, 11 local asthma coalitions, hospital and health care organizations, university-based initiatives, and work by a variety of voluntary health organizations, including the American Lung Association of Michigan (ALAM). (Please see Appendix B for a brief description of asthma activities in Michigan.)

The MASPI Plan: Drawing Upon Our Collective Expertise

Although Michigan's response to asthma has been considerable, it was apparent that statewide coordination would enable stakeholders to address common issues by collaboratively defining goals, objectives and strategies. To that end, MDCH, in partnership with the Michigan Public Health Institute, launched an aggressive effort known as the Michigan Asthma Strategic Planning Initiative (MASPI). The idea for the initiative was based upon the success experienced by MDCH and its community health partners with similar statewide planning initiatives in Alzheimer's disease, breast cancer, tobacco, minority health, and violence prevention that have lead to measurable outcomes.

Early in 2000, more than 125 Michigan asthma experts gathered in Lansing to develop a statewide plan to reduce the impact of asthma. Members of the MASPI Task Force included public and private representatives with clinical care, education, environmental, data, and public health expertise.

It was generally agreed that successful efforts to control asthma should involve all aspects of primary, secondary and tertiary prevention as part of a participatory public health approach that focuses on five major areas:

- 1) consistent access to best practice clinical management;
- 2) patient and professional education;
- 3) targeted environmental, community, and school-based interventions;
- 4) public awareness; and
- 5) enhanced surveillance and epidemiology research.

The MASPI Task Force was charged with building on existing momentum and commitment to: 1) set collective direction for public and private action; 2) create a sound basis for decision-making; and 3) mobilize broader commitment and resources.

Under the leadership of MASPI Task Force Co-Chairs Noreen M. Clark and B. David Wilson, MASPI Task Force members worked in four subcommittees representing the major issues in asthma control: Clinical Care, Education, Environmental Quality, and Surveillance & Epidemiology.

The MASPI Clinical Care Subcommittee was charged with improving quality, access, and coordination of asthma care and asthma-related professional education. Recent advancements in asthma management, when applied consistently, should allow most patients to be symptom free and maintain normal activity levels. Best practices for asthma management include four components: 1) objective measures of lung function for diagnosis and monitoring the management of asthma; 2) comprehensive long-term pharmacologic therapy that will reverse and prevent airway inflammation, as well as control exacerbations; 3) control and elimination of environmental factors that aggravate asthma; and 4) the development of a partnership between the patient, family, and members of the clinical team (NHLBI 1997, AAAAI 1999; NHLBI/WHO 1995). Failure to apply best practices in asthma management has resulted in preventable emergency department visits and hospitalization for asthma (Legorreta et al. 1998, Ordenez et al. 1998).

The subcommittee identified barriers and suggested strategies to improve access, services, and self-management. The specific issues examined by the subcommittee included:

- Training for clinical diagnosis, disease management, and asthma education services;
- Consistent application of best practices, consensus guidelines, and standardized protocols; and
- Access and coordination of primary and specialty care services including financial issues, availability of culturally-appropriate care, and coordination of multidisciplinary asthma management across inter-organizational and community linkages.

The MASPI Education Subcommittee was formed to identify and address issues pertaining to asthma patient education in Michigan, an essential adjunct to medical treatment in the effective management and control of asthma. The purpose of asthma education is to help persons with asthma and their families take the actions needed to control their condition including learning to: follow complex pharmacologic regimens; implement environmental control strategies; detect and treat asthma symptoms; and communicate with health care providers. Not only is patient education instrumental in helping patients take actions needed to control their asthma, but research shows that asthma education can reduce asthma morbidity, lower health care costs, and improve quality of life (Parker et al. 1989, Clark et al. 1999).

Despite national recognition of the importance of asthma education, asthma education services are not yet widely available to persons with asthma and their caregivers. Problems surrounding asthma education fall into three primary areas: 1) access to and coordination of asthma education services, including the qualifications of asthma educators and the integration of education into routine asthma care; 2) availability of appropriately tailored and evaluated programs and materials, and; 3) public awareness to dispel misconceptions about asthma, raise awareness about asthma symptoms, and heighten consciousness that asthma can be controlled.

In light of these problems, the MASPI Education Subcommittee reviewed current educational initiatives in Michigan; assessed scientific, evidence-based knowledge regarding the relationship between asthma education and effective asthma management; and developed recommendations to improve asthma education efforts in the state.

The MASPI Environmental Quality Subcommittee was charged with developing recommendations that would assist people with asthma to control or eliminate their exposure to environmental triggers.

One of the key components for successful control of asthma is avoidance of triggers that exacerbate asthma (i.e. cause an asthma attack), such as environmental tobacco smoke, pollen, dust mites, furred or feathered pets, cockroaches, molds and fungi, and some chemicals (IOM, 2000). The first step in reducing exposures to these triggers is for a patient to know that they are present. The second step is for the patient to know how to remove or avoid the exposure. Removal or avoidance of exposure however, is not always in the patient's control, requiring interventions at a wider level.

At this time, Michigan still has a strong need for targeted monitoring of outdoor and indoor pollutants related to asthma, including standardized air quality assessments for homes, schools, and workplaces. Furthermore, these data and tools need to be made available to patients on a timely basis. Lastly, evaluated education and remediation programs to address air quality problems are needed for the individual patient and for schools, homes, workplaces, and communities.

The Environmental Quality Subcommittee addressed issues of indoor air quality, including environmental tobacco smoke and occupational exposures; and outdoor air quality.

The MASPI Surveillance and Epidemiology Subcommittee was charged with evaluating existing asthma surveillance sources and developing recommendations for improvements in the collection, analysis, and dissemination of asthma data.

Asthma surveillance allows us to:

- Monitor aggregate trends in the number of people with asthma, the severity of disease, and trends across time and population groups;
- Monitor asthma management in terms of prescription of and compliance to control regimes, issues of access to care, quality of life, and other variables;
- Identify the potential causal factors and risk factors for asthma and its exacerbations; and,
- Perhaps most importantly, monitor the effect of asthma interventions and evaluate work of coalitions, which play a crucial link between surveillance data and effective control programs.

MDCH is the official public health agency for the state of Michigan and is provided with broad legal authority within the Michigan Public Health Code to collect and compile statistics relative to the causes, effects, extent and nature of illness and disability of the people of this state.¹

The Surveillance and Epidemiology Subcommittee addressed improvements to existing data collection and analysis with particular emphasis on sub-population and local level data. The subcommittee also explored ways to collect data on emergency care and other variables not currently available, and to improve the usefulness and dissemination of data reporting.

Subcommittee Guidelines: Task force members worked to ensure that their recommendations were science-based, maximized quality assurance, had the potential for statewide impact, addressed underserved populations, and included measurable and sustainable strategies.

*Asthma in Michigan--A Blueprint for Action*² is the result of countless hours of work by the members of the individual subcommittees, the executive committee, and MASPI staff. The

¹ The release of health data is now governed by the U.S. Department of Health and Human Services regulations on Health Record Privacy. Under the provisions of Section 164.512, individual authorization or an opportunity to agree or object is not required for purposes of surveillance. Furthermore, subsection (B) (1) (I) specifically provides that the release of protected health information to a public health agency for appropriate purposes does not require consent.

recommendations that are detailed in the following pages draw upon the knowledge of these experts and set forth a clear, collective direction for public and private action to lessen the impact of asthma on our state's residents. They are in agreement with the U.S. Department of Health and Human Services' *Healthy People 2010* objectives (US DHHS, 2000), and are expected to achieve desired outcomes for persons with asthma (including control of the disease and an enhanced quality of life); coordination and efficiency in asthma control efforts; cost savings for health care providers, insurers and consumers; and a reduction in the disparities in health status that exist among sub-groups of the overall population.

² The strategic action plan is limited to the main focus statements and recommendations. MASPI Task Force members also provided MASPI staff with a wealth of supplemental background information in support of their recommendations that is being used to develop individual work plans and implementation guides that will serve as road maps for the implementation phase of this process.

MASPI Strategic Plan for Action

Section One:

Foundation for Michigan Asthma Activities

Michigan's committed state agencies and community-based organizations form a strong foundation for addressing asthma. Ongoing leadership and support are essential to the successful implementation of the MASPI recommendations. Implementation requires strengthening of critical components in state and community infrastructure, as well as statewide coordination of activities and resources.

MDCH Responsibilities and Local Asthma Coalition Activities

To this end, MDCH will facilitate the implementation of this plan and the improvement of statewide surveillance and monitoring of asthma management and control in existing data systems. Michigan's asthma coalitions will continue to serve together as a forum to identify and coordinate outreach and advocacy around: issues of access to quality medical services, educational materials, and programs for use in clinics, day-care, schools, and community sites; targeted public communication strategies; asthma trigger avoidance and environmental abatement; and policies related to asthma. Synergy among the coalitions will be an important building block in laying the foundation of asthma activities.

Asthma Communication Network

An essential component of this foundation is a mechanism for communication and coordination of activities. It is frequently difficult for consumers and health professionals alike to obtain state-of-the-art information on asthma occurrence, treatment, and control. There are numerous key stakeholders in Michigan who face similar challenges in sharing information in a meaningful way. All MASPI subcommittees recognized the benefits of establishing and maintaining a communication network. Centralized access to asthma information will maximize efficiency, coordination and quality assurance in the dissemination and utilization of asthma tools and resources for professionals, persons with asthma, and the general public.

Asthma Data Needs

Asthma activities need to be targeted and monitored to assure their success. It is imperative that researchers, health care providers, and policy makers have access to quality data on asthma morbidity and mortality, including racial, geographic and socio-economic disparities, to ensure they are delivering effective services. MDCH already has begun the process by issuing reports of state- and county-wide asthma hospitalization and mortality data. These reports have proven to be useful to local asthma coalitions, local public health departments, and other stakeholders. However, there also is a need for collection of data on asthma prevalence and health care utilization (e.g., voluntary collection of data on emergency department and office visits for asthma), as well as for collection of data at the local level. These data would enable asthma control stakeholders to compare local data with state and national data, and use the results of those comparisons to target and measure the progress of interventions.

MDCH Responsibilities

Recommendation 1-a

It is recommended that MDCH continue to collaborate with the Michigan asthma community by convening an Asthma Advisory Committee comprised of representatives of local asthma coalitions, the public and private sectors, and experts in asthma-related epidemiological research, asthma-related toxicological research, and other scientific disciplines as needed. The Asthma Advisory Committee should meet as needed to:

- § Facilitate the implementation of the MASPI recommendations;
- § Act as a catalyst for networking and collaboration among asthma advocates and organizations in Michigan;
- § Provide advice to state-level programs and activities, and future Michigan asthma control and education efforts; and
- § Convene ad hoc work groups, if necessary, to reach consensus, identify strategies, select methods of implementation, and engage the community on specific recommendations.

Recommendation 1-b

It is recommended that MDCH continue to provide chronic disease program support and capacity in asthma surveillance and environmental epidemiology.

Local Coalition Activities

Recommendation 2

It is recommended that local asthma coalitions and other community-based organizations:

- X Continue to provide leadership in local partnerships and collaborations, program development and evaluation, advocacy, and resource referral for programs, materials and services, and identification of experts;
- X Continue to develop new coalitions and linkages throughout Michigan and increase the number of counties associated with asthma coalitions;
- X Continue to convene coalition representatives annually for a Michigan Summit of Asthma Coalitions; and
- X Work in partnership with MDCH and other community-based organizations to implement and evaluate activities and priorities related to MASPI recommendations.

Asthma Communication Network

Recommendation 3

It is recommended that the asthma community build on existing communication networks.

A committee should be convened to provide ongoing assistance and oversight in the expansion of existing asthma communication networks. Among the components of this expanded network could be a centralized repository, a web site, and an asthma information line that could:

- X Catalogue and disseminate public awareness and educational materials, including tools to

- evaluate the quality and cultural and age appropriateness of these materials;
- X Provide linkages among coalitions, professional organizations, community-based organizations, and state and federal agencies;
- X Promote standards and functional guidelines for evidence-based practice, standardized forms, and tools to educate persons with asthma and encourage self-management;
- X Maintain links to MDCH's aggregate surveillance and epidemiological data on morbidity and mortality of asthma in Michigan, complete with information on how to collect, analyze, use and interpret the data;
- X Disseminate a Michigan asthma basics fact packet; an asthma planning kit;
- X Disseminate information and assessment tools on indoor and outdoor air quality and occupational asthma materials;
- X Provide links to existing real-time outdoor air conditions and ozone action information on EPA'S and MDEQ'S web sites; and
- X Maintain a calendar and bulletin board for members of the public and health care professionals highlighting opportunities regarding asthma-related referrals, events, resources, training, and conferences.

Asthma Data Needs

Recommendation 4

It is recommended that existing asthma data sources (mortality, hospitalization and prevalence) be improved with regards to comparability, completeness, accuracy, timeliness, accessibility, and usefulness.

- 4-a:** It is recommended that asthma mortality data be reviewed to identify preventable risk factors by:
 - Promoting linkages between county-based Childhood Death Review teams and local asthma experts to enhance investigations of asthma-related childhood fatalities, delivery of services, and subsequent community asthma control activities; and
 - Reviewing a sample of asthma-related deaths in adults to identify preventable risk factors.

- 4-b:** It is recommended that the usefulness of the asthma mortality data obtained from the Michigan Resident Death File be improved by analyzing data on occupational and industry codes for all adult asthma deaths.

- 4-c:** It is recommended that MDCH work with the Michigan Health and Hospital Association and academic research institutions in a voluntary effort to improve the quality of hospitalization data in order to facilitate better monitoring of trends in asthma morbidity, including accurate measures of differences among various racial and ethnic populations.

4-d: It is recommended that the usefulness of the Behavioral Risk Factor Surveillance System (BRFSS)³ be enhanced to provide both overall and regional estimates of the prevalence of asthma in Michigan. This would be accomplished by:

- Including the CDC’s asthma module in the Michigan BRFSS on an annual basis;
- Increasing the sample size surveyed by the BRFSS to allow for regional estimates of asthma prevalence in Michigan; and,
- Considering the collection of asthma prevalence information for children using the BRFSS.

4-e: It is recommended that MDCH and local public health agencies include questions about asthma prevalence in other surveys they conduct.

4-f: It is recommended that the usefulness of, and access to, asthma information derived from Medicaid data sources be enhanced by:

- X Developing a process with the Medical Services Administration (MSA) to utilize the information in the Encounter Database and Data Warehouse to study processes of care before and after hospitalization and emergency department visits, in a manner consistent with HIPPA regulations; and
- X Tracking the impact of asthma interventions within qualified health plans by including asthma in the MSA External Quality Review (EQR) audit on a regular basis.

Recommendation 5

It is recommended that additional data sources to monitor asthma morbidity and mortality be developed.

5-a: It is recommended that a voluntary mechanism for emergency department (ED) data collection be developed.

5-b: It is recommended that a voluntary surveillance system be developed to identify the number of school-aged children with diagnosed asthma and other respiratory symptoms and collect data on school absences. Additionally, it is recommended that an expert panel be convened to explore the feasibility, benefits, risks, and costs of a screening system capable of identifying uncontrolled and unrecognized asthma among school-aged children.

³ The Behavioral Risk Factor Surveillance System is a well-established means of making population-based estimates for a variety of health conditions (e.g., diabetes, hypertension, hypercholesterolemia), behaviors (e.g., cigarette smoking, physical activity), and preventive health practices (e.g., blood pressure and cholesterol checks). The annual Michigan Behavioral Risk Factor Survey (BRFS) is a representational statewide survey of Michigan adults conducted throughout each year. Survey questions focus on health screening practices and risk behaviors related to the leading causes of death, disability and chronic diseases. All results are weighted and can be interpreted as prevalence estimates for the adult population of Michigan.

Recommendation 6

It is recommended that access to asthma data, findings, and data collection instruments be improved.

- 6-a:** It is recommended that standardized data collection instruments be identified or developed and used whenever possible to compare data at the local, state and national levels. It also is recommended that standardized questionnaires and data collection instruments, such as questionnaires for prevalence survey and health-related quality of life, be included on a centralized web site.

- 6-b:** It is recommended that regular reporting regarding the status of asthma morbidity and mortality in Michigan be developed. Whenever possible the data should be presented at the smallest geographical area that is statistically valid.

- 6-c:** It is recommended that steps be taken to ensure that both the health care community and private citizens have access to timely, accurate and complete information on asthma in Michigan, as well as information regarding how to interpret that information.

Section Two:

Training For Clinical Diagnosis, Disease Management, and Education Services

Asthma is a complex disease characterized by various triggers, gradations of severity, and multiple treatment options. In spite of significant scientific advances in the understanding of the underlying mechanisms of asthma, development and availability of more pharmaco-therapeutic options, and dissemination of consensus guidelines for the diagnosis and management of the disease (NHLBI 1997, AAAAI 1999, NHLBI/WHO 1995), asthma remains one of the most common chronic conditions in Michigan.

Due to the complexity of the disease, health care providers must be well equipped with the knowledge and skills to accurately diagnose, treat, and educate their patients on how to manage their condition. Failure to adopt and implement evidence-based medicine may result in the treatment of symptoms rather than the practice of objective medicine. Under-treatment and inappropriate therapy are cited by the NHLBI as major contributors to asthma morbidity and mortality (NHLBI 1997), further justifying the need to ensure health professionals are using consistent practice in these areas.

Health care professionals receive training in asthma diagnosis, management, and patient education while in school and are encouraged to stay abreast of the latest developments through continuing educational opportunities. Professional knowledge and continuing education ensures that best practices are well integrated into the asthma care and education provided by health care professionals. Unfortunately, several barriers exist to health care professionals obtaining the information and training they need.

There is a lack of time and resources for health care professionals to participate in educational opportunities and to easily access the most recent evidence-based medicine summarizing successful disease management programs. In addition, educating a wide variety of health professionals in diverse settings (e.g., private practice, clinics, urban and rural settings) poses a major challenge to the educational community.

Furthermore, misperceptions about the importance of adopting and implementing evidence-based medicine due to the belief that many asthma guidelines are too complex to apply to routine medical practice may bar providers from participating in educational programs (Doerschug et al. 1999; Jin and Choi 1999; Legoretta et al. 1998). Well designed, comprehensive, and easily accessible learning opportunities and informational resources are needed to overcome these barriers and ensure health care professionals are delivering the highest quality asthma care to their patients.

A central component of routine asthma care is patient education, which should begin at the time of diagnosis and be integrated into every step of clinical asthma care. Consensus guidelines specify that education should be provided by all members of the health care team, with the

principal clinician introducing key educational messages and other members of the health care team reinforcing and expanding these messages. This requires that all parties be versed in the basic components and principles of patient-centered asthma education.

In addition to education delivered by clinicians, asthma patients may benefit from formally evaluated education programs or classes taught by asthma educators who are knowledgeable about asthma and experienced in patient education. With any education plan, communication among asthma educators, clinicians, and the person with asthma and their family and caregivers is critical.

Due to the importance of patient education in asthma treatment and control, it is imperative that individuals providing asthma education services possess core competencies and adequate qualifications to ensure appropriate educational interventions for persons with asthma and their families.

Recommendation 7

It is recommended that an ad hoc work group be formed to improve the consistency in the diagnosis and treatment of asthma. Among the considerations for improving consistency are to:

- § Identify functional guidelines, develop strategies to assess the various guideline formats, and recommend dissemination methods;
- § Promote the importance of incorporating the most current standard of appropriate pediatric and adult pulmonary measurement in diagnostic activities;
- § Support coordination of regionally-based networks to promote a broad range of education activities, materials, and multi-media presentations, utilizing existing organizations;
- § Work with local asthma coalitions in developing expert speaker lists for their communities and locally-based specialty services; and
- § Identify resources and partnerships to sponsor regional meetings to enhance professional education.
- § Explore the use of surveillance data in targeting patient and professional educational activity.

Recommendation 8

It is recommended that an Asthma Provider Tool Kit be developed, updated yearly, and distributed to appropriate primary and specialty care providers in order to increase the information available to health care professionals and persons with asthma regarding local, state and federal resources. At a minimum, the kit will contain:

- § Asthma education materials (e.g., current evidence, practices and guidelines) for professionals, patients and their families, and the public;
- § Information for professionals and families regarding how to utilize benefits;
- § Internet addresses for asthma-related resources;
- § Posters for in-office use;
- § Information about asthma coalitions and other locally-based organizations;
- § Information about transportation resources;
- § Information about access to specialty care and consultative services;
- § List of care sites for extended hours;

- § List of organizations that provide interpreters;
- § Sources of information on culturally appropriate approaches to health care; and
- § Information about existing school-based and work site asthma programs.

Recommendation 9

It is recommended that professionals providing asthma education services possess core competencies and adequate qualifications to deliver asthma education program components within the appropriate provider scope of practice. This may be accomplished by:

- § Supporting the formal education and national certification of asthma educators to ensure that those delivering asthma education meet minimal qualifications;
- § Supporting professional organizations' efforts to develop professional asthma education programs that teach the basic tenets of patient education and components of asthma education services; and
- § Promoting educational programs and interventions across all care provider disciplines to help improve clinical knowledge, delivery and quality of asthma education services, and the patient-centered team management approach to asthma care.

Section Three:

Access to and Coordination of Health Care and Education Services

Persons with asthma require ready access to appropriate primary and specialty asthma care, education services, and necessary medications and devices for effective asthma management. In addition, effective asthma management calls for a multidisciplinary approach that requires careful coordination among providers to ensure consistent and comprehensive care.

Unfortunately, many people with asthma lack access to the care and educational services they need due to a variety of social and economic reasons. Others, who may have access to care, do not have available the coordination of services necessary to effectively control their asthma. Both access to and coordination of the full spectrum of asthma care services is essential to reducing asthma morbidity and mortality.

Access to Asthma Care

Access refers to the availability, accessibility, acceptability, and affordability of health care services and resources. A variety of factors may potentially bar patients with asthma from having access to the asthma care and educational support they need to manage their condition. Among these barriers are: 1) financial issues such as inadequate insurance coverage, reimbursement for health care and educational services, and lost work time, etc.; 2) cultural and language differences between patients and providers including education, communication, and perceptions of acceptability; 3) logistic issues such as transportation and child care; and 4) psychosocial issues impacting the patient and family, such as food, housing, employment, and family or neighborhood violence (Finkelstein et al. 1995, Crain et al. 1998; Clark et al. 1999; Evans et al. 1997; Mellins et al. 1997; Petersen et al. 1997; Leickly et al. 1998; Lozano et al. 1995). Structures are needed within our insurance, health care, public health, and social service systems to address these barriers and ensure children, adolescents, and adults with asthma have access to affordable and appropriate care.

Coordinated Care Strategies for Persons with Asthma

Coordination refers to the integration of all aspects of asthma management (e.g., physician visits, medications, asthma education, trigger abatement, etc.) into routine care. Effective asthma control is directly related to how well people with asthma, their caregivers, and members of their health care team communicate their understanding of the disease and coordinate its management. Unfortunately, clear communication among patients, providers, and care sites (i.e., emergency department, inpatient, urgent care, primary care, specialist, pharmacy, etc.) is often restricted due to a lack of resources and standardized protocols for asthma care and education. Thus, there is a need for a uniform format of asthma management plans and for systems of communication between care sites that would facilitate the sharing of information for referrals and management of care among health care professionals and educators, caregivers, and persons with asthma. This care plan should be developed and implemented collaboratively by the medical community,

asthma educators, persons with asthma, their caregivers, and school, day-care, or work site personnel when appropriate. In addition, resources, such as care-management database systems, should be studied and put into place to enable providers to systematically communicate information and better coordinate treatment among care sites.

Patient Education Programs and Materials

To understand their disease and all its implications, and to learn how to self-manage their asthma, persons with asthma must have accessible, quality, culturally and age-appropriate educational resources available to them. In addition, these resources must be consistent and coordinated with the health care services patients receive. Integrating educational activities into asthma management plans is an important step; however, there must also be some way for providers and educators to assess the quality and appropriateness of educational resources available to their patients.

While a plethora of self-management educational programs and materials for persons with asthma and their families have been developed and disseminated widely, there are no standards for differentiating the quality of these programs and materials; their ability to communicate and reinforce essential information for effective asthma management; or their cultural and age appropriateness. Moreover, gaps still exist in the design and delivery of asthma education programs and materials. Many programs are aimed at children age six and over and their parents, while programs for parents of preschool-age children, adolescents, adults (particularly senior citizens), members of various racial and ethnic groups, and those with special needs (e.g., low-literacy, persons with disabilities, etc.) are less numerous.

The lack of evaluation standards and appropriately tailored patient education programs and materials are critical roadblocks to ensuring access to and coordination of asthma education. Without evaluation standards and appropriate educational resources, persons with asthma may not be able to obtain the educational services most suitable to their needs. In addition, those delivering educational services run the risk of utilizing programs and materials that are ineffective.

Access to Asthma Care

Recommendation 10

It is recommended that the MDCH Asthma Advisory Committee (see Recommendation 1-a) consider convening an ad hoc financial work group to gather existing information on the cost-benefit and cost-effectiveness of several asthma management strategies. Among the topics to be explored are:

- X the current picture of insurance coverages for adults and children with asthma, including the availability of asthma medications and devices; follow-up visits; and asthma education services; and
- X the current picture of the availability of housing repairs and housing option services; and value-added tools and support (e.g., smoking cessation tools and programs).

The information gained by the ad hoc financial work group will be shared with health plans, insurers, and other interested parties. The resultant information will be made available for voluntary utilization by any interested parties.

Recommendation 11

It is recommended that improvements for access to culturally acceptable diagnosis, treatment and education services be investigated in an effort to eliminate regional, racial, ethnic, and socio-economic disparities in asthma morbidity and mortality. Among considerations for improving culturally acceptable health care are to:

- X Evaluate and recommend cultural diversity appropriate materials for in-service training classes.
- X Identify knowledgeable and culturally sensitive health care professionals and para-professionals as resources to improve competencies of others treating people of differing cultural heritage.
- X Encourage professional health care provider schools to provide cultural awareness and sensitivity in-service training.

Recommendation 12

It is recommended that access to primary and specialty care services, education for asthma control, and other services necessary to achieve and maintain optimal asthma control be assured to persons with asthma. Among considerations for improving access to care are to:

- X Encourage providers to adjust office hours to make them more compatible with the schedules of children and working families.
- X Provide primary care physicians with contact information for asthma specialists who are available for consultations.
- X Encourage dissemination and utilization of universal referral forms to promote access to asthma specialists.
- X Disseminate information regarding the availability of asthma medications and devices.
- X Disseminate information about asthma education programs and resources.

Coordinated Care Strategies for Persons with Asthma

Recommendation 13

It is recommended that multidisciplinary coordinating strategies to improve effective asthma management be developed, including complementary integrated education and support services. Among these strategies are to:

- X Identify, recommend and promote utilization and standardization of existing asthma management plans;
- X Ensure that asthma management plans address the continuum of asthma care, including patient education and environmental interventions and abatement;
- X Identify, recommend and promote utilization of care-management database systems;
- X Identify and review existing models for implementing multidisciplinary approaches to asthma care, including training modules for multidisciplinary care teams;

- X Create a collaborative process for persons with asthma, their caregivers, and providers of medical care and educational services to develop the asthma management plan;
- X Encourage persons with asthma to share components of the care plan with health care providers, day care, schools, work sites, and other settings as needed;
- X Encourage adherence of persons with asthma and their providers to primary care follow-up by emphasizing the importance of self-management and providing medical and nursing notes with the emergency department discharge abstract;
- X Examine existing systems of communication and coordination among provider sites, identify ways to incorporate a tracking system to improve communication, and encourage utilization of care management database systems to ensure coordination of treatment plans; and
- X Promote awareness of existing multidisciplinary care management programs that provide coordinated asthma care and educational services.⁴

Patient Education Programs and Materials

Recommendation 14

It is recommended that asthma education efforts be improved by adapting existing programs and materials (and developing new programs and materials as necessary) to be:

- § Consistent with accepted guidelines and standards (such as those of the National Asthma Education and Prevention Program of the NHLBI);
- § Informative of expectations and goals of management at various levels of asthma severity;
- § Tailored to specific target populations (e.g., pediatric, adolescent, adult, and geriatric);
- § Applicable to a variety of educational settings (e.g., communities, day-care, schools, clinics/doctor's offices, and work sites); and
- § Attentive to the specific needs of a diverse population (e.g., multicultural, multilingual, low-literacy, and persons with disabilities).

An ad hoc work group should be formed to identify, review and recommend evaluation tools designed to assess the quality and appropriateness of asthma education programs and materials. Recommended evaluation tools, evaluated programs and materials, and technical assistance to those adapting or developing asthma education programs and materials should be made accessible through the Asthma Communication Network.

⁴ Examples of such programs in Michigan include: Hurley Medical Center's Asthma Clinic Study, Flint; Pediatric Asthma Case Management Program, Grand Rapids; St. Joseph Mercy Hospital Disease Management Plan for Pediatric Asthma, Ann Arbor; Michigan State University/Sparrow Pediatric/Adolescent Partners in Asthma Care Education program; and The Asthma Center Program, St. John Hospital and Medical Center, Detroit.

Section Four: **Environmental Action**

Asthma exacerbations can be triggered by environmental allergens and irritants found in both indoor and outdoor environments (e.g., dust, cockroaches, pet dander, smoke, and some chemicals). Persons with asthma should attempt to avoid exposure to these allergens in order to control their disease. Unfortunately, allergen avoidance is not always an individual level activity, but can require more extensive approaches in order to monitor the presence of triggers, understand their impact, and develop effective interventions.

Indoor Environments

In the last several years, a growing body of scientific evidence has shown that the air within homes and buildings can be more seriously polluted than outdoor air in even the largest and most industrialized cities. A recent report by the Institute of Medicine (IOM 2000) cites strong evidence that biological and chemical exposures found in indoor environments can exacerbate or even cause asthma.⁵ The present challenge for health care professionals is to incorporate an assessment of the specific causes or triggers that may be present in an individual's environment into their standards of care and treatment of persons with asthma.

In February 1995, the U.S. Government Accounting Office reported that more than half of the nation's schools had problems that affected indoor air quality. Some of the most significant environmental asthma triggers in the educational setting include cockroach allergen, mold, and fungi. Anecdotal evidence also implicates pesticides, plasticizers, and other volatile organic compounds (VOCs) found in art and cleaning supplies as asthma triggers. Moreover, schools often have old or poorly maintained heating and ventilation systems, including a lack of moisture control.

Environmental Tobacco Smoke

The Centers for Disease Control and Prevention (CDC) estimates that approximately 716,000 children in Michigan are exposed to ETS in the home. Furthermore, when considering households with an adult smoker and children, 91.2 percent allowed smoking in some or all areas of the home. Children exposed to ETS are at a greater risk of upper and lower respiratory tract infections and for the development of asthma. ETS exposure also triggers asthma attacks and increases the severity of asthma in children.

Occupational Asthma

Occupational asthma is now the most common work-related respiratory illness in the United States and continues to be a major occupational illness in Michigan. Approximately 150 new

⁵ The IOM Committee concluded that exposure to allergens from cats, cockroaches, dust mites, and dogs; fungi and mold resulting from damp conditions; high indoor levels of oxides of nitrogen (Nox); environmental tobacco smoke (ETS); and common colds could exacerbate asthma in sensitive individuals. Furthermore, the Committee reported that house dust mite allergen exposure may cause the development of asthma, and exposure to ETS may be associated with the development of asthma in preschool children.

cases of workers with asthma caused by exposure(s) at work are reported annually to the Michigan Department of Consumer and Industry Services (MDCIS). It is believed that these reported cases represent only a small fraction of the actual disease burden.⁶ Although the Michigan Occupational Safety and Health Act (MIOSHA) Hazard Communication Standard requires that workplace hazards must be covered by the training that most Michigan workers receive, asthma caused by occupational allergens may not be adequately addressed because of the complexities of the exposures and the disease. In addition, many small- and medium-sized employers lack the in-house expertise to identify and control occupational allergens. Failure to correctly diagnose occupational asthma early and provide remediation is likely to result in serious adverse effects on the health of the worker and increased medical costs for the employer.

Outdoor Environments

Outdoor air quality also is important when considering asthma. Exposure to high levels of ground-level ozone can result in airway inflammation that may trigger asthma exacerbations. Outreach actions currently in place are designed to prevent or reduce the formation of excessive seasonal ozone and to disseminate education information to the public. However, some important activities have not yet been incorporated in the current outreach initiatives and the programs are not sufficient to reach all the individuals who are potentially impacted by high ozone levels.

Certain criteria air pollutants are also potentially associated with asthma exacerbation such as oxides of nitrogen, particulate matter, and sulfur dioxide. In addition, hazardous air pollutants (HAPs) or toxic air contaminants (TACs) including maleic anhydride, nickel, cobalt, and certain pesticides, are associated with asthma exacerbations in occupational settings. However, more information is needed to understand the relationship between these pollutants and asthma exacerbations in ambient air. Therefore, enhancement of current air monitoring is needed to track pollutant levels and to analyze associations with health outcomes, especially in areas of high asthma prevalence.

Indoor Environments

Recommendation 15

It is recommended that pertinent IAQ information be disseminated to appropriate people and that they are encouraged to employ appropriate measures to assess indoor contaminants that can cause or exacerbate asthma symptoms. This may be accomplished by:

- ✕ Providing programs to educate renters, homeowners, and homebuyers in the identification of indoor air contaminants and the indicators of indoor air contamination.
- X Identifying and making available voluntary IAQ assessment training programs for private and governmental building inspectors, building managers, and local public health officials.

⁶ Data collected under the federally funded SENSOR Project indicate that the leading responsible allergens in Michigan are isocyanates (19.1 percent of cases) and metalworking fluids (12.2 percent of cases). Other allergens contributing more than 2 percent of reported cases included exhaust/smoke/fumes, welding fumes, formaldehyde, epoxy, acrylates, solvents, chlorine, styrene, latex, and cobalt.

- X Developing voluntary partnerships with the Department of Housing and Urban Development, the Federal Housing Administration, and interested local public health departments to train building inspectors on best practices for the identification of potential indoor asthma triggers and adequate solutions.
- X Identifying existing indoor air assessment tools and making them available to interested local health departments, local asthma coalitions, property owners, building operators, and renters. If necessary, develop new assessment tools and make them available.
- X Developing and making a standard indoor air quality inspection form available. This will enable professionals at state and local government levels, as well as private sector professionals, to collect consistent data and to ensure all essential factors are considered.
- X Fostering additional research initiatives needed to determine whether causal relationships exist between asthma and other suspect indoor triggers listed in the IOM study.

Recommendation 16

It is recommended that the implementation of indoor air quality assessment in Michigan's public and private schools be encouraged.

16-a: It is recommended that the effectiveness of indoor air quality evaluation and abatement programs be assessed in several interested school districts. If IAQ assessment is demonstrated to be effective, then disseminate the best practice information to other interested schools.

16-b: It is recommended that IAQ information be provided to interested schools to improve IAQ and to create healthier environments.

Environmental Tobacco Smoke

Recommendation 17

It is recommended that MDCH continue to educate persons with asthma, parents, professionals, and the public about the potential contributions of environmental tobacco smoke (ETS) exposure to asthma. This will include the following tasks:

- X Educate parents and their children about the consequences of exposure to ETS.
- X Reduce the exposure of children with asthma to ETS, especially in the home environment.
- X Distribute appropriate information to physicians, nurses, pediatricians, allergists, emergency departments, and other appropriate health care providers.
- X Explore with MDCH's Health Promotions and Publication Division the available options for informing these target segments about the risks of ETS.

Recommendation 18

It is recommended that effective smoking cessation programs be identified and promoted more aggressively to parents, other adults, and students to help reduce the exposure of children to ETS. This will include the following tasks:

- § Identify effective existing programs that reduce the exposure of children to secondhand

smoke by helping parents and students quit smoking and establish smoke-free homes.⁷ If necessary, develop and disseminate new intervention programs.

- § Enlist the help of local asthma and tobacco coalitions to disseminate information on existing or new smoking cessation programs.

Occupational Asthma

Recommendation 19

It is recommended that workplace asthma education efforts be enhanced in the following areas:

- X Review workplace standards to determine whether they are adequate for protection from the development of work-related asthma and exacerbations of existing asthma.
- X Encourage MDCIS to develop appropriate educational materials concerning occupational asthma through its existing education and training programs. Encourage MDCIS to offer targeted assistance programs to employers wishing to identify and control exposures to occupational allergens.
- X Disseminate occupational asthma education materials to Michigan employers and workers through employers' associations of at-risk manufacturing and service industries through newsletters and organizational meetings.
- X Distribute educational materials to Michigan physicians through the MDCIS Sentinel Events Notification System for Occupational Risks Event (SENSOR) grant, and continuing education opportunities through professional organizations, medical schools, and hospitals.
- X Tap coalitions and other partners to promote the implementation of workplace asthma education and treatment programs.
- X Provide in-service training regarding the recognition and control of common exposures associated with occupational asthma in Michigan to MDCIS personnel who may inspect, assist or otherwise interact with targeted employers and workers.

Outdoor Environments

Recommendation 20

It is recommended that the effectiveness of current Ozone Action and state regulatory programs be improved as resources become available in the following areas:

- X Encourage every feasible effort to implement current and new programs to stimulate significant emission reductions of ozone-forming compounds (including oxides of

⁷ Examples of effective programs include: 1) "Secondhand Smoke and Children: Conducting Public Outreach Programs", an American Lung Association manual for conducting local ETS outreach projects; 2) the Daycare Module, a training module that trains daycare providers how to educate parents about the health effects of ETS and motivate them to make their homes smoke-free; 3) the American Academy of Pediatrics Speaker Kit, which pediatricians can use to educate parents of young children about the risks ETS and other indoor air pollutants pose to the health of their families; 4) the Smoke-Free Homes Kit for parents who have committed to making their homes smoke-free, which includes information about the health effects of ETS, as well as window decals, pledge cards, videos, etc.; 5) the Community Action Kit, which is designed to help community leaders speak about the health effects of ETS and what parents can do to protect their children from those risks; and 6) the Michigan Model for Comprehensive School Health Education Curriculum which includes lessons and activities for students to do with parents or other caring adults about the risks of smoking and ETS. In addition, MDCH is funding a project through the American Cancer Society Foundation to educate parents and parent groups through presentations and to assist them in raising children that are tobacco-free and protected from the health risks of ETS.

- nitrogen and volatile organic compounds).
- X Target high-risk and underserved populations of children for dissemination of Ozone Action information through local health department programs and potentially school health programs.
 - X Coordinate efforts between organizations involved in developing and promoting programs to ensure that Ozone Action outreach information is factual and contains the latest information.
 - X Develop, if necessary, and provide Ozone Action educational materials regarding personal actions for reducing excess seasonal ozone exposure to primary care providers treating persons with asthma.
 - X Encourage television and radio stations in high ozone regions to present real-time ozone data⁸ in their broadcasts, coupled with action steps individuals can take.
 - X Encourage the development and distribution of a lawn care tip card containing information on decreasing hydrocarbon emissions from motorized lawn care equipment⁹.
 - X Develop multi-lingual versions of vehicle care tips designed to decrease hydrocarbon emissions from vehicles⁹ to be distributed via community-based organizations.

Recommendation 21

It is recommended that the current MDEQ Michigan Air Sampling Network be expanded as resources become available in areas that contain people at high risk for the development and exacerbation of asthma (i.e., areas with elevated asthma rates). It also is recommended that current air monitor data be evaluated to determine possible associations with asthma-related health outcomes. Areas with elevated asthma rates¹⁰ will be identified by an epidemiology and surveillance work group to pursue the options for more precise identification of these areas in Michigan.

Recommendation 22

It is recommended that ambient air monitoring of HAPs/TACs be encouraged and data from air monitors be used to investigate potential contributions of HAPs/TACs to asthma.

8 (e.g., Air Quality Index data from the MDEQ's web page or data from the web page of the EPA's AIRNOW program (a near-real-time ozone forecasting program).

9 Hydrocarbon emissions from fuel and exhaust due to use of such equipment contributes to the development of ozone on hot and humid days.

10 Washtenaw County has identified small geographic regions with elevated asthma rates in Michigan (Waller, A., "Asthma Profile of Washtenaw County," presentation to Michigan Environmental Health Association, Feb. 26, 1998). The Michigan Center for the Environment and Children's Health reports elevations above national averages in overall asthma prevalence and in moderate to severe asthma prevalence among children surveyed in areas of Detroit (Community Action Against Asthma, 1999 Annual Report). Ten Michigan counties have been found to have asthma rates above the state rate (Wilcox and Hogan, 1996). Efforts are underway to examine the relationship between ambient air pollutant exposure and asthma prevalence in Michigan. However, specific epidemiological and surveillance efforts are needed to identify areas with elevated asthma rates.

Section Five: **Community Action**

Some aspects of asthma control require attention beyond the individual patient, their family, and health care provider. Successful efforts to control asthma rely on educating all sectors of the community and enlisting their help in the management of asthma among residents. Community members, organizations and leaders, working in partnership with other asthma stakeholders, can promote healthier lives for those with asthma and decrease the direct and indirect costs that asthma exacts on the community.

Schools

Schools, from day-care to post-secondary, have a significant role to play in the ongoing management of asthma. From September to June, children and personnel spend the majority of their day in the school environment, increasing the likelihood that an attack will occur at school. An asthma attack not only results in missed class time, but also can be very disruptive to the entire classroom. Instituting certain measures and programs in schools such as asthma care protocols, indoor air quality assessments, in-services for faculty and staff, and programs for students with asthma and their peers can create the support necessary for students with asthma to control their condition.

Public Awareness

General public awareness is the key to controlling asthma through public action to reduce the level of triggers inside and outside the home, workplace and school environments. It also can help to ensure that persons with asthma have the resources they need for their management efforts. With a basic understanding of the signs, symptoms, triggers, and management options for asthma, community members can help people with asthma receive adequate support for effective treatment and control. Targeted groups for public awareness efforts should include those in all facets of the community including caregivers, teachers, coaches, staff at daycare, adult care and senior centers, employers, co-workers, policy makers, health officials, social service agencies, and faith-based communities. Various forms of the media should be utilized to promote public awareness about asthma.

Schools

Recommendation 23

It is recommended that MDCH convene an ad hoc school work group to build partnerships, consensus and momentum around evidence-based priority strategies for implementation of the MASPI school-based recommendations. It will address the availability of the following for interested schools:

- X Indoor-air quality and occupational assessment tools and follow-up;

- X The use of an asthma management plan model in school settings (e.g., day-care, elementary, high, and post-secondary schools);
- X Educational programs for students with asthma, their classmates, and staff; and,
- X Systems to measure the prevalence of asthma and absences due to asthma, the impact of educational, care management, and indoor air quality programs to reduce asthma's impact on students.

Public Awareness

Recommendation 24

It is recommended that, as resources become available, a statewide public awareness strategy be developed and implemented to increase public understanding of asthma throughout Michigan communities. This public awareness strategy should include:

- X A statewide asthma media campaign with public service announcements (PSAs), television and radio spots, billboards, Internet messages, and newspaper coverage that provide simple messages and consistent information. Messages should be culturally and linguistically tailored to specific racial, ethnic, age, and socio-economic groups.
- X Promotion and dissemination of media messages and materials through local asthma coalitions and other community organizations.
- X Promotion and support of asthma education initiatives for those outside the traditional health care provider network who have regular contact with persons with asthma.
- X Dissemination of asthma information through various work site and community venues, including union meetings and newsletters, state allied health professionals newsletters, health plan publications, state agencies, pharmacies, asthma coalitions, Allies Against Asthma initiatives, and community-based organizations and businesses (e.g., churches, retail shops, social service agencies, and voluntary agencies).

References:

- Abt Associates Inc. *Out of Breath--Health Effects from Ozone in the Eastern United States Report*. Bethesda, MD: October 1999.
- American Academy of Allergy, Asthma & Immunology. *Guidelines for the Diagnosis and Management of Asthma*. Published with an educational grant from Zeneca Pharmaceuticals, 1999.
- American Academy of Pediatrics. "Ambient Air Pollution: Respiratory Hazards to Children." *Pediatr.* 91:1210-1213, 1993.
- American Lung Association. *Breathless: Air Pollution and Hospital Admissions/Emergency Room Visits in 13 Cities*. Washington, DC: June 1996.
- American Lung Association. *Lung Disease Data 1998-99*. New York.
- American Lung Association. *The Value of Clean Air-- A Survey of Economic Benefit Studies from 1990-1996*. New York: 1997.
- Bates, D.V. "The Effects of Air Pollution on Children." *Environ Health Perspect.* 103:49-53, 1995.
- Bates, D.V. "Observations on Asthma." *Environ Health Perspect.* 103:243-247, 1995.
- Bates, D.V., Sizto, R. "Relationship Between Air Pollution Levels and Hospital Admissions in Southern Ontario." *Can J Public Health.* 74:117-122, 1983.
- Bates, D.V., Sizto, R. "Air Pollution and Hospital Admissions in Southern Ontario: The Acid Summer Haze Effect." *Environ Res.* 43:317-331, 1987.
- Beveridge, R.C., Stieb, D.M., Rowe, B.H., Walter, S.D., Judek, S. "Assessing Diagnostic Classification in an Emergency Department: Implications for Daily Time Series Studies of Air Pollution." *Am J Public Health.* 148:666-670, 1998.
- Boushey, H.A., Fahy, J.V. "Basic Mechanisms of Asthma." *Environ Health Perspect.* 103:229-233, 1995.
- Burnett, R.T., Dales, R.E., Raizenne, M.E., Krewski, D., Summers, P.W., et al. "Effects of Low Ambient Levels of Ozone and Sulfates on the Frequency of Respiratory Admissions to Ontario Hospitals." *Environ Res.* 65:172-194, 1994.
- Clark, N.M., Brown, R.W., Parker, et al. "Childhood Asthma." *Environ Health Perspect.* 107:421-429, 1999.
- Clean Air Network & U.S. Public Interest Group Education Fund. *Danger in the Air--Unhealthy*

- Smog Days in 1999*. Washington, DC: January 2000.
- Cody, R.P., Weisel, C.P., Birnbaum, G., Lioy, P.J. “The Effect of Ozone Associated with Summertime Photochemical Smog and the Frequency of Asthma Visits to Hospital Emergency Departments.” *Environ Res.* 58:184-194, 1992.
- Collins, S., Beilby, J., Fardy, J., et al. “The National Asthma Audit.” *Aust Fam Physician.* 10:907-9.
- Crain, E.F., Kerckmar, C., Weiss, K., et al. “Reported Difficulties in Access to Quality Care for Children with Asthma in the Inner City.” *Arch Pediatr Adolesc Med.* 152:333-339, 1998.
- Doerschug, K.C., Peterson, M.W., Dayton, C.S., et al. “Asthma Guidelines.” *Am J Respir Crit Care Med.* 159:1735-1741, 1999.
- Eid, N., Yandell, B., Howell, L., et al. “Can Peak Expiratory Flow Predict Airflow Obstruction in Children With Asthma?” *Pediatr.* 105(2):354-358, February 2000.
- Evans, D., Mellins, R., Lobach, K., et al. “Improving Care for Minority Children with Asthma: Professional Education in Public Health Clinics.” *Pediatr.* 99(2):157-164, February 1997.
- Finkelstein, J.A., Brown, R.W., Schneider, L.C., et al. “Quality of Care for Preschool Children With Asthma: The Role of Social Factors and Practice Setting.” *Pediatr.* 95(3):389-394, March 1, 1995.
- Heindorf, M.A., Air Quality Monitoring Unit, Michigan Department of Environmental Quality. Personal communication, Feb. 24, 2000.
- Institute of Medicine, Division of Health Promotion and Disease Prevention, Committee on the Assessment of Asthma and Indoor Air. *Clearing the Air: Asthma and Indoor Air Exposures*. Washington, DC: National Academy Press, 2000.
- Jin, R.L., Choi, B.C. “The 1996 and 1997 National Survey of Physician Asthma Management Practices: Background and Study Methodology.” *Can Respir J.* 3:2669-2672, 1999.
- Koren, H.S. “Associations Between Criteria Air Pollutants and Asthma.” *Environ Health Perspect.* 103:235-242, 1995.
- Krzyzanowski, M. “Methods for Assessing the Extent of Exposure and Effects of Air Pollution.” *Occup Environ Med.* 54:145-151, 1997.
- Legorreta, A.P., Christian-Herman, J., O’Connor, R.D., et al. “Compliance with National Asthma Management Guidelines and Specialty Care.” *Arch Inter Med.* 158:45764, 1998.

- Leickly, F.E., Wade, S.L., Crain, E., et al. "Self-Reported Adherence, Management Behavior, and Barriers to Care After an Emergency Department Visit by Inner City Children with Asthma." *Pediatr.* 101(5):e8, May 1998.
- Lioy, P.J., Vollmuth, T.A., Lippmann, M. "Persistence of Peak Flow Decrement in Children Following Ozone Exposures Exceeding the National Ambient Air Quality Standard." *Journal of Air Pollut Control Assn.* 35:1069-1071, 1985.
- Lozano, P., Connell, F.A., Koepsell, T.D. "Use of Health Services by African-American Children with Asthma on Medicaid." *JAMA.* 274(6):469, 1995.
- Meng, Y.Y., Leung, K.M., Berkbigler, D., et al. "Compliance with U.S. Asthma Management Guidelines and Specialty Care: A Regional Variation or National Concern?" *J Eval Clin Pract.* 2:213-221, 1999.
- Michigan Department of Environmental Quality. *1997 Air Quality Report.* Lansing: MI.
- National Heart, Lung and Blood Institute. *Data Fact Sheet: Asthma Statistics.* Bethesda, MD: National Institutes of Health, Public Health Service, January 1999.
- National Heart, Lung and Blood Institute. *National Asthma Education and Prevention Program Expert Panel Report 2: Guidelines for the Diagnosis and Management of Asthma.* Bethesda, MD: Department of Health and Human Services, National Institutes of Health, Public Health Service, Pub. No. 97-4051, July 1997, pp.123-137.
- National Heart, Lung, and Blood Institute and World Health Organization. *Global Initiative for Asthma.* National Institutes of Health pub no 95-3659. Bethesda, MD. 1995.
- Ontario Medical Association. "Health Effects of Ground-Level Ozone, Acid Aerosols and Particulate Matter." Toronto: Ontario Medical Association Position Paper, May 1998.
- Peterson, J.W., Sterling, Y.M., Weekes, D.P. "Access to Health Care: Perspectives of African-American Families with Chronically Ill Children." *Fam Comm Health.* 19:64(12), 1997.
- Romieu, I., Meneses, F., Sienna-Monge, J.J., Huerta, J., Ruiz Velasco, S., et al. "Effects of Urban Air Pollutants on Emergency Visits for Childhood Asthma in Mexico City." *Am J Epidemiol.* 141:546-553, March 15, 1995.
- Smith, D.H., Malone, D., Lawson, K. "A National Estimate of the Economic Costs of Asthma." *Am J Respir Crit Care Med.* 156:787-793, 1997.
- Steenland, K., Savitz, D. *Topics in Environmental Epidemiology.* New York, Oxford: Oxford University Press, 1997.
- Steib, D.M., Burnett, R.T., Beveridge, R.C., Brook, J.R. "Association Between Ozone and Asthma Emergency Department Visits in Saint John, New Brunswick, Canada." *Environ*

- Health Perspect.* 104:1354-1360, 1996.
- Sullivan, S, Elixhauser, A., Buist, A. “National Asthma Education and Prevention Program Working Group Report on the Cost Effectiveness of Asthma Care.” *Am J Respir Crit Care Med.* 154:S84-S95, 1996.
- Sunyer, J., Spix, C., Quenel, P., Ponce-de-Leon, A., Ponka, A., et al. “Urban Air Pollution and Emergency Admissions for Asthma in Four European Cities: The APHEA Project.” *Thorax.* 52:760-765, 1997.
- Ungar, W.J., Coyte, P.C., et al. “Measuring Productivity Loss Days in Asthma Patients.” *Health Econ.* 9:37-46, 2000.
- U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion. “Respiratory Diseases.” *Healthy People 2010 (Conference Edition).* Vol. II: 24/1-24/27, January 2000.
- Waller, A. “Asthma Profile of Washtenaw County.” Presentation to Michigan Environmental Health Association, Feb. 26, 1998.
- Washtenaw County Asthma Surveillance Team. *Asthma Profile of Washtenaw County.* Washtenaw County Health Services Group: Ann Arbor, MI. October, 1997.
- White, M.C., Etzel, R.A., Wilcox, W.D., Lloyd, C. “Exacerbations of Childhood Asthma and Ozone Pollution in Atlanta.” *Env Res.* 65:56-68, 1994.
- Wilcox, K.R., Hogan, J. *An Analysis of Childhood Asthma Hospitalizations and Deaths in Michigan, 1989-1993.* Lansing, MI: Michigan Department of Community Health, 1994.
- Wilson, R., Spengler, J. *Particles in Our Air.* Boston: Harvard University Press, 1996

Appendices

Appendix A:
Asthma Overview

Asthma in the United States

Throughout the last two decades, the prevalence of asthma among all age, gender, and racial groups in the United States has continued to increase. The overall age-adjusted prevalence of asthma rose 75 percent between 1980 and 1994 (from 30.7 cases per 1,000 population in 1980 to a two-year average of 53.8 per 1,000 in 1993-1994).¹ The Centers for Disease Control & Prevention estimates that, by 1998, asthma was a reality of life for 17.8 million people in the United States.²

During 1995, asthma was the cause of more than 1.5 million emergency department visits and approximately 500,000 hospitalizations in the United States.³ It is estimated that asthma is responsible for 134 million days of restricted activity a year.⁴ Experts estimate that, by the end of 2000, asthma will cost our country about \$14.5 billion a year in direct medical expenses (e.g., hospitalization, physician and nursing care, and medication) and indirect expenses (e.g., lost workdays due to illness and lost lifetime earnings due to early death from asthma.)^{1,5}

Obviously, asthma exacts a huge toll. Like most chronic conditions, it weighs more heavily on some groups than others. Asthma disproportionately affects blacks and other minority populations, persons with a relatively low-income level, and children (particularly those under the age of five). Research shows that individuals who are part of these populations experience substantially higher rates of asthma-related hospital admissions, emergency department visits, and death.¹

An estimated 4.4 million children in the United States have been diagnosed with asthma. In every classroom with 30 children, there are likely to be at least two with asthma. It is startling to point out that our nation's children lose more than 10 million school days to asthma each year, making asthma one of the leading causes of school absenteeism.¹ Although many people mistakenly consider asthma as "no big deal," it is in fact a profound health problem that can be deadly if not treated appropriately, a fact that is underscored by data showing that more than 5,600 people in the United States died of asthma-related causes during 1995 alone.³

A number of environmental and occupational factors contribute to asthma-related illness and disability. Research has associated decreases in lung function and a worsening of asthma symptoms with exposure to allergens (e.g., pollen, molds, strong perfumes), indoor air pollutants (e.g., tobacco smoke, cat dander), and outdoor ambient air pollutants (e.g., ozone, sulfur dioxide, nitrogen dioxide, acid aerosols, and particulate matter). It is estimated that 25 percent of U.S. children live in areas that exceed the federal government's standard for ozone, and that occupational factors cause or trigger asthma episodes in 5 percent to 30 percent of adults with disease.⁶ Asthma is the leading work-related lung disease in our country. In fact, recent evidence indicates that, in some regions, as much as 20 percent of adult-onset asthma may be work-related (i.e., due to conditions at the workplace).¹

Despite all that we know about asthma and its causes and triggers and the fact that asthma deaths should be completely preventable, much remains to be learned and communicated about the disease and asthma continues to cause illness and even death.

The age-adjusted rate of asthma-related mortality has increased fairly steadily over the past two decades, from 0.93 deaths per 100,000 population in 1979-1980 to 1.4 deaths per 100,000 in 1997. In 1997, the age-adjusted mortality rate among females was higher (1.6 deaths per 100,000 population) than the rate among males (1.2 deaths per 100,000). The age-adjusted mortality rate has been higher and has increased faster among black residents than it has among white residents. The 1997 asthma mortality rate among blacks was 3.5 deaths per 100,000 population; for whites, it was 1.1 deaths per 100,000.⁶ In fact, data show that black and Hispanic adults are from two to six times more likely than white adults to die from asthma.⁷ The racial disparity is even greater among children. From 1993 to 1995, black children were more than four times as likely to die from asthma as were white children.¹

Asthma in Michigan

Michigan's asthma data looks quite similar to that of the United States as a whole. In Michigan, asthma affects children to a greater extent than adults. It also affects boys more than girls, women more than men, and African-Americans and other minorities more than Caucasians.

Between 1990 and 1997, asthma resulted in an average of 10,854 hospitalizations each year for Michigan residents age one to 44 years old. Hospitalization rates vary dramatically by age, gender and race. Male children, adult women, and blacks experienced higher asthma-related hospitalization rates than other groups. The hospitalization rate for black Michigan residents was four times higher than the rate for white residents of the state (46.5 hospitalizations per 10,000 black residents versus 11.6 hospitalizations per 10,000 white residents). Asthma deaths in Michigan were relatively rare, with 47 deaths among children age one to 14 and 323 deaths among persons age 15 to 44 years old. However, the asthma mortality rate was four times higher in children 10 to 14 years of age than in younger children and five times higher among black children than among white children living in the state. Among adults, the asthma mortality rate was 1.6 times higher in women than in men, and more than six times higher in blacks than in whites.^{8,9}

References

1. U.S. Dept. of Health and Human Services. *Action Against Asthma: A Strategic Plan for the Dept. of Health and Human Services*. Washington, DC: U.S. Dept. of Health and Human Services, May 2000.
2. Rappaport, S., Boodram, B. AForecasted State-Specific Estimates of Self-Reported Asthma Prevalence B United States, 1998.@ *MMWR*. 47(47):1022-1025, Dec. 4, 1998.
3. National Heart, Lung and Blood Institute. *Data Fact Sheet: Asthma Statistics*. Bethesda, MD: National Institutes of Health, Public Health Service, January 1999.
4. National Center for Health Statistics. ACurrent Estimates from the National Health Interview Survey, 1990-1992.@ *Vital Health Stat*. Series 10(194), 1997.

5. Centers for Disease Control and Prevention. AAsthma Prevention Program of the National Center for Environmental Health, Centers for Disease Control and Prevention. At-A-Glance, 1999. Available at <http://www.cdc.gov/nceh/programs/asthma/ata glance/asthmaag2.htm>.
6. Hoyert, D.L., Kochanek, K.D., Murphy, S.L. ADeaths: Final Data for 1997. @ *National Vital Statistics Reports*. 47(19), June 30, 1999. Hyattsville, MD: Centers for Disease Control and Prevention, National Center for Health Statistics.
7. U.S. Dept. of Health and Human Services, Office of Disease Prevention and Health Promotion. ARespiratory Diseases. @ *Healthy People 2010 (Conference Edition)*. Vol. II: 24/1-24/27, January 2000. Available at <http://www.health.gov/healthypeople/Document/HTML/Volume2/24Respiratory.htm>
8. Lyon-Callo, S., Reeves, M.J., Wahl, R., Hogan, J.G. *Epidemiology of Asthma Fact Sheet*. Lansing: Michigan Dept. of Community Health, Bureau of Epidemiology, January 2000.
9. Reeves, M.J. AAsthma Surveillance in Michigan: Hospitalizations and Deaths Due to Asthma. @ Presentation at Michigan Asthma Strategic Planning Initiative Task Force meeting, Feb. 2, 2000.

Appendix B:
Michigan's Response to Asthma

The following descriptions are a sample of the asthma activities on-going in Michigan:

Michigan Department of Community Health (MDCH): With the assistance of a grant from the Centers for Disease Control and Prevention (CDC), staff in the Michigan Department of Community Health (MDCH) Division of Epidemiology Services (DES) are working to document the uses for asthma surveillance data and the need for new data sources. DES staff is working with local asthma coalitions to develop and evaluate new surveillance data sources, and to help establish school-based asthma education programs and policies. Their efforts will culminate in publication of a comprehensive report concerning the epidemiology of asthma in Michigan. Early in the grant project, MDCH convened the statewide *Michigan Asthma Steering Committee* (MASC) to advise the department on asthma surveillance, education and control. The expert membership of the MASC had four working subcommittees that served as the starting point for the development of the Michigan Asthma Strategic Planning Initiative.

MDCH also provides programs that address the problem of asthma. The Medical Services Administration provides health coverage for eligible persons with asthma and their families, including *Michigan Medicaid* health plans, *Children with Special Health Care Needs*, and the *MiChild* health plan. MSA regularly evaluates the quality of asthma care provided to its members through a yearly external quality review process and other activities. MDCH also maintains the *Smoking Around Children* web page (<http://www.mdch.state.mi.us/smoking>) featuring information about the dangers of smoking around children in the home and childcare settings, suggestions on what parents can do to protect their children, and information on free Quit Kits and other resources.

Michigan Department of Education (MDE): During 1999, MDE asked MDCH to develop recommendations addressing asthma in the school setting. MASC recommended that schools honor a parental request and doctor's instructions for a child to carry an inhaler and to self-medicate; encourage the use of asthma management plans; provide staff opportunities to learn asthma management and indoor air quality issues; and to pay special attention to the needs of children with exercise-induced asthma. Also in 1999, the Michigan House of Representatives passed legislation allowing children to carry and use their inhalers in school, with written permission from their parents and physician.

Michigan Department of Environmental Quality (MDEQ): MDEQ's Air Quality Division maintains a web page (<http://www.deq.state.mi.us/aqd>) that includes information about air quality programs and on-line advisories, rules and regulations, data (e.g., Ozone Action warnings), and links to other Ozone Action sites.

Michigan Department of Consumer and Industry Services (MDCIS): Since 1988, MDCIS has conducted a surveillance program for work-related asthma with financial assistance from the National Institute for Occupational Safety and Health. The goal of the surveillance program is to prevent work-related disease through the reporting of index patients. The reporting of the index

patient with work-related asthma is regarded as a sentinel health event that may lead to the identification of other employees from the same facility who are at risk of developing or who have developed similar breathing problems. Persons with work-related asthma are identified from physician and hospital reporting and from claims filed with the Bureau of Worker's Compensation. After the patient has been interviewed and the work-relatedness of their condition evaluated, an industrial hygiene investigation may be conducted at the patient's workplace.

Michigan Quality Improvement Consortium (MQIC): MQIC was formed to develop guidelines representing core management steps that apply to persons with chronic diseases. The consortium's membership consists of representatives from public health organizations, managed care organizations, medical societies, private insurers, and employer groups. In its development of asthma guidelines, MQIC collaborated with the Michigan Asthma Strategic Planning Initiative and its Clinical Care Subcommittee to maintain statewide consensus among the groups.

American Lung Association of Michigan (ALAM): ALAM offers the *Open Airways for Schools* program, an elementary-school education program that teaches children with asthma about the disease and its management. ALAM facilitates asthma-care partnerships involving school nurses and educational staff, health care providers, families of children with asthma, and ALAM volunteers. ALAM also offers a number of smoking prevention and control programs and acts as a public advocate for the control of air pollution (both indoors and out).

Coalition for Healthy Air in Michigan's Public and Private Schools (CHAMPPS): CHAMPPS is a statewide coalition of public, private and nonprofit organizations. Its efforts are focused on promoting the U.S. Environmental Protection Agency's Tools for Schools action kit; developing and presenting effective indoor air quality training and information; and assisting school districts in identifying and resolving specific indoor air quality problems.

Michigan's Local Asthma Coalitions: Michigan's community asthma coalitions bring public, private and nonprofit stakeholders together on a volunteer basis to work on a variety of asthma control and education efforts, including patient and professional asthma education, school-based interventions, asthma case management, and outdoor air quality monitoring. Among notable examples of Michigan asthma coalition activities are the following:

- < **Detroit Asthma Coalition (DAC):** DAC's activities include the development of a listing of patient education resources, a study of quality of asthma care in area emergency departments, and the development of a series of radio spots to raise public awareness about asthma.
- < **Childhood Asthma Task Force (CATF) of Genesee County:** CATF's work includes: conducting a Community Study of Asthma, including extensive case management activities and in-home assessments for children with asthma; link outdoor air pollutant measures to emergency room admissions through work with the county health department; and a number of public relations events.
- < **Pediatric Asthma Network of West Michigan (PANWM):** PANWM operates the Asthma Resource Center for Children, which offers an asthma information clearinghouse, a speaker's bureau, and patient case management and consultative services.

- < **Washtenaw Asthma Surveillance Team (WAST):** WAST developed the Asthma Profile of Washtenaw County, which includes asthma data on prevalence, primary care practice, emergency department utilization, hospital admission, and mortality. WAST is also developing school-based asthma interventions and surveillance, and exploring relationships between hospitalization and emergency department visits and outdoor air quality.

Michigan Society for Respiratory Care (MSRC): The MSRC=*s Michigan Asthma Committee* works to distribute and promote the National Heart, Lung, and Blood Institute=*s (NHLBI=s) Guidelines for the Diagnosis and Management of Asthma*. The committee also offers the *Asthma Educator Specialist Course*, designed to prepare registered nurses, registered pharmacists, certified physician assistants, and registered respiratory therapists for the national certification exam being developed by the American Lung Association.

The University of Michigan School of Public Health (UMSPH): The school is internationally known for asthma-related activities and has ongoing studies and projects from New York to Beijing. Among the school=*s activities are the following:*

- **Michigan Center for the Environment & Children’s Health (MCECH):** MCECH, a partnership of the University of Michigan School of Public Health and Medicine, the Detroit Health Department, Henry Ford Health System, community-based organizations on the southwest and east sides of Detroit, and the CDC, has three core research projects : 1) a household- and neighborhood-level community-based intervention to reduce environmental triggers for asthma among Detroit children; 2) study of indoor and outdoor air contaminant exposures and asthma aggravation among children; and 3) study of chemokines in the pathogenesis of asthma.
- **Partnership to Control Asthma in Public Schools:** The partnership, funded by NHLBI, runs an asthma education program for students with asthma, their classmates, school personnel, and physicians in 14 Detroit schools. The project includes air-quality testing and dust sampling in schools and education of other school personnel, including principals and building engineers.