WISCONSIN ASTHMA PLAN

Recommendations from the Wisconsin Asthma Coalition
2003

WISCONSIN ASTHMA PLAN

Created by the Wisconsin Asthma Coalition, and funded in part by the Wisconsin Department of Health and Family Services through a US Centers for Disease Control and Prevention Cooperative Agreement (Award Number U59/CCU520846 – "Addressing Asthma from a Public Health Perspective").

The Wisconsin Asthma Coalition would like to acknowledge Children's Health Alliance of Wisconsin for facilitating the convening of the Wisconsin Asthma Coalition and the development of the Wisconsin Asthma Plan.

From the Secretary of the Wisconsin Department of Health and Family Services

The Wisconsin Asthma Plan is a blueprint for improving the lives of everyone in Wisconsin affected by asthma. Implementation of this Plan will result in reduced deaths, hospitalizations, and emergency department visits related to asthma. The Plan lays out in detail what Wisconsin can do to alleviate the burden of asthma over the course of the next six years, and represents the dedication and hard work of the many people who participated in its creation.

The Wisconsin Department of Health and Family Services wishes to acknowledge the members of the Wisconsin Asthma Coalition, Executive Committee and Workgroups for their efforts and contributions toward the development of the Wisconsin Asthma Plan. This Plan is the result of a strong partnership between the Department's Division of Public Health and Children's Health Alliance of Wisconsin, both of which have played critical roles in the facilitation and development of the Wisconsin Asthma Coalition and the Asthma Plan. The US Centers for Disease Control and Prevention has also been a strong and essential partner in this effort, providing funding and guidance for the work of creating the Plan. The Department would also like to thank the many organizations and individuals who provided critical input regarding the Plan through the more than fifty listening and feedback sessions held throughout the state in 2003. The input of all of these stakeholders has been critical in assuring that the Wisconsin Asthma Plan truly reflects and addresses the needs of the people of Wisconsin.

The Wisconsin Asthma Plan identifies and maps out pathways for treating and managing asthma, as well as improving the quality of life for those affected by asthma and their families and communities. The Department of Health and Family Services acknowledges and is committed to the recommendations in the Plan. The success of the Plan, however, rests on strong, committed partners and collaboration to assure progress toward alleviating the burden of asthma.

Helene Nelson,
Secretary

From the Chair of the Wisconsin Asthma Coalition

Asthma affects the lives of many people in Wisconsin, across all ages and including all racial and ethnic groups. It is the cause of many lost days of work and school, numerous hospitalizations and visits to the emergency department, and even deaths. While asthma is incurable, optimal care permits affected individuals to remain mostly free from asthma attacks so they can lead normal, active lives. Much can be done to help those with asthma and their families achieve this goal of improved quality of life and reduced activity restrictions from asthma. This is the vision of the Wisconsin Asthma Coalition:

> *Individuals with asthma in Wisconsin will attain optimal health and quality of life and asthma will be prevented to the extent possible.*

The Coalition's mission is to make this possible by developing and implementing a sustainable statewide plan that expands and improves the quality of asthma education, prevention, management, and services, and reduces the disproportionate burden of asthma in racial or ethnic minority and low-income populations. The Wisconsin Asthma Plan, the embodiment of the Coalition's vision and mission, represents the fruition of over two years of work on the part of many dedicated organizations and individuals to create a blueprint that will bring us to the realization of this goal.

It is the hope of the Wisconsin Asthma Coalition that the Wisconsin Asthma Plan will serve as a guide for the many stakeholders in Wisconsin who will address asthma over the next six years. There is a role for each and every one of us as we work together to implement the Plan.

We would like to acknowledge all those who helped to create the Plan, and ask for the support of all as we move ahead to meet the challenge of improving the lives of Wisconsin residents and their families and communities who are affected by asthma.

Todd Mahr, MD
Chair, Wisconsin Asthma Coalition

Table of Contents

Executive Summary 1

Wisconsin Asthma Coalition Membership 8

- Executive Committee 8
- Workgroup Members 9
- Contributing Partners 15

Staff 18

Acronyms 19

Asthma: A Public Health Priority 20

The Burden of Asthma in Wisconsin 22

The Planning Process 32

- Vision and Mission 36
- Overarching Goals 36
- Specific Goals 37

Workplan 40

- Surveillance 41
- Clinical Care 51
- Enhanced Covered Services 56
- Education 59
- Environment 67
- Work-related Asthma 72
- Disparities 77
- Public Policy 91

Evaluation Plan 98

- Logic Model 99
- Short-Term Outcomes 100
- Intermediate Outcomes 104
- Long-Term Outcomes 108

References 110

Appendices 112

- Appendix A: Data Tables 113
- Appendix B: Listening Sessions 120
- Appendix C: Feedback Sessions 121
- Appendix D: CHIP Model 122

EXECUTIVE SUMMARY

Asthma is a chronic lung disease characterized by inflammation of the airways and recurring attacks of symptoms such as wheezing and coughing. Asthma rates have increased dramatically over the last thirty years in all populations in the United States. Recent Wisconsin data show that about eight percent of children under age 18 and nine percent of adults, or 114,000 and 337,000 individuals respectively, have been diagnosed with asthma (Wisconsin Family Health Survey, 2001). Persons of color and low-income populations bear a disproportionate share of the burden of asthma. In Wisconsin, African Americans have an asthma hospitalization rate that is about six times higher than that for whites (Fiore et al., 2000).

Asthma is one of the most common chronic diseases of children in the United States, the third leading cause of preventable hospitalizations, one of the leading causes of school absenteeism, and the leading work-related lung disease. In addition, asthma incurs high costs, in terms of the costs of care, lost workdays and productivity, and lower quality of life for persons with asthma and their families. For these reasons, asthma is a public health priority for the State of Wisconsin, as indicated by the national health plan, Healthy People 2010 (HP 2010), and the Implementation Plan of the state public health plan, Healthiest Wisconsin 2010.

To address this public health priority, the Wisconsin Department of Health and Family Services (DHFS) has been working since 1993 on asthma surveillance and pilot intervention efforts. In September 2001, the Department successfully applied for funds from the US Centers for Disease Control and Prevention (CDC) to support the creation of an asthma coalition and a statewide asthma plan. DHFS began working with its partners, including Children's Health Alliance of Wisconsin, to bring together asthma stakeholders from around the state to form the Wisconsin Asthma Coalition to develop a comprehensive state asthma plan.

The Wisconsin Asthma Plan will serve as the detailed blueprint for addressing asthma in Wisconsin. It provides specific objectives, action steps, target dates, and performance

measures, and identifies potential partners. The Plan will guide stakeholders for the next six years in their efforts to control asthma. Finally, DHFS will submit this Plan to the CDC in 2004 when Wisconsin competes for state asthma plan implementation funding.

The overarching goals of the Wisconsin Asthma Plan are to:

- Expand and improve the quality of asthma education, prevention, management and services
- Decrease the disproportionate burden of asthma in racial or ethnic minority and low-income populations

Included in the Coalition's goals are the Healthy People 2010 asthma goals set forth by the US Department of Health and Family Services. These goals are:

- Reduce asthma deaths
- Reduce hospitalizations for asthma
- Reduce hospital emergency department visits for asthma
- Reduce activity limitations among persons with asthma
- Reduce the number of school or work days missed by persons with asthma due to asthma
- Increase the proportion of persons with asthma who receive formal patient education, including information about community and self-help resources, as an essential part of the management of their condition
- Increase the proportion of persons with asthma who receive appropriate asthma care according to the National Asthma Education and Prevention Program (NAEPP) guidelines

The Coalition has included two additional goals, which are:

- Decrease work-related asthma
- Improve indoor and outdoor air quality

The Coalition's progress in improving the quality of life for persons with asthma in Wisconsin will be measured by our success in achieving these goals.

Specific Goals and Objectives

The Wisconsin Asthma Coalition identified eight priority areas for asthma in Wisconsin. The specific goals and objectives for the eight priority areas of the Wisconsin Asthma Plan are:

Surveillance

Goal: To improve and expand asthma surveillance in Wisconsin

Objectives:

A. By June 2003, conduct initial review and assure compliance with confidentiality requirements associated with each dataset included in the asthma surveillance system; annually review these requirements.

B. By May 2004, develop a comprehensive Wisconsin asthma statistics report using government data sources. This detailed report will be issued every three years and brief reports, using selected available data, will be issued annually.

C. By June 2004, expand Wisconsin asthma surveillance to include schools, childcare facilities, WIC clinics, and Head Start programs.

D. By September 2004, identify resources needed and assure sustainable, efficient and effective asthma surveillance in Wisconsin.

E. By May 2005, conduct a feasibility study of linking asthma surveillance data and environmental monitoring data.

F. By December 2008, expand asthma surveillance to include the use of pharmacy and pharmaceutical data.

Clinical Care

Goal: Increase the use of evidence-based, best practice asthma guidelines for the diagnosis and management of asthma by all health care providers in order to optimize the quality of health care to individuals with asthma

Objectives:

A. By April 2006, provide professional education and resources for implementing the National Heart, Lung, and Blood Institute (NHLBI) Expert Panel Report 2: Guidelines for the Diagnosis and Management of Asthma (NHLBI, 2002) for the diagnosis and management of asthma.

B. By April 2007, build capacity within healthcare organizations for identifying and monitoring patients with asthma to improve asthma management.

C. By July 2007, build capacity within healthcare organizations for standardizing asthma quality measurement to improve asthma care.

Enhanced Covered Services

Goal: Managed care, self-insured, Medicaid, and Medicare will fund reasonable, measurable, and achievable disease management for persons with asthma

Objectives:

A. By December 2008, assist stakeholders to prove that asthma disease management is cost-effective.

B. By January 2009, connect the business case or return on investment for asthma disease case management to implementation of activities including, but not limited to: improved patient and provider education, patient behavior change, and smoking prevention and cessation.

Education

Goal: To expand and improve the quality of asthma education to be consistent with the National Asthma Education and Prevention Program Guidelines (NHLBI, 2002), and to be culturally and linguistically appropriate

Objectives:

A. Beginning May 2005, provide a public awareness campaign to address asthma as a chronic inflammatory disease that cannot be cured but can be controlled.

B. Beginning December 2005, one to two regional or statewide service providers will sponsor asthma management trainings for their membership each year.

C. By December 2005, five regional asthma education plans (based on the five Division of Public Health regions) with implementation strategies will be developed and adopted by the Wisconsin Asthma Coalition.

D. By December 2007, 20 percent of Wisconsin healthcare systems that participate in the Wisconsin Asthma Coalition will provide family-centered, developmentally appropriate, and culturally and linguistically appropriate asthma educational materials, consistent with the National Asthma Education and Prevention Program.

E. By December 2009, have a total of 70 certified asthma educators statewide, with a minimum of ten per each of the five Division of Public Health regions, with the exception of the Southeastern region and the Southern region (30 and 15 certified asthma educators, respectively).

Environment

Goal: Reduce or control environmental factors in Wisconsin associated with asthma

Objectives:

A. By January 2007, improve the air quality in Wisconsin's indoor environments.

B. By January 2007, evaluate and improve the capacity of schools and school districts to control asthma risks and promote health.

C. By January 2009, improve outdoor air quality in Wisconsin's communities.

Work-Related Asthma

Goal: Reduce the burden of work-related asthma in Wisconsin

Objectives:

A. By April 2004, develop a work-related asthma surveillance program, and begin issuing an annual Wisconsin Work-Related Respiratory Disease Report.

B. By September 2004, develop work-related asthma educational materials for employees, employers, and practitioners, and by April 2007, provide these materials in alternative formats.

C. By April 2005, develop and disseminate medical diagnosis guidelines for work-related asthma.

Disparities

Goal: Reduce disparities in asthma diagnosis, treatment, and outcomes among racial or ethnic minority and low-income populations

Objectives:

A. By December 2005, improve asthma education, outreach, and the exchange of meaningful health information with racial or ethnic minority and low-income communities.

B. By January 2006, increase knowledge and awareness of evidence-based asthma disparities interventions among consumers and providers serving racial or ethnic minority and low-income communities.

C. By May 2008, increase the proportion of racial or ethnic minority and bilingual and/or bicultural health care providers who provide culturally competent asthma education and management in healthcare and community settings.

D. By September 2008, reduce by ten percent from 2003 baseline the rate of asthma emergency department visits and inpatient hospitalizations among racial and ethnic minorities.

E. By September 2008, increase by 25 percent over 2004 baseline primary care health services utilization for Medicaid-enrolled children and adults with asthma.

F. By September 2008, increase by 25 percent the percentage of households in Milwaukee and Menominee Counties with assessment and management of environmental triggers such as cockroaches, dust mites, mold, tobacco use, and exposure to second-hand smoke over baseline.

Public Policy

Goal: Improve asthma care and decrease health disparities through policy change

Objectives:

A. By June 2004, increase the proportion of schools in compliance with Wisconsin's inhaler law (based on survey results) that allows children with asthma to keep their inhalers with them at school.

B. By August 2004, identify funding to support asthma surveillance efforts.

C. By September 2004, assist Enhanced Covered Services and Clinical Care Workgroups in drafting a legislative package of insurance reforms, relating to coverage and reimbursement of asthma services, medications, and specialists.

D. By May 2005, increase awareness and understanding of asthma among policymakers and high-level decision-makers.

E. By October 2005, support Environment and Work-Related Asthma Workgroups by identifying funding and advocacy opportunities.

Conclusion

The following detailed Wisconsin Asthma Plan represents the coming together of many asthma stakeholders and partners from across the state. Through the efforts of these

partners, and with funding support and guidance from the US Centers for Disease Control and Prevention through a cooperative agreement with the Department of Health and Family Services, the Plan provides a blueprint to guide Wisconsin toward improving the quality of life for those with asthma, their families, and their communities over the next six years.

For further information, please contact:
Kristen Grimes, CHES
Asthma Project Manager
Children's Health Alliance of Wisconsin
1533 North RiverCenter Drive
Milwaukee, WI 53212-3913
E-mail: kgrimes@chw.org
Telephone: 414.390.2189

Eden A. Schafer, MPH
Asthma Program Manager
Wisconsin Department of Health and Family Services, Division of Public Health
One West Wilson Street P. O. Box 2659
Madison, Wisconsin 53701-2659
E-mail: schafea@dhfs.state.wi.us
Telephone: 608.267.6845

MEMBERSHIP

Executive Committee Members

Chair ~ Todd Mahr, MD, Gundersen Lutheran Medical Center-La Crosse, Wisconsin

Vice Chair ~ Elaine Mischler, MD, Wausau Benefits, Inc.

Joyce Andersen, MN, RN, BC, Wisconsin Department of Health and Family Services, Division of Public Health

Dalvery Blackwell, Black Health Coalition

Linda Caldart-Olson, RN, MS, Wisconsin Department of Public Instruction

Denise Carty, MA, MS, RN, Wisconsin Department of Health and Family Services, Division of Public Health

Rhonda J. Duerst, RRT-NPS, AE-C, Children's Hospital of Wisconsin

Lynne Edebohls, RN, MS, CD, PNP, AE-C, Dean/St. Mary's Neighborhood Asthma Project, Beloit Area Community Health Center, Wisconsin Association of Pediatric Nurse Practitioners

Beth Fiore, MS, Wisconsin Department of Health and Family Services, Division of Public Health

Cynthia P. Helstad, PhD, RN, Medical Society of Wisconsin

Murray Katcher, MD, PhD, Wisconsin Department of Health and Family Services, Division of Public Health

Meredith Washburn Lins, RN, Wisconsin Department of Health and Family Services, Division of Public Health

John Meurer, MD, MBA, Fight Asthma Milwaukee Allies (led by Children's Hospital and Health System), and Medical College of Wisconsin

Karen Ordinans, Children's Health Alliance of Wisconsin

Joe Schirmer, MS, Wisconsin Department of Health and Family Services, Division of Public Health

Laurel Stusek, RN, St. Croix Health Services

Dona Wininsky, American Lung Association of Wisconsin

Rhonda Yngsdal-Krenz, BA, RRT, NPS, Pediatric Pulmonary Center University of Wisconsin and UWH&C Respiratory Care Department

Workgroup Members

Surveillance

Chair ~ Beth Fiore, MS, Wisconsin Department of Health and Family Services, Division of Public Health

Chad Allen, Innovative Resource Group/APS Healthcare, Inc.

Jennifer Cohn, MLS, Fight Asthma Milwaukee Allies (led by Children's Hospital and Health System), and Medical College of Wisconsin

Stephanie Frisbee, MSc, National Outcomes Center, Inc. (member of Children's Hospital and Health System)

Linda L. Gehring, PhD, Columbia College of Nursing

Lawrence P. Hanrahan, PhD, MS, Wisconsin Department of Health and Family Services, Division of Public Health

Marty Kanarek, PhD, MPH, Department of Population Health Sciences, University of Wisconsin-Madison

Katrina Kramer, MHSA, Innovative Resource Group/APS Healthcare, Inc.

Chetna Mehrotra, MPH, Wisconsin Department of Health and Family Services, Division of Public Health

John Meurer, MD, MBA, Fight Asthma Milwaukee Allies (led by Children's Hospital and Health System), and Medical College of Wisconsin

Allison Naleway, PhD, Marshfield Clinic Research Foundation

Livia Navon, MS, RD, Wisconsin Department of Health and Family Services, Division of Public Health

Christine Walsh-Kelly, MD, Medical College of Wisconsin

Clinical Care

Chair ~ Joyce Andersen, MN, RN, BC, Wisconsin Department of Health and Family Services, Division of Public Health

Sue Backes, RN, BS, MercyCare Insurance Company

Jessica Bennett, RN, BSN, Gerald L. Ignace Indian Health Center

Catherine Decker, PharmD, University of Wisconsin Hospital and Clinics

Patsy Engel, RN, BSN, Touchpoint Healthplan

Sharon Fleischfresser, MD, MPH, Wisconsin Department of Health and Family

Services, Division of Public Health

Beverly Hart, RRT, Peter Christensen Health Center - Lac du Flambeau Tribal Clinic

Cynthia P. Helstad, PhD, RN, Wisconsin Medical Society

Wendy Huntley, RT, ThedaCare

Lori Jacobs, RT, ThedaCare at Home

Murray Katcher, MD, PhD, Wisconsin Department of Health and Family Services, Division of Public Health

Kevin Kelly, MD, Children's Hospital of Wisconsin and the Medical College of Wisconsin

Julie Lechelt, RN, BC, MS, University of Wisconsin Hospital and Clinics

Todd A. Mahr, MD, Gundersen Lutheran Medical Center - La Crosse, Wisconsin

John Meurer, MD, MBA, Fight Asthma Milwaukee Allies (led by Children's Hospital and Health System), and Medical College of Wisconsin

Mark H. Moss, MD, University of Wisconsin Medical School

Mary Nickel, RN, CPHQ, Community Healthcare

Sandra Osborn, MD, Wisconsin Medical Society, University of Wisconsin Medical School

Beth Potter, MD, Department of Family Medicine, University of Wisconsin-Madison

Peter Rumm, MD, MPH, Wisconsin Department of Health and Family Services, Division of Public Health

Karen Schaefer, RN, MSN, ThedaCare

Val Schend, University of Wisconsin School of Pharmacy

Mary Schroth, MD, University of Wisconsin Hospital and Clinics

Heather Silbaugh, CHES, Wisconsin Primary Health Care Association

Gary Swart, MD, Fellow of the American College of Emergency Physicians, Wisconsin Chapter, American College of Emergency Physicians

Michelle Urban, MD, Wisconsin Department of Health and Family Services, Wisconsin Division of Healthcare Financing

David Waters, MD

Susan M. Wiegmann, PhD, Wisconsin Medical Society

Ann Zenk, RN, BSN, CPHQ, Sacred Heart Saint Mary's Hospital, Ministry Medical Group Northern Region

Enhanced Covered Services

Chair ~ Elaine Mischler, MD, Wausau Benefits, Inc.

Don Bukstein, MD, Wisconsin Medical Society, Dean Clinic

Colleen Cantlon, MEd, RN, Wisconsin Department of Health and Family Services, Division of Public Health/Retired

Richard Carr, MD, Wisconsin Department of Health and Family Services, Division of Health Care Financing

Robin Carufel, Peter Christensen Health Center - Lac du Flambeau Tribal Clinic

Tom Gazzana, Children's Hospital and Health System

Sally Kaufman Gorman, RN, BSN, United Healthcare/Americhoice

Katrina Kramer, MHSA, Innovative Resource Group/APS Healthcare, Inc.

Christine A. Sorkness, PharmD, University of Wisconsin School of Pharmacy

Education

Co-Chair ~ Sherie Sondel, RD, Med, CD, Wisconsin Department of Health and Family Services, Division of Public Health, Southern Region

Co-Chair ~ Rhonda Yngsdal-Krenz, BA, RRT, NPS, Pediatric Pulmonary Center, University of Wisconsin-Madison and University of Wisconsin Hospitals and Clinics, Respiratory Care Department

Tim Ballweg, RRT, Sauk Prairie Memorial Hospital

Karen Brewer, RN, Wood County Health Department

Linda Caldart-Olson, RN, MS, Wisconsin Department of Public Instruction

Isa Chase, RN, CPNP, Wisconsin Association of School Nurses

Linda Conlon, RN, Oneida County Health Department

Diana Ditsch, MPH, Wisconsin Department of Health and Family Services, Division of Public Health

Rhonda J. Duerst, RRT-NPS, AE-C, Children's Hospital of Wisconsin

Lynne Edebohls, RN, MS, CD, PNP, AE-C, Dean/St. Mary's Neighborhood Asthma Project, Beloit Area Community Health Center, Wisconsin Association of Pediatric Nurse Practitioners

Ileen Gilbert, MD, Medical College of Wisconsin

Brenda Gonzalez, Interpreter Services, Dean Health System

Marti Hall, Great Lakes Inter-Tribal Council

Beverly Hart, RRT, Peter Christensen Health Center - Lac du Flambeau Tribal Clinic

Peggy Helm-Quest, MSEd, MHA, Wisconsin Department of Health and Family Services, Division of Public Health

Wendy Huntley, RT, ThedaCare

Harsha Keister, Satyam Ayurvedic & Massage Center

Linda Langer

Erin Lee, Fight Asthma Milwaukee Allies (led by Children's Hospital and Health System), Children's Health Education Center

LeAnn McMahon, Automated Health Systems, Inc.

Heidi Nighbor, Automated Health Systems, Inc.

Cynthia Obletz, RN, BSN, AE-C, Sixteenth Street Community Health Center

Sarah Motise Olah, Camp WIKIDAS, Meriter Hospital

Jeremy Otte, American Lung Association of Wisconsin

Deborah L. Pasha, RN, BSN, Wisconsin Department of Health and Family Services, Division of Public Health

Betzaida Silva, RD, Sixteenth Street Community Health Center

Jim Warpinski, MD, Green Bay Asthma Coalition

Environment

Chair ~ Joe Schirmer, MS, Wisconsin Department of Health and Family Services, Division of Public Health

Henry A. Anderson, MD, Wisconsin Department of Health and Family Services, Division of Public Health

Sheila Batka, MSPH, United States Environmental Protection Agency, Region 5, Air and Radiation Division

Tammi Boers, RS, Wisconsin Department of Health and Family Services, Division of Public Health, Northern Region

Anne Bogar, Wisconsin Department of Natural Resources

Rose Casey, Wisconsin Department of Transportation

Mark Chamberlain, LPN, Wisconsin Department of Health and Family Services, Division of Public Health

Patti Harrington, Wisconsin Department of Health and Family Services, Division of Public Health

Nellie K. Laughlin, PhD, Wisconsin Department of Health and Family Services, Division of Public Health

Eva Robelia, Wisconsin Department of Natural Resources

Tom Sieger, MS, CIH, Wisconsin Department of Health and Family Services, Division of Public Health

Work-Related Asthma

Chair ~ Meredith Washburn Lins, RN, Wisconsin Department of Health and Family Services, Division of Public Health

Henry A. Anderson, MD, Wisconsin Department of Health and Family Services, Division of Public Health

Jim Barry, PE, Wisconsin Department of Health and Family Services, Division of Public Health

Warren Brockmeyer, Wisconsin Department of Workforce Development, Worker's Compensation

W. Kent Foster, CIH

Duane Frisch, Wisconsin Department of Workforce Development, Worker's Compensation

Susan Garman, RN, BSN, MS-ENPH, COHN-S, Wisconsin Department of Health and Family Services, Division of Public Health

Larry A. Lindesmith, MD, Gundersen Lutheran Medical Center-La Crosse, Wisconsin

Kim Nipko, MPH, United States Department of Labor – Occupational Safety and Health Administration

John J. Ouellette, MD, University of Wisconsin Health, Allergy, and Immunology

Leslie Ptak, United States Department of Labor – Occupational Safety and Health Administration

Bryan Roessler, Wisconsin Council of Safety

Terry Scheve, OHST, RN, ABMP, United Auto Workers Local 72, Kenosha Engine Plan

Disparities

Co-Chair ~ Denise Carty, MA, MS, RN, Wisconsin Department of Health and Family Services, Division of Public Health

Co-Chair ~ Glen Flores, MD, FAAP, Center for the Advancement of Urban Children, Medical College of Wisconsin, and Children's Hospital of Wisconsin

Birdie Allen, BA, CRT

Dalvery Blackwell, Black Health Coalition

Carvis Lamont Braxton, MSW, SmokeFree Wisconsin, Milwaukee

Vanessa Brown, Medical College of Wisconsin

Carol Calvin, MS, RN, Comprehensive Health Education, Inc.

Gina Currie, RN, BSN, PHN, Dane County Public Health Department

Debra Danforth, RN, BSN, Oneida Community Health Center

Brenda Dockery, RN, MSN, FNP, Covenant Medical Group

Lynne Edebohls, RN, MS, CD, PNP, AE-C, Dean/St. Mary's Neighborhood Asthma Project, Beloit Area Community Health Center, Wisconsin Association of Pediatric Nurse Practitioners

Dorian James, CRT, AE-C, Asthma Awareness Center, St. Joseph's Regional Medical Center

F. Noor Jawad, BS, CHp, Eclipse and MO ink, LLC

Tasha Jenkins, Fighting Back, Inc.

Marti Hall, Great Lakes Inter-Tribal Council

Robert Harris, MS, Wisconsin Department of Health and Family Services, Division of Public Health

Scott J. Karstenson, RCP, Asthma Care Center, St. Michael Hospital

Maureen O'Reilly, Center for the Advancement of Urban Children, Medical College of Wisconsin

Deborah L. Pasha, RN, BSN, Wisconsin Department of Health and Family Services, Division of Public Health

Joe Schirmer, MS, Wisconsin Department of Health and Family Services, Division of Public Health

Mary Sell, RN, MS, Sokaogon Chippewa Health Clinic

Laurel Stusek, RN, St. Croix Health Services

Sandy Tomany, MS, Medical College of Wisconsin

Barbara E. White, Milwaukee Youth and Family Development Alliance

Shirley White, CRT, Lifecare Hospital

Sally Zirbel-Donisch, RN, MS, CPNP, Madison Metropolitan School District

Public Policy

Chair ~ Dona Wininsky, American Lung Association of Wisconsin

Bill Bazon, Wisconsin Hospital Association
Sandra Benen, GlaxoSmithKline
Maureen Busalacchi, SmokeFree Wisconsin
Randall J. Radtke
Theresa Reagan, MBA, Children's Health Education Center
Joanne Selkurt, MD, FAAP, Wisconsin Chapter, American Academy of Pediatrics
Marian Sheridan, RN, BSN, Fond du Lac School District

Contributing Partners

The following organizations have contributed to the creation of the Wisconsin Asthma Plan through participation in the Wisconsin Asthma Coalition Executive Committee and/or Workgroups.

American Lung Association of Wisconsin
Asthma Awareness Clinic, St. Joseph's Regional Medical Center
Asthma Care Center, St. Michael's Hospital
Automated Health Systems, Inc.
Camp WIKIDAS
Center for the Advancement of Urban Children, Medical College of Wisconsin
Children's Health Alliance of Wisconsin
Children's Health Education Center
Children's Hospital and Health System
Children's Hospital of Wisconsin
Children's Medical Group
Columbia College of Nursing
Community Outcomes
Comprehensive Health Education, Inc.
Covenant Medical Group
Dane County Public Health Department
Dean Clinic
Eclipse and MO ink, LLC
Fight Asthma Milwaukee Allies (led by Children's Hospital and Health System)

Fighting Back, Inc.
Fond du Lac School District
Gerald L. Ignace Indian Health Center
GlaxoSmithKline
Great Lakes Inter-Tribal Council
Green Bay Asthma Coalition
Gundersen Lutheran Medical Center-La Crosse, Wisconsin
Innovative Resource Group/APS Healthcare, Inc.
Interpreter Services, Dean Health System
Lifecare Hospital
Madison Metropolitan School District
Marshfield Clinic Research Foundation
Medical College of Wisconsin
MercyCare Insurance Company
Meriter Hospital
Milwaukee Youth and Family Development Alliance
Oneida Community Health Center
Oneida County Health Department
Peter Christensen Health Center - Lac du Flambeau Tribal Clinic
Sacred Heart Saint Mary's Hospital, Ministry Medical Group Northern Region
Satyam Ayurvedic & Massage Center
Sixteenth Street Community Health Center
SmokeFree Wisconsin
Sokaogon Chippewa Health Clinic
St. Croix Health Services
ThedaCare
Touchpoint Healthplan
United Auto Workers Local 72, Kenosha Engine Plant
United Healthcare/Americhoice
United States Department of Labor – Occupational Safety and Health Administration
United States Environmental Protection Agency Region 5, Air and Radiation Division
University of Wisconsin Children's Hospital
University of Wisconsin Department of Family Medicine

University of Wisconsin Department of Health, Allergy, and Immunology
University of Wisconsin Department of Population Health Sciences
University of Wisconsin Hospitals and Clinics
University of Wisconsin Pediatric Pulmonary Center, and University of Wisconsin Hospital and Clinics Respiratory Care Department
University of Wisconsin School of Pharmacy
Wausau Benefits, Inc.
Wisconsin Allergy Society
Wisconsin Association of School Nurses
Wisconsin Council of Safety
Wisconsin Department of Health and Family Services
Wisconsin Department of Natural Resources
Wisconsin Department of Public Instruction
Wisconsin Department of Workforce Development, Worker's Compensation
Wisconsin Hospital Association
Wisconsin Medical Society
Wisconsin Primary Health Care Association
Wood County Health Department

STAFF

Department of Health and Family Services

Beth Fiore, MS, Principal Investigator, CDC Asthma Capacity Building Project

Henry Anderson, MD, Co-Principal Investigator

Lawrence Hanrahan, PhD, Co-Principal Investigator

Eden A. Schafer, MPH, Asthma Program Manager

Livia Navon, MS, RD, Asthma Epidemiologist

Meredith Washburn, RN, Occupational Health Nurse

Children's Health Alliance of Wisconsin

Karen Ordinans, Executive Director

Kristen Grimes, CHES, Project Manager

Tara Goris, Communications Coordinator, Layout and Design

ACRONYMS

BRFS	Behavioral Risk Factor Survey
CDC	US Centers for Disease Control and Prevention
CHAW	Children's Health Alliance of Wisconsin
CHIP	Community Health Improvement Program
DHFS	Wisconsin Department of Health and Family Services
FHS	Wisconsin Family Health Survey
HP 2010	Healthy People 2010
NAEPP	National Asthma Education and Prevention Program
NHLBI	National Heart, Lung, and Blood Institute
WAC	Wisconsin Asthma Coalition
WMS	Wisconsin Medical Society

ASTHMA: A PUBLIC HEALTH PRIORITY

Asthma is a chronic lung condition with ongoing airway inflammation that results in recurring acute episodes (attacks) of breathing problems such as coughing, wheezing, chest tightness, and shortness of breath (National Heart, Lung, and Blood Institute website, July 2003). It is one of the most common chronic diseases of children in the United States, the third leading cause of preventable hospitalizations, one of the leading causes of school absenteeism, and the leading work-related lung disease.

Asthma rates have increased dramatically over the last thirty years in all populations in the United States. Recent Wisconsin data show that about eight percent of children under age 18 and nine percent of adults, or 114,000 and 337,000 individuals respectively, have been diagnosed with asthma (Wisconsin Family Health Survey, 2001). Persons of color and low-income populations throughout the nation bear a disproportionate share of the burden of asthma. In Wisconsin, for example, African Americans have an asthma hospitalization rate that is about six times higher than that for whites.

Asthma is costly both in personal suffering and expenditures. In 1998, asthma-related costs in the United States were estimated to total $11.3 billion. Direct costs for care of asthma patients were $7.5 billion, with hospitalizations comprising the largest single part of those costs. Indirect costs, including lost time and productivity at work, amounted to $3.8 billion (National Heart, Lung, and Blood Institute, January 1999).

While many industrial agents have been shown to cause asthma in adult workers, currently, there is little definitive information on what causes asthma in children or adults unexposed to work-related asthma inducers. We do know that exacerbations or asthma attacks can be caused in individuals with asthma by certain common allergens, known as triggers. These include environmental tobacco smoke, dust mites, cockroaches, pet dander, mold and dampness, and cold air. While asthma

cannot be cured, symptoms can be controlled by appropriate use of anti-inflammatory drugs such as inhaled steroids, and by use of fast-acting bronchodilators during acute attacks. Proper use of both kinds of therapies, combined with efforts to control exposure to known triggers, allows people with asthma to lead full and active lives largely unrestricted by their asthma.

Asthma has been identified as a public health priority both nationally and in Wisconsin. The national health plan, Healthy People 2010, and the Implementation Plan of the state public health plan, Healthiest Wisconsin 2010 (Department of Health and Family Services website, July 2003), both have objectives related to asthma. The Wisconsin Asthma Plan, however, will serve as the detailed blueprint for addressing asthma in Wisconsin. It provides specific objectives, action steps, target dates and performance measures, and identifies potential partners. The Plan will guide stakeholders for the next six years in their efforts to control asthma. Finally, the Wisconsin Department of Health and Family Services (DHFS) will submit this plan to the US Centers for Disease Control and Prevention (CDC) in 2004 when Wisconsin competes for state asthma plan implementation funding.

Measuring the Burden

There are several approaches to measuring the burden of asthma on society. Commonly used measures include the number of people who have asthma (the prevalence), the severity of asthma, health care utilization, quality of life of those with asthma, and asthma-related costs.

To measure asthma prevalence, surveys are utilized to determine the number of people who have ever been told by a health professional that they have asthma (CSTE, 1998). Asthma-related hospitalizations and deaths can be used to measure asthma severity, though these measures are also a reflection of asthma management (Boss et al., 2001). Costs related to asthma include direct health care costs as well as indirect costs such as missed work and school.

The following is a summary of the burden of asthma in Wisconsin utilizing measures of prevalence, inpatient hospitalization rates, inpatient hospitalization charges, hospital emergency department visit rates, hospital emergency department visit charges, and mortality rates. Detailed data tables are located in Appendix A.

Asthma Prevalence

There are two sources of Wisconsin asthma prevalence data: the Wisconsin Family Health Survey (FHS) and the Behavioral Risk Factor Survey (BRFS). Both surveys are administered by the Bureau of Health Information, in the DHFS Division of Health Care Financing. The FHS has been used to measure asthma prevalence since the survey's inception in 1989. The BRFS, which is a survey conducted in every state and thus allows for state comparison with national data, began including asthma questions in 1999. Both surveys are conducted by telephone in a sample representative of the Wisconsin population living in households. Prevalence estimates from both surveys are presented here. Detailed analyses of FHS data can be found in Appendix A.

Wisconsin Family Health Survey

- Eight percent of the Wisconsin household population or 451,000 individuals – nine percent of adults and eight percent of children under 18 years of age – report having ever been told by a doctor that they have asthma (Family Health Survey, 2001).

- Females in Wisconsin have a slightly higher prevalence of asthma, with a rate of eight percent compared to seven percent in males (Family Health Survey, 1997-2000). National data demonstrate a similar asthma prevalence distribution (Mannino et al., 2002).

- Children aged 11-17 years have the highest prevalence of asthma in Wisconsin with a rate of 11 percent (Family Health Survey, 1997-2000).

- Children aged 0-4 have the lowest prevalence of asthma, perhaps reflecting the difficulty with diagnosing asthma at this young age (Family Health Survey, 1997-2000). Interestingly, this is the age group with the highest asthma inpatient hospitalization and hospital emergency department visit rates (see Appendix A).

- Eleven percent of non-Hispanic African Americans reported diagnosis with asthma compared to seven percent of non-Hispanic whites (Family Health Survey, 1997-2000).

- Non-Hispanic Native Americans and people of Hispanic ethnicity appear to have a higher prevalence of asthma than the white, non-Hispanic population. These populations make up a small proportion of the Wisconsin population, thus the estimates for these groups are based on small numbers of respondents and the prevalence estimates are less precise.

Behavioral Risk Factor Survey

Asthma questions are worded slightly differently on the BRFS than the FHS (see Appendix A), and survey respondents are chosen based on different criteria. These survey method differences likely explain the discrepancies in the prevalence

estimates between the two surveys. The BRFS data are presented below to allow comparison with national asthma prevalence rates.

- Ten point six (10.6) percent of Wisconsin adults living in households reported having ever been diagnosed with asthma according to the 2001 BRFS. This is very close to the median nationwide rate of 11.2 percent (CDC, 2001). When people who were ever diagnosed with asthma were asked if they still have asthma, 7.8 percent of Wisconsin adults and 7.6 percent of adults nationally reported still having asthma (CDC, 2001).

Inpatient Hospitalization Data

Inpatient hospitalization data have been available in Wisconsin since 1989. Data are reported to the DHFS Bureau of Health Information in the Division of Health Care Financing by all of Wisconsin's acute care, non-federal hospitals. The data presented here are from the years 1990 to 2001, the most recent year for which complete data are available. Information on race and ethnicity was not reported consistently until 1991, thus sub-group analyses do not include 1990 data.

It is important to note that rates are based on the number of hospitalizations with asthma as the principal diagnosis, and not on the number of individuals admitted. Some individuals may have had more than one admission.

Number of Hospitalizations

- There were on average 6,350 hospitalizations for asthma as the principal diagnosis annually between 1990 and 2001 in Wisconsin. The highest number of hospitalizations occurred in 1993 when there were 7,297 hospitalizations for asthma as the principal diagnosis.

- Since 1993, there has been a downward trend in the number of asthma hospitalizations in Wisconsin. In 2001, the lowest number of hospitalizations since 1990 occurred with 5,554 hospitalizations for asthma as the principal diagnosis.

Hospitalization Rates

- The overall rate of asthma hospitalizations in Wisconsin was 12.3 per 10,000 population from 1990 to 2001.

- The rate of asthma hospitalizations in Wisconsin has varied annually, but appears to be decreasing slightly. The rate declined from 13.6 per 10,000 in 1990 to 10.4 per 10,000 in 2001.

- Children aged 0-4 years in Wisconsin had the highest hospitalization rate with 37.5 hospitalizations per 10,000 population during 1990-2001. In 1990, the hospitalization rate for this age group was 42.7 per 10,000, and by 2001 had declined to 29.3 per 10,000. Although the trend has been variable, data suggest a decrease in the rate of hospitalizations in this age group.

- Females had a slightly higher hospitalization rate than males with 13.6 versus 10.5 hospitalizations per 10,000 population from 1990-2001.

- Among Wisconsin children aged 0-4 years, males were hospitalized at about double the rate of females. After age fifteen, females were hospitalized for asthma at a higher rate than males. A similar hospitalization pattern has been seen in other geographic populations (Lyon-Callo et al., 2000; Minnesota Department of Health, 2003).

- The African American population has a much higher rate of asthma hospitalizations than other racial groups both in Wisconsin and the rest of the country. The overall average hospitalization rate for African Americans in Wisconsin during 1991-2001 was 50.9 per 10,000 population, which is almost six times as high as the rate of 8.8 per 10,000 seen in the white population.

- The Hispanic population was hospitalized at a slightly higher rate than the non-Hispanic population with 14.3 versus 11.4 hospitalizations per 10,000 from 1990-2001.

Hospitalization Charge Data

- The total charges for asthma hospitalizations in Wisconsin was over $33 million in 2001. This amount does not include the cost of emergency department visits or physician office visits.

- The charge for an asthma hospitalization in Wisconsin has nearly doubled from $3,255 per inpatient hospitalization in 1990 to $6,005 per inpatient hospitalization in 2001, not accounting for inflation. This increase has occurred even as the average length of stay for an asthma hospitalization has decreased by almost one full day, from 3.8 days per hospitalization to 2.9 days per hospitalization, in the same time period.

Hospital Emergency Department Visit Data

In 2002, the DHFS Bureau of Health Information in the Division of Health Care Financing began collecting data on emergency department visits from Wisconsin hospitals. Information on race and ethnicity was not reported. These data are from the first year of reporting, and therefore, no trend information is available.

These statistics are based on the number of hospital emergency department visits for asthma as the principal diagnosis. Some individuals may have had more than one visit.

Number of Hospital Emergency Department Visits

- In 2002, there were 23,250 hospital emergency department visits for asthma in Wisconsin.

Hospital Emergency Department Visit Rates

- The rate of hospital emergency department visits for asthma in Wisconsin in 2002 was 44 visits per 10,000 population.

- The highest hospital emergency department visit rate for asthma was seen in children aged 0-4 years, who had a rate of 94 visits per 10,000. The lowest rate was seen in adults aged 65 and over, who had a rate of 15 visits per 10,000.

- Females had a hospital emergency department visit rate of 47 per 10,000 compared to 40 per 10,000 in males in 2002.

- Among Wisconsin children aged 0-4 years, males visited hospital emergency departments at about double the rate of females. After age fifteen, females visited hospital emergency departments for asthma at a higher rate than males. A similar pattern of health care utilization was seen with asthma inpatient hospitalizations.

Hospital Emergency Department Visit Charges

- In 2002, the total charges for asthma hospital emergency department visits in Wisconsin was $13.3 million.

- The average charge of a hospital emergency department visit for asthma in Wisconsin was $510.

Mortality Data

Death records from Vital Records in the DHFS Division of Health Care Financing's Bureau of Health Information were used to determine asthma mortality rates. Mortality rates by ethnicity could not be calculated separately due to very low numbers of asthma deaths among the Hispanic population (one death over 11 years). Only individuals who resided in Wisconsin at the time of death are included in the following statistics.

Number of Deaths

- There were 1,152 deaths among Wisconsin residents with asthma as the underlying cause of death between 1990 and 2001.

- Adults 65 years of age and older accounted for 64 percent of all asthma deaths.

Mortality Rates

- The overall asthma mortality rate in Wisconsin was 18.5 per million population from 1990-2001. The highest mortality rate was seen in 1994 when the rate was 23.2 per million; the lowest rate was seen in 2001 with a rate of 13.3 per million.

- Adults aged 65 years and older experienced the highest mortality rate at 91.4 deaths per million population from 1990-2001. Children aged 0 to 4 had the lowest mortality rate at 2.0, despite having the highest asthma hospitalization rate.

- Females have a higher mortality rate at 20.1 compared to 16.3 per million population for males from 1990-2001.

- African Americans had a mortality rate of 61.6 per million population, compared with the rate of 16.5 per million seen in the white population from 1990-2001.

- The "Other" race category is comprised of individuals identified as Asian or Native American. The small number of deaths in this population results in annual rates that are quite variable. Overall, this group appears to have a slightly higher mortality rate than whites at 22.5 deaths per million population during 1990-2001.

Wisconsin Compared to the Nation and the Healthy People 2010 Objectives

The national health plan, Healthy People 2010 (HP 2010), has identified eight goals related to asthma. To show how Wisconsin is doing relative to these objectives and to the rest of the nation, data addressing key HP 2010 asthma objectives are presented in the following tables. Additionally, data pertaining to asthma disparities are shown. Wisconsin data are from the DHFS Division of Health Care Financing's Bureau of Health Information. National data, unless otherwise cited, are from the HP 2010 publication.

Hospitalizations

Asthma hospitalization rates were lower in Wisconsin than in the nation for all HP 2010 age groups from 1996-1998. Wisconsin asthma hospitalization rates were higher than the target HP 2010 goals set by the US Department of Health and Human Services for each age group.

Table 1. Wisconsin, National and Healthy People 2010 Target Asthma Hospitalization Rates, 1996 - 1998.

	Wisconsin Baseline 1996 - 1998** (per 10,000)	National Baseline 1998 (per 10,000)	HP 2010 Target*** (per 10,000)
Age Group (years)			
4	38.0	45.6	25.0
5 - 64*	9.7	12.5	7.7
65*	12.6	17.7	11.0

*Age-adjusted to the year 2000 US standard population
**Fiore et al., 2000
***US Department of Health and Human Services, 2000

Hospital Emergency Department Visits

In 2002, Wisconsin hospital emergency department visit rates for asthma were lower than national rates from 1995-1997. With respect to HP 2010, Wisconsin met the target rates for people five years of age or older. In children four and younger, Wisconsin rates were higher than the 2010 target.

Table 2. Wisconsin, National and Healthy People 2010 Target Asthma Hospital Emergency Department Visit Rates, 1996 - 1998.

	Wisconsin Baseline 2002 (per 10,000)	National Baseline 1995 - 1997 (per 10,000)	HP 2010 Target** (per 10,000)
Age Group (years)			
4	93.3	150.0	80.0
5 - 64*	44.0	71.1	50.0
65*	15.1	29.5	15.0

*Age-adjusted to the year 2000 US standard population
**US Department of Health and Human Services, 2000

Mortality

Mortality data from 1996-1998 indicate that Wisconsin had a lower asthma mortality rate than the nation in most age groups. Adults 65 years and older in Wisconsin had a higher asthma mortality rate than the national rate. Except for the youngest age group, Wisconsin asthma mortality rates were higher than the target HP 2010 goals.

Table 3. Wisconsin, National and Healthy People 2010 Target Asthma Mortality Rates, 1996 - 1998.

	Wisconsin Baseline 1996 - 1998 (per million)	National Baseline 1998 (per million)	HP 2010 Target* (per million)
Age Group (years)			
4	1.0	2.1	1.0
5 - 14	3.0	3.3	1.0
15 - 34	5.4	5.0	2.0
35 - 64	13.0	17.8	9.0
65	97.2	86.3	60.0

*US Department of Health and Human Services, 2000

Disparities

In Wisconsin, as in the rest of the nation, despite the fact that the prevalence of asthma is only slightly higher in non-whites as compared to whites, non-whites are hospitalized and die of asthma at a disproportionately higher rate (Mannino et. al, 2002). To show how Wisconsin compares to the nation, race-specific hospitalization and mortality rates are presented in Table 4.

Table 4. Wisconsin and National* Age-Adjusted Asthma Mortality and Hospitalization Rates by Race, 1999.**

	Wisconsin Hospitalization Rate 1999 (per 10,000)	National Hospitalization Rate 1999 (per 10,000)	Wisconsin Mortality Rate 1999 (per million)	National Mortality Rate 1999 (per million)
Race				
White	8.1	10.6	14.9	14.2
African American	49.7	35.6	71.1	38.7
Other***	22.8	31.5	11.3	20.4

*Mannino et al., 2002
**Age-adjusted to the year 2000 US standard population
***Rates are based on small numbers and should be interpreted with caution

Conclusions

Although Wisconsin asthma hospitalization and mortality rates appear to be declining, they still exceed the Healthy People 2010 target rates. Children aged 0-4 years continue to visit hospital emergency departments and are hospitalized at a rate higher than any other age group in Wisconsin, and Wisconsin adults aged 65 and over have a higher asthma mortality rate than the national rate for this age group. The African American population in the state has the highest prevalence of asthma of any racial group, as well as a disproportionate amount of hospitalizations and mortality due to asthma. As these data demonstrate, Wisconsin continues to bear its share of the nation's burden of asthma.

Wisconsin's First Asthma Summit – Driven by Surveillance

Wisconsin asthma surveillance over the years has shown that children have the highest asthma hospitalization rates in the state. This information was the impetus for the May 2001 Wisconsin Pediatric Asthma Summit, convened by the Children's Health Alliance of Wisconsin (CHAW) to begin coordinated efforts to improve asthma care for Wisconsin children. This summit was supported by funding from: the Wisconsin Department of Health and Family Services; US Department of Health and Human Services, Health and Resources and Service Administration Maternal and Child Health Title V Services Block Grant; and the Wisconsin Medical Society Foundation.

The Summit Planning Committee selected the following six priority topic areas for discussion at the summit:

- Advocacy and Legislation (now Public Policy)
- Clinical Care
- Education
- Enhanced Covered Services
- Environment
- Surveillance

Workgroups at the summit were asked to answer the following questions for their topic priority area:

- What is working well?
- What are the barriers and challenges?
- What do we need to do to improve the health of children with asthma?

These Workgroups and the products of their discussions (Workgroup note summaries) served as the foundation for the next stages of the planning process. Specifically, Summit Workgroup and Planning Committee members were asked to serve on the newly formed Wisconsin Asthma Coalition Workgroups and Executive

Committee, which moved beyond the scope of the original Summit to include all age groups with asthma in Wisconsin.

Funding from the US Centers for Disease Control and Prevention

Following the Summit, the Wisconsin Department of Health and Family Services successfully applied for funding from the US Centers for Disease Control and Prevention (CDC) to: develop a state asthma plan; conduct asthma surveillance; and establish a work-related asthma program. Since that award in September 2001, the Wisconsin Department of Health and Family Services, working with Children's Health Alliance of Wisconsin, convened the Wisconsin Asthma Coalition Executive Committee and Workgroups to begin developing the Wisconsin Asthma Plan and to formalize the Wisconsin Asthma Coalition (WAC) structure. The Wisconsin Asthma Plan would address people with asthma of all ages, race or ethnic groups, and gender, and include key environments in which people spend significant time (home, school, and workplace). The Wisconsin Asthma Coalition Executive Committee chose the Community Health Improvement Program (CHIP) model (see Appendix D) to guide the planning efforts of the WAC and the writing of the Wisconsin Asthma Plan.

The Wisconsin Asthma Coalition Workgroups

The original six Workgroups, covering priority areas decided upon at the 2001 Summit, and the newly added Work-Related Asthma Workgroup, were reconvened in March 2002 and charged with developing their sections of the Plan. At this meeting the Workgroups:

- Identified the issues, problems, needs, gaps
- Identified what is working
- Prioritized the issues, problems, needs, gaps
- Created three to five objectives to address the high priority issues
- Drafted action steps for each objective

- Identified partner organizations to achieve the action steps
- Identified resources needed
- Developed a timetable for action
- Identified performance evaluation measures (process and/or outcome)

Workgroups achieved their tasks by using the nominal group process. They also used worksheets developed by the Executive Committee to facilitate their planning and to help make the product uniform.

Workgroups met a number of times after March 2002 to refine their sections of the Workplan. DHFS and CHAW staff and Workgroup members devoted considerable effort to make their objectives and action steps SMART (specific, measurable, achievable, relevant, and time-phased).

Developing strategies to control asthma is both critical and complex. In addition to the Clinical Care Workgroup proceedings, DHFS contracted with the Wisconsin Medical Society to solicit input from the broader medical community. Using feedback from twenty meetings with professional associations, HMOs, health plans, large medical groups and health insurance companies, the Clinical Care Workgroup gained a better understanding of barriers and strategies surrounding guideline implementation. The Workgroup used this information to enhance their objectives and action steps. Appendix C contains a list of feedback sessions.

As the Wisconsin Asthma Coalition's work proceeded, Executive Committee members determined the need to address directly asthma disparities in racial or ethnic minority and low-income populations. This decision was driven by existing Wisconsin surveillance data, and several approaches were employed. First, the DHFS Minority Health Officer was asked to serve on the Executive Committee and to help guide the Coalition's efforts in this area. Second, the Minority Health Officer drafted a Disparities section for the Plan based on discussions with

community leaders and feedback from listening sessions. Next, an initial Disparities Workgroup was formed and met in May 2003 to react to and improve the draft. Subsequently, the Workgroup was expanded, and developed the final Disparities section of the Plan in July 2003.

By May of 2003, individual Workgroup meetings and a full Coalition meeting were held, and feedback was gathered from stakeholders across the state. Special sessions of the Clinical Care and Disparities Workgroups were also conducted. From these efforts, the Wisconsin Asthma Plan was finalized. It was then submitted to and approved by the Wisconsin Asthma Coalition Executive Committee in August of 2003.

Partners

To create the most comprehensive and representative statewide Asthma Plan, the Wisconsin Asthma Coalition collaborated with public and private sector asthma stakeholders in Wisconsin. The Wisconsin Asthma Coalition Workgroups and Executive Committee include a broad array of partners (both organizational and individual persons) from non-profit organizations, for-profit organizations, local coalitions, local government, academia, the medical community, and communities of color.

Listening Sessions

The Wisconsin Asthma Plan incorporates input from more than thirty listening sessions held across the state. At these listening sessions, DHFS and CHAW staff presented the draft Plan goals and objectives to over 350 stakeholders to gather their feedback and input. Listening sessions were held with a wide range of individuals interested in asthma, including providers, clinicians, advocacy groups, local health departments and boards, and business organizations. Listening sessions were also held with groups representing the diversity of the Wisconsin population,

including African American, Native American, Hispanic/Latino, and Hmong. Appendix B contains a list of these listening sessions.

Vision and Mission

The vision and mission of the Wisconsin Asthma Coalition, as written by the Coalition's Executive Committee, are as follows:

> **Vision:** Individuals with asthma in Wisconsin will attain optimal health and quality of life and asthma will be prevented to the extent possible.
>
> **Mission:** To develop and implement a sustainable statewide action plan that expands and improves the quality of asthma education, prevention, management, and services, and reduces the disproportionate burden of asthma in racial or ethnic minority and low-income populations.

Overarching Goals

The overarching goals of the Wisconsin Asthma Plan, which flow from the vision and mission statements of the Wisconsin Asthma Coalition and from surveillance findings, are as follows:

- Expand and improve the quality of asthma education, prevention, management and services
- Decrease the disproportionate burden of asthma in racial or ethnic minority and low-income populations

Included in the Coalition's goals are the Healthy People 2010 asthma goals set forth by the US Department of Health and Human Services. These goals are:

- Reduce asthma deaths

- Reduce hospitalizations for asthma
- Reduce hospital emergency department visits for asthma
- Reduce activity limitations among persons with asthma
- Reduce the number of school or work days missed by persons with asthma due to asthma
- Increase the proportion of persons with asthma who receive formal patient education, including information about community and self-help resources, as an essential part of the management of their condition
- Increase the proportion of persons with asthma who receive appropriate asthma care according to the National Asthma Education and Prevention Program (NAEPP) guidelines

The Coalition has included two additional goals, which are:

- Decrease work-related asthma
- Improve indoor and outdoor air quality

The Coalition's progress in improving the quality of life for persons with asthma in Wisconsin will be measured by our success in achieving these goals.

Specific Goals

The specific goals for each priority area of the Wisconsin Asthma Plan are:

Surveillance: To improve and expand asthma surveillance in Wisconsin

Clinical Care: Increase the use of evidence-based, best practice asthma guidelines for the diagnosis and management of asthma by all health care providers in order to optimize the quality of health care to individuals with asthma

Enhanced Covered Services: Managed care, self-insured, Medicaid, and Medicare will fund reasonable, measurable, and achievable disease management for persons with asthma

Education: To expand and improve the quality of asthma education to be consistent with the National Asthma Education and Prevention Program Guidelines (NHLBI, 2002), and to be culturally and linguistically appropriate

Environment: Reduce or control environmental factors in Wisconsin associated with asthma

Work-Related Asthma: Reduce the burden of work-related asthma in Wisconsin

Disparities: Reduce disparities in asthma diagnosis, treatment, and outcomes among racial or ethnic minority and low-income populations

Public Policy: Improve asthma care and decrease health disparities through policy change

The Workplan section of this document contains the objectives, action steps, target dates, performance measures, and potential partners for implementing the full Wisconsin Asthma Plan. The Workgroups have also begun identifying resources needed for implementation, and this will be an ongoing process.

Wisconsin Asthma Priorities

Wisconsin has its own public health plan, called Healthiest Wisconsin 2010, that also includes objectives related to asthma, and to health disparities. The Wisconsin Asthma Coalition Executive Committee adopted the US Healthy People 2010 goals related to asthma, and thought it was also critical that the Wisconsin Asthma Plan be consistent with Wisconsin statewide goals related to respiratory health and health disparities. The long-term outcome objectives of Healthiest Wisconsin 2010 related to these issues are:

- By 2010, reduce the incidence of illness and death from respiratory diseases related to or aggravated by environmental and occupational exposures

- By December 31, 2010, reduce by 50 percent the incidence of illness and death related to chemical and biological contaminants in the home
- By 2010, increase by 50% the level of social connectedness and cultural competence in community and service settings

The first two objectives are reflected in the goal of the Wisconsin Asthma Plan Environment section, which is to reduce or control environmental factors in Wisconsin associated with asthma. The last objective relates to the Disparities section of the Plan, the goal of which is to reduce disparities in asthma diagnosis, treatment, and outcomes among racial or ethnic minority and low-income populations. The objectives and action steps in these sections of the Wisconsin Asthma Plan will help to achieve the objectives of the state health plan.

WORKPLAN

The Wisconsin Asthma Plan will be considered an ongoing work in progress. The Wisconsin Asthma Coalition Executive Committee, Workgroups, and staff will annually assess the Plan and update it as needed to assure that it continues to address asthma appropriately in Wisconsin.

Goal: To improve and expand asthma surveillance in Wisconsin

Objective A: By June 2003, conduct initial review and assure compliance with confidentiality requirements associated with each dataset included in the asthma surveillance system; annually review these requirements.

Objective B: By May 2004, develop a comprehensive Wisconsin asthma statistics report using government data sources. This detailed report will be issued every three years and brief reports, using selected available data, will be issued annually.

Objective C: By June 2004, expand Wisconsin asthma surveillance to include schools, childcare facilities, WIC clinics, and Head Start programs.

Objective D: By September 2004, identify resources needed and assure sustainable, efficient and effective asthma surveillance in Wisconsin.

Objective E: By May 2005, conduct a feasibility study of linking asthma surveillance data and environmental monitoring data.

Objective F: By December 2008, expand asthma surveillance to include the use of pharmacy and pharmaceutical data.

Rationale:

- The Surveillance Workgroup identified these objectives as priorities in part to address findings from the Wisconsin Pediatric Asthma Summit in May 2001. At that meeting, the Workgroup found that some of the barriers to creating a better asthma surveillance system in the state included a lack of resources at the state level; lack of a statewide surveillance plan; data confidentiality requirements; and a lack of data integration.

SURVEILLANCE

- Asthma surveillance in Wisconsin historically has been limited. Wisconsin lacks a regularly issued comprehensive asthma surveillance report that includes the tracking of asthma trends, and there are insufficient or inconsistent resources to conduct comprehensive ongoing asthma surveillance. Healthy People 2010 goals from the US Department of Health and Human Services includes a goal for asthma surveillance: "(Developmental) Establish in at least 25 states a surveillance system for tracking asthma death, illness, disability, impact of occupational and environmental factors on asthma, access to medical care, and asthma management."
- Asthma surveillance should be expanded beyond existing datasets like hospital discharge, Medicaid, and death records to include school-based asthma prevalence and absences, the relationship between asthma and the environment, causes of asthma deaths, use of non-prescription drugs for asthma treatment, pharmacy practices, and laboratory diagnosis information that will help identify new cases. Appropriate planning and decision making in public health requires the availability of good data for the key public health activities of program planning, implementation, and evaluation (Boss et al., 2001).
- All surveillance activities need to be in compliance with federal and state privacy and confidentiality regulations and must adequately ensure the privacy and confidentiality of medical data.

Objective A: By June 2003, conduct initial review and assure compliance with confidentiality requirements associated with each dataset included in the asthma surveillance system; annually review these requirements.

Action Steps	Target Date	Performance Measures
1. Identify the datasets and related specific variables that will be included in the asthma surveillance system	Met	Complete lists of datasets, code books, and variables for analysis
2. Conduct annual review of confidentiality requirements associated with each of these surveillance system datasets • Data source requirements • Federal requirements including HIPAA • Legal counsel review	Met, Ongoing	Reference manual of confidentiality requirements for each dataset and timely updates to this manual
3. Develop and maintain appropriate Memoranda of Understanding with institutions that "own" the data to assure procedures protecting confidentiality	Met, Ongoing	Signed Memoranda of Understanding
4. Obtain Institutional Review Board approval, as needed, for specific work	Ongoing	Written approval from Institutional Review Board or other approval institutions
5. Develop an understanding with Centers for Disease Control and Prevention regarding what data and reports will be released to them while still meeting confidentiality requirements associated with surveillance datasets	December 2003, Ongoing	Documented agreement

Objective B: By May 2004, develop a comprehensive Wisconsin asthma statistics report using government data sources. This detailed report will be issued every three years and brief reports, using selected available data, will be issued annually.

Action Steps	Target Date	Performance Measures
1. Identify components of the report; identify users and data providers. Report will include: • Asthma deaths, hospitalizations, emergency department visits, asthma management, and activity limitations • When feasible, asthma data will be presented by: age, gender, race and ethnicity, income, and residence or geographic location	Met	Sample draft of desired surveillance report
2. Assure staff to work on the report	Met	Staff for project tasks
3. Determine what tables will be included in the report and qualify to what level data will be reported	Met	Sample(s) data tables
4. Identify data required and organizations that maintain the data; verify with resources that needed data can be acquired	Met	Tie in with #1 above
5. Define and assure standardized definition (e.g., case classification) of asthma for each dataset and assure comparability with definitions being used nationally	Met	Documentation of definitions for each dataset
6. Have a committee review and comment on proposed report elements and report target audiences	Met	Revised report elements; list of target audiences
7. Develop Memoranda of Understanding with other Wisconsin Department Health and Family Services Divisions or governmental units to assure data access	Met	Signed Memoranda of Understanding
8. Decide on statistical data analysis methods; consult with Centers for Disease Control and Prevention; include 1) standardizing hospitalization rates using prevalence; and 2) examine gender disparities in the older age groups	October 2003	Analysis plan

Action Steps	Target Date	Performance Measures
9. Perform statistical analysis and interpret results	Met	Statistical report
10. Have a draft report reviewed by Centers for Disease Control and Prevention and/or Wisconsin peers	February 2004	Reviewers' comments
11. Write final report	March 2004	Final Report
12. Identify target audiences for the report	February 2004	List of names and addresses of target audiences
13. Produce, present, and disseminate the report and a short summary report	April 2004	Press release, listserv release, website report, electronic and hard copy of report and executive summary, presentations for statewide and other meetings
14. Explore means of collecting data on asthma management practices (e.g., HEDIS measures) for future asthma reports	December 2005	List of sources of data, list of questions to address, list of specific variables from existing databases
15. Explore adding question(s) on missed school or work due to asthma to the Family Health Survey	January 2005	Questions developed; estimated costs delineated
16. Explore adding a question to the Family Health Survey on persons with asthma receiving formal patient education to determine baseline level and progress toward Healthy People 2010 Objectives	January 2005	Questions developed; estimated costs delineated

Objective C: By June 2004, expand Wisconsin asthma surveillance to include schools, childcare facilities, WIC clinics, and Head Start programs.

Action Steps	Target Date	Performance Measures
1. Identify the questions for school-based surveys	Met	List of questions
2. Review South Carolina's school surveillance project and results	January 2004	Survey plan based on results of query
3. Examine school-based surveys to which asthma questions could be added (e.g., Oral Health Survey, Youth Tobacco Survey, Youth Risk Behavior Survey)	Met	Survey plan based on results of query
4. Conduct pilot school-based asthma survey of elementary school children (Fight Asthma Milwaukee Allies pilot or other)	August 2004, Ongoing	Baseline data from Milwaukee pilot: • Milwaukee Pilot program evaluation • Complete survey data, data analysis and reporting • Compilation of other current asthma school-based surveys • Final school asthma survey tool
5. Conduct statewide school-based survey • Develop a methodology for expanding detailed asthma school surveillance outside of Milwaukee • Conduct survey • Conduct statistical analysis • Produce and disseminate report	Met, Ongoing	Final revised survey instrument; statewide survey; report on survey results; release report through press release, various media, and presentations
6. Continue gathering and compiling data via ongoing surveys of children at Awesome Asthma School Days at the Children's Health Education Center in Milwaukee	Ongoing	Reports
7. Conduct WIC clinic-based asthma surveys • Conduct pilot in Milwaukee • Expand to select areas in the state	2003-04 2008	Reports on results

Action Steps	Target Date	Performance Measures
8. Conduct Head Start based asthma surveys • Conduct pilot survey • Expand based on results of pilot	2006 2008	Final survey tool and final report on results of pilot survey
9. Conduct feasibility study of childcare centers	2007	Feasibility report
10. Conduct survey of childcare centers	2008	Report on results of survey

Objective D: By September 2004, identify resources needed and assure sustainable, efficient and effective asthma surveillance in Wisconsin.

Action Steps	Target Date	Performance Measures
1. Identify current Wisconsin Department of Health and Family Services resources dedicated to asthma surveillance	Met	Summary of Wisconsin Department of Health and Family Services surveillance resources
2. Develop a list of organizations and institutions conducting asthma surveillance, including a brief description of their projects	October 2003	List of organizations and institutions conducting surveillance including project description
3. Determine what additional resources are needed to sustain asthma surveillance	March 2004	Business plan
4. Apply to Centers for Disease Control and Prevention for implementation grant to sustain surveillance	August 2004	Grant application
5. Identify and seek other sources of support (financial, in-kind) for asthma surveillance	Ongoing	Applications, funding, in-kind support

Objective E: By May 2005, conduct a feasibility study of linking asthma surveillance data and environmental monitoring data.

Action Steps	Target Date	Performance Measures
1. Identify the questions to explore via linking asthma surveillance and environmental data	January 2004	Literature review summary and list of questions to explore
2. Examine environmental data available, including those specified in the Environment section of the Wisconsin Asthma Plan	January 2004	List of governmental environmental data and their sources
3. Determine which governmental health and environmental datasets could be linked; consider which variables to link including: data completeness, years covered; use data that could address: • Air quality differences in the rural vs. urban setting • Routine air monitoring vs. emergency events	June 2004	List of governmental health data sets and the summary report of linking issues for specific datasets
4. Determine data access and confidentiality requirements from data resources	June 2004	Summary report of access and confidentiality requirements
5. Identify staff and fiscal resources needed to implement studies linking data	September 2004	Summary report of staff and fiscal requirements
6. Write a report summarizing the findings of the feasibility study and recommendations	May 2005	Final report on feasibility study
7. Conduct linkage of data sets	December 2007	Report on results, papers
8. Explore means of collecting data on buildings constructed and operated to meet indoor air quality guidelines	December 2007	Report on data sources, specific data available, and access and cost issues
Please note: See Work-related Asthma section of plan for objectives related to asthma and the work environment		

Objective F: By December 2008, expand asthma surveillance to include the use of pharmacy and pharmaceutical data.

Action Steps	Target Date	Performance Measures
1. Conduct feasibility study of using pharmacy data for surveillance	October 2005	Final report on feasibility study
2. Conduct assessment of whether pharmacists provide asthma education to patients: • Examine Medicaid data to see percent filing claims for patient education including, but not limited to: how often and what type of reimbursement • Contact private payers to determine whether they reimburse pharmacists for patient asthma education • Contact health maintenance organizations to find out their payment structure for pharmacist-provided asthma education and whether they support or train pharmacists in receiving asthma education • Contact the Wisconsin Pharmacy Association regarding reimbursement for asthma education • Contact the pharmacy schools to determine whether asthma education is included in the standard curriculum	January 2006	Final report on results of assessment
3. Conduct analysis of relationship between asthma medication purchases and asthma prevalence, hospitalizations and emergency department visits by geographic area	January 2008	Final report on analysis findings
4. Geo-map prescription practices related to environmental factors	January 2009	Final report on analysis and mapping findings
5. Conduct analysis to examine pharmaceutical use among populations disproportionately affected by asthma	January 2009	Final report on analysis

Potential Partner Organizations for Surveillance:

Wisconsin Asthma Coalition (WAC)
Health professional associations
WAC Surveillance Workgroup
Health related organizations
Other WAC Workgroups
Insurance and benefit providers
Wisconsin Department of Health and Family Services
Local health departments
US Centers for Disease Control and Prevention
Parent teacher associations
Emergency Department Allies
Peer review organizations
Fight Asthma Milwaukee Allies
Pharmaceutical companies
Advocacy organizations
Pharmacies
Child education centers
Pharmacists and their professional associations
Childcare centers
Public health nurses
Data management companies
School district authorities
Data providers
Schools of pharmacy
Federal agencies
State agencies
Health care consultants
Survey contractors
Health maintenance organizations
Universities and colleges
Hospitals and health systems
WIC Clinics

Goal: Increase the use of evidence-based, best practice asthma guidelines for the diagnosis and management of asthma by all health care providers in order to optimize the quality of health care to individuals with asthma

Objective A: By April 2006, provide professional education and resources for implementing the National Heart, Lung, and Blood Institute (NHLBI) Expert Panel Report 2: Guidelines for the Diagnosis and Management of Asthma (NHLBI, 2002) for the diagnosis and management of asthma.

Objective B: By April 2007, build capacity within healthcare organizations for identifying and monitoring patients with asthma to improve asthma management.

Objective C: By July 2007, build capacity within healthcare organizations for standardizing asthma quality measurement to improve asthma care.

Rationale:

- The effectiveness of treatment for chronic disease depends on its efficacy, and the rate of adherence or compliance. Reducing barriers and developing strategies to implement the asthma guidelines will help clinicians achieve the goals of asthma management: preventing chronic symptoms and exacerbations, maintaining normal activity and lung function, avoiding missed school and work and eliminating sleep disruption.
- The Clinical Care Workgroup identified these objectives as priorities in part to address findings from the Wisconsin Pediatric Asthma Summit in May 2001. At that meeting, the Workgroup found that some of the barriers to improving clinical care for asthma patients included: lack of clinicians following treatment guidelines; lack of consistency in diagnosis; and need for consistency in treatment and education across disciplines through use of best practice guidelines.

Objective A: By April 2006, provide professional education and resources for implementing the National Heart, Lung, and Blood Institute (NHLBI) Expert Panel Report 2: Guidelines for the Diagnosis and Management of Asthma (NHLBI, 2002) for the diagnosis and management of asthma.

Action Steps	Target Date	Performance Measures
1. Create a web-based asthma learning resource center for all clinicians to access information on: • Key clinical activities for quality asthma care related to assessment and monitoring, control of factors contributing to asthma severity, pharmacotherapy, education for partnership in care • Novel professional education approaches • Models of staffing/team functioning (disease management, asthma education, on-site specialist training, champion approach)	January 2005	Location and staffing of learning resource center identified
2. Identify examples of print and electronic materials	April 2005	Materials identified
3. Evaluate and select materials based on usability, compliance with guidelines, and effectiveness with limited-English proficient and racial/ethnically diverse populations	October 2005	Materials selected
4. Identify and select educational programs and examples of staffing models to include in the learning resource center	October 2005	Educational programs and staffing models selected
5. Develop procedures for: • Requesting resources, • Tracking requests for resources • Updating resources	January 2006	Procedures developed
6. Make resources available through the learning resource center	April 2006	Resources available on web site
7. Promote the learning resource center using marketing and communication techniques and assist clinicians in utilizing all of the resources	April 2006	Marketing campaign implemented
Please note: See Education section of plan for objectives related to patient education		

Objective B: By April 2007, build capacity within health care organizations for identifying and monitoring patients with asthma to improve asthma management.

Action Steps	Target Date	Performance Measures
1. Define criteria that will be used to identify patients with asthma (health plan and non-health plan patients). [Explore audit procedures used by National Committee for Quality Assurance and Wisconsin Quality Improvement Organization (MetaStar). Determine whether similar procedures could be used to reliably identify patients with asthma throughout the state.]	January 2007	Identification criteria selected
2. Agree upon surrogate markers to identify high and low risk patients (e.g., claims data for ER visits, pharmacy data, chart review)	January 2007	Surrogate stratification markers identified
3. Promote identification and ongoing monitoring of patients, including use of information systems, to: • Flag patients who need follow up (e.g., routine follow-up visits, ER/Urgent care visits, missed appointments, beta agonist refills) • Identify the monitoring activities to be addressed at each visit (e.g., review of medication usage, action plan, patient self-assessment form)	April 2007	Percent of health care organizations tracking patients with asthma

Objective C: By July 2007, build capacity within health care organizations for standardizing asthma quality management to improve asthma care.

Action Steps	Target Date	Performance Measures
1. Define quality indicators that will be used to measure and publicly report clinical quality of care for patients with asthma. [Explore audit and reporting procedures used by National Committee for Quality Assurance and Wisconsin Quality Improvement Organization (MetaStar). Determine whether similar procedures could be used to audit quality measure reporting.]	April 2007	Quality indicators defined
2. Promote the use of evidence-based standardized asthma management tools throughout health care organizations to facilitate the measurement of assessment and monitoring. The tools should be effective with limited-English proficient and racial/ethnically diverse populations. The tools should include: • Asthma assessment tool • Asthma action plan • Patient self-assessment form for follow up	July 2007	Percent of health care organizations using the asthma management tools

Potential Partner Organizations for Clinical Care:

Wisconsin Asthma Coalition
Managed care organizations
Department of Health and Family Services
Medicaid
Asthma care specialists
Medical foundations
Funding organizations (Robert Wood Johnson)
Pharmaceutical companies
Health care insurance companies
Physician champions
Health care systems/organizations
Professional organizations

Goal: Managed care, self-insured, Medicaid, and Medicare will fund reasonable, measurable, and achievable disease management for persons with asthma.

Objective A: By December 2008, assist stakeholders to prove that asthma disease management is cost-effective.

Objective B: By January 2009, connect the business case or return on investment for asthma disease case management to implementation of activities including, but not limited to: improved patient and provider education, patient behavior change, and smoking prevention and cessation.

Rationale:

- It is essential to extend the type and extent of coverage by third-party reimbursement to improve asthma care in Wisconsin.
- The Enhanced Covered Services Workgroup identified these objectives as priorities in part to address findings from the Wisconsin Pediatric Asthma Summit in May 2001. At that meeting, the Workgroup found that some of the barriers in this area included: a need to identify elements required in an effective disease management program; a need to better utilize data that is collected; and a lack of knowledge about asthma among patients and providers of coverage.

Objective A: By December 2008, assist stakeholders to prove that asthma disease management is cost-effective.

Action Steps	Target Date	Performance Measures
1. Develop a one-page white paper that summarizes the business case (return on investment) for asthma disease management	Complete	Paper completed
2. Develop a standardized data algorithm for identifying those with asthma	Complete	Algorithm completed
3. Approach selected HMOs, self-insured organizations, Medicaid and Medicare to discuss proposed analysis	2004	At least three organizations agree to do analysis
4. Select intervention to test	October 2003	Workgroup minutes, project proposal
5. Identify data elements needed from claims and health data	October 2003	List of data elements
6. Determine data collection methods	November 2003	Project proposal
7. Design database	November 2003	Project proposal
8. Write business case project implementation proposal that includes budget and methods	December 2003	Project proposal
9. Collect data from pilot sites	2004 - 2007	Annual status report
10. Assist organizations determined above in implementing intervention and data reporting	2004 - 2007	Progress reports
11. Analyze data collected	2007 - 2008	Final report
12. Write report summarizing business case analysis results	2008	Final report
13. Distribute report to key stakeholders	2008 - 2009	Distribution list

Objective B: By January 2009, connect the business case or return on investment for asthma disease case management to implementation of activities including, but not limited to: improved patient and provider education, patient behavior change, and smoking prevention and cessation.

Action Steps	Target Date	Performance Measures
1. Work with other Workgroups as resource to connect return on investment to Workgroup product, i.e., asthma education, on-site specialist training, champion approach	Ongoing	Ongoing support to other Workgroups
2. Assist in outcome measurement of Wisconsin Asthma Plan components as they relate to the business case; tie dollars to various products of Workgroups	Ongoing	Product equates to saved dollars

Potential Partner Organizations for Enhanced Covered Services:

Wisconsin Asthma Coalition
Enhanced Covered Services Workgroup
Other WAC workgroups
Health related associations
Wisconsin Department of Health and Family Services
APS Healthcare, Inc.
Recognized asthma clinician leaders
Health Plans
Insurance companies

Goal: To expand and improve the quality of asthma education to be consistent with the National Asthma Education and Prevention Program Guidelines (NHLBI, 2002), and to be culturally and linguistically appropriate

Objective A: Beginning May 2005, provide a public awareness campaign to address asthma as a chronic inflammatory disease that cannot be cured but can be controlled.

Objective B: Beginning December 2005, one to two regional or statewide service providers will sponsor asthma management trainings for their membership each year.

Objective C: By December 2005, five regional asthma education plans (based on the five Division of Public Health regions) with implementation strategies will be developed and adopted by the Wisconsin Asthma Coalition.

Objective D: By December 2007, 20 percent of Wisconsin healthcare systems that participate in the Wisconsin Asthma Coalition will provide family-centered, developmentally appropriate, and culturally and linguistically appropriate asthma educational materials, consistent with the National Asthma Education and Prevention Program Guidelines.

Objective E: By December 2009, have a total of 70 certified asthma educators statewide, with a minimum of ten per each of the five Division of Public Health regions, with the exception of the Southeastern region and the Southern region (30 and 15 certified asthma educators, respectively).

EDUCATION

Rationale:

- Many people do not understand what asthma is, how it is treated, how it is prevented, and what can be done to help someone who has asthma.
- Service providers, community agencies, and schools should understand basic asthma management, its triggers, and what to do in an asthma emergency.
- Multiple resources are available for asthma education without guidance as to which components comply with the National Asthma Education and Prevention Program. It is essential that asthma educators follow a standard of care based on the National Asthma Education and Prevention Program guidelines.
- The Education Workgroup identified these objectives as priorities in part to address findings from the Wisconsin Pediatric Asthma Summit in May 2001. At that meeting, the Workgroup found that some of the barriers that needed to be addressed included: lack of asthma education for consumers; health care providers not following accepted best practice models for asthma care; asthma is not seen as a priority; and there is a lack of consistency in educational messages about asthma.

Objective A: Beginning May 2005, provide a public awareness campaign to address asthma as a chronic inflammatory disease that cannot be cured but can be controlled.

Action Steps	Target Date	Performance Measures
1. Identify one or two key public media messages targeting Wisconsin's diverse population	July 2004	Key media messages identified
2. Identify facts or talking points relevant to the key public messages	July 2004	Facts and talking points identified
3. Research media methods most effective with diverse populations	January 2005	Media methods researched and selected
4. Review existing media kits to assess applicability to Wisconsin populations	October 2004	Existing media kits reviewed
5. Collaborate with media specialists to develop and deliver effective media kit	February 2005	Effective media kit developed and delivered
6. Utilize Wisconsin Asthma Coalition members and partners to display key messages in existing programs	December 2006	50% of Wisconsin Asthma Coalition members display identified messages in existing programs
7. Evaluate the impact of the media campaign	Ongoing	Impact evaluated and changes made as appropriate

Objective B: Beginning December 2005, one to two regional or statewide service providers will sponsor asthma management trainings for their membership each year.

Action Steps	Target Date	Performance Measures
1. Outreach and partner with one to two regional or statewide organizations that represent targeted groups, including, but not limited to: • Childcare providers • Coaches, physical education instructors • Community outreach workers • Elder care facilities • Employers • Foster parents • Payers • Public health nurses • School nurses • Teachers • Universities • EMT and paramedics • Faith-based organizations • Pharmacists • Peer education	July 2004	Target groups identified
2. Recommend educational approaches and evidence-based curricula for each targeted group	October 2004	Educational approaches and curricula identified and recommended
3. Identify and prepare training for selected groups	December 2004	Trainings identified and prepared
4. Develop infrastructure for ongoing training and networking	December 2005	Infrastructure developed
5. Promote and implement training opportunities for the selected groups	Ongoing	Two to four trainings offered annually

Objective C: By December 2005, five regional asthma education plans (based on the five Division of Public Health regions) with implementation strategies will be developed and adopted by the Wisconsin Asthma Coalition.

Action Steps	Target Date	Performance Measures
1. Identify funding to support asthma training infrastructure	July 2004	Funding identified
2. Identify regional training infrastructure • Identify training needs • Identify target populations with asthma disparities • Identify educators • Identify Nationally Certified Asthma Educators • Identify funding needs • Identify educational approach	January 2006	Regional training infrastructure identified
3. Develop partnerships to adopt regional infrastructure	March 2006	Partnerships developed
4. Evaluate implementation of the training plan	October 2007	Evaluation completed
5. Modify programs based on evaluation	October 2008	Programs modified as indicated by evaluation

EDUCATION

Objective D: By December 2007, 20 percent of Wisconsin healthcare systems that participate in the Wisconsin Asthma Coalition will provide family-centered, developmentally appropriate, and culturally and linguistically appropriate asthma educational materials, consistent with the National Asthma Education and Prevention Program Guidelines.

Action Steps	Target Date	Performance Measures
1. Collect examples of educational materials that are currently being used throughout Wisconsin • Request Coalition members and other healthcare systems to share currently used tools	July 2004	Educational materials collected
2. Utilize evaluation tools, review list of materials and tools to ensure usability and compliance with NAEPP	December 2004	Materials reviewed for usability and compliance with NAEPP
3. Survey Coalition members and other healthcare systems to determine current utilization of educational materials and perceived needs	July 2004	Survey created and mailed to 100% of Coalition members, 50% return rate
4. Identify educational materials and approaches, including alternative therapies, for diverse populations with asthma disparities	December 2005	Educational materials identified
5. Create a list of culturally and linguistically appropriate tools consistent with NAEPP	December 2005	List of tools created
6. Promote recommended educational tools to asthma educators within all healthcare systems	December 2006	List of recommended educational tools distributed to 100% healthcare systems
7. Develop a mechanism to access resources	December 2006	Mechanism developed
8. Develop mechanism for ongoing update of resource list	Ongoing	Mechanism developed
9. Survey Coalition members and other healthcare systems to assess use of recommended educational materials	December 2006	Survey created and mailed to 100% of Coalition members, 50% return rate, Coalition members have increased use of listed educational tools by 10%

Objective E: By December 2009, have a total of 70 certified asthma educators statewide, with a minimum of ten per each of the five Division of Public Health regions, with the exception of the Southeastern region and the Southern region (30 and 15 certified asthma educators, respectively).

Action Steps	Target Date	Performance Measures
1. Create a list of available preparatory courses and certification exam opportunities and disseminate throughout each region	July 2004	List created and disseminated
2. Implement strategies for asthma educators to take the certification exam in each region • Offer scholarships for Coalition members • Offer regional preparatory trainings • Partner with existing training programs • Partner with professional health associations	October 2004	Asthma educators take exam. Obtain baseline number of certified educators the first year, double the number the second year, double that number the third year
3. Recommend payers reimburse for education provided by a certified asthma educator	July 2004	White paper written and disseminated
4. Provide to payers a list, or access to a list, of Nationally Certified Asthma Educators in Wisconsin	July 2004	List is provided
5. Monitor and track the number of Nationally Certified Asthma Educators in each region	Ongoing	Number of asthma educators is monitored

Potential Partner Organizations for Education:

Wisconsin Asthma Coalition
Healthcare delivery organizations
Education Workgroup
Health-related associations
Enhanced Covered Services Workgroup
Local boards of health, education
Local health departments
Ad hoc communication committee
Marketing agencies
Wisconsin Department of Health and Family Services
Wisconsin Department of Public Instruction
Organizations providing preparation class for National Asthma Educator Certification exam
Fight Asthma Milwaukee Allies
Payer groups
Pharmacy Industry
National Asthma Educator Certification Board
Philanthropic organizations
Advocacy organizations
Prenatal programs
Child care organizations
Professional organizations
Community health clinics
Schools
Community-based organizations
State agencies
Educational agencies
Federal agencies

Goal: Reduce or control environmental factors in Wisconsin associated with asthma

Objective A: By January 2007, improve the air quality in Wisconsin's indoor environments.

Objective B: By January 2007, evaluate and improve the capacity of schools and school districts to control asthma risks and promote health.

Objective C: By January 2009, improve outdoor air quality in Wisconsin's communities.

Rationale:

- The Environment Workgroup identified these objectives as priorities in part to address findings from the Wisconsin Pediatric Asthma Summit in May 2001. At that meeting, the Workgroup found that some of the barriers related to asthma and the environment included: limited public knowledge of indoor/outdoor air quality and how these can affect health; limited local data available; and denial of existing problems.
- Many environmental asthma triggers have been identified that are amenable to intervention.
- According to the Institute of Medicine's report on indoor air quality and asthma, it is critical to devote resources to improving indoor air quality because most people now spend the majority of their time indoors. There are many exposures in the indoor environment that are believed to be linked with asthma, and therefore efforts to improve indoor air quality may benefit asthma sufferers as well as perhaps leading toward primary prevention of asthma (Institute of Medicine, 2000).

Objective A: By January 2007, improve the air quality in Wisconsin's indoor environments.

Action Steps	Target Date	Performance Measures
1. Data and Information • Identify asthma risks in the indoor environment • Identify a standardized protocol for home Indoor Air Quality assessment	January 2007	Compilation of residential asthma hazards; protocols identified and tested
2. Education • Encourage individuals with asthma to be evaluated by an allergist to identify environmental triggers • Disseminate best practices for home construction and renovation • Extend efforts to eliminate environmental tobacco smoke in the residential environment • Identify and disseminate best practices to control asthma triggers	January 2007	Individuals with asthma are aware of environmental triggers; best practices identified, industry and homeowner education provided; reduction in indoor smoking, implement smoke free pledge program, implement local ordinances; materials produced and distributed
3. Policy • Support Medicaid reimbursement of home visits for individuals with asthma	January 2007	Benefits extended, homes visited

Objective B: By January 2007, evaluate and improve the capacity of schools and school districts to control asthma risks and promote health.

Action Steps	Target Date	Performance Measures
1. Data and Information • Establish ongoing tracking system to monitor school systems that have implemented the Environmental Protection Agency's program *Tools for Schools* • Develop and administer survey to evaluate existing school based capacity to manage and improve indoor air quality • Conduct site visits of sample of representative school buildings to characterize the variability in school building ventilation systems and practices • Re-administer survey	January 2005 - 2007	Tracking system established, number of schools in high risk communities implementing *Tools for Schools* assessed; survey developed, pilot tested, administered; site visits conducted, systems and practices described; survey re-administered
2. Education • Identify and distribute best practice Indoor Air Quality guidelines for schools • Provide information to school administrators and building maintenance staff • Publicize schools' self interest in addressing asthma issues • Acknowledge schools as a resource for community education • Determine baseline data of acute asthma episodes occurring during school hours • Acknowledge and promote roles of school based health centers • Work with daycare licensing to provide information to childcare providers about medical management of asthma and environmental asthma hazards	January 2005, Ongoing	Respond to survey data and visit representative sample of schools to describe variation in school ventilation systems and practices; information developed, information distributed; best practices identified and disseminated; educational curriculum materials regarding asthma triggers and effective management developed, tested, and delivered
3. Policy • Promote alternative fuels, anti-idling, and diesel bus retrofit programs focused on high risk communities • Promote integrated pest management programs in Wisconsin schools	January 2007	Increase number of buses retrofitted by 10% annually, Increase number of buses converted in high risk communities by 10% annually, Increase number of school districts implementing integrated pest management by 10% annually

Objective C: By January 2009, improve outdoor air quality in Wisconsin's communities.

Action Steps	Target Date	Performance Measures
1. Data and Information • Identify data and information resources related to asthma rates and susceptible populations • Identify existing information resources related to air quality in Wisconsin and key contacts who manage databases • Identify opportunities to link air quality data and health indicator data • Use Geographic Information System tools to map asthma prevalence to prioritize high risk communities for pilot projects and interventions • Identify community assets in high risk areas to use as leveraging points for pilot projects and interventions	January 2005	Materials delivered; databases described; contacts identified; opportunities identified; analysis conducted; mapping completed; assets identified
2. Education • Improve interagency collaboration to deliver a tool kit of common messages regarding air quality and what individuals can do to contribute to clean air • Inform citizens and advocacy groups how to work with the media regarding the importance of air quality and individual actions • Promote collaboration with the universities to analyze data and provide information on educational approaches and outreach • Educate the public and health professionals about respiratory hazards associated with open burning and production and use of alternate fuels (e.g., ethanol, corn, coal kerosene, wood) for home heating	January 2007	Materials delivered to local public health departments and health practitioners in high risk areas; training and information materials delivered; research projects identified and completed; information and messages developed and delivered
3. Policy • Identify potential funding sources for alternatives to diesel as a fuel for school buses; apply for funding • Support implementation of new Particulate Matter 2.5 and ozone air standards • Encourage counties to adopt and enforce open burning ordinances	January 2009	Resources identified; proposal submitted, number of buses retrofitted in high risk communities; new standards implemented; number of ordinances adopted; changes in air quality

Potential Partner Organizations for Environment:

Wisconsin Asthma Coalition
Local government
Public Policy Workgroup
Local public health associations
Education Workgroup
Local public health departments
Surveillance Workgroup
Medical schools
Wisconsin Department of Health and Family Services
Parent teacher associations
Pharmacists
University of Wisconsin Healthy Homes Project
Private home inspectors
Professional societies
Wisconsin Medical Society
School boards
Advocacy organizations
School health
Community-based clinics
School nurses
Community-based organizations
Schools
Department of Agriculture, Trade, and Consumer Protection
State agencies
Early education programs
Teacher organizations
Educational organizations
Tobacco coalitions
Faith-based organizations
Tobacco control staff
Federal agencies
Transportation trade associations
Health maintenance organizations
Universities/colleges/technical colleges
Health related associations
Utility companies
Healthcare providers
Ventilation contractors
Home construction industry
Weatherization agencies
Hospitals

Goal: Reduce the burden of work-related asthma in Wisconsin

Objective A: By April 2004, develop a work-related asthma surveillance program, and begin issuing an annual Wisconsin Work-Related Respiratory Disease Report.

Objective B: By September 2004, develop work-related asthma educational materials for employees, employers, and practitioners, and by April 2007, provide these materials in alternative formats.

Objective C: By April 2005, develop and disseminate medical diagnosis guidelines for work-related asthma.

Rationale:

- Currently, the extent of work-related asthma in Wisconsin is unknown and few educational materials have been developed to inform stakeholders such as employers, employees, and healthcare providers about work-related asthma.

Objective A: By April 2004, develop a work-related asthma surveillance program, and begin issuing an annual Wisconsin Work-Related Respiratory Disease Report.

Action Steps	Target Date	Performance Measures
1. Obtain Behavioral Risk Factor Survey data regarding work-related asthma	Met	Behavioral Risk Factor Survey data are obtained
2. Collect worker's compensation information regarding work-related asthma claims	Met, Ongoing	Data on worker's compensation is compiled
3. Collect hospital discharge data on work-related asthma in Wisconsin	Met, Ongoing	Hospital discharge data is compiled
4. Collect Wisconsin fatality data on work-related asthma	October 2003	Fatality data are collected
5. Develop and administer work-related asthma questionnaire to employees, analyze data, and disseminate results	October 2003, Ongoing	Data from employee asthma questionnaire is compiled
6. Obtain work-related asthma data collected by other Sentinel Event Notification System for Occupational Risks states	November 2003	Work-related data from other Sentinel Event Notification System for Occupational Risks states are obtained
7. Collect Wisconsin clinic visit data, especially those focusing on clinics providing care to non-English speaking clients	April 2004	Clinic data are collected
8. Develop and administer work-related asthma questionnaire to individuals who are seen in asthma clinics, analyze data, and disseminate results	April 2004, Ongoing	Data from work-related asthma questionnaire is compiled and analyzed
9. Write and distribute annual *Wisconsin Work-Related Respiratory Disease Report*	April 2004, Ongoing	Annual *Wisconsin Work-Related Respiratory Disease Report* written and available for distribution
10. Collect data on smokefree work environments and types of industries and worksites that are smokefree	April 2007	Smokefree work environments and industries data are collected

Objective B: By September 2004, develop work-related asthma educational materials for employees, employers, and practitioners, and by April 2007, provide these materials in alternative formats.

Action Steps	Target Date	Performance Measures
1. Collect and develop comprehensive training materials to educate employers regarding work-related asthma • Develop educational brochures that have specific, well-known chemicals identified in medical literature that contribute to asthma • Provide educational articles in industry-specific newsletters	April 2004	Three brochures for employers in specific industries and one brochure in isocyanides will be developed and ready for distribution; two educational articles about work-related asthma will be published in industry-specific newsletters
2. Provide educational materials on work-related asthma to clinicians	April 2004	Work-related asthma information will be made available to clinicians
3. Educate employees regarding work-related asthma • Develop brochures on work-related asthma • Provide health and safety training and wellness clinics • Provide educational materials through ethnic support organizations, local public health departments, religious organizations, and to farmers and other agricultural groups	September 2004	Brochures for employees will be developed and disseminated to at least one organization within each of the listed categories annually.
4. Gather existing and/or develop new bilingual educational materials and disseminate	April 2007	Materials will be available in languages other than English

Objective C: By April 2005, develop and disseminate medical diagnosis guidelines for work-related asthma.

Action Steps	Target Date	Performance Measures
1. Develop a case definition for work-related asthma • Define terms such as presumptive, possible, probable, claimed, and proven asthma • Differentiate between work-related asthma, aggravation of asthma, and Reactive Airway Dysfunction Syndrome (RADS) • List medical history, medical test, and results necessary for a proven case of work-related asthma • Provide work-related asthma references to clinicians	April 2005	Case definition developed; terms used when describing work-related asthma will be defined; tests necessary in order to have a diagnosis of work-related asthma will be defined; list of resources will be available for clinicians
2. Disseminate work-related asthma case definitions to insurance companies and clinicians • Create and disseminate educational brochure and poster	April 2005	Case definitions disseminated; brochure and poster created and disseminated

Potential Partner Organizations for Work-Related Asthma:

Work-related Asthma Workgroup
Medical schools
Education and Environment Workgroups and other Workgroups
National asthma Sentinel Event Notification System for Occupational Risks (SENSOR) states
Wisconsin Department of Health and Family Services
Private worker's compensation insurance carriers in Wisconsin
Religious organizations
Wisconsin Medical Society
Respiratory specialists
Advocacy organizations
State agencies
Ethnic support organizations
Trade organizations
Farming co-ops
Universities
Federal agencies
Wisconsin employers
Health related associations
Wisconsin unions
Insurance companies
Work-related health nurses
Local safety councils
Work-related specialist

Goal: Reduce disparities in asthma diagnosis, treatment, and outcomes among racial or ethnic minority and low-income populations

Objective A: By December 2005, improve asthma education, outreach, and the exchange of meaningful health information with racial or ethnic minority and low-income communities.

Objective B: By January 2006, increase knowledge and awareness of evidence-based asthma disparities interventions among consumers and providers serving racial or ethnic minority and low-income communities.

Objective C: By May 2008, increase the proportion of racial or ethnic minority and bilingual and/or bicultural health care providers who provide culturally competent asthma education and management in healthcare and community settings.

Objective D: By September 2008, reduce by ten percent from 2003 baseline the rate of asthma emergency department visits and inpatient hospitalizations among racial and ethnic minorities.

Objective E: By September 2008, increase by 25 percent over 2004 baseline primary care health services utilization for Medicaid-enrolled children and adults with asthma.

Objective F: By September 2008, increase by 25 percent the percentage of households in Milwaukee and Menominee Counties with assessment and management of environmental triggers such as cockroaches, dust mites, mold, tobacco use, and exposure to second-hand smoke over baseline.

DISPARITIES

Rationale:

- Current Wisconsin data show that residents of Milwaukee County and Menominee County are hospitalized with asthma at a higher rate than is observed in the general Wisconsin population. Racial or ethnic minorities and low-income populations with limited access to primary health care services and exposure to adverse environmental conditions are at higher risk for asthma disparities.

Objective A: By December 2005, improve asthma education, outreach, and the exchange of meaningful health information with racial or ethnic minority and low-income communities.

Action Steps	Target Date	Performance Measures
1. Increase the active participation of racially and ethnically diverse asthma advocates and professionals in asthma initiatives • Identify and recruit participation from community-based organizations, consortia, community workers, and non-traditional asthma partners • Meet with identified organizations to offer support from the Wisconsin Asthma Coalition and show the benefits of involvement	May 2005	10% increase in CBO asthma initiatives over baseline; organizations, workers, and partners identified and recruited; support offered
2. Work with the Education Workgroup on Education Objective B to identify best-practice models and strategies to improve asthma education and self-management of African American, Hispanic or Latino, and American Indian persons affected by asthma • Include local minority community-based organizations, tribal resources, other trusted sources and consumers in the assessment and selection of appropriate asthma education materials for minority and limited English proficient clients and families • Review and disseminate information at least every six months to clinicians and consumers via listservs and other information sources • Conduct social marketing in communities to translate asthma best practices and self-care information to the average consumer • Promote innovative, consumer-driven asthma educational programs such as parent mentor programs, and family-to-family asthma support programs	August 2005	Local minority consumers and community-based organizations included in assessment and selection of materials; research information reviewed and updated every six months; social marketing conducted; educational; programs promoted

Action Steps	Target Date	Performance Measures
3. Support efforts to increase access to health care and improve poor social and economic conditions that impact asthma in racial or ethnic minority and low-income communities. • Identify and work with initiatives and programs that foster resilience, empowerment, and community development in racial or ethnic minority and low-income communities • Create a directory with information identified above • Consult with the Division of Public Health about the Healthiest Wisconsin 2010 implementation plan to improve social and economic factors that influence health (literacy, early childhood education, social cohesion, and a living wage) • Inform consumers how to advocate for equitable asthma care and treatment standards through public information advertising and partnerships with community media organizations	August 2005	Initiatives and programs identified; directory of family and community development programs developed; presentation to Division of Public Health Office of Public Health Improvement staff; public service announcement developed and distributed via community media sources
4. Provide resources to racial or ethnic minority, limited English-proficient, and low-income consumers on how to better access health care resources and navigate the health care system. • Work with community leaders and local organizations to determine popular information sources for disadvantaged community members, including low-income, new resident and limited English proficient populations • Create a directory with the information identified above • Disseminate information on public assistance programs, health resource hotlines, free and sliding-fee clinics, medication assistance programs sponsored by pharmaceutical companies and community advocacy organizations to assist low-income, under and uninsured, new residents, and limited English proficient populations	August 2005	Popular information sources determined; directory of common information sources by population group and geographic health service areas created; information disseminated

Action Steps	Target Date	Performance Measures
5. Support active community-driven asthma education and advocacy coalitions • Identify existing local asthma coalitions in Wisconsin • Meet with each coalition to determine disparity concerns and if issues are being successfully addressed • Identify representative to partner with local coalitions needing support on disparity issues • Work with community organizations and provide resources to work with Wisconsin Asthma Coalition • Develop at least one (or increase activity of) existing asthma-focused initiatives driven by local minority communities	December 2005	Local coalitions identified; meetings held; representatives identified and partnerships with local coalitions established; initiative(s) developed

Objective B: By January 2006, increase knowledge and awareness of evidence-based asthma disparities interventions among consumers and providers serving racial or ethnic minority and low-income communities.

Action Steps	Target Date	Performance Measures
1. Establish partnerships with academic institutions to regularly monitor and review asthma disparities programs and effective interventions • Identify and contact academic institutions that would monitor and review programs • Meet with institutions identified to establish partnerships • Obtain signed Memoranda of Understanding from partner institutions • Partner institutions will summarize research results and provide resources on a centralized, web-based site available to asthma coalitions and partners; target racial and ethnic minority and low income communities • Partner institutions will disseminate links to websites providing asthma information and best practices that are geared to disparately affected communities	September 2004	Institutions identified and contacted; meetings held; Memoranda of Understanding established between Wisconsin Asthma Coalition and academic institutions; web-based clearinghouse site established and maintained; website links identified and disseminated

Action Steps	Target Date	Performance Measures
2. Disseminate information through health professional associations, health systems, and community associations in Milwaukee and Menominee Counties and then statewide • Identify leaders and offices, newsletters, journals, state conferences, and listservs of general and specialty health professional groups and organizations (e.g., medical and nurses associations, respiratory therapists, school nurses, health educators, asthma coalitions, managed care organizations) • Develop directory of target associations and their methods of regular information-sharing • Work with academic partner institutions to forward collected asthma disparities information to professional listservs and other information sources	September 2005	Target organizations and sources identified; directory completed; information and updates distributed electronically via listservs
3. Encourage academic institutions to sponsor local community-based participatory research with minority community-based organizations to address motivations for patient compliance and non-compliance of recommended asthma management in racial/ethnic populations. • Identify and approach academic institutions to conduct such research • Work with institutions to identify partners among community based, tribal, faith-based, and other consumer-trusted organizations • Monitor if research is conducted • Disseminate information to Wisconsin Asthma Coalition partners • Use social marketing strategies to share beneficial information with consumers	September 2005	Participatory-based research encouraged; institutions identified and approached; monitor number of participatory-based research projects funded and evaluated; community-based partners identified; research process monitored; information from research shared with partners and consumers; information shared with consumers through social marketing
4. Work with the Education and Clinical Care workgroups to develop asthma disparities and cultural competence training modules highlighting issues of African American, Hispanic/Latino, American Indian, Asian/Hmong and limited English proficient individuals and families affected by asthma.	January 2006	Information available in electronic format on the proposed asthma information clearinghouse; modules written; community feedback received at all stages; number of organizations with information

Action Steps	Target Date	Performance Measures
• Research and select new or existing cultural diversity modules with information including (a) normative cultural values, communication styles, and social norms; (b) cultural health beliefs and perspectives, including asthma illness perspectives; (c) use of holistic and alternative treatments; and (d) the effect of culture on clinical management of identified groups • Research and select new or existing asthma disparities modules with information on effective asthma education, self-management and clinical care for African American, Hispanic/Latino, American Indian, Asian/Hmong and limited English proficient individuals and families affected by asthma • Write modules • Obtain input from target community representatives at all stages of the process to develop, evaluate, and use the modules • Incorporate asthma disparities and cultural competence modules in asthma care manuals • Provide manuals electronically on the web	January 2006	Included in manuals; information available in web based format
5. Identify and plan training opportunities using the asthma disparities and cultural competence education modules • Incorporate modules into basic health professions training and continuing education programs • Adapt modules for use with K-12 school staff, Head Start, and daycare providers • Develop and utilize a roster of professional trainers, diversity consultants, and asthma consumers that can teach the modules • Conduct training programs	September 2005	Disparity modules developed and utilized in asthma trainings; adaptations completed; roster of trainers developed; diverse professional and community trainers are utilized; training delivered at least quarterly in Milwaukee, Menominee, and in other areas as desired
6. Work with the Clinical Care Workgroup to identify clinics that serve communities with significant asthma disparities to participate in the Allergist Education Outreach program. • Identify clinics in target areas for outreach opportunities • The allergist and nurse/respiratory therapist education outreach team should deliver a standard 3-hour CME/CEU program to clinicians and staff of these clinics	September 2005	Clinics identified; program is delivered to identified clinics

Objective C: By May 2008, increase the proportion of racial or ethnic minority and bilingual and/or bicultural health care providers who provide culturally competent asthma education and management in healthcare and community settings.

Action Steps	Target Date	Performance Measures
1. Support educational incentives to increase underrepresented racial and ethnically diverse educators and clinicians to serve disproportionately affected communities • Work with programs in K-12 schools and colleges to direct underrepresented minorities toward health careers • Work with schools and colleges to arrange mentoring and work observance opportunities with members of the Wisconsin Asthma Coalition and with minority health professionals • Work with schools and grassroots community, tribal, and urban Indian liaisons and consumers to reach racial or ethnic and limited English proficient minority students for career talks and mentoring opportunities	May 2008	Educational incentives supported; monitor for increase in racial or ethnic minority and bilingual workers in select high-risk asthma patient settings; students placed with Wisconsin Asthma Coalition members
2. Work with the Education Workgroup to identify and support minority and bilingual asthma educators to obtain national certification • Identify racial or ethnic minority educators and clinicians working in asthma or related settings who may be interested in certification • Target clinics and hospitals serving minority and low-income neighborhoods • Wisconsin Asthma Coalition will establish Memoranda of Understanding with employing clinics and hospitals to provide financial assistance and work flexibility to support student(s) through process • Arrange clinical mentor to work with selected minority professionals • Identify and obtain resources to help with study courses, examinations, and other	May 2008	Educators and clinicians identified; Memoranda of Understanding established; clinical mentors in place; resources identified and obtained At least two nationally certified minority asthma educators in Wisconsin by 2008- one each serving the Milwaukee and Menominee communities

Objective D: By September 2008, reduce by ten percent from 2003 baseline the rate of asthma emergency department visits and inpatient hospitalizations among racial and ethnic minorities.

Action Steps	Target Date	Performance Measures
1. Work with the Clinical Care Workgroup, selected emergency departments and urgent care pilot sites on their group's Objective C3 to identify patients with two or more acute asthma exacerbations per year in information systems in order to assure follow-up with primary care providers • Identify five pilot sites - Establish Memoranda of Understanding; identify site coordinator; create database to collect information; train each site on how to use database • Collect race or ethnicity and insurance coverage with all asthma encounters and flag clients with two or greater acute asthma visits • Develop protocols for medical home follow-up, including identifying resources for clients without a medical home or primary care insurance coverage • Compile information into report • Share report with emergency departments and urgent clinics statewide to encourage replication	September 2008	50% of racial or ethnic minority and low-income clients who visit select emergency department and urgent care pilot sites for acute asthma exacerbation two or more times a year will have a completed medical home follow-up. Selected pilot sites to evaluate will include two urban hospitals, two urban urgent care clinics, and one rural-tribal hospital By 2005-10% By 2006-20% By 2007-40% By 2008-50% Pilot sites selected; Memoranda of Understanding established; coordinators identified; databases created; training completed; data collected; protocols developed; report written; information shared
2. Work with the Clinical Care Workgroup to increase the percentage of racial or ethnic minorities and low-income persons who have a written asthma action plan in their patient records (Plans for client use should be prepared in a manner that fits the client-preferred style of health communication) • Identify and use asthma action plan tools that have demonstrated effectiveness with limited English proficient and racial or ethnically diverse populations.	September 2008	The percentage of racial or ethnic minority and limited English proficient clients with asthma with a written asthma action plan in their patient records should meet or exceed the total percentage of limited English proficient and racial or ethnic minorities served by the organization. (i.e., if an organization

Action Steps	Target Date	Performance Measures
• Record self-identified race or ethnicity and primary spoken language in patient records of selected pilot organizations • Organizations determine percentage of racial or ethnic minority & limited English proficient clients served • Monitor and report percent of limited English proficient and racial or ethnic minorities with written asthma action plans • Work with neighborhood and ethnic organizations to use social marketing to develop and promote asthma knowledge and self-efficacy among higher risk populations	September 2008	Serves 30% minority and limited English proficient client, then 30% or more of those persons with asthma should have an asthma action plan.) Culturally appropriate asthma action plan tools identified and utilized; race or ethnicity and preferred non-English language consistently recorded in all asthma patient records; percentage clients served determined; percent is monitored and reported; social marketing used among higher risk populations
3. Adopt an asthma care counselor program or related model as a minimum standard of care (at select pilot sites) for clients with two or more repeat emergency department visits for asthma exacerbation in one year • Review research for successful asthma counseling models with racial or ethnically diverse populations • Identify high risk clients and families that may benefit from more intense follow-up • Assign asthma counselors, including school nurses, to these high risk clients and families • Implement routine visits and case management for at least six consecutive months following third exacerbation; case management can include family conferences with immediate and extended family members • Evaluate for the return on investment, including decreased missed school and work days and savings in health care costs	September 2008	50% of clients with two or more emergency department visits or hospitalizations in one year will have an asthma counselor assigned Counseling research reviewed; high-risk clients and families identified; asthma counselor assigned to clients; routine visits and case management completed; return on investment evaluated

Objective E: By September 2008, increase by 25 percent over 2004 baseline primary care health services utilization for Medicaid-enrolled children and adults with asthma.

Action Steps	Target Date	Performance Measures
1. Work with the Medicaid Program to conduct an annual electronic review of Medicaid data on paid visits, provider types used, asthma care sites visited, and asthma medication prescriptions filled to assess primary care coverage and health care utilization by Medicaid clients diagnosed with asthma from target areas	July 2004, Ongoing	Review process completed; 2004 primary care utilization baseline determined; review repeated annually through 2008
2. Partner with Covering Kids and Families coalition to advocate for expansion of comprehensive Medicaid and medical insurance coverage for persons with asthma in inner-city, tribal, and other underserved areas • Contact co-chairs of Covering Kids and Families to establish partnerships with minority community-based and advocacy organizations that serve communities with significant asthma disparities • Designate minority and low-income community representatives to serve on Covering Kids and Families Coalition • Work with Medicaid Program to receive regular updates on any progress with changes in Medicaid administrative rules and contract provisions with health care systems	July 2004, Ongoing	Co-chairs contacted and partnership established; minority and low-income community representatives identified; regular Medicaid updates on progress obtained
3. Develop strategies to reduce disparities in primary health services utilization by race and ethnicity • Consult with the Department of Health and Family Services Office of Strategic Finance to work on solutions with Medicaid provider agencies if disparities in primary health care service utilization for Medicaid clients with asthma are determined	July 2004	Consultation made and improvement plan developed

Objective F: By September 2008, increase by 25 percent the percentage of households in Milwaukee and Menominee Counties with assessment and management of environmental triggers such as cockroaches, dust mites, mold, tobacco use, and exposure to second-hand smoke over baseline.

Action Steps	Target Date	Performance Measures
1. Assess baseline number of households via local public health departments and FAM Allies data. 2. Work with the Environment Workgroup to increase awareness in economically disadvantaged neighborhoods of common household asthma triggers, including second-hand smoke, and resources available to manage the triggers • Identify existing state and local programs that promote awareness and/or provide resources to assess and manage common household asthma triggers in low-income neighborhoods • Compile directory of such programs and resources; directory should be available on-line and distributed to asthma coalition partners, local public health and housing departments, housing advocacy organizations, and organizations and consumers in low-income neighborhoods • Consult and partner with target community and neighborhood organizations to develop a public information campaign or decide appropriate community awareness and education strategies to manage household asthma triggers • Implement strategies. Potential strategies include bus advertising, partnership with community newspapers and radio stations • Work with the Environment Workgroup to support Medicaid reimbursement of home visits for individuals with asthma in low income neighborhoods	September 2008	Programs and resources identified; directory completed; community and media partnerships established and public education strategies determined; public information campaigns or other strategies implemented, if needed; collaboration with Environmental Workgroup to support Medicaid reimbursement of home visits

Action Steps	Target Date	Performance Measures
3. Identify and distribute resources to fund families with abatement services such as air filters, air conditioners, mattress covers and other tools for environmental trigger control • Identify and approach potential organizations for donated or sliding fee-scale services • Partner with the Safer Homes Initiative • Partner with lead abatement programs • Identify Wisconsin Asthma Coalition members and community members to provide asthma education and conduct household environmental assessments in disparately impacted communities	September 2008	Number of families that need abatement services determined and resources disseminated; organizations identified; organizations approached; partnership established; Wisconsin Asthma Coalition and community members identified
4. Work with the Environmental Workgroup on Environment Objective B2 to ensure that educational materials are effective with limited-English proficient and racial or ethnically diverse communities • Include local minority community-based organizations in the assessment and selection of appropriate materials	September 2008	Educational materials are effective with limited-English proficient and racial or ethnically diverse communities, trusted community organizations involved in selection process
5. Work with Environmental Workgroup on Objective B2 to reduce the proportion of persons exposed to secondhand smoke in residential environments in racial or ethnic and low-income communities • Partner with the Smoke Free Milwaukee and "Let's Be Clear" public information campaign • Oversample Milwaukee and Menominee counties in statewide tobacco surveys to monitor smoking behavior in these communities	September 2008	Proportion of persons exposed to secondhand smoke monitored and reduced; campaign partnerships established

Potential Partner Organizations for Disparities:

Wisconsin Asthma Coalition
Community-based organizations
Health Disparities Workgroup
Clinical Care Workgroup
Education Workgroup
Community-based, tribal, faith, and other trusted community partner resources
Enhanced Covered Services Workgroup
Environment Workgroup
Community-focused advocacy organizations and other trusted sources
Department of Health and Family Services
Deans of health profession schools
Educational associations
Department of Health and Family Services Minority Health Program
Health care institutions
Health care organizations
Department of Health and Family Services Office of Strategic Finance
Health profession associations
Health-related associations
Department of Public Health Environmental Health Program
Information systems
Local health departments
Division of Public Health Office of Public Health Improvement (OPHI)
Local tobacco coalitions
Medical schools
Division of Public Health Strategic Plan and Workgroup to Identify and Eliminate
Tobacco-Related Disparities
Minority student advisors
Pharmaceutical representatives
Professional associations
Children's Health Alliance of Wisconsin
Fight Asthma Milwaukee Allies
Record and review emergency department and urgent clinic teams
G-Communications (Milwaukee) Let's Be Clear Campaign
State agencies
Statewide coalitions
Academic research institutions
Technical colleges
Wisconsin Medicaid program
Tobacco control programs
Wisconsin Medical Society
Tribal colleges
2-1-1 Social Services Information and Referral System
Trusted local grassroots organizations in diverse settings
Community-based clinics
Universities
Community and tribal media outlets
University clinics
Community-based coalitions
W-2 agencies and consumer beneficiary groups
Community-based housing advocacy and watchdog organizations

Goal: Improve asthma care and decrease health disparities through policy change

Objective A: By June 2004, increase the proportion of schools in compliance with Wisconsin's inhaler law (based on survey results) that allows children with asthma to keep their inhalers with them at school.

Objective B: By August 2004, identify funding to support asthma surveillance efforts.

Objective C: By September 2004, assist Enhanced Covered Services and Clinical Care Workgroups in drafting a legislative package of insurance reforms, relating to coverage and reimbursement of asthma services, medications, and specialists.

Objective D: By May 2005, increase awareness and understanding of asthma among policymakers and high-level decision-makers.

Objective E: By October 2005, support Environment and Work-Related Asthma Workgroups by identifying funding and advocacy opportunities.

Rationale:

- To implement policy change, awareness and understanding of asthma among public officials and high-level decision-makers is essential. Potential areas for improvement in Wisconsin include: number of schools in compliance with Wisconsin's inhaler law; coverage or reimbursement of multidisciplinary team interventions as only MDs currently are reimbursed for education, reinforcement of medication administration assessment, and coverage of case management; and indoor air quality.
- The Public Policy Workgroup identified these objectives as priorities in part to address findings from the Wisconsin Pediatric Asthma Summit in May 2001. At

that meeting, the Workgroup found that some of the challenges in this area included: lack of awareness of asthma policy issues among the general public, legislators, and the professional community; and lack of funding.

- Funding and advocacy opportunities will be identified together with the Workgroups as they move into implementation of the Wisconsin Asthma Plan.

Objective A: By June 2004, increase the proportion of schools in compliance with Wisconsin's inhaler law (based on survey results) that allows children with asthma to keep their inhalers with them at school.

Action Steps	Target Date	Performance Measures
1. Conduct survey to identify compliance of schools and school districts; include all public and private • Create survey instrument • Obtain list of schools and/or school districts • Survey schools for current compliance • Compile results • Create report packet of information	Met	Research complete Survey created and distributed, results compiled, report and packet created
2. Contact media, place information in Wisconsin Asthma Coalition member newsletters	November 2003	Media coverage in targeted newspapers, placement in newsletters
3. Determine and/or create ongoing educational program and resources to assist schools not in compliance with statute	April 2004	Approval of materials
4. Distribute resources to schools including information on educational program opportunities	June 2004	Materials and information packets distributed
5. Schedule and deliver educational programs	Ongoing	50 training sessions scheduled and delivered
6. If necessary, amend statutes to enact penalty for non-compliant schools	June 2004	Statutes amended, if necessary
7. Explore need to amend statutes to include private schools, camps, other venues	June 2005	Statutes amended, if necessary

Objective B: By August 2004, identify funding to support asthma surveillance efforts.

Action Steps	Target Date	Performance Measures
1. Identify possible government (local, state, federal) funding sources of revenue	August 2004, Ongoing	Funding sources identified

Objective C: By September 2004, assist Enhanced Covered Services and Clinical Care Workgroups in drafting a legislative package of insurance reforms, relating to coverage and reimbursement of asthma services, medications, and specialists.

Action Steps	Target Date	Performance Measures
1. Review recommendations of Clinical Care and Enhanced Covered Services Workgroups to determine what Public Policy Workgroup can do to support their goals and objectives	February 2004, Ongoing	Discussions with other work groups
2. Develop advocacy plan to support and promote goals	September 2004, Ongoing	Advocacy plan prepared

Objective D: By May 2005, increase awareness and understanding of asthma among policymakers and high-level decision-makers.

Action Steps	Target Date	Performance Measures
1. Governor's Proclamation and/or Legislative Resolution creating "Asthma Awareness Day or Month." Special emphasis on Black and Hispanic Legislative Caucus	Met, Ongoing	Resolution and/or proclamation drafted
2. Identify information to be shared • Current perception of asthma • Asthma statistics • Burden of asthma in Wisconsin • Current relevant statutes • Key facts • Strategies for improvement of asthma • Costs associated with asthma • Personal stories	November 2003	Information identified
3. Research information determined above	February 2004	Information gathered
4. Create a packet of information for policymakers to include information gathered above	March 2004	Packet created

Action Steps	Target Date	Performance Measures
5. Rewrite the statutory definition of asthma if necessary	April 2004	Definition reviewed or written, approved by Wisconsin Asthma Coalition Executive Committee
6. Draft legislation if necessary	May 2004	Legislation drafted
7. Identify demographic groups disparately affected by asthma and their key leaders, champions who can affect change	Ongoing	List created, updated with changes in elections
8. Build relationships with identified groups and their leaders and champions • Send introductory letter to legislators about Wisconsin Asthma Coalition mission and goals • Schedule meetings with selected legislators • Send legislative liaison to visit with legislators about Wisconsin Asthma Plan • Educate about the Wisconsin Asthma Plan • Act as asthma resource to policymakers • Offer solutions (policy change)	October 2004, Ongoing	Meetings scheduled and attended, information packet distributed, requested resources shared
9. Lobby legislators for authorship and/or to sign on to legislation defining asthma if needed	November 2004	Bill or amendment sponsored by target legislators; passed
10. Create grassroots electronic network of asthma allies consisting of: • Asthma sufferers • Adults with asthma, adolescents with asthma, parents of children with asthma • Caregivers • Wisconsin Asthma Coalition members and partners	December 2003, Ongoing	Electronic network created and utilized
11. Obtain a Legislative Council study • Determine components of Wisconsin Asthma Plan to recommend in the proposal • Identify and contact legislative allies determined above • Create introductory letter and information packet	December 2004	Study accepted, favorable committee selection

Action Steps	Target Date	Performance Measures
• Write letter to Legislative Council committee chairs requesting Legislative Council Study • Mobilize grassroots network to gain legislative support for the study • Identify citizen candidates to create diverse membership on the Legislative Council Study • Contact Wisconsin Asthma Coalition members to serve on Legislative Council • Build relationships with potential members from outside the Wisconsin Asthma Coalition	December 2004	Study accepted, favorable committee selection
12. Offer training and technical assistance to grassroots network	May 2004	Training(s) held
13. Hold event at state Capitol to coincide with "World Asthma Day"	May 2005	Event held, 100 participants, visits made to legislators, statewide media coverage

Objective E: By October 2005, support Environment and Work-Related Asthma Workgroups by identifying funding and advocacy opportunities.

Action Steps	Target Date	Performance Measures
1. Gather data and educational materials concerning indoor air quality and asthma	March 2005	Educational materials gathered
2. Research advocacy opportunities at local level	June 2005	Opportunities identified
3. Research existing grant funding that could be used to address indoor air quality issues	June 2005	Grants identified
4. Develop appropriate indoor air quality legislation for Wisconsin	August 2005	Model legislation written
5. Develop relationship with legislators so that they may introduce legislation	October 2005	Legislation introduced, passed
6. Support state and local smoke free policies, ordinances and legislation	October 2005, Ongoing	Additional legislation, policies passed, enforced

Potential Partner Organizations for Public Policy:

Wisconsin Asthma Coalition
Legislative allies
Public Policy Workgroup
Legislative leaders and friends
Wisconsin Asthma Coalition Workgroups
Wisconsin Department of Health and Family Services
Legislative review board
Legislative supporter to contact Legislative Fiscal Bureau for possible sources
Fight Asthma Milwaukee (FAM) Allies
Local health departments
Wisconsin Ethnic Network Coalition
Local tobacco coalitions
Wisconsin Hospital Association
Wisconsin Medical Society
Racial and ethnic minority community-based organizations
Advocacy organizations
Major health systems
Community-based organizations
Medical Schools
Educational associations
Past advocates of inhaler law
Health-related associations
Other states
Hospitals
State agencies

EVALUATION PLAN

Evaluation is an important component of any public health program. It provides feedback to guide program activities and measurement of progress toward achieving program goals. These two different functions of evaluation are generally broken down into the following categories: process evaluation, which provides information regarding program delivery, and outcome evaluation, which measures the impact of the program, both intended and unintended (MacDonald et al., 2001).

To guide our process evaluation, the Wisconsin Asthma Plan has performance measures associated with each action step in the Plan. These measures will allow assessment of how well the Plan is being implemented, and will enable us to answer questions including: 1) whether activities are being performed in a timely fashion, and 2) if we are reaching our target audiences.

To assess the actual impact of implementation of the Wisconsin Asthma Plan, outcome evaluation will be performed according to the proposed evaluation plan in the following pages. The evaluation plan was developed using a logic model of the Wisconsin Asthma Plan created with input from both the Executive Committee and the Wisconsin Asthma Coalition.

In the logic model presented on the following page, program outcomes are divided into three stages: short-term, intermediate, and long-term. These three stages are the basis for each separate table in the evaluation plan. Specific outcomes from the logic model are listed in the first column of each table. The objectives of the Plan that contribute to each outcome are listed in the second column. The third and fourth columns correspond to outcome evaluation indicators and potential sources of data for the evaluation indicators, respectively.

Many of the evaluation indicators specified in the evaluation plan will be monitored as part of routine asthma surveillance. Other indicators will require separate data collection and may require hiring additional staff or outside contractors. The evaluation plan, like the Wisconsin Asthma Plan itself, is a living document that is likely to change over time as our program develops and matures, and will be contingent upon the level of funding the program receives.

Evaluation Plan of the Wisconsin Asthma Plan

Short-term outcomes are expected to be achieved between 2004-2005.

Short-Term Outcomes	Plan Objectives	Evaluation Indicators	Potential Data Sources
Funding sources to sustain asthma coalition and state asthma program identified and pursued	Public Policy **B, E** Surveillance **D**	• Funding sources identified and grant applications submitted • Legislative activity related to funding • Funding available to implement the Wisconsin Asthma Plan • Funding available for asthma surveillance • Funding available to sustain the Wisconsin Asthma Coalition	• Wisconsin Asthma Program, Department of Health and Family Services (DHFS) • Wisconsin Legislature • Wisconsin Asthma Coalition
Increased asthma surveillance and improved capacity to link different data sources	Surveillance **A, B, C, D, E** Work-Related **A**	• Work-related asthma surveillance program developed • Surveillance expanded to include schools and childcare facilities • School awareness and compliance with the Wisconsin inhaler law assessed • Surveillance in WIC clinics and the Head Start Program • Links identified between asthma surveillance and environmental data sources • Publication of a comprehensive Wisconsin asthma statistics report • Usage of asthma report by stakeholders • Media reporting of surveillance data • Funding for surveillance	• Wisconsin Asthma Program, DHFS • Wisconsin Asthma Coalition • Bureau of Occupational Health, DHFS • Department of Natural Resources • Bureau of Health Information, DHFS • Division of Children and Family Services, DHFS • Department of Public Instruction • Fight Asthma Milwaukee Allies • School survey of inhaler law awareness and compliance • Youth Tobacco Survey • Youth Risk Behavior Survey • Behavioral Risk Factor Survey • Asthma website • Stakeholder feedback • Media

Short-Term Outcomes	Plan Objectives	Evaluation Indicators	Potential Data Sources
Increased capacity to assess and reduce asthma triggers in indoor environments	Environment **A** Public Policy **E** Disparities **F**	• Standardized protocol of home indoor air quality assessment created and disseminated • Increased recognition of environmental respiratory disease hazards in the residential dwelling service industry • Surveillance of school indoor air quality management practices • Availability of funding for management of indoor air quality issues • Model legislation drafted and presented to the State Legislature related to indoor air quality • Increased assessment and management of indoor air quality in homes of disproportionately affected populations	• Wisconsin Asthma Program, DHFS • Wisconsin Asthma Coalition • Bureau of Environmental Health, DHFS • Wisconsin Legislature • Survey of Wisconsin schools' indoor air quality management practices
Increased awareness and understanding of asthma, asthma disparities, asthma triggers and support for asthma-related legislation and policy	Public Policy **D** Education **A** Environment **A** Disparities **A, B, F**	• Asthma Awareness Month and World Asthma Day recognized through a Governor's Proclamation • Asthma advocacy packets created and distributed to legislators • Asthma media messages identified and marketed • Increased awareness of link between environmental triggers and asthma attacks • Increased media coverage of asthma issues • Increased awareness and understanding of disparities in asthma burden	• Wisconsin Asthma Program, DHFS • Wisconsin Asthma Coalition • Asthma website • Governor's office • American Lung Association of Wisconsin • Media sources • Youth Tobacco Survey

EVALUATION PLAN

Short-Term Outcomes	Plan Objectives	Evaluation Indicators	Potential Data Sources
Increased dissemination of asthma management tools such as action plans, strategies to address asthma in schools and work environments, and culturally appropriate education materials	Education **B, C, D** Work-Related **B** Environment **B** Clinical **A** Disparities **A, B, D**	• Centralized web-based asthma education resource center created • Identification and distribution of culturally and linguistically appropriate asthma educational materials compliant with the National Asthma Education and Prevention Program Guidelines • Level of adoption of culturally and linguistically appropriate asthma educational materials by health care payers and providers • Regionally-based asthma training infrastructure in place • Number of workshops held to improve asthma management • Development and distribution of work-related asthma educational materials to employees, employers and the general public • Promotion and dissemination of asthma action plans • Promotion and dissemination of strategies to address asthma in schools • Number of schools that report collecting and using students' asthma action plans	• Wisconsin Asthma Program, DHFS • Wisconsin Asthma Coalition • Department of Public Instruction • Asthma educators • Health care payers • School Health Education Profile survey

Short-Term Outcomes	Plan Objectives	Evaluation Indicators	Potential Data Sources
Increased awareness among healthcare providers and payers of improved patient outcomes and cost benefits of implementing National Asthma Education and Prevention Program Guidelines	Enhanced Covered Services **A, B** Clinical Care **A** Education **E**	• Wisconsin example of implementation of National Asthma Education and Prevention Program Guidelines and cost savings to payers documented and disseminated (i.e., the business case) • Increased number of nationally certified asthma educators in each Wisconsin public health region • Increased number of training sessions held to educate providers on recommended guidelines	• Wisconsin Asthma Program, DHFS • Wisconsin Asthma Coalition • Fight Asthma Milwaukee Allies • Payer data demonstrating cost savings • Asthma certification database

Intermediate outcomes are expected to be achieved between 2006-2007.

Intermediate Outcomes	Plan Objectives	Evaluation Indicators	Potential Data Sources
Funding procured to sustain asthma coalition and state asthma program	Public Policy **B, E** Surveillance **D**	• Funding for Wisconsin Asthma Coalition activities • Funding for routine asthma surveillance • Funding for implementation of the state asthma plan	• Wisconsin Asthma Program, (DHFS) • Wisconsin Asthma Coalition
Routine asthma surveillance	Surveillance **B, C** Work-Related **C**	• All available governmental asthma data analyzed annually: hospitalization, mortality, prevalence surveys (Behavioral Risk Factor Survey, Family Health Survey) • "Burden of Asthma in Wisconsin" report published every three years • Increased dissemination of asthma surveillance data via electronic media (website), print media (newsletters), and articles in peer-reviewed journals • Increased stakeholder utilization of asthma data • Creation of automated asthma data inquiry systems to decrease cost of routine surveillance and increase data dissemination • Timeliness of published surveillance reports • Increased capacity for diagnosis and reporting of work-related asthma	• Wisconsin Asthma Program, DHFS • Wisconsin Asthma Coalition • Asthma web site • Health Alert Network/Public Health Information Network • Physicians • Media
Infrastructure for linking health and environmental data	Surveillance **E** Environment **C**	• Data sharing agreements signed with data holders • Electronic environment developed to analyze environmental monitoring data in relation to asthma data	• Wisconsin Asthma Program, (DHFS) • Department of Natural Resources

Intermediate Outcomes	Plan Objectives	Evaluation Indicators	Potential Data Sources
Reduced exposure to environmental triggers	Public Policy **E** Environment **A, B, C** Disparities **F**	• Self-reported exposure to environmental tobacco smoke • Increased community awareness of environmental triggers • Number of dwellings where indoor air quality assessments have been performed • Number of schools that implement indoor air quality plans • Number of bus idling ordinances passed • Number of school buses retrofitted	• Wisconsin Asthma Program, DHFS • Wisconsin Asthma Coalition • Bureau of Environmental Health, DHFS • Department of Public Instruction • Youth Tobacco Survey • Youth Risk Behavior Survey • Survey of schools to monitor implementation of indoor air quality programs • Behavioral Risk Factor Survey
Appropriate asthma-related legislation passed and enforced	Public Policy **A, B, C, E** Surveillance **D** Disparities **E**	• Number of community smoking ordinances passed and enforced • Air emissions ordinances passed and enforced • Funding through the legislature for asthma surveillance and asthma control program • Expansion of Wisconsin inhaler law if needed (to include camps and other environments) • Expansion of insurance coverage for persons with asthma in underserved populations	• Wisconsin Asthma Program, DHFS • Wisconsin Asthma Coalition • Local health departments • Wisconsin Legislature • American Lung Association of Wisconsin
Increased utilization of measures to prevent work-related asthma	Work-Related **B** Environment **C**	• Increased number of policies implemented to reduce exposure to environmental tobacco smoke among workers, e.g., hospitality industry • Work-related practices to reduce asthma symptoms implemented • Number of schools with indoor air quality management plans	• Wisconsin Asthma Program, DHFS • Wisconsin Asthma Coalition • Bureau of Occupational Health, DHFS • Department of Public Instruction • Employers • Labor unions

EVALUATION PLAN

Intermediate Outcomes	Plan Objectives	Evaluation Indicators	Potential Data Sources
Increased school-based and childcare provider asthma management activities	Public Policy **A** Environment **B** Education **B**	• Percent of schools with asthma education activities for students • Percent of schools with identification and tracking of all students with asthma • Percent of schools staffed by full-time school nurses • Percent of schools with asthma education incorporated into their health curricula • Percent of childcare providers that report education and management activities related to asthma • Percent schools that allow students to self-carry inhalers • Increased asthma management training of child care workers	• Wisconsin Asthma Program, DHFS • Wisconsin Asthma Coalition • Department of Public Instruction • American Lung Association of Wisconsin • Fight Asthma Milwaukee Allies • School Health Education Profile survey
Increased proportion of persons with asthma who receive formal patient education, including information about community and self-help resources	Clinical Care **A** Education **D** Disparities **A, C, D**	• Percent of persons with asthma who receive case management • Percent of persons with asthma who report having an asthma action plan • Percent of health care plans that utilize asthma action plans • Number of certified asthma educators • Adoption of best practice asthma education strategies appropriate for minority groups	• Wisconsin Asthma Program, DHFS • Wisconsin Asthma Coalition • American Lung Association of Wisconsin • Family Health Survey • Behavioral Risk Factor Survey • Community-based organizations • Survey of health care payer practices

Intermediate Outcomes	Plan Objectives	Evaluation Indicators	Potential Data Sources
Increased proportion of persons with asthma who receive appropriate asthma care according to the National Asthma Education and Prevention Program Guidelines	Clinical Care **A, C** Disparities **B, D**	• Percent of patients that are treated with appropriate pharmacotherapy • Percent of patients with persistent asthma that receive influenza vaccinations • Percent of persons who report having an asthma management plan from their health care provider • Number of persons with asthma who receive follow-up medical care for long-term management of asthma after any hospitalization due to asthma • Number of health care providers trained on National Asthma Education and Prevention Program Guidelines • Increased usage of culturally appropriate education strategies to provide asthma care	• Wisconsin Asthma Program, DHFS • Wisconsin Asthma Coalition • Survey of payer care practices • HEDIS measures reported by health maintenance organizations • Behavioral Risk Factor Survey • Family Health Survey • Medicaid Program, DHFS • Fight Asthma Milwaukee Allies • Emergency department data, DHFS Bureau of Health Information • Physician office visit data, DHFS Bureau of Health Information • Health care provider associations
Increased monitoring and management of patients with asthma by healthcare providers and payers	Clinical Care **B, C** Public Policy **C** Disparities **E**	• Percent of payers that have asthma disease management protocols • Percent of health insurance providers that use HEDIS asthma measures to monitor asthma care • Extent of coverage of asthma case management and education by health payers	• Wisconsin Asthma Program, DHFS • Wisconsin Asthma Coalition • Survey of payer coverage practices • HEDIS measures reported by health maintenance organizations

EVALUATION PLAN

Long-term outcomes are expected to be achieved by 2008-2009.

Long-Term Outcomes	Plan Objectives	Evaluation Indicators	Potential Data Sources
Established asthma coalition and state asthma program	All objectives apply	• Funding available to sustain asthma coalition and state asthma program • Stable coalition membership • Implementation of asthma plan objectives	• Wisconsin Asthma Program, DHFS • Wisconsin Asthma Coalition • Wisconsin Legislature
Comprehensive asthma surveillance system	Surveillance **A, B, C, E** Public Policy **B** Work-Related **A** Environment **C**	• Surveillance expanded to include monitoring of pharmaceutical use and prescription practices • Ability to assess asthma plan control measures • Asthma surveillance program integrated with environmental data systems • Adequate funding for surveillance • Asthma surveillance system meets the following criteria: • Representativeness • Timely • Stable • Flexible	• Wisconsin Asthma Program, DHFS • Stakeholder feedback • Medicaid program, DHFS • Pharmacies
Improved indoor and outdoor air quality	Environment **A, B, C** Public Policy **E** Disparities **F**	• Exposure to environmental tobacco smoke • Number of open air burning ordinances passed and enforced • Number of annual ozone alert days • Air particulate matter concentrations	• Wisconsin Asthma Program, DHFS • Wisconsin Asthma Coalition • Local health departments • Department of Public Instruction • Department of Natural Resources
Decreased prevalence of work-related asthma	Work-Related **A, B, C**	• Number of asthma-related hospitalizations paid for by Worker's Compensation • Number of people who report asthma developed secondary to job activities • Number of people who report work-aggravated asthma	• Hospitalization discharge data, DHFS Bureau of Health Information • Behavioral Risk Factor Survey, state-added work-related asthma questions • Labor unions

Long-Term Outcomes	Plan Objectives	Evaluation Indicators	Potential Data Sources
Reduced number of school or work days missed by persons with asthma due to asthma	All objectives apply	• Number of school days missed by persons with asthma • Number of work days missed by persons with asthma	• Youth Tobacco Survey • Behavioral Risk Factor Survey • Department of Public Instruction • Youth Risk Behavior Survey • Family Health Survey
Reduced activity limitations among persons with asthma	All objectives apply	• Number of activity-limited days among persons with asthma • Percent of individuals who report activity limitations due to asthma	• Family Health Survey • Behavioral Risk Factor Survey Adult Asthma History Module
Reduced rate of hospitalizations for asthma	All objectives apply	• Asthma hospitalization rates	• Hospital discharge data, DHFS Bureau of Health Information • Medicaid encounter data • Fight Asthma Milwaukee Allies Coalition
Reduced rate of hospital emergency department visits for asthma	All objectives apply	• Hospital emergency department visit rates	• Emergency department visits data, DHFS Bureau of Health Information • Medicaid encounter data • Fight Asthma Milwaukee Allies
Reduced rate of asthma deaths	All objectives apply	• Mortality rates	• Vital Statistics, DHFS Bureau of Health Information

REFERENCES

Boss LP, Kreutzer RA, Luttinger D, Leighton J, Wilcox K, Redd SC. The public health surveillance of asthma. J Asthma. 2001 Feb;38(1):83-9.

CSTE POSITION STATEMENT 1998-EH/CD 1: Asthma Surveillance and Case Definition. Available online at www.cste.org/ps/1998/1998-eh-cd-01.htm

Centers for Disease Control and Prevention (CDC). Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia: US Department of Health and Human Services, Centers for Disease Control and Prevention, 2001.

Centers for Disease Control and Prevention. Key clinical activities for quality asthma care: recommendations of the National Asthma Education and Prevention Program. MMWR 2003;52 (No. RR-6).

Fiore, BJ, Olson, JA, Hanrahan, LP and Anderson, HA. Asthma Hospitalizations in Wisconsin: A Missed Opportunity for Prevention. Wisconsin Medical Journal. 2000 Nov;99(8):52-6.

Institute of Medicine (US). Committee on the Assessment of Asthma and Indoor Air. Clearing the air : asthma and indoor air exposures / Committee on the Assessment of Asthma and Indoor Air, Division of Health Promotion and Disease Prevention, Institute of Medicine, 2000.

Lyon-Callo S, Reeves MJ, Wahl R, Hogan JG. Epidemiology of Asthma Fact Sheet (January 2000), Bureau of Epidemiology, Michigan Department of Community Health.

MacDonald G, Starr G, Schooley M, Yee SL, Klimowski K, Turner K. Introduction to Program Evaluation for Comprehensive Tobacco Control Programs. Atlanta (GA): Centers for Disease Control and Prevention; 2001.

Mannino DM, Homa DM, Akinbami LJ, et al. Surveillance for asthma - United States, 1980 - 1999. In: CDC surveillance summaries (March 29). MMWR 2002;51(No. SS-1).

Minnesota Department of Health, A Strategic Plan For Addressing Asthma in Minnesota, April 2003.

NHLBI. Practical Guide for the Diagnosis and Management of Asthma. Rockville MD: NIH Publication No. 197-4053, 1997.

The National Asthma Education and Prevention Program (NAEPP) of the National Heart, Lung, and Blood Institute (NHLBI) Expert Panel Report 2: Guidelines for the Diagnosis and Management of Asthma (EPR-2) and the Update on Selected Topics 2002.

US Department of Health and Human Services. Healthy People 2010. 2nd ed. With Understanding and Improving Health and Objectives for Improving Health. 2 vols. Washington, DC: US Government Printing Office, November 2000.

www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm (accessed July 2003)

www.dhfs.state.wi.us/Health/StateHealthPlan/ImplementationPlan/EnvironOccup.htm

www.nhlbi.nih.gov

National Heart, Lung, and Blood Institute Data Fact Sheet, Asthma Statistics, January 1999, www.nhlbi.nih.gov/health/prof/lung/asthma/asthstat.pdf

APPENDICES

Prevalence Data

The DHFS Bureau of Health Information in the Division of Health Care Financing has conducted the Wisconsin Family Health Survey annually since 1989. The survey is conducted by telephone in a sample representative of the Wisconsin population living in households. The survey phone interview is completed by the adult in the household most knowledgeable about the health conditions of household members. This individual answers questions for the entire household.

The question on the survey pertaining to asthma is: "Has anyone in your household ever been told by a doctor that they have asthma?" This differs slightly from the question currently asked on the Behavioral Risk Factor Survey: "Have you ever been told by a doctor, nurse, or other health professional that you had asthma?"

Prevalence rates, based on data from the Wisconsin Family Health Survey, are presented by sex, race, ethnicity and age groups. Analyses were completed by four-year intervals in order to have a large enough sample to perform sub-group analyses.

Lifetime Asthma Prevalence by Sex, Race, Ethnicity and Age Group, Four-Year Intervals, Wisconsin, 1989-2000.

	Asthma Prevalence					
	1989 - 1992 %	95 % C.I.* (%)	1993 - 1996 %	95 % C.I.* (%)	1997 - 2000 %	95 % C.I.* (%)
Sex						
Male	8	(--)	6	(--)	7	(--)
Female	9	(--)	7	(--)	8	(--)
Race/Ethnicity **						
NH White	9	(--)	7	(--)	7	(--)
NH African American	10	(2)	10	(1)	11	(1)
NH Asian	2	(2)	3	(2)	7	(3)
NH Native American	11	(5)	10	(4)	9	(3)
Hispanic	7	(2)	7	(2)	11	(2)
Age (years)						
0 - 4	6	(1)	5	(1)	5	(1)
5 - 10	10	(1)	7	(1)	9	(1)
11 - 17	11	(1)	10	(1)	11	(1)
18 - 34	9	(1)	8	(1)	9	(1)
35 - 64	9	(1)	6	(--)	7	(1)
65 +	9	(1)	6	(1)	6	(1)
Overall WI Population	(9)	(--)	(7)	(--)	(8)	(--)

*C.I. = confidence interval (the range within which there is a 95% chance that the true prevalence estimate lies). Add and subtract the percentage value in the C.I. column to the prevalence rate to get the 95% confidence interval for the prevalence estimate. It is an indicator of the precision of the prevalence estimate.
**The Hispanic category includes all races where the individual indicated that they were of Hispanic origin. Hispanics are not included in the race categories indicated by the non-Hispanic designation NH.

Note: A dash (--) indicates 0.5 percent or less

Data Source: 1989-2000 Family Health Survey, Bureau of Health Information, Division of Health Care Financing, Wisconsin Department of Health and Family Services

Hospitalization Data

Inpatient hospitalization data have been available in Wisconsin since 1989 from the DHFS Bureau of Health Information. Data are reported by all of Wisconsin's acute care, non-federal hospitals. Data presented here are from the years 1990 to 2001, the most recent year of complete data available. Information on race and ethnicity was not reported consistently until 1991, thus sub-group analyses do not include 1990 data.

Hospitalization rates were calculated using bridged census estimates available from the National Center for Health Statistics (CDC website, July 2003). Rates for 2001 were calculated using the 2000 Wisconsin census population because detailed state population estimates for 2001 were not yet available from the US Census Bureau. Unless rates are reported for a specific age group, rates have been directly age-adjusted using the 2000 US standard population in order to allow comparison with national rates.

It is important to note that rates are based on the number of hospitalizations and not the number of individuals admitted to hospitals with asthma as the principal diagnosis.

Annual and Overall (1990-2001) Age-Specific Asthma* Hospitalization Rates and Total Age-Adjusted Asthma Hospitalization Rates¥, Wisconsin, 1990-2001.**

	Year												
Age Group (years)	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**Overall**
4	42.7	39.2	44.4	42.4	33.6	36.6	39.5	40.3	35.5	33.8	32.4	29.3	**37.5**
5 - 14	16.5	18.1	16.5	18.1	13.2	13.6	14.2	17.7	12.5	12.4	13.4	9.5	**14.6**
15 - 34	7.5	7.6	8.2	9.7	8.8	9.6	8.6	8.2	7.1	7.0	6.3	5.9	**7.9**
35 - 64	9.6	9.9	8.7	9.8	9.0	9.1	9.6	8.5	8.6	9.7	8.6	9.5	**9.2**
65	20.0	18.8	15.3	17.7	14.9	13.6	13.1	11.7	12.7	13.4	13.3	14.0	**14.9**
Total¥	**13.6**	**13.5**	**13.0**	**14.2**	**11.9**	**12.3**	**12.5**	**12.3**	**11.1**	**11.4**	**10.9**	**10.4**	**12.3**

*Asthma listed as the principal diagnosis
**All rates are per 10,000 population
¥Standard 2000 US population used for direct age-adjustment
Rates calculated using the 2000 Wisconsin census population as 2001 Wisconsin census estimates not available

Data Source: Inpatient Hospital Discharge Data, Bureau of Health Information, Division of Health Care Financing, Wisconsin Department of Health and Family Services

Annual and Overall (1991-2001) Age-Adjusted Asthma* Hospitalization Rates¥ by Sex, Race, and Ethnicity, Wisconsin, 1991-2001.**

	Year											
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Overall
Sex												
Female	14.6	13.8	15.3	13.4	13.9	14.0	13.7	13.1	13.1	12.5	12.1	**13.6**
Male	12.3	11.9	12.9	10.3	10.6	10.7	10.7	8.9	9.6	9.1	8.5	**10.5**
Race												
White	9.8	9.5	10.7	8.7	9.1	8.9	8.8	7.7	8.1	7.6	7.6	**8.8**
African American	50.8	55.1	56.2	53.2	50.9	55.1	50.6	48.3	49.7	46.3	44.0	**50.9**
Asian/Pacific Islander	10.1	11.7	10.1	9.7	10.8	8.7	8.2	5.3	7.2	9.3	7.4	**9.0**
Native American/ Alaskan Native	9.0	12.6	13.2	13.6	13.9	11.8	11.4	11.6	9.0	9.2	14.6	**11.8**
Ethnicity												
Hispanic	13.7	16.2	18.5	17.1	17.0	16.9	14.1	11.9	12.4	9.4	10.5	**14.3**
Non-Hispanic	11.4	12.2	13.7	11.4	11.9	12.1	11.8	10.7	10.4	10.2	9.8	**11.4**

*Asthma listed as the principal diagnosis
**All rates are per 10,000 population
¥Standard 2000 US population used for direct age-adjustment
Rates calculated using the 2000 Wisconsin census population as 2001 Wisconsin census estimates not available
Race groups include both Hispanic and non-Hispanic individuals

Data Source: Inpatient Hospital Discharge Data, Bureau of Health Information, Division of Health Care Financing, Wisconsin Department of Health and Family Services

Mortality Data

Mortality rates were calculated using bridged census estimates and counts available from the National Center for Health Statistics (CDC website, July 2003). Rates for 2001 were calculated using the 2000 Wisconsin census population because detailed state population estimates for 2001 were not yet available from the US Census Bureau. Unless rates are reported for a specific age group, rates have been directly age-adjusted using the 2000 US standard population in order to allow comparison with national rates.

In 1999 the coding system used to classify deaths changed to a newer version (from the International Classification of Diseases-9 (ICD-9) to ICD-10). This led to a decline in the number of deaths classified as due to asthma. Comparability ratios have been calculated to estimate how many deaths would have been coded under ICD-10 if the coding system had remained the same. The comparability ratio for asthma was used to calculate corrected mortality rates from 1999-2001. The corrected rates for these years were used to calculate the overall mortality rate during 1990-2001.

Annual and Overall (1990-2001) Age-Specific Asthma* Mortality Rates and Total Age-Adjusted Asthma Mortality Rates¥, Wisconsin, 1990-2001.**

	Year												
Age Group (years)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Overall
4	5.5	0	0	0	5.8	0	3.0	0	0	10.0	0	0	**2.0**
5 - 14	4.1	1.3	3.9	3.9	1.3	5.1	5.1	1.3	2.5	2.8	2.9	4.3	**3.2**
15 - 34	5.9	5.9	2.0	2.7	3.3	5.3	8.0	4.0	4.1	3.8	6.8	3.8	**4.6**
35 - 64	16.7	14.4	9.3	15.2	13.2	19.2	19.2	8.7	11.0	13.7	12.5	10.8	**13.7**
65	99.6	104.3	83.5	97.1	121.1	73.5	101.8	100	89.8	79.8	86.0	60.5	**91.4**
Total¥	**21.3**	**20.3**	**15.1**	**19.2**	**21.6**	**18.7**	**23.2**	**17.0**	**16.9**	**17.3**	**17.8**	**13.3**	**18.5**

*Asthma listed as the underlying cause of death
**All rates are per 1,000,000 population
¥Standard 2000 US population used for direct age-adjustment
Rates calculated using the 2000 Wisconsin census population as 2001 Wisconsin census estimates not available

Data Source: Vital Statistics, Bureau of Health Information, Division of Health Care Financing, Wisconsin Department of Health and Family Services

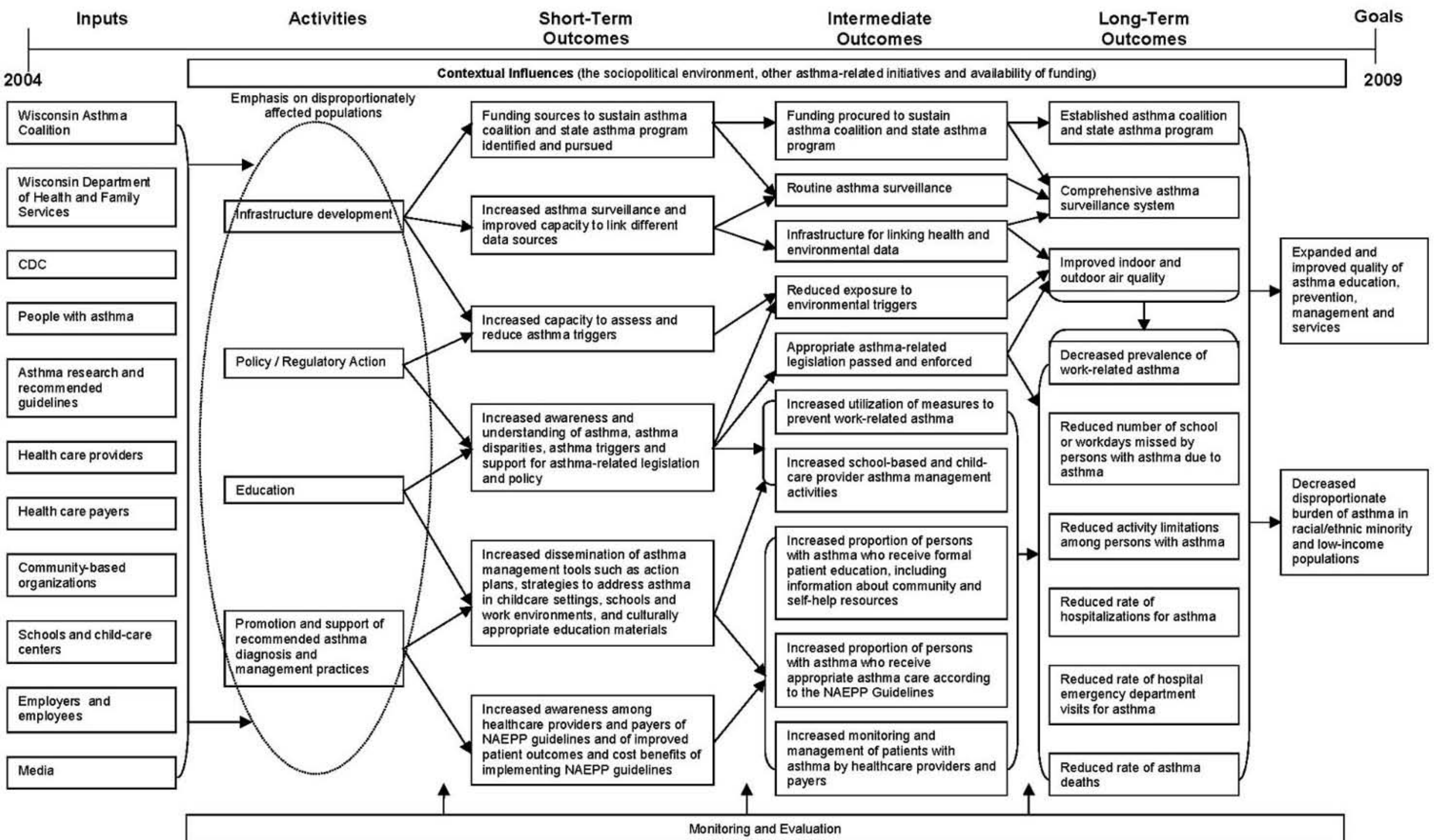
Annual and Overall (1990-2001) Age-Adjusted Asthma* Mortality Rates¥ by Sex and Race, Wisconsin, 1990-2001.**

	Year												
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Overall
Sex													
Female	25.6	19.7	16.6	20.1	24.2	18.9	22.3	19.4	17.8	19.6	20.1	16.9	**20.1**
Male	16.6	20.6	13.3	17.9	18.0	18.1	23.7	14.2	15.6	14.4	14.7	8.9	**16.3**
Race													
White	19.2	20.0	14.0	17.4	19.2	16.5	19.6	15.4	15.6	14.9	14.3	12.3	**16.5**
African American	80.5	23.3	51.6	59.7	73.4	49.8	99.8	49.0	38.0	71.1	102.8	40.1	**61.6**
Other⌀	0	35.8	0	14.0	107.0	25.1	0	37.9	25.4	11.3	0	10.5	**22.3**
Total	**21.3**	**20.3**	**15.1**	**19.2**	**21.6**	**18.7**	**23.2**	**17.0**	**16.9**	**17.3**	**17.8**	**13.3**	**18.5**

*Asthma listed as the underlying cause of death
**All rates are per 1,000,000 population
¥Standard 2000 US population used for direct age-adjustment
Rates calculated using the 2000 Wisconsin census population as 2001 Wisconsin census estimates not available
Race groups include both Hispanic and non-Hispanic individuals
⌀Rates based on small number of deaths and should be interpreted with caution

Data Source: Vital Statistics, Bureau of Health Information, Division of Health Care Financing, Wisconsin Department of Health and Family Services

Logic Model of the Wisconsin Asthma Plan



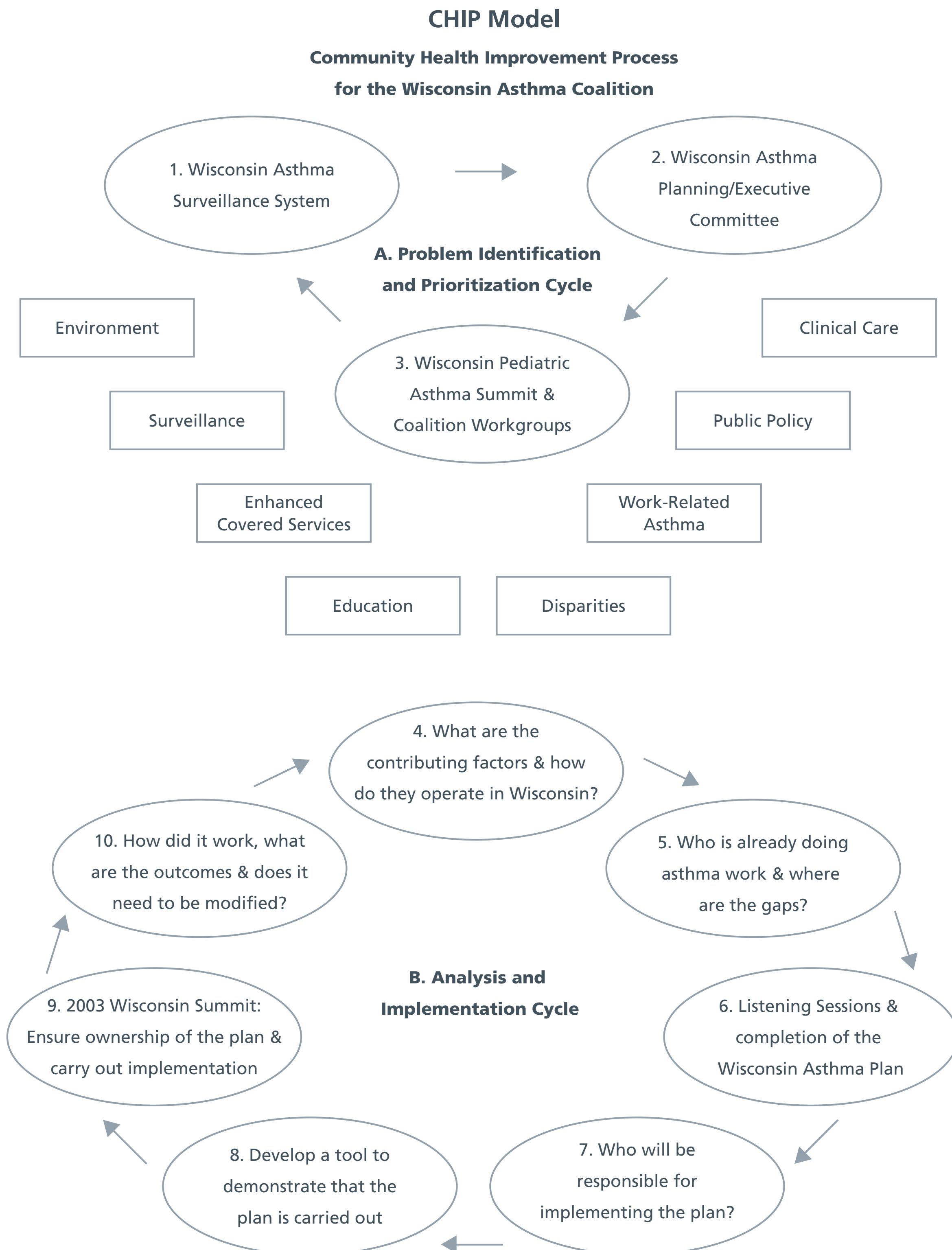
Organizations

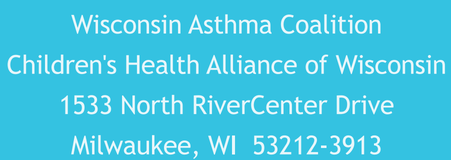
Beloit Area Community Health Center
Black Nurse's Association
Childcare Health Improvement Project
Children with Special Health Care Needs
Children's Health Alliance of Wisconsin
Covenant Health Care
Fight Asthma Milwaukee Allies
GlaxoSmithKline
Lac Courte Oreilles Health Clinic
Latino Health Council
Menominee Tribal Clinic
Milwaukee HealthWatch
Next Door Foundation
Polk County HealthWatch
Red Cliff Health Center
St. Croix Tribal Health Center
Sixteenth Street Community Health Center
Tribal Health Directors
United States Environmental Protection Agency
Vincent Family Resource Center
Wausau HealthWatch
Wisconsin Association of Local Health Departments and Boards – Northeastern Region
Wisconsin Association of Local Health Departments and Boards – Northern Region
Wisconsin Association of Local Health Departments and Boards – Southeastern Region
Wisconsin Association of Local Health Departments and Boards – Southern Region
Wisconsin Association of Local Health Departments and Boards – Western Region
Wisconsin Association of Pediatric Nurse Associates and Practitioners
Wisconsin Council of Safety
Wisconsin Department of Public Instruction
Wisconsin Medical Society
Wisconsin Primary Health Care Association
Wisconsin Respiratory Society
YWCA of Greater Milwaukee

Individuals or Groups from the Following Organizations Participated in Clinical Care Feedback Sessions:

Advanced Healthcare
Atrium Health Plan
Aurora Health Care
Dean Health System
Group Health Cooperative of Eau Claire
Group Health Cooperative of South Central Wisconsin
Humana
MercyCare Insurance Company
Network Health Plan
Security Health Plan – Marshfield Clinic
Touchpoint Health Plan – ThedaCare
United Healthcare
Unity Health Insurance
Wausau Benefits
WEA Trust
WPS Health Insurance
Wisconsin Academy of Family Physicians
Wisconsin Association of Health Plans
Wisconsin Association of Provider Networks–Systemed
Wisconsin Hospital Association

APPENDIX D: CHIP MODEL





www.chawisconsin.org