

A Strategic Plan For Addressing Asthma in Minnesota



Recommendations of the
Commissioner's Asthma Advisory Work Group





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Commissioner's Asthma Advisory Work Group*

Minnesota Department of Health
Chronic Disease and Environmental Epidemiology

www.health.state.mn.us/divs/hpcd/cdee/asthma



In Dedication

JEAN L. HARRIS, MD

1931-2001

"You can not offer me a challenge I won't take."

This asthma state plan is dedicated to the memory of Jean L. Harris, MD. She was an extraordinary physician who was the original chair of the Commissioner's Asthma Advisory Work Group. Her death from lung cancer due to second hand smoke saddened us and was a loss for Minnesota and the nation.

Dr. Harris grew up in Virginia where she rose to become an official in the state's health department. From there she went to Washington D.C. where she served under five presidents before coming to Minnesota. At the time of her death, she was mayor of the Minnesota city of Eden Prairie.

We appreciate her intelligence, discipline, wisdom and dedication to public health. Her legacy is great and we wish this plan and the initiatives to improve the lives of people with asthma that it engenders be recognized as part of lasting contribution this extraordinary woman had to our lives and to the lives of so many Americans.

A Strategic Plan for Addressing Asthma in Minnesota

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Executive Summary

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Asthma is a complex disease associated with inflammation and narrowing of the airways. It is characterized by various triggers, gradations of severity, and evolving treatment options. Asthma symptoms can be triggered by, for example, allergies, infections or exercise. For reasons that are not fully understood, asthma rates in the U.S. have risen rapidly for the past two decades. Asthma is now one of the most common chronic diseases in the U.S. Asthma symptoms are experienced by 1 in 12 Americans each year. Asthma is associated with missed school days, missed workdays, disrupted sleep, and symptoms that interfere with physical activity. It can be fatal. Asthma is more prevalent in low-income communities. It accounts for numerous emergency room visits and a total of over \$6 billion in annual health care spending.

As illustrated, asthma is a serious public health problem in Minnesota:

- *One in ten adults* in Minnesota report having asthma at some time in their lives.
- Asthma cost Minnesotans *more than \$33 million* for emergency room visits and hospitalizations in 1999.
- *Hospitalizations* for asthma *have increased* for children under 20.
- Asthma disproportionately impacts *women, children, and the poor*.

The public health community and other asthma experts currently have very limited information about the exact causes of asthma or how to prevent it. This limited information brings additional challenges for the public health and medical community in providing high quality care and culturally appropriate education, information, and peer/family support to individuals and families with asthma from diverse communities.



Executive Summary

Additional resources and evaluation standards need to be developed to ensure access to and coordination of asthma education. The health and medical community does have access to disease-management strategies and the National, Heart, Lung, and Blood Institute asthma guidelines to keep asthma under control and greatly improve the quality of life for individuals with the disease.

Recognizing that asthma is an important public health issue, the Commissioner of Health gave the approval to develop a Technical Advisory Work group. The Commissioner’s asthma Advisory Work Group (CAAW) was formed to provide guidance and direction in developing a statewide strategic plan to address the increasing health and economic burden of asthma in Minnesota.

The membership of the workgroup included physicians, a pharmacist, schools nurses, a school superintendent, local public health agencies, a housing and urban development representative, state government agencies, legislative officials, academic institutions, non-profit organizations including representatives from the Minnesota Asthma Coalition, and a representative from the Minnesota Council of Health Plans.

The Commissioner’s Asthma Advisory Work Group was asked to

<p><i>Assess current asthma activities both nationally and in Minnesota.</i></p>	<p><i>Identify gaps, trends, and local and infrastructure needs.</i></p>
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develop a plan

Develop a plan of action for the next five years that establishes priorities, sets out clear, measurable short term and long term objectives, and recommends strategies for meeting these objectives, including the roles of various asthma partners.



Executive Summary

The Advisory Work Group met four times between October 2001 and May 2002 to determine priorities for addressing asthma and to review goals, priorities and progress of the four technical working groups.

The following working groups were established:

- Individual/Family/Community Concerns
- Health Professional and Provider Education
- Environment
- Data and Surveillance

This document presents the Work Groups' recommendations to address the increasing health and economic burden of asthma in Minnesota.

To reduce asthma's burden, the public, individuals with asthma, their families, caregivers, health systems, health care providers, schools, employers, childcare providers, community groups and others must all work together in a coordinated approach. Likewise, no single element of a well-coordinated and comprehensive approach can stand by itself. To combat asthma we must increase and empower community awareness to control asthma through public action to decrease allergens and irritants inside and outside homes, workplaces, schools and businesses. Public awareness of asthma's burdens can help to ensure that individuals with asthma have the resources they need to manage their disease. Education for individuals with asthma and their families should begin at the time of diagnosis and be integrated into every step of care. Health care providers must obtain the skills necessary to accurately diagnose and treat this complex disease and partner with their patients to provide them with the education and tools they need to manage their condition.





Executive Summary

Recommendations

The following recommendations identified by the Commissioner's Asthma Advisory Work Group, must be acted upon if Minnesota is to make significant strides in improving the lives of individuals with asthma and their families.

Awareness

- Build ongoing public awareness of opportunities to identify and manage asthma and its environmental triggers. *(pages 58-59)*
 - Promote asthma awareness activities, events, and other learning opportunities for the public about asthma throughout the year (e.g.: World Asthma Day[®]). *(pages 56-57)*
 - Develop and deliver consistent outreach, education and training materials for the housing industry, community groups, schools, businesses, and decision-makers. *(pages 80-97)*
-

Education

- Provide asthma education statewide through a web-based clearinghouse of high quality materials, certified asthma educators, and the Physician Asthma Care Education (PACE) program. *(pages 46-47, 48-49, 72-73)*
 - Create or support a web-based clearinghouse of high quality, culturally competent asthma education materials for use by all asthma partners. *(pages 46-47)*
 - Develop asthma educational resources (including web-based) for individuals to use in the specific settings in which they interact with people with asthma. *(pages 50-51)*
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Executive Summary

Education

- Train and certify 150 asthma educators and maintain a database on individual/groups receiving information from certified asthma educators. *(pages 48-49, 74-75)*
- Provide PACE training to 500 health care providers and monitor out comes from PACE implementation. *(pages 63, 72-73)*
- Identify and promote best-practices asthma management core curriculum at 100% of Minnesota’s health training academic institutions. *(pages 76)*
- Adequately reimburse the cost of asthma education. *(pages 52-53)*
- Improve asthma self-management and care by creating Asthma Action Plans (AAPs) for all pediatric asthma patients and for all adults with persistent asthma. *(pages 62, 70-71)*
- Develop a state-recommended web-based Asthma Action Plan (AAP). *(pages 66-67)*
- Identify and support provider AAP physicians“champions” throughout Minnesota to mentor other providers. *(pages 68-69)*
- Adequately reimburse the cost of creating and monitoring AAPs. *(pages 70-71)*



Executive Summary

Public Policy

Decrease exposure to asthma environmental triggers.

- Develop and implement interventions to control outdoor environmental triggers and develop local and statewide policies to institutionalize successful interventions. *(pages 92-93)*
- Develop and implement inspection and intervention protocols for indoor environmental triggers. *(pages 90-91)*
- Improve building processes to reduce indoor environmental triggers through developing quantifiable standards for building processes *(pages 96-97)*
- Support public policies that decrease exposure to environmental asthma triggers. *(pages 58-59)*

Promote asthma improvement activities statewide through ongoing activities of the Minnesota Asthma Coalition and a MDH Asthma State Plan Implementation Steering Committee of subject matter experts.

- Promote a clear and consistent framework regarding the Asthma Strategic Plan to critical asthma partners.
- Bring asthma partners together to promote discussion of best practices, opportunities, concerns, and policy-making options.
- Promote and monitor implementation of Strategic Plan for Addressing Asthma in Minnesota.



Executive Summary

Data & Surveillance

Build capacity for ongoing surveillance of asthma epidemiology, environmental triggers, clinical service performance, and timely access to culturally appropriate asthma information and care.

Improve our information on asthma and its impact on school-aged children.

- Conduct a pilot study in both a Minneapolis and a St. Paul hospital to test methods for collecting more complete information on hospitalizations and emergency department visits. The primary purpose of this effort is to gather data on race/ethnicity and recidivism.
- Institute a follow-back case review of all asthma deaths, similar to studies that have targeted maternal mortality and infant deaths.
- Conduct a questionnaire survey in volunteer schools. The questionnaire would assess prevalence, exposure to environmental triggers, medication use, and other factors. The questionnaire and protocol should be developed by MDH with the assistance of a broad-based advisory group. If possible the same schools will be approached for gathering baseline data on the number of students with on-site asthma action plans and for absentee data.

Improve our understanding of asthma in immigrant populations.

- Conduct key informant interviews with members of immigrant populations, particularly Somalis and Hmong to assess their understanding of asthma and its appropriate treatment.



Executive Summary

Further Considerations

Further consideration should be given to:

- Aligning the Commissioner's Asthma Advisory Workgroup and coalition initiatives with broader chronic disease management programs such as those with Chronic Obstructive Pulmonary Disease (COPD), diabetes, hypertension, and heart disease.
- Close collaborations with state and national efforts such as the National Heart, Lung, and Blood Institute, National Asthma Education Prevention Program, National Asthma Education Certification Board, Department of Health and Human Services, Centers for Disease Control and Prevention, U.S. Environmental Protection Agency, and National Library of Medicine to facilitate sustainable asthma program and related technology/service sector development.



Introduction

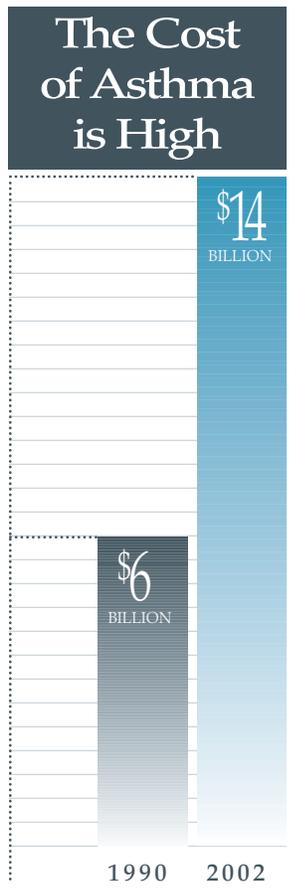
Asthma: A Major Public Health Problem

Asthma is a chronic inflammatory disease of the airways characterized by intermittent recurrent episodes of wheezing, breathlessness, chest tightness, and cough. People who have asthma experience episodes of barely being able to breathe. Some people with asthma end up in the hospital or emergency room; some even die from it.

The economic cost of asthma is high; in 1990 the United States spent more than \$6 billion on asthma and that figure is expected to more than double to \$14 billion by 2002. This figure doesn't include the economic cost of the days people lose from work or school. And it doesn't include the emotional cost of having a disease that, if not properly treated, can limit activity and interfere with daily living.

As is detailed later in this report, asthma has increased dramatically in the past 30 years. This increase is apparent both in deaths from asthma, in hospitalizations with asthma, and in the proportion of people who have asthma. This increase is not limited to the United States; many other industrialized nations are reporting a similar increase.

Our current understanding of asthma is that it is a multi-factorial disease that is associated with familial, infectious, allergenic, socio-economic, psychosocial, and environmental factors. How these factors interact to cause asthma is not known. However, we know that asthma morbidity and mortality are largely preventable. With improved patient education regarding the factors associated with asthma, with appropriate medical management, and with public





Introduction

Asthma: A Major Public Health Problem

policies that support people with asthma, we know that the impact of asthma can be greatly ameliorated and that people with asthma can lead healthy normal lives. This can only be accomplished through a combination of coordinated public and private efforts.

Asthma can no longer be considered just a clinical issue. The increase in asthma, and the fact that we have a substantial information about how to control the disease but no information about how to prevent, leads us to the inevitable conclusion that asthma is a public health problem of growing magnitude.

wealth of stakeholders

In Minnesota we have been fortunate to have a wealth of stakeholders from the health and medical community that are focused on the health and well being of individuals and families that live with asthma. Many of these institutions, organizations, and agencies have developed initiatives around asthma and have been able to show measurable outcomes with these programs. Various managed care organizations have instituted case management programs for people with asthma. The Healthy Learners Asthma Initiative is a community-wide collaboration between the Minneapolis Public Schools, health care delivery and public health systems and community organizations and has mounted an ambitious effort to decrease student absent days, emergency department visits and inpatient admissions related to asthma by 50%. The American Lung Association of Minnesota (ALAMN) in conjunction with the Minnesota Department of Health (MDH) have been working for the last three years to build and organize the structure of the Minnesota Asthma Coalition.



Introduction

Asthma: A Major Public Health Problem

Even though Minnesota has been very active in addressing the issue of asthma, much work remains. Many clinicians, health care professionals, public health officials, and other agencies and organizations have been working in relative isolation from each other. There has been no statewide dialogue on the issues confronting Minnesota in responding to the asthma challenge, no agreement on a common set of priorities, and no opportunity to discuss strategies for addressing priorities. In order to sustain all the good work that has been done and to build momentum for addressing the issues that have not been resolved, it became obvious that Minnesota needed a statewide coordinated planning effort to address asthma that would be focused, realistic, and based on good science.

In October of 2001, the Commissioner of Health brought together a broad array of partners to begin discussions on how Minnesota could develop a coordinated statewide effort to reduce the impact of asthma. Members of the Commissioner's Asthma Advisory Work Group (*please see Appendix A for membership roster*) included public and private representatives with clinical care, education, environmental, housing, data, government and public policy, and public health expertise. MDH asthma staff recruited membership of individuals and organizations that had been very active in the asthma community in the past, but also included agencies and organizations that hadn't had a voice before in statewide asthma discussions. From November 2001 to May 2002 four working groups (*please see Appendix B for membership rosters*) met to tackle different aspects of the asthma problem.

The purpose of the strategic plan presented here is to provide direction and strategic program approaches for public health officials, health care professionals, public policy experts, and other members of the education, health and medical community in addressing the asthma burden in Minnesota. Work Group members believe that if Minnesota is to see successful results, it will require a coordinated multi-disciplinary approach in providing high quality care for the individual with asthma and the family. No single institution or organization can solve the problem of asthma alone. But by working together, as was done in producing this plan, we believe that we can decrease both the economic and emotional burden that currently affects both people with asthma and the entire community.



Introduction

Current Efforts to Address Asthma in Minnesota

Minnesota has many committed individuals, agencies, and organizations working on helping individuals and families to gain the knowledge and skills necessary to control and manage their asthma on a daily basis. Many of these efforts and initiatives include state government activities, the Minnesota Asthma Coalition (seven regional coalitions), school districts, hospitals and managed care organizations, community-based clinics, academic institutions, and non-profit health organizations, including the American Lung Association of Minnesota.

(Please see Appendix C for a description of current asthma programs/activities in Minnesota.)

School Districts

Communities

Public Health Systems

Health Care Delivery

Non-Profit Health Organizations

The Healthy Learners Asthma Initiative

Minnesota Department of Health

American Lung Association

Managed Care Organizations Hospitals Clinics

Minnesota Asthma Coalition

Minnesota's Commitment



Overview of Asthma Diagnosis & Treatment

Definition of Asthma

Asthma is a common chronic disease of children and adults. National reports show that more than 1 in 12 Americans have had asthma symptoms in the past year and as many as 1 in 8 have had asthma at some point during their lifetime.

Each year the number of children, teens, and adults diagnosed with asthma increases. Asthma is associated with missed school days, missed workdays, disrupted sleep, and symptoms that interfere with play and sports.

Asthma is a complex disease associated with inflammation of the lungs, narrowing of the airways (bronchospasm) that can be triggered by allergens, infection and exercise. We know little about the exact causes of asthma or the prevention of asthma. However, we do know how to control the symptoms and inflammation of asthma. Asthma is not curable but it is treatable.

It is imperative that individuals with asthma and their families have total access to culturally appropriate primary and specialty asthma care, culturally appropriate education services, and necessary medications and devices for effective asthma self-management. More often than not, many individuals and their families confront barriers to access quality care and educational services due to a number of social and economic issues. For other individuals, they may have access to care, but lack the coordination of care that is necessary for daily management of asthma. Improved partnerships and new strategic approaches between government agencies and health plans is vital to improve both access to and coordination of a complete circle of asthma care that will continue to reduce asthma morbidity and mortality.



An Overview of Asthma—Diagnosis & Treatment

Definition of Asthma

Public health officials and other asthma experts still have a lot to learn about how asthma impacts Minnesotans and what are the opportunities and barriers to improving asthma outcomes and coordinated asthma care delivery within our state. Anyone can develop asthma, although it is most studied in people under age 50. There is a higher chance of developing asthma if you have family members with asthma, but environmental factors certainly aggravate or, in selected situations, potentially cause asthma.

Diagnosing asthma remains a challenge, especially in children (0-5) and the elderly. The symptoms are variable and, depending on environmental triggers and baseline health risks, may be severe and even can be fatal. Uncontrolled asthma may include wheezing, cough, shortness of breath, or chest tightness. Symptom control does not always correlate with disease control, so objective monitoring of airway obstruction +/- inflammation is important. Likewise, reduced peak flow readings or abnormal spirometry results may be due to conditions other than asthma.

Once diagnosed, it is important for the individual/family to develop a partnership with their health care providers/educators to establish an **asthma control strategy** that will allow the individual/family to:

- *Understand basics* about asthma pathophysiology.
- Increase awareness of individual's specific triggers (internal and environmental) and what *preventive/avoidance steps* to take to minimize exposure to them.
- Use the most cost-effective medications to keep the asthma *under control* (adjusted for severity).
- Obtain a written action plan that allows the individual/family (and any other caretakers that provide care, e.g.: day care provider) to learn and develop the skills to best manage asthma when it is out of control.



An Overview of Asthma–Diagnosis and Treatment Summary of Current Asthma Guidelines

National Institutes of Health Guidelines

The most complete formalized set of asthma care guidelines are outlined in the National Institutes of Health (NIH) Expert Panel Report 2 (EPR 2), Publication No. 97-4051, July 1997, *“Guidelines for the Diagnosis and Management of Asthma.”* These 1997 guidelines establish criteria that define asthma severity categories and also identify the four components of asthma treatment: objective measurements of disease activity, medication treatment, environmental control measures, and education. These guidelines provide a consensus of scientific opinion on the diagnosis and treatment of asthma and are an important educational resource in asthma management. *(Please see Appendix D for a brief summary of these guidelines for the diagnosis and management of asthma).* Visit www.nhlbi.gov for complete NIH guidelines on the web.

National Institutes of Health (NIH) Expert Panel Report 2 (EPR 2), Publication No. 97-4051, July 1997 *“Guidelines for the Diagnosis and Management of Asthma.”*

Institute for Clinical Systems Improvement (ICSI)

The Institute for Clinical Systems Improvement (ICSI), a collaboration of health care organizations in Minnesota, has created best clinical practice guidelines for their patients with asthma. Visit www.icsi.org/guidelst.htm for complete ICSI guidelines on the web.



An Overview of Asthma—Diagnosis and Treatment National Trends

Background

Asthma is a difficult disease for which to do surveillance (i.e. monitor continuously), both because of the disease itself and available data systems. In terms of the disease itself, asthma differs from many other illnesses for which surveillance is conducted: it is largely cared for on an outpatient basis by many different types of physicians, including pediatricians, internists, allergists and pulmonologists; there are no agreed upon objective diagnostic criteria or definitive diagnostic tests or even a universally accepted definition; it is very difficult to distinguish from other illnesses in those who are under 5 or over 55; and the willingness to make a diagnosis of asthma, which often depends on patient history, varies widely among physicians. Traditional models for chronic disease surveillance, which involve obtaining a complete count of everyone with the disease, are neither practical nor efficient for this illness. Methods for obtaining the incidence (i.e. number of new cases) of asthma are being developed but are likely to be so resource-intensive as to be impractical on a large-scale basis.

To date asthma surveillance has largely relied on available data systems, and has focused largely on outcomes (e.g. hospitalizations, emergency room visits, and mortality) and costs, with some information on prevalence. Using different data systems has its own set of problems. Different systems use different age groups and cover different time spans.

Asthma surveillance is difficult to perform because...

- ✓ it is largely cared for on an outpatient basis
- ✓ there are no agreed upon objective diagnostic criteria or definitive diagnostic tests
- ✓ there is no universally accepted definition
- ✓ it is difficult to distinguish from other illnesses
- ✓ diagnosis often depends on patient history
- ✓ traditional models for surveillance are neither practical nor efficient





An Overview of Asthma–Diagnosis and Treatment National Trends

Most importantly, they often collect and/or report data on race and ethnicity in ways that are not comparable. Because of the apparent disparities in both prevalence and outcome measures, this is a crucial weakness. For example, several studies have shown that Hispanics, with the exception of Hispanics of Puerto Rican origin, have lower prevalence rates than other whites. It is not clear to what extent, if any, this may be due to inaccurate measurement of Hispanic ethnicity.

Another critical problem in our understanding of national trends comes from a change in wording of the question that is asked about asthma on the National Health Interview Survey (NHIS) conducted by the National Center for Health Statistics survey. This survey is our only national source of information on asthma prevalence. Prior to 1997, the survey asked: *“During the past 12 months, have you had asthma?”* In 1997 this changed to: *“Has a doctor or other health professional ever told you that you had asthma?”* and, if yes, *“During the past 12 months, have you had an episode of asthma or an asthma attack?”* This new case definition resulted in a 20% decrease in the estimate of asthma prevalence. Unfortunately this change was made without calibration, meaning that data before and after 1997 cannot be directly compared. While the NHIS showed a 74% increase in asthma prevalence between 1980 and 1996, it will be several years before we know if this increase is continuing.

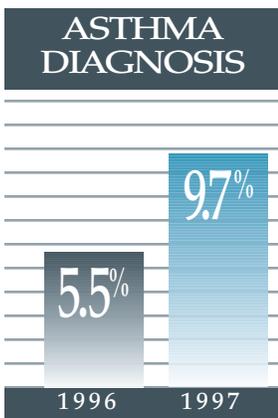
NHIS SURVEY QUESTION	
Prior to 1997	In 1997
“During the past 12 months, have you had asthma?”	“Has a doctor or other health professional ever told you that you had asthma?”
	<p style="text-align: center; color: #2c3e50; font-weight: bold;">IF “YES”</p> “During the past 12 months, have you had an episode of asthma or an asthma attack?”



An Overview of Asthma—Diagnosis and Treatment National Trends

Trends

The most comprehensive reports on national trends for asthma come from David Mannino and colleagues at the Centers for Disease Control and Prevention (1998, 2002). Using a variety of data sources. They reported the following trends:



Prevalence

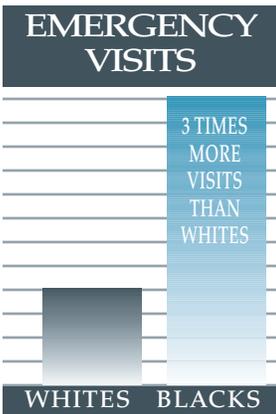
As discussed previously, asthma prevalence as measured by the question “*During the past 12 months, have you had asthma?*” increased 74% from 1980 to 1996, with 5.5% reporting asthma in 1996. In 1997, 9.7% reported a diagnosis of asthma in their lifetime (higher than was reported previously) and 4.1% reported an asthma episode in the previous year. Both before and after 1997, the 12-month prevalence was highest in children 5 to 14, higher in blacks than whites, and higher in women than men. There was no substantial geographic variation.

Hospitalizations

Overall, the hospitalization rate for asthma peaked in the mid-1980s and has declined since then. There are exceptions to this pattern. The rate of hospitalization among blacks and children under 15 are higher than they were in the mid-1980s but show some evidence of declining since reaching a peak in 1995. Also rates in the northeastern U.S. have not shown a decline. Hospitalization rates are highest for children under 5, blacks, and women.



An Overview of Asthma–Diagnosis and Treatment National Trends



Emergency Department Visits

Visits to the emergency department for asthma increased 36% between 1992 and 1999. The rate for blacks has consistently been three times higher than that for whites. Children under 5 also have higher rates than any other age group.

Asthma Mortality

Asthma mortality declined during the 1960s and then started to increase steadily from the 1970s to the mid-1990s. There is some evidence that death rates have plateaued since 1995, and have perhaps started to slightly decline. However, changes in coding in 1999 complicate the direct comparison of 1999 and pre-1999 rates. Rates for blacks are over two times higher than for whites. Rates for people over 65, particularly for women, are the highest.

Summary

Both asthma prevalence and asthma morbidity (hospitalizations and emergency department visits) have increased substantially since 1980, although there are some indications that hospitalizations for asthma may have started to decline. After steadily increasing over the past three decades, asthma mortality is now starting to decline, although it remains well above the rate in the 1970s. Blacks are consistently higher than whites for all measures of asthma, and are also higher than other non-whites. Children under the age of five are another high-risk group.

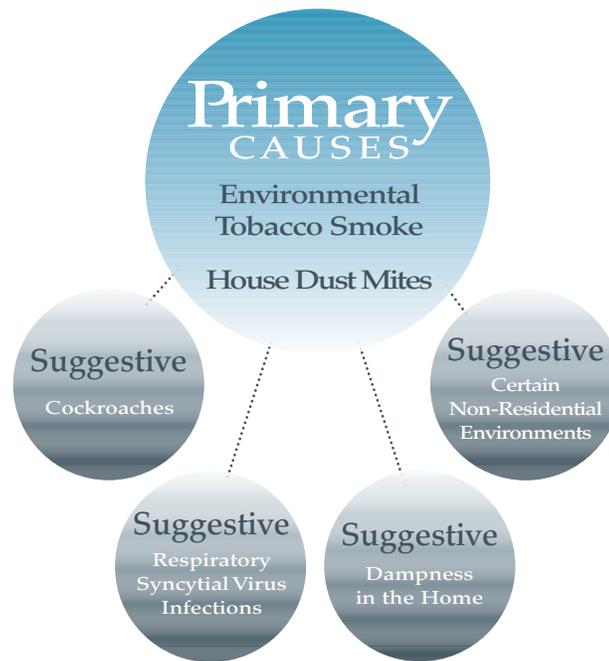


An Overview of Asthma—Diagnosis and Treatment

Causes of Asthma

In considering the causes of asthma, it is useful to distinguish between primary causes, i.e. those that lead to onset of new disease; and factors that exacerbate asthmatic symptoms in those that have asthma. Distinguishing these two may not always be easy. For example, if studies show that people living near congested roadways have a higher prevalence of asthma as indicated by questionnaire, it could be that some exposure associated with the roadway (e.g. particulate levels) is actually causing new cases of asthma. Alternatively the exposure could be causing an increase in asthma symptoms and thus an increase in the likelihood that people report symptoms on a questionnaire. In addition, any factor that is a primary cause will also exacerbate asthma.

The Institute of Medicine has recently reviewed available evidence regarding the relationship between environmental exposures and asthma, in *Clearing the Air: Asthma and Indoor Air Exposures*, (IOM 2000). Their report considered the evidence for 27 environmental “exposures” (including biologic, infectious, and chemical agents, as well as generic exposures such as non-residential environments). The IOM panel comprehensively reviewed the scientific evidence and categorized evidence for each exposure as sufficient, suggestive (“limited”), or insufficient, for both primary causes and factors leading to asthma exacerbation. For primary causes it found sufficient evidence for two factors: environmental tobacco smoke and house dust mites. The panel also concluded that there was suggestive evidence for cockroaches, respiratory syncytial virus infections, dampness in the home, and certain non-residential environments.





An Overview of Asthma–Diagnosis and Treatment Causes of Asthma

Table 1:
Institute of Medicine Evidence for Environmental Exposures
as a Primary Cause and Exacerbation of Asthma

The Institute of Medicine (IOM) has identified several environmental exposures they believe provide evidence of developing and/or exacerbating asthma.	ENVIRONMENTAL EXPOSURE	AS A PRIMARY CAUSE	AS AN EXACERBATION
The exposures included to the right are biological, chemical and non-residential.	Dust Mites	Sufficient	Sufficient
	Cockroaches	Suggestive	Sufficient
	Rodents		Sufficient
	Dogs		Suggestive
	Birds		Suggestive
	Cat Dander		Sufficient
	Fungi		Sufficient
	Respiratory Syncytial Viral Infections (RSV)	Suggestive	Suggestive
	Chlamydia		Suggestive
	Mycoplasma		Suggestive
	Rhinovirus		Sufficient
	Environmental Tobacco Smoke ETS	Sufficient	Sufficient
	Indoor Chemical Exposures Fragrance		Suggestive
	Formaldehyde		Suggestive
	Particulate Matter (PM)		Suggestive
High Ozone		Sufficient	
Indoor Dampness Dampness in the Home	Suggestive	Suggestive	
Non-Residential Environments: Office Buildings, Schools	Suggestive	Suggestive	



An Overview of Asthma—Diagnosis and Treatment Causes of Asthma

For factors leading to asthma exacerbation, it found sufficient evidence for several factors, including house dust mites, cockroaches, rodents, cat dander, fungi, environmental tobacco smoke, high ozone levels, and rhinovirus infections in young children. It also found suggestive evidence for dogs, birds, formaldehyde, fragrances, particulate matter, indoor home dampness, certain non-residential environments, and infections with respiratory syncytial virus, chlamydia, and mycoplasma. It should be noted that recent evidence suggests that diesel fumes from buses idling outside of schools may make asthma worse in school children.

Although this comprehensive report is very useful in summarizing what we know about environmental exposures and asthma, it does not shed new light on causes for the apparent increase in asthma that was noted previously. There is no evidence that any of these factors have increased substantially in the last 20 years, and in some cases there is evidence that exposures have been reduced. While the cause for the increase is currently the subject of scientific investigation and debate, there are several theories that are worth discussing.

hygiene hypothesis

One theory receiving prominent attention is the “**hygiene hypothesis**”. In brief, this theory states that **infections in early life may provide important signals to the developing immune system**. The immune response can be associated either with type 1 helper T cells (Th1 cells) or type 2 helper T cells (Th2 cells). Studies have shown that exposure to infectious agents in childhood shift the immune response away from Th2 cells, which are associated with allergic responses, and toward one based more on *cytokines* derived from Th1 cells, such as is seen in adults without allergy.



An Overview of Asthma—Diagnosis and Treatment Causes of Asthma

Thus infections that stimulate a Th1-like response in early childhood may inhibit the predominantly Th2 response that is present in newborn infants and in adults is associated with allergy. In the absence of infection, the theory goes, the Th2 response persists. Thus one potential explanation for the increase in asthma is that childhood, particularly early childhood, **infections have decreased as our standard of living has increased.**

Studies from formerly East and West Germany appear to support this hypothesis. Shortly after reunification, surveys in the two areas showed that East German children, who lived in a much more polluted outdoor environment, were more likely to have bronchitis and other infections; while West German children, with their cleaner environment, were more likely to have asthma and allergies. However, as conditions have improved in former East Germany, asthma and allergy rates have also risen.

On the other hand, it is not clear how this hypothesis would explain the higher prevalence of asthma in some minority populations. Studies consistently show that asthma prevalence is higher in African American populations than in both Hispanic and non-Hispanic white groups. Studies with children in day care, where infection rates are known to be higher, have also been inconsistent, although there it may be the timing of the day care exposure that is crucial for development of asthma. At this point in time, the “hygiene” hypothesis should probably be regarded as a promising theory that needs additional clarification.



An Overview of Asthma—Diagnosis and Treatment Causes of Asthma

outdoor air pollution

Another theory that has received widespread attention is that outdoor air pollution is responsible for increasing asthma prevalence. While certain pollutants, particularly ozone and particulate matter, have been demonstrated to exacerbate asthma as measured by an increase in hospitalizations on days that the levels are high, there is little evidence to support that they can cause asthma. In most cities in the United States, pollutants that are subject to the National Ambient Air Quality Standards (NAAQS) have decreased over the years and air quality has improved. In addition, a 1990 study in Olmsted County, Minnesota, showed that, while asthma rates there had increased significantly over the past 20 years, Olmsted County has little manufacturing and is generally regarded as having relatively clean air.

Nonetheless, some have argued that while total particulate levels have decreased, fine particulates, which have not been measured until recently, may be increasing. Fine particulates are those less than 2.5 microns in diameter and are the respirable fraction of total particulates. A role for particulates in the causation of asthma was bolstered by a recent study: in mice, injecting diesel particulates into the bloodstream may increase the production of an immune protein, interleukin-6 (IL-6), that triggers asthma attacks while simultaneously suppressing a second protein, interferon-gamma, whose role is to moderate the immune response. While most scientists do not believe that particulates are responsible for the significant increase in asthma that has been seen in the past 20 years, their role deserves further investigation in asthma and other associated diseases such as emphysema and Chronic Obstructive Pulmonary Disease (COPD).

In summary, **the primary causes of asthma**, and particularly the reasons for the increase in asthma, **remain largely unknown**. This lack of knowledge is critical: without knowledge, the primary prevention of asthma cannot be undertaken. Funding and coordination of this work is a federal responsibility and specifically that of the National Institutes of Health. At the state level, emphasis must continue to be placed on assuring public **understanding**, proper **identification**, **prevention** and **treatment** of those who have asthma.



Asthma in Minnesota Epidemiology

Current Understanding of Asthma—Trends & Costs

As part of our grant from the Centers for Disease Control, the MDH has been analyzing available asthma data for the past two years. Although the picture of asthma remains incomplete, much has been learned from this effort. This section summarizes some of the major findings.

There are currently four major data sets:

- The Behavioral Risk Factor Surveillance System (BRFSS), which provides data on asthma prevalence (the proportion of people with asthma);
- Death certificates;
- Hospitalization data
- Data on emergency room visits

The first two are collected by the MDH, and the latter two by the Minnesota Hospital and Healthcare Partnership. In addition there are two additional datasets collected as part of specific projects that provide some useful insights:

There are currently two additional data sets:

- The Survey of Health and Physical Environment conducted by Hennepin County
- The parent survey collected by the Healthy Learners Asthma Initiative in Minneapolis Schools



Asthma in Minnesota—Epidemiology

Asthma Prevalence

The majority of data on asthma prevalence comes from the Behavioral Risk Factor Surveillance System (BRFSS). The BRFSS is a random digit dialed survey of the adult Minnesota population. Since 1991 respondents have been asked if they have *ever been told by a doctor that they had asthma*. In 2000 those who answered *yes* were also asked if they *still had asthma*.

The **major strengths** of the BRFSS data are that:

- the answers are representative of adults in Minnesota;
- trends over time can be examined;
- and other potential factors can be assessed.

The **major limitations** of the BRFSS data are that:

- children and people without phones are not included;
- because asthma affects only a small part of the population, data cannot be analyzed for sub-groups or small geographic populations.

In 1998 Hennepin County conducted a similar survey of its residents, asking the same question about asthma.

Major findings concerning asthma prevalence from 1991-1999 are as follows:

- Asthma prevalence has remained fairly stable over the past nine years, ranging from a low of 6.8% in 1998 to a high of 8.4% in 1996.
- Recent results from the BRFSS suggest that number may be as high as 10%.
- Since 1994 asthma prevalence has been marginally higher in women than men, and this disparity appears to be increasing.



Asthma in Minnesota—Epidemiology Asthma Prevalence

- Although based on small numbers, asthma prevalence appears to be slightly decreasing in the 18-44 and 45-64 age groups and slightly increasing in the 65+ age group.
- Asthma prevalence is consistently higher in the Twin Cities metropolitan area compared to the rest of Minnesota, although the difference was minor in 1998 and 1999.
- People with asthma smoke at the same or higher rate as people without asthma.
- People with asthma are twice as likely to report their health status as fair or poor and to report activity limitations as people without asthma.
- People with asthma are twice as likely to report receiving an influenza or pneumococcal vaccine as people without asthma, although less than 50% of people with asthma receive either.
- Asthma prevalence within Hennepin County showed marked geographic variation. The prevalence in Minneapolis was 10.3% and ranged from a low of 6.7% in the Northeast neighborhood to a high of 14% in the Phillips neighborhood. In contrast the average rate in the rest of Hennepin County was 8.4%.

As stated previously, in 2000 people who reported having asthma were asked if they still had asthma. Although no conclusions can be drawn based on one year of data, the general trends outlined previously hold true for people who still have asthma. In 2000 9.5% of adults reported that they had ever had asthma, and 7.1% reported that they still had asthma.



Asthma in Minnesota—Epidemiology

Asthma Mortality

Information on asthma mortality, or death from asthma, is based on death certificates. These have been collected for many years and are collected and coded in all states in a comparable manner.

The *major limitations* of the data on mortality

- death certificates are known often to be inaccurate, as they may be filled out by someone not familiar with the medical history of the deceased
- this is compounded by the difficulty in diagnosing asthma in older people.

Major findings concerning asthma mortality are as follows:

- As has been seen nationally, asthma mortality decreased dramatically during the 1960s and early 1970s. Since then there has been a steady increase with mortality rates in the 1990s returning to their previous levels. There is some evidence that the mortality rate has plateaued in the last five years and may be starting to slightly decline again.
- The vast majority of asthma deaths occur among the elderly, particularly elderly women. Between 1988 and 1999 there were 1076 deaths from asthma in Minnesota. Of these 746 occurred among people over 70 years of age, and two thirds of these were women.
- Deaths from asthma are rare in the young. There were 24 deaths in people under 20 during this same time span.



Asthma in Minnesota—Epidemiology Asthma Hospitalizations

Data on asthma hospitalizations comes from a hospital discharge dataset, which is collected by each hospital. Eighty percent of hospitals in Minnesota, representing 95% of all hospitalizations, then send their data to the Minnesota Hospital and Healthcare Partnership. Federal hospitals (e.g., the Veterans Administration and the Indian Health Service) are not included but otherwise the data are fairly representative.

Important limitations of the data on hospitalization

- data on race/ethnicity are not included
- events rather than individuals are recorded, so it is not possible to know how many people have repeat visits

Nonetheless, the zip code of residence is available, and thus, it is possible to look at the geographic distribution of hospitalizations.

Major findings concerning asthma hospitalizations are as follows:

- Hospitalizations are highest in children under 20, and particularly in children under 5. The rate steadily decreases, reaching a plateau from 30 to 50 years, and then starts to increase again.
- Between 1980 and 1991, hospitalizations among Twin Cities residents have increased in all age groups under 2. The greatest increase was 47% in the 15-19 age group.
- Hospitalization rates are higher among males up until 15 years old. After that rates are consistently higher among women for all other age groups.
- Hospitalizations are higher among Twin Cities metropolitan area residents than for the rest of the state.
- Hospitalizations are particularly high, often three times higher, for residents from socio-economically disadvantaged areas of the cities.
- In 1999 there were 4,736 hospitalizations. The average charge per hospitalization was \$5,959, for a total charge of \$28,235,376.



Asthma in Minnesota—Epidemiology

Asthma Emergency Department Visits

Data on emergency visits are also collected by the Minnesota Hospital and Healthcare Partnership. These data are only available recently and for the Twin Cities Metropolitan area. In addition they are not distinguished from visits to Urgent care or Outpatient visits. Given that emergency department visits are frequently a target for intervention, it seems apparent that a more precise surveillance system is necessary.

Major findings concerning asthma emergency department visits are as follows:

- Emergency department rates are higher among males up until 15 years old. After that rates are consistently higher among women for all other age groups.
- Emergency department visits are particularly high, often three times higher, for residents from socio-economically disadvantaged areas of the cities.
- In 1999 there were 11,860 emergency department visits. The average charge per emergency department visit was \$430, for a total charge of \$5,103,883.



Asthma in Minnesota—Epidemiology Missed School Days or Work Days Due to Asthma

Minnesota currently lacks any specific data on the important outcomes of missed days at work and/or school due to asthma. However, there is every reason to believe that this impact may be substantial. Based on national data, we estimate that the average school-child with asthma misses 3.7 school days due to asthma. Assuming that the statewide prevalence of asthma among schoolchildren is about 8%, this would translate to a number of 277,020 school days that are missed, solely due to asthma.

Lost productivity among adults is even harder to estimate, and good national data are lacking. We know that adults can miss work due to their child's asthma, as well as their own asthma. In a survey of Minneapolis adults whose child has asthma, 43% reported that they had missed school or work due to their child's asthma. In a survey in Nevada, 6% of respondents reported missing an average of three days of work due to asthma, and a half of the people with asthma reported that they had worked at least ten days during the past month with asthma symptoms, to which they attributed a 50% decline in their normal productivity.





Strategic Plan Recommendations

The following are the recommendations from the four technical work groups. The recommendations include the

- goal statements
- objective(s)

For additional information regarding the strategies, action steps, and lead agency and supporting agency roles for these strategies, please refer to the worksheets that follow each separate working group summary.





Strategic Plan Recommendations Individual/Family/Community Concerns Working Group

Charged with providing recommendations that include strategies that will allow and individual to have adequate control of his/her asthma.

Goal 1 **EDUCATION**
Individuals with asthma and their families expect and receive appropriate high quality asthma self-management education and support at time of diagnosis and throughout life. ** See Appendix G for School based approaches to supporting children and youth asthma self-management.

Objective 1 Individuals with asthma and their families have access to high quality education and peer/family asthma support systems that are culturally appropriate.

Objective 2 At least 150 health professionals will become certified asthma educators and will provide state-of-the-art asthma education in health care, childcare, homes, schools, workplaces, and other community settings.

Objective 3 Develop and provide learning opportunities for individuals, such as school staff (e.g. coaches, teachers, school aides, building and maintenance staff, etc.) community youth workers, faith groups, and others who interact with people with asthma.

Objective 4 Third party payer policies include adequate payment for appropriate individual or group asthma educational activities for their enrollees.

Objective 5 Develop comprehensive approaches to support asthma self-management among each of the following populations: children 0-5, children 6-18**, adults, and senior citizens.

Goal 2 **ASTHMA AWARENESS**
Minnesotans will be aware of asthma and opportunities for individuals with asthma, their families, and communities to identify and manage the disease.

Objective 1 Educate Minnesotans about asthma triggers, early identification, and the importance of early asthma care.



Strategic Plan Recommendations Health Professional and Provider Education Working Group

Charged to make recommendations regarding outcome-based strategies of providing continuing education/training opportunities for clinicians and other health professionals to provide culturally competent care to their patients with asthma.

Goal 1

ASTHMA ACTIONS PLANS

All health care providers who treat people with asthma will provide written Asthma Action Plans (AAP) for their pediatric asthma patients, and they will provide AAPs for their adult patients with persistent asthma.

Objective 1

By October 1, 2004, 60% of asthma patients identified in the Individual/Family/Community goal will have written AAPs.

Goal 2

EDUCATION

All Health Care Providers/Professionals in Minnesota will be educated and prepared to provide individuals with asthma and their families with the best practice of care, education, and resources to effectively manage their condition.

Objective 1

By October 1, 2004, 500 health care providers with representation from across the state of Minnesota will have completed formal training specific to asthma care.

Objective 2

By October 1, 2004, 150 health care providers with representation from across the state of Minnesota will become Certified Asthma Educators.

Objective 3

By October 1, 2004, ensure that 100% of institutions are aware of asthma core curriculum objectives and have evaluated their curricula/programs for this content.



Strategic Plan Recommendations Environment Working Group

Charged with assessing the issues, determining priorities and recommending specific strategies for dealing with environmental issues that affect asthma.

Goal 1

AWARENESS

Increase awareness of environmental triggers for asthma.

Objective 1

Develop and deliver consistent training for five key groups: the housing industry, community groups and individuals, schools, business/industry, and decision makers.

Goal 2

EXPOSURE

Decrease exposure to environmental triggers for people with asthma.

Objective 1

Minimize the presence of, and decrease exposure to, environmental triggers of asthma through strategies of developing intervention protocols for the indoor environment, outdoor air, and public policies.

Goal 3

BUILDING PERFORMANCE

Improve building performance accountability.

Objective 1

Improve the building stock as it relates to indoor air quality, maintainability and durability by developing quantifiable standards, including things such as building codes, for new construction.



Strategic Plan Recommendations Data Surveillance Working Group

Charged with providing recommendations regarding the collection of asthma data in Minnesota.

Goal 1

INFORMATION

Improve our information on asthma and its impact on school-aged children.

Objective 1

Conduct a pilot study in both a Minneapolis and St. Paul hospital to test methods for collecting more complete information on hospitalizations and emergency department visits. The primary purpose of this effort is to gather data on race/ethnicity and recidivism.

Objective 2

Institute a follow-back case review of all asthma deaths, similar to studies that have targeted maternal mortality and infant deaths.

Objective 3

Conduct a questionnaire survey in volunteer schools. The questionnaire would assess prevalence, exposure to environmental triggers, medication use, and other factors. The questionnaire and protocol should be developed by MDH with the assistance of a broad-based advisory group. If possible the same schools will be approached for gathering baseline data on the number of students with on-site asthma action plans and for absentee data.

Goal 2

UNDERSTANDING

Improve our understanding of asthma in immigrant populations.

Objective 1

Conduct key informant interviews with members of immigrant populations, particularly Somalis and Hmong, to assess their understanding of asthma and its appropriate treatment.

Objective 2

Conduct focus groups with members of immigrant populations who have asthma or are caregivers to ascertain their understanding of asthma and what assistance would be useful in improving their asthma care.





Working Group Summary Reports

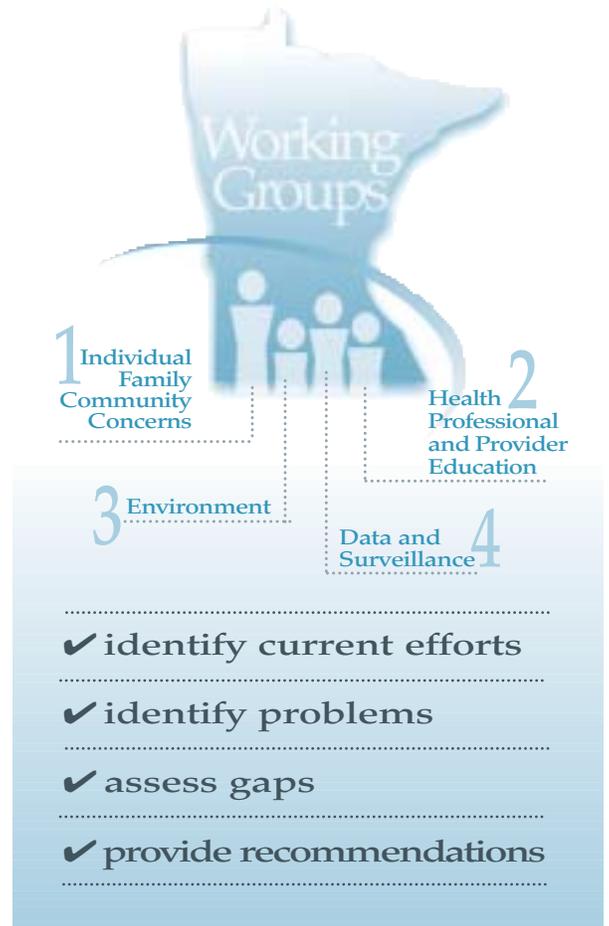
The Commissioner's Asthma Advisory Workgroup identified four key issue areas and established the following four technical working groups:

- Individual/ Family/ Community Concerns,
- Health Professional and Provider Education
- Environment, and
- Data and Surveillance.

These technical working groups were created to identify current efforts underway in Minnesota, identify problems and assess gaps, and then provide recommendations for each of priority/issue areas.

The following presents the summary reports from each of the four technical working groups.

Working Groups Activities





Working Group Summary Reports Individual/Family/Community Concerns *Concerns about Controlling Asthma*

The members of the Individual/Family/Community concerns working group were asked to focus on an individual's ability to manage his/her asthma. Our goals, objectives, strategies, and proposed timelines will provide guidance to the Commissioner, health care professionals, public health officials, policy makers, and other partners.

What are individual/family/community concerns about controlling asthma? We determined that the following things must come together for an individual's asthma to be adequately controlled:



- The individual or his/her healthcare provider must recognize that they have asthma.
- The individual must have access to and financing for appropriate healthcare, and for education on self-management; and an environment free of asthma triggers.
- Interventions at the individual, family, and community level (schools, workplaces, churches, managed care organizations, and other arenas in which individuals with asthma participate) are necessary to adequately control asthma.



Working Group Summary Reports Individual/Family/Community Concerns

Problem Areas

The work group began by identifying these problem areas



- Though many people think asthma is a disease to be treated only when it flares up, asthma is a chronic disease that *can be kept in control* with proper management.
- The complexity of asthma across the life-span presents ongoing multiple barriers regarding *access to care, proper diagnosis, treatment, and management*.
- There is no *easily accessible system* for families with new asthma diagnosis to get information and ongoing support (as there is for diabetes, for example).
- Patients and families *need asthma education*, and most payers do not reimburse for asthma education under current health plans.
- Asthma education needs to be *culturally appropriate* and broken into *digestible steps* for greatest comprehension.
- *Emotional support* from caregivers and the community needs to be improved for individuals and families living with asthma.
- *Substandard housing* containing many environmental triggers, coupled with a lack of alternative affordable housing, is a huge problem for low-income individuals and families. Minnesota's *extreme climate* offers potential indoor air quality problems for residential buildings and other large buildings during the heating season.
- Medical caregivers are not focusing on *tobacco control/cessation* in asthmatic households and do not have a good handle on smoking cessation resources.



Working Group Summary Reports Individual/Family/Community Concerns

Strategic Areas

During our early meetings, the working group probed into strategic areas. We...



■ Reviewed maps showing that emergency room visits are highest among residents of the core inner cities in Hennepin and Ramsey counties.

■ Discussed the need for individual and family education and support at time of diagnosis and thereafter that incorporates knowledge, attitude and skills.

■ Discussed health plan activity around asthma.

■ Discussed the need to develop an inventory of asthma programs and research.

■ Determined that, regarding asthma education, key issues are access (including funding) and setting and cultural appropriateness.

■ Discussed the need for asthma awareness at the community level.

■ Regarding asthma education, identified the need to coordinate with health care providers, set quality standards, and create a system that allows education to be individualized and offer enhanced support to those who need it.

■ Expressed the need to educate all Minnesotans about asthma triggers, early asthma identification, and the importance of having a regular health care provider for asthma care.

■ Determined that programs and policies that increase awareness of and decrease exposure to asthma triggers are important to asthma control.



Working Group Summary Reports Individual/Family/Community Concerns

Current Activities

Based on this discussion we determined that our highest priority is asthma education at diagnosis and across the life span, and that environmental triggers are also a high priority.

Working in subcommittees and as a working group of the whole, we gathered information about current activities we can build on to meet our goals:

- The **Minnesota Asthma Coalition** has begun and creates a good base for community work and best practices dissemination.
- An asthma information resource/clearinghouse will be created by **ALAMN** and made available to patients, families, health care professionals, and the community.
- Prep courses are scheduled for August 8 and 9, 2002 for the **National Asthma Educator Certification Examination** that will be offered in Fall 2002.
- The education director from the **International Diabetes Center, St. Louis Park, MN** explained the two-decade evolution of diabetes at the individual, family, and community levels.
- The group reviewed two states asthma programs, **Mississippi and Wisconsin**.
- We gathered information about **private and public reimbursement** for asthma education.



Working Group Summary Reports Individual/Family/Community Concerns

Current Activities

Working in subcommittees and as a working group of the whole, we gathered information about current activities we can build on to meet our goals:

- Committee ideas were shared with the [Health Professional and Provider Education](#) working group and the [Environmental](#) working group, which are making recommendations similar to ours.
- The [U.S. Environmental Protection Agency](#), the [Minnesota Department of Health](#), the [Minnesota Partnership for Action Against Tobacco](#) and others are working for clean indoor air policies and procedures.
- [World Asthma Day](#) is being celebrated by Minnesota agencies and organizations in May 2002.
- Various [Asthma Action Plan templates](#) were reviewed, including web-based versions.
- The challenges faced by [school nurses](#) and other [school staff](#), and by [childcare providers](#) who want to help children control their asthma were reviewed.



Working Group Summary Reports Individual/Family/Community Concerns *Current Activities*

Goals, objectives, strategies and timelines were developed. Drawing the wide variety of expertise, points of view, and experience among individual/ family/ community work group members, the group developed the goals, objectives, and strategies presented in this report. Though work group members come from many walks of life, we all strongly support these priorities and action steps, and urge all Minnesotans to help implement them to relieve asthma's individual, family, and community burden in Minnesota.



Working Group Summary Reports Individual/Family/Community Concerns

Goal 1 • Objective 1

Goal 1

Individuals with asthma and their families expect and receive appropriate high quality asthma self- management education and support at time of diagnosis and throughout life.

Objective 1

Individuals with asthma and their families have access to accurate high quality education and peer/family asthma support systems that are culturally appropriate.

Strategy

Create or support a web-based system to collect asthma information and resources and make them available to individuals with asthma, families, health care professionals, and the community.

Lead Agency/ Organization for Strategy:

American Lung
Association of
Minnesota and
the Minnesota
Asthma Coalition

What will indicate success:

- Web-based information system developed and tested.
- Number of user hits on the web site.
- Additional information requests received via telephone, etc.
- Number of web site links.
- Information is accurate, current and relevant to users.



Working Group Summary Reports Individual/Family/Community Concerns

Goal 1 • Objective 1

Action

ACTIONS	LEAD AGENCY	SUPPORTING AGENCIES
Create a technical advisory team	American Lung Association, MN	Minnesota Department of Health Divisions — Environmental Health, Tobacco, MCSHN
Conduct needs assessment		Healthy Learners Asthma Initiative
Conduct asthma MN resources/program activities inventory	Minnesota Asthma Coalition	Coordinated School Health (MDH & CFL)
Develop web-based resources for health care professionals, community, etc.		Department of Human Services
		Minnesota Society of Respiratory Care
		Minnesota Pharmacists' Association
		Minnesota Council of Health Plans
		School Nurse Organization of MN
		Minnesota Public Health Association
Develop website		Local public health agencies
		Relevant Professional Organizations
Maintain website		Relevant Community Based Organizations
Pursue additional funding opportunities to sustain the resource center (staffing, phones, shipping, etc.)		Minnesota Center for Cross-Cultural Health
		Hennepin County Medical Center
		Asthma Collaborative
		Children's Hospitals and Clinics



Working Group Summary Reports Individual/Family/Community Concerns

Goal 1 • Objective 2

Goal 1

Individuals with asthma and their families expect and receive appropriate high quality asthma self- management education and support at time of diagnosis and throughout life. *(See Goal 2: Objective 2: Health Professional and Provider Education Working Group)*

Objective 2

At least 150 health care professionals will become certified asthma educators and will provide state-of-the-art asthma education to individuals and/or families and/or staff in health care, childcare settings, homes, schools, workplaces, and other community settings.

Strategy

- Implement national asthma educator certification preparatory course for health care professionals.
- Maintain database of health care professionals who have attended the course and those who have received certification.
- Track number of individuals/groups in different settings that have received asthma education by certified asthma educators.

**Lead Agency/
Organization
for Strategy:**
American Lung
Association of
Minnesota and
the Minnesota
Asthma Coalition

What will indicate success:

- 150 health professionals certified.
- Database developed.
- 8,700 individuals receive education from certified asthma educators over a five-year time frame.



Working Group Summary Reports Individual/Family/Community Concerns

Goal 1 • Objective 2

Action

ACTIONS	LEAD AGENCY	SUPPORTING AGENCIES
Create advisory group	American Lung Association, MN	Relevant Professional Organizations
Develop curriculum		Minnesota Department of Health
Pilot test curriculum	Minnesota Asthma Coalition	School Nurse Organization of MN
Create tracking database		Minnesota Public Health Association
Create workshop schedule		Minnesota Medical Association
Develop participant evaluation		Minnesota Society of Respiratory Care
Develop feedback loop		National Association of Pediatric Nurse Practitioners
Provide training to facility		
Develop marketing plan		
Offer first workshop		
Determine process for renewal updates		



Working Group Summary Reports Individual/Family/Community Concerns

Goal 1 • Objective 3

Goal 1

Individuals with asthma and their families expect and receive appropriate high quality asthma self- management education and support at time of diagnosis and throughout life.

Objective 3

Develop and provide learning opportunities for individuals who interact with people with asthma.

Strategy

Develop asthma educational resources (e.g. web-based) for individuals to use in the specific settings in which they interact with people with asthma.

**Lead Agency/
Organization
for Strategy:**
American Lung
Association of
Minnesota/
Minnesota
Asthma Coalition
& Minnesota
Department
of Health

What will indicate success:

To be defined by the technical advisory committee.



Working Group Summary Reports Individual/Family/Community Concerns

Goal 1 • Objective 3

Action

ACTIONS	LEAD AGENCY	SUPPORTING AGENCIES
Gather and review existing asthma materials available in Minnesota and from national programs	Minnesota Department of Health	School Nurse Organization of Minnesota Coordinated School Health (MDH/CFL)
Recruit and organize diverse technical advisory committee	American Lung Association, MN	Minnesota Department of Human Services
Determine “new” kinds of information that will be needed before planning the program		Minnesota Public Health Association
Define goals of the project		Local public health agencies
Define the targeted audience(s)		Minnesota Coaches Association
Draft communication strategies		Education Minnesota
Define communication channels that are most appropriate		Chamber of Commerce
Determine learning/training opportunities for targeted audience(s)		Faith Groups Minnesota Center for Cross Cultural Health
Define material format (web-based, etc.)		U.S. Department of Housing & Urban Development
Develop materials and pre-test		Minnesota Nurses Association
Revise materials based on feedback		Healthy Learners Asthma Initiative
Implementation		
Assess effectiveness		
Feedback to the program		



Working Group Summary Reports Individual/Family/Community Concerns

Goal 1 • Objective 4

Goal 1

Individuals with asthma and their families expect and receive appropriate high quality asthma self- management education and support at time of diagnosis and throughout life.

Objective 4

Third party payer policies will include adequate payment for appropriate individual or group asthma educational activities for their enrollees.

Strategy

Establish an advisory committee of employers, government programs, health plans, clinicians, and others to discuss effective reimbursement strategies for asthma education.

**Lead Agency/
Organization
for Strategy:**
Minnesota
Department
of Health

What will indicate success:

- Government Insurance Programs will pay the cost of asthma education.
- Health plans and employer groups will pay the cost of asthma education.
- More individuals/families with asthma will receive asthma education.



Working Group Summary Reports Individual/Family/Community Concerns

Goal 1 • Objective 4

Action

ACTIONS	LEAD AGENCY	SUPPORTING AGENCIES
National billing code for asthma	Minnesota Department of Health	Centers for Medicare and Medicaid Services
Set fee schedule		Minnesota Department of Human Services
HCPCS group coordinates billing procedure		Health Care Procedural Coding System
Establish system to bill on-line for pharmacists		Minnesota Council of Health Plans
Health plans and employer groups pay for asthma education		Minnesota Pharmacists' Association
Develop a mechanism that allows nurse/schools to be eligible providers and receive reimbursement for individual/family asthma education		MDH-Health Policy & Systems
		Compliance Division



Working Group Summary Reports Individual/Family/Community Concerns

Goal 1 • Objective 5

Goal 1

Individuals with asthma and their families expect and receive appropriate high quality asthma self-management education and support at time of diagnosis and throughout life.

Objective 5

Develop comprehensive approaches to support asthma self-management among each of the following populations: children 0-5, children 6-18, adults, and senior citizens.

Strategy

See Appendix G for suggested strategies for school-based approaches to supporting children and youth (6-18 years) asthma self-management.

Lead Agency for Strategy:

Coordinated School Health (a partnership of the Minnesota Department of Health and Minnesota Department of Children, Families, & Learning) and School Nurse Organization of Minnesota for school-based approaches for children and youth (6-18) strategy.

Please Note: It is beyond the focus and the scope of the Individual/Family/Community (IFC) Concerns working group to offer suggested strategies for children 0-5, adults, and senior citizens. It is the IFC working group recommendation that technical advisory committees be created to define the needs specific to each of these targeted audiences.

What will

indicate success:

To be defined by the technical advisory committees.



Working Group Summary Reports Individual/Family/Community Concerns

Goal 1 • Objective 5

Action Create technical advisory teams to consult on specific strategies for the following:

AGES	LEAD AGENCY	SUPPORTING AGENCIES
Children 0-5		Healthy Child Care Minnesota Early Childhood Family Education Minnesota Head Start Association Child Care Resource & Referral Minnesota Community Action Association
Children 6-18	Coordinated School Health School Nurse Organization of Minnesota	Healthy Learners Asthma Initiative Minnesota Nurses Association Local Public Health Association Minnesota Community Action Association
Adults		Health Plan Industry Minnesota Community Action Association Labor Unions
Senior Citizens		Department of Human Service, Aging Initiative



Working Group Summary Reports Individual/Family/Community Concerns

Goal 2 • Objective 1 • Strategy A

Goal 2

Minnesotans will be aware of asthma and opportunities for individuals with asthma, their families, and communities to identify and manage the disease.

Objective 1

Educate Minnesotans about asthma; including asthma triggers, early identification, and the importance of having regular asthma care.

Strategy A

Promote asthma awareness activities, events, and other learning opportunities for the public regarding asthma. (e.g.: “World Asthma Day”).

**Lead Agency/
Organization
for Strategy:**
American Lung
Association of
Minnesota/
Minnesota Asthma
Coalition and
the Minnesota
Department
of Health

What will indicate success:
Greater awareness of asthma
by Minnesotans.



Working Group Summary Reports Individual/Family/Community Concerns

Goal 2 • Objective 1 • Strategy A

Action

ACTIONS	LEAD AGENCY	SUPPORTING AGENCIES
<p>Form a World Asthma Day education planning committee that reflects the diversity of Minnesota</p>	<p>American Lung Association, MN</p>	<p>School Nurse Organization of Minnesota Public and Non-Public School Districts</p>
<p>Establish a state Proclamation by the Governor for observance of World Asthma Day</p>	<p>Minnesota Asthma Coalition</p>	<p>State Agencies Hospitals</p>
<p>Coordinate with schools, hospitals, health care providers, public health officials, local governments, and community groups in planning specific activities in Minnesota to raise awareness of the burden of asthma and the need to improve asthma care.</p>	<p>Minnesota Department of Health</p>	<p>Health Care providers Community Groups Local Governments Day Care providers Local Public Health</p>

Suggested Ideas for World Asthma Day

- Host an asthma awareness poster or essay contest for students to help spread the word.
- Organize a bus or mobile van tour to take information on diagnosis, education and treatment to public facilities in more remote areas of the state or specific metro communities—for example, community centers, libraries.
- Conduct a panel discussion or hearing for public officials to brief them on the status of asthma in a community and available resources for dealing with asthma.
- Host a public forum or town hall meeting to discuss local issues related to effective asthma treatment and management.
- Provide FREE asthma information at recreational centers in various neighborhood facilities.
- State a World Asthma Day sponsored walk, run, or swim and invite well-known athletes from the areas to take part.



Working Group Summary Reports Individual/Family/Community Concerns

Goal 2 • Objective 1 • Strategy B

Goal 2

Minnesotans will be aware of asthma and opportunities for individuals with asthma, their families, and communities to identify and manage the disease.

Objective 1

Educate Minnesotans about asthma; including asthma triggers, early identification, and the importance of having regular asthma care.

Strategy B

Promote public policies that decrease exposure to environmental asthma triggers.

**Lead Agency/
Organization
for Strategy:**
American Lung
Association of
Minnesota and
the Minnesota
Asthma Coalition

What will indicate success:

- Minnesotans, especially elected and appointed decision makers, will understand and support public policies and practices, which will decrease exposure to tobacco smoke.
- Minnesotans, especially elected and appointed decision makers, will understand and support public policies and practices, which will decrease exposure to molds and other naturally occurring asthma triggers.
- Minnesotans, especially elected and appointed decision makers, will understand and support public policies and practices which will decrease exposure to air-borne pollutants (other than tobacco smoke) that are associated with increased asthma morbidity.



Working Group Summary Reports Individual/Family/Community Concerns

Goal 2 • Objective 1 • Strategy B

Action

ACTIONS	LEAD AGENCY	SUPPORTING AGENCIES
Educate local decision makers about tobacco smoke reduction policies	Minnesota Department of Health	Health Plans American Cancer Society American Heart Association
Educate local decision makers and communities about buildings/moisture issues and molds/other naturally occurring asthma triggers	American Lung Association, MN Minnesota Asthma Coalition	Early Childhood Family Education Minnesota Medical Association U.S. Housing & Urban Development Coordinated School Health (CFL & MDH) Community Coalitions
Educate local decision makers and communities about air-borne pollutant reduction policies		Chamber of Commerce



Working Group Summary Reports Health Professional & Provider Education

Problems

The Professional Education working group of the Commissioner's Asthma Advisory Workgroup met five times. Its membership included physicians, respiratory therapists, school nurses, an ED nurse, a pharmacist, and a representative from the health plans.

The group was asked to assess issues, determine priorities, and recommend specific strategies for dealing with issues that impact health professionals' abilities to train people in managing their asthma. To accomplish this, the group initially brainstormed a list of problem areas.

They then determined the major areas on which to focus. The *problem areas* included such things as:

- The NIH Guidelines are in need of updating.
- Specialists implement the guidelines differently and on their own
- There is a lack of statewide asthma educators and lack of certification
- There is a lack of or inadequate reimbursement for asthma education
- Time for asthma education is limited and inadequate
- There is a need for customized, useable NIH guidelines at the point of service
- Dependency on the physician regarding the guidelines is too great
- It is difficult to coordinate an asthma team approach—what is the message?
- A clear, consistent, compelling message from health plans is lacking
- Accurate, useful, timely feedback to providers is lacking
- There are often no Asthma Action Plans for people with persistent asthma
- There is a lack of an asthma curriculum for professionals
- Information overload
- Competing priorities



Working Group Summary Reports Health Professional & Provider Education

Problem Areas

After reviewing the entire list, work group members individually indicated which two areas above were the most significant problems. The two which clearly and overwhelmingly emerged were summarized as:

- There are often no Asthma Action Plans for people with persistent asthma.
- A consistent Asthma Curriculum for Health Professionals is lacking.

The first was seen as encompassing the use of the national guidelines in clinical treatment, while the second addressed the health education issues.

Most Significant Problems

As Identified by
Health Professional and
Provider Education Work Group

<div style="font-size: 48px; font-weight: bold; margin: 0;">1</div> <p style="margin: 5px 0;">No Asthma Action Plans for people with persistent asthma</p> <p style="text-align: center; margin: 5px 0;">▼</p> <p style="margin: 5px 0;">Use the national guidelines in clinical treatment</p>	<div style="font-size: 48px; font-weight: bold; margin: 0;">2</div> <p style="margin: 5px 0;">Lacking a consistent Asthma Curriculum for Health Professionals</p> <p style="text-align: center; margin: 5px 0;">▼</p> <p style="margin: 5px 0;">A health education issue</p>
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Working Group Summary Reports Health Professional & Provider Education

Goal 1

All health care providers who treat persons with asthma will provide Asthma Action Plans (AAP) for their pediatric asthma patients, and they will provide AAPs for their adult patients with persistent asthma.”

Electronic Asthma Action Plan

With this objective in mind, the group viewed an electronic Asthma Action Plan which Dr. Roger Durand, a physician in this group, uses with his patients. By putting in patient demographics and information describing the patient’s symptoms and severity of disease, the computer program, using algorithms based on the NIH guidelines, recommends treatment. This program also includes information on which medications are on the formulary for each different health plan.

The plan is multi-colored (green/yellow/red) to correspond with the asthma zones, and it includes space for releasing it to a school nurse or others. Group members expressed interest in making something similar available to more physicians and other health care providers, and this led to the first strategy developed by this group. Discussion included the possibility of downloading this from a web site, perhaps operated by the MDH or ALAMN.

Physician Champions

Dr. Mohamed S. Yassin of St. Cloud, Minnesota, presented information regarding plans in his region to identify asthma physician champions. These physicians would mentor their colleagues and other health care providers in areas such as preparing asthma action plans, ensuring adequate patient and family education, etc. The identification of such “champions” throughout Minnesota was adopted as a second strategy for this group.

Payment Strategies

Finally, to help ensure implementation, the issue of reimbursement for the time and effort involved in preparing an Asthma Action Plan was addressed. Without adequate reimbursement, it is unrealistic to expect that physicians or others will find time to appropriately prepare and explain an Asthma Action Plan. Consequently, a strategy was developed to convene health plan representative to discuss effective reimbursement strategies.



Working Group Summary Reports Health Professional & Provider Education

In addressing the second identified problem area regarding education for health care professional, the group arrived at the following goal:

Goal 2

All Health Care Providers/Professionals who treat persons with asthma in Minnesota will be educated and prepared to provide individuals with asthma and their families with the **best practice of care***, education, and resources to effectively manage their condition."

**Best practice of care*
was defined here to mean care which is in accordance with the NIH and the ICSI guidelines for the treatment of asthma.

Objective 1

To accomplish this, the group established three objectives:
By October 1, 2004, 500 health care providers with representation from across the state of Minnesota will have completed formal training specific to asthma care.

Physicians Asthma Care Education

This includes adopting the **Physician Asthma Care Education (PACE)** program, which is designed to improve the quality of patient care by enhancing a clinician's therapeutic and patient counseling skills. The Physician Asthma Care Education (PACE) program was developed at the University of Michigan with support of a Robert Wood Johnson Foundation grant. This multi-faceted seminar to **improve physician awareness, attitudes, ability, and application of communication and therapeutic skills** for asthma has been evaluated and proved effective.

A pilot program will begin shortly, with fifteen St. Paul physicians participating in this study. The group felt strongly that others throughout Minnesota should also have the opportunity to access separate PACE programs and that programs should be implemented in regions across MN in a coordinated effort. It was agreed that the Minnesota Asthma Coalition (MAC) was the best lead agency for this objective.



Working Group Summary Reports Health Professional & Provider Education

Objective 2

By October 1, 2004, 150 health care providers with representation from across the state of Minnesota will have become **Certified Asthma Educators**.

Educator Examination

This certification will require the health care professionals pass the National Asthma Educator Certification Examination, which will be offered Fall of 2002.

Preparation Workshops

A series of workshops to help prepare health professional to take the national exam will be offered by the ALAMN to nurses, respiratory therapists, pharmacists, physicians, and other credentialed professionals that have experience working with patients with asthma.

ALAMN

Since ALAMN will be offering the workshops, it was agreed that the ALAMN was the best lead agency for this objective, which involved strategies of both establishing a network of Certified Asthma Educators throughout Minnesota and providing access to a quality preparatory course for individuals who meet the established criteria for sitting for the National Asthma Certification exam. This would include *maintaining an accessible database* of Certified Asthma Educators, *tracking* the number of individuals with asthma receiving training by Certified Asthma Educators, seeking *adequate reimbursement* for asthma education provided by Certified Asthma educators along with other health professionals, and *establishing benchmarking* with other chronic disease education programs.



Working Group Summary Reports Health Professional & Provider Education

Objective 3

By October 1, 2004, ensure that 100% of institutions are aware of asthma *core curriculum objectives* and have evaluated their curricula/programs for this content.

Strategies A • B • C

The three strategies adopted for this objective were:

- Strategy A: ■ Identify asthma core curriculum objectives and determine a format for presenting this material to academic institutions.
- Strategy B: ■ Distribute the information to academic institutions and professional training programs.
- Strategy C: ■ Evaluate the degree to which asthma core curriculum objectives have been incorporated into various curricula/programs.



Working Group Summary Reports Health Professional & Provider Education

Goal 1 • Objective 1 • Strategy A

Goal 1

All health care providers who treat persons with asthma will provide written Asthma Action Plans (AAP) for their pediatric asthma patients, and they will provide AAPs for their adult patients with persistent asthma.

Objective 1

By October 1, 2004, 60% of asthma patients identified in the above goal will have written AAPs.

Strategy A

Develop a web-based AAP which is in a state recommended/endorsed format.

Lead Agency/ Organization for Strategy:

Minnesota
Department of
Health with the
American Lung
Association of
Minnesota

What will indicate success:

- A web-based AAP will be available.
- Individuals with asthma will receive an AAP.
- Students with asthma will have an AAP available to school nurses/staff.



Working Group Summary Reports Health Professional & Provider Education

Goal 1 • Objective 1 • Strategy A

Action

ACTIONS	LEAD AGENCY	SUPPORTING AGENCIES
<p>Acquire funding</p> <p>Form advisory committees of both clinical and technical people to determine both medical and computer-program content of AAP</p> <p>List on the web information about other AAPs available</p> <p>Identify a best practice model by reviewing what is currently being used</p> <p>Set limited requirements for the contents of the AAP</p> <p>Develop resources for non-English language action plans</p> <p>Develop a clearinghouse of information resources</p> <p>Endure access to plan at all points of care</p>	<p>Minnesota Department of Health</p>	<p>American Academy of Pediatrics (MN Chapter)</p> <p>Health Child Care Minnesota</p> <p>Minnesota Academy of Family Physicians</p> <p>Minnesota Pharmacists' Association</p> <p>Minnesota Association of Health System Pharmacists</p> <p>Minnesota Society for Respiratory Care</p> <p>National Association of Pediatric Nurse Associates and Practitioners (MN Chapter)</p> <p>Minnesota Medical Association</p> <p>School Nurse Organization of Minnesota</p> <p>Minnesota Thoracic Society</p> <p>National Institutes of Health</p> <p>American Academy of Allergy & Immunology</p> <p>American College of Allergy, Asthma, and Immunology</p> <p>American College of Physicians</p>



Working Group Summary Reports
 Health Professional & Provider Education

Goal 1 • Objective 1 • Strategy B

Goal
1

All health care providers who treat persons with asthma will provide written Asthma Action Plans (AAP) for their pediatric asthma patients, and they will provide AAPs for their adult patients with persistent asthma.

Objective
1

By October 1, 2004, 60% of asthma patients identified in the above goal will have written AAPs.

Strategy
B

Identify physician and other AAP “champions” throughout Minnesota to mentor other providers on asthma action plans and asthma in general.

**Lead Agency/
 Organization
 for Strategy:**
 Minnesota
 Department
 of Health with
 American Lung
 Association of
 Minnesota

What will indicate success:

Each Minnesota Asthma Coalition region will have champions identified.



Working Group Summary Reports Health Professional & Provider Education

Goal 1 • Objective 1 • Strategy B

Action

ACTIONS	LEAD AGENCY	SUPPORTING AGENCIES
<p>Determine baseline data on the number of physicians/providers currently preparing written action plans</p>	<p>American Lung Association of Minnesota</p>	<p>Minnesota Department of Health American Academy of Pediatrics (MN Chapter) Healthy Child Care Minnesota</p>
<p>Develop mechanism for monitoring progress towards objective of 60% of patients having AAPs by 2004</p>		<p>Minnesota Academy of Family Physicians Minnesota Pharmacists' Association Minnesota Society for Respiratory Care National Association of Pediatric Nurse Associates and Practitioners (MN Chapter) Minnesota Medical Association School Nurse Organization of Minnesota MN Thoracic Society National Institute of Health American Academy of Allergy & Immunology American College of Allergy, Asthma, and Immunology American College of Emergency Physicians</p>



Working Group Summary Reports
Health Professional & Provider Education

Goal 1 • Objective 1 • Strategy C

**Goal
1**

All health care providers who treat persons with asthma will provide written Asthma Action Plans (AAP) for their pediatric asthma patients, and they will provide AAPs for their adult patients with persistent asthma.

**Objective
1**

By October 1, 2004, 60% of asthma patients identified in the above goal will have written AAPs.

**Strategy
C**

Improve provider reimbursement for AAPs.

**Lead Agency/
Organization
for Strategy:**
Minnesota
Department of
Health

What will indicate success:
Reimbursement will improve and
become wider spread.



Working Group Summary Reports Health Professional & Provider Education

Goal 1 • Objective 1 • Strategy C

Action

ACTIONS	LEAD AGENCY	SUPPORTING AGENCIES
Establish a billable code for an AAP	Minnesota Department of Health	Minnesota Department of Human Services
Identify current practices regarding reimbursement and make these more widely known		Minnesota Council of Health Plans
Convene representatives from the health plans to discuss effective reimbursement strategies to support the AAPs		American Lung Association of Minnesota
		All physician groups
		Healthy Child Care Minnesota
		Minnesota Pharmacists' Association
		Minnesota Association of Health System Pharmacists
		Minnesota Society for Respiratory Care
		National Association of Pediatric Nurse Associates and Practitioners (MN Chapter)
		Minnesota Medical Association
		School Nurse Organization of Minnesota



Working Group Summary Reports Health Professional & Provider Education

Goal 2 • Objective 1 • Strategy A

Goal 2

All Health Care Providers/Professionals in Minnesota will be educated and prepared to provide individuals with asthma and their families with the best practice* of care, education, and resources to effectively manage their condition. **best practice – as defined by NIH-approved guidelines*

Objective 1

By October 1, 2004, 500 health care providers with representation from across the state of Minnesota will have completed formal training specific to asthma care.

Strategy A

Adopt the Physician Asthma Care Education (PACE) Program model. This is a proven model designed to improve quality of patient care by enhancing clinician's therapeutic and patient counseling skills.

**Lead Agency/
Organization
for Strategy:**
Minnesota
Asthma
Coalition
(MAC)

What will indicate success:

500 health care providers will have completed training and AAPs will be more prevalent.



Working Group Summary Reports Health Professional & Provider Education

Goal 2 • Objective 1 • Strategy A

Action

ACTIONS	LEAD AGENCY	SUPPORTING AGENCIES
Create budget and acquire funding	Minnesota Asthma Coalition	Minnesota Department of Health American Academy of Pediatrics (MN Chapter)
Recruit health care provider/teams with geographical and population balance from throughout the state	American Lung Association, MN	Healthy Child Care Minnesota Minnesota Academy of Family Physicians Minnesota Pharmacists' Association Minnesota Society for Respiratory Care
Conduct Master Training—two days Summer 2002 (central region), Winter 2002-2003, Spring 2003, Fall 2003		National Association of Pediatric Nurse Associates and Practitioners (MN Chapter) Minnesota Medical Association School Nurse Organization of Minnesota
Implement program(s) in regions across Minnesota in a coordinated effort		Minnesota Thoracic Society National Institutes of Health
Maintain database including published names of trained providers and the number of individuals with asthma benefiting from within their practice		



Working Group Summary Reports Health Professional & Provider Education

Goal 2 • Objective 2 • Strategy A & B

Goal 2

All Health Care Providers/Professionals in Minnesota will be educated and prepared to provide individuals with asthma and their families with the best practice* of care, education, and resources to effectively manage their condition. **best practice – as defined by NIH-approved guidelines*

Objective 2

By October 1, 2004, 500 health care providers with representation from across the state of Minnesota will have completed formal training specific to asthma care.

Strategy A & B

Establish a network of Certified Asthma Educators throughout Minnesota.

Provide access to a quality preparatory course for individuals who meet the established criteria for sitting for the National Asthma Certification exam.

**Lead Agency/
Organization
for Strategy:**
American Lung
Association of
Minnesota

What will indicate success:

A network will be established and 150 educators will be certified.



Working Group Summary Reports Health Professional & Provider Education

Goal 2 • Objective 2 • Strategy A & B

Action

ACTIONS	LEAD AGENCY	SUPPORTING AGENCIES
Prepare budget and acquire funding	American Lung Association, MN	Relevant Professional Organizations
Prepare curriculum and establish a schedule of formal asthma education prep course offerings over next two years		Minnesota Department of Health
Identify Health Care Professionals to participate in prep course		School Nurse Organization of Minnesota
Ensure geographical and population balance from throughout the state		Minnesota Public Health Association
Pilot/Initial preparatory course offered in spring 2002 and offered no less than three times a year		Minnesota Medical Association
Recruit/Anticipate 250 individuals to take this prep course over the next two years		Minnesota Society of Respiratory Care
Encourage prep course participants to take the National Certification Exam at the earliest opportunity		Minnesota Medical Association
Maintain an accessible database of Certified Asthma Educators (CAEs)		National Association of Pediatric Nurse
Track the number of individuals with asthma receiving training from CAEs		
Seek reimbursement for Asthma Education provided by Certified Asthma Educators		
Establish benchmarking with other chronic disease education programs		



Working Group Summary Reports Health Professional & Provider Education

Goal 2 • Objective 3 • Strategy A • B • C

Goal 2

All Health Care Providers/Professionals in Minnesota will be educated and prepared to provide individuals with asthma and their families with the best practice* of care, education, and resources to effectively manage their condition. **best practice – as defined by NIH-approved guidelines*

Objective 3

By October 1, 2004, ensure that 100% of institutions are aware of asthma core curriculum objectives and have evaluated their curricula/programs for this content.

Strategy A•B•C

Identify asthma core curriculum objectives and determine format for presenting this material to academic institutions.

Distribute information to academic institutions and professional training programs.

Evaluate degree to which asthma core curriculum objectives have been incorporated into various curricula/programs.

**Lead Agency/
Organization
for Strategy:**
Minnesota
Department
of Health

What will indicate success:

All appropriate institutions and training programs will report being aware of asthma core curriculum objectives.



Working Group Summary Reports Environment

The Environment Working Group of the Commissioner's Asthma Advisory Work Group met five times between December 2001 and April 2002. The membership included representatives from federal, state and local agencies, a school district, a non-profit agency, health care, private sector and elected officials.

- **The first meeting** began with a review of the Working Group's charge and the current state of knowledge about the role of various environmental agents in causing or exacerbating existing asthma. *Clearing the Air: Asthma and Indoor Air Exposures* (Institute of Medicine, 2000) was used as an authoritative reference to summarize the evidence for the relationship between indoor environmental agents and asthma. The remainder of this meeting was spent identifying Minnesota-specific concerns regarding outdoor air, the residential environment, and the school environment.
- **In the second meeting**, the group listed general categories that might encompass the concerns and needs previously identified. The focus changed from the specific environments of schools, homes, and outdoor air to common themes. The key issues identified were the need for education, enforcement of current building codes, and resources such as money and staff. Another topic was the difference between education for the general public regarding environmental triggers, and the assistance that asthmatics may need to minimize their personal exposure to triggers. This meeting ended with the drafting of three goals.
- **The last three meetings** focused on drafting and revising the Environment Working Group goals, objectives, and strategies.



Working Group Summary Reports

Environment

Goal 1

Increase awareness of environmental triggers for asthma

The objective for Goal 1 is to develop and deliver consistent training for key groups. The five groups identified were

- housing industry,
- community groups and individuals,
- schools,
- business/industry, and
- decision makers.

Goal 2

Decrease exposure to environmental triggers for people with asthma

The objective for Goal 2 is to minimize the presence of, and decrease exposure to, environmental triggers of asthma.

The three strategies include

- developing intervention protocols for the indoor environment,
- outdoor air, and
- public policies.

Goal 3

Improve building performance accountability

The Goal 3 objective is to improve the building stock as it relates to indoor air quality, maintainability and durability. The strategy is to develop quantifiable standards, such as building codes, for new construction.



Working Group Summary Reports Environment

The Environment Working Group recognized that the role of several environmental agents in causing or exacerbating asthma is well established.

- Examples include:
- house dust mites
 - environmental tobacco smoke in preschool-aged children
 - cats
 - cockroaches, and
 - ozone

However, the objectives and strategies developed are not specific to individual agents. The Working Group felt the best approach for specific agents depends upon the setting such as owner-occupied homes, multi-family rental buildings, schools, other public buildings, or outdoor air. Actions listed under each strategy include *compiling and reviewing existing information and projects*, and the *formation of an advisory committee*. These strategy-specific advisory groups would be charged with determining the *key messages*, the *key groups*, and the *most appropriate education or intervention* techniques to achieve the goals.

The Working Group did not rank the goals and strategies. The group discussed priorities and generally agreed that work on Goal 1 strategies for the housing industry, community groups and individuals, and schools should begin during the first half of the 5-year strategic plan; education efforts for decision makers and business/industry could occur later. Specific intervention protocols and initiatives for indoor and outdoor environmental triggers are currently needed. The group felt that these Goal 2 strategies should begin early in the 5-year plan. The discussion on the Goal 2 strategy regarding policies and ordinances for environmental triggers focused mainly on *environmental tobacco smoke*.

Since other Minnesota programs fund the development and implementation of smoking bans in public places and work places, the state asthma strategy should emphasize *collaboration with these other programs* during the first half of the 5-year plan. The discussion of policies for controlling other environmental triggers could start during the second half of the strategic plan. The major emphasis of Goal 3 is to *modify the Department of Administration state building code*. Since the building code is reviewed and revised on a multi-year cycle, this activity would have to be incorporated into one of the upcoming review cycles.



Working Group Summary Reports Environment

Goal 1 • Objective 1 • Strategy A

Goal 1

Increase awareness of environmental triggers for asthma.

Objective 1

Develop and deliver consistent training materials for key groups.

Strategy A

Develop and deliver consistent training materials for housing industry.

**Lead Agency/
Organization for
Strategy:**

Minnesota
Department of
Health and
American Lung
Association of
Minnesota



Working Group Summary Reports Environment

Goal 1 • Objective 1 • Strategy A

Action

ACTIONS	LEAD AGENCY	SUPPORTING AGENCIES
Compile & review existing materials and resources	Minnesota Department of Health	Department of Commerce Realtors' Association
Organize diverse, yet representative, advisory committee	American Lung Association, MN	Builders' Association Community Development agencies Building Codes & Standards Division
Determine key messages		Remodelers
Determine key housing industry groups		Housing Finance Agency
Determine appropriate training techniques		
Write and pilot training materials (metro & non-metro)		
Review and revise materials		
Announce and promote		
Acquire funding		



Working Group Summary Reports Environment

Goal 1 • Objective 1 • Strategy B

Goal 1

Increase awareness of environmental triggers for asthma.

Objective 1

Develop and deliver consistent training materials for key groups.

Strategy B

Develop and deliver consistent education & outreach materials for community groups and individuals.

Lead Agency/ Organization for Strategy:

Minnesota
Department
of Health and
Minnesota
Pollution
Control Agency



Working Group Summary Reports Environment

Goal 1 • Objective 1 • Strategy B

Action

ACTIONS	LEAD AGENCY	SUPPORTING AGENCIES
Compile and review existing materials and resources	Minnesota Department of Health	American Lung Association of Minnesota
Organize diverse, yet representative, advisory committee	Minnesota Pollution Control Agency	Association of Minnesota Counties
Determine key messages		League of Cities
Determine key community groups		Chamber of Commerce
Determine appropriate education and outreach techniques		Department of Commerce
Develop and test education and outreach materials		Minnesota Department of Human Services
Review and revise materials		Tenants Union
Announce and promote		Minnesota Visiting Nurses Association
Acquire funding		



Working Group Summary Reports Environment

Goal 1 • Objective 1 • Strategy C

Goal 1

Increase awareness of environmental triggers for asthma.

Objective 1

Develop and deliver consistent training materials for key groups.

Strategy C

Develop and deliver consistent training materials for schools.

**Lead Agency/
Organization for
Strategy:**
Minnesota
Department
of Health and
Minnesota
Pollution Control
Agency



Working Group Summary Reports Environment

Goal 1 • Objective 1 • Strategy C

Action

ACTIONS	LEAD AGENCY	SUPPORTING AGENCIES
Compile & review existing materials and resources	Minnesota Department of Health	Education Minnesota Minnesota School Board Association
Organize diverse, yet representative, advisory committee	Minnesota Department of Children, Families and Learning	Minnesota Association of School Board Officials
Determine key messages	Minnesota Department of Children, Families and Learning	Minnesota Association of School Administrators
Determine key groups		School Nurse Organization of Minnesota
Determine appropriate training and outreach techniques for staff and teachers and techniques for students and parents		Berkley Administrators (Risk Management) Regional Service Cooperatives
Write and pilot training and outreach materials		Minnesota Pollution Control Agency Child Care Health Consultants
Review and revise materials		
Announce and promote		
Acquire funding		



Working Group Summary Reports Environment

Goal 1 • Objective 1 • Strategy D

Goal 1

Increase awareness of environmental triggers for asthma.

Objective 1

Develop and deliver consistent training materials for key groups.

Strategy D

Develop and deliver consistent training materials and education and outreach materials for business/industry.

**Lead Agency/
Organization for
Strategy:**

Minnesota
Pollution Control
Agency and
Minnesota
Department of
Health



Working Group Summary Reports Environment

Goal 1 • Objective 1 • Strategy D

Action

ACTIONS	LEAD AGENCY	SUPPORTING AGENCIES
Compile & review existing materials and resources	Minnesota Department of Health	American Lung Association of Minnesota Chamber of Commerce
Organize diverse, yet representative, advisory committee	Minnesota Pollution Control Agency	Unions/Employee Groups Building Owners and Managers Association Health & Safety (Minnesota Safety Council)
Determine key messages		Purchasing agents and contractors
Determine key businesses and industries		
Determine appropriate training and outreach techniques		
Write and pilot training materials		
Review and revise training and outreach materials		
Announce and promote		
Acquire funding		



Working Group Summary Reports Environment

Goal 1 • Objective 1 • Strategy E

Goal 1

Increase awareness of environmental triggers for asthma.

Objective 1

Develop and deliver consistent training materials for key groups.

Strategy E

Develop and deliver consistent education and outreach materials for decision makers.

**Lead Agency/
Organization for
Strategy:**
Minnesota
Department of
Health and
Minnesota
Pollution Control
Agency



Working Group Summary Reports Environment

Goal 1 • Objective 1 • Strategy E

Action

ACTIONS	LEAD AGENCY	SUPPORTING AGENCIES
Compile & review existing materials and resources	Minnesota Department of Health	Department of Commerce American Lung Association of Minnesota
Organize diverse, yet representative, advisory committee	Minnesota Pollution Control Agency	Realtor's Association Builders' Association
Determine key messages		Community Development agencies
Determine key decision makers		Building Codes & Standards Division Association of Minnesota Counties
Determine appropriate education and outreach techniques		League of Cities Tenants Union Chamber of Commerce Insurance companies
Write and pilot outreach materials		Minnesota Department of Human Services Purchasing agents and contractors
Review and revise materials		Housing Finance Agency
Announce and promote		Minnesota Visiting Nurses Association
Acquire funding		



Working Group Summary Reports Environment

Goal 2 • Objective 1 • Strategy A

Goal 2

Decrease exposure to environmental triggers for people with asthma.

Objective 1

Minimize presence of, and decrease exposure to, environmental triggers of asthma.

Strategy A

Develop and pilot model inspection & intervention protocols for indoor environmental triggers of asthma

**Lead Agency/
Organization for
Strategy:**
Minnesota
Department of
Health and
American Lung
Association of
Minnesota



Working Group Summary Reports Environment

Goal 2 • Objective 1 • Strategy A

Action

ACTIONS	LEAD AGENCY	SUPPORTING AGENCIES
Compile & review existing materials and resources	American Lung Association of Minnesota	State Weatherization Program Minnesota Housing Finance
Organize diverse, yet representative, advisory committee	Minnesota Department of Health	University of Minnesota Extension City of Minneapolis St. Paul/Ramsey County
Determine key outdoor environmental inspection		Public Health Department U.S. Housing & Urban Development
Determine key environmental interventions		Sustainable Resource Center St. Paul Tenants Union Greater Minnesota Day Care Association
Write and pilot inspection and intervention protocols		Department of Commerce Institute of Inspection, Cleaning, and Restoration Certification
Review and revise materials		
Announce and promote		
Acquire funding		



Working Group Summary Reports Environment

Goal 2 • Objective 1 • Strategy B

Goal 2

Decrease exposure to environmental triggers for people with asthma.

Objective 1

Minimize presence of, and decrease exposure to, environmental triggers of asthma.

Strategy B

Develop, pilot and research intervention initiatives to address outdoor environmental triggers of asthma.

**Lead Agency/
Organization for
Strategy:**
Minnesota
Pollution Control
Agency and
Minnesota
Department
of Health



Working Group Summary Reports Environment

Goal 2 • Objective 1 • Strategy B

Action

ACTIONS	LEAD AGENCY	SUPPORTING AGENCIES
Compile & review existing materials and resources	Minnesota Pollution Control Agency	American Lung Association of Minnesota Xcel Energy
Organize diverse, yet representative, advisory committee	Minnesota Department of Health	Chamber of Commerce Environmental Advocacy Groups Minnesota Department of Transportation
Determine key outdoor environmental triggers		Department of Commerce Local housing inspectors
Determine key outdoor environmental initiatives		
Write and pilot training initiatives		
Review and revise materials		
Announce and promote		
Acquire funding		



Working Group Summary Reports Environment

Goal 2 • Objective 1 • Strategy C

Goal 2

Decrease exposure to environmental triggers for people with asthma.

Objective 1

Minimize presence of, and decrease exposure to, environmental triggers of asthma.

Strategy C

Develop model policies and ordinances for control of environmental triggers of asthma.

**Lead Agency/
Organization for
Strategy:**
Minnesota
Department of
Health and
American Lung
Association of
Minnesota



Working Group Summary Reports Environment

Goal 2 • Objective 1 • Strategy C

Action

ACTIONS	LEAD AGENCY	SUPPORTING AGENCIES
Compile & review existing materials and resources	Minnesota Department of Health	Smoke-Free Coalition Minnesota Pollution Control Agency
Organize diverse, yet representative, advisory committee	American Lung Association of Minnesota	Department of Commerce Minnesota Multi-Housing Agency Chamber of Commerce
Determine key triggers amenable to control through policies or ordinances		Association of Minnesota Counties League of Minnesota Cities
Determine key environmental intervention strategies		Professional associations University of Minnesota
Determine appropriate training techniques		Minnesota Children's Environmental Health Coalition
Write model policies and ordinances		
Review and revise materials		
Announce and promote		
Acquire funding		



Working Group Summary Reports Environment

Goal 3 • Objective 1

Goal 3

Improve building performance accountability.

Objective 1

Improve the building stock as it relates to indoor air quality, maintainability & durability.

Strategy

Develop quantifiable standards for key components in the building process.

**Lead Agency/
Organization for
Strategy:**
Minnesota
Department of
Health and
American Lung
Association of
Minnesota

What will indicate success:

- Clearly identified options for the consumers of building stock that can be incorporated into their building project.
- Having these options accepted into the building, manufacturing and design industry.



Working Group Summary Reports Environment

Goal 3 • Objective 1

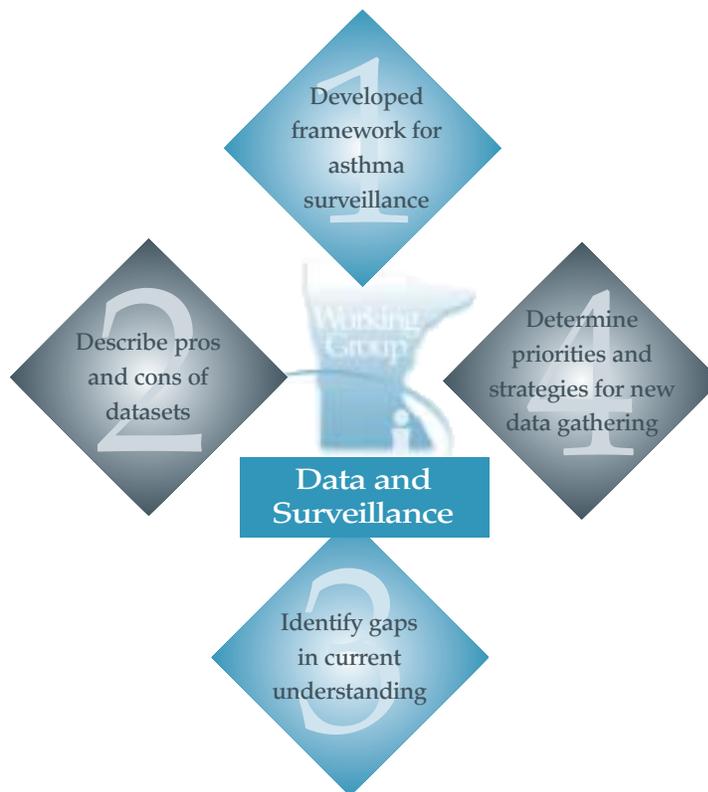
Action

ACTIONS	LEAD AGENCY	SUPPORTING AGENCIES
<p>Compile & review performance-based codes used in the US</p>	<p>Minnesota Department of Health</p>	<p>Minnesota Department of Commerce Minnesota Building Codes Standards</p>
<p>Index to “intent” of existing Minnesota codes</p>	<p>American Lung Association of Minnesota</p>	<p>Realtors’ Association Builders’ Association MN</p>
<p>Prepare “white paper” presenting performance comparison/options</p>	<p>American Lung Association of Minnesota</p>	<p>Builders’ Association Twin Cities Build America</p>
<p>Organize industry representatives for presentation of white paper</p>	<p>American Lung Association of Minnesota</p>	<p>Re-Build America Manufacturers Consumer Groups</p>
<p>Develop committee from step 4 to formalize materials and codify</p>	<p>American Lung Association of Minnesota</p>	<p>National Association of the Remodeling Industry Remodelers’ Council</p>
<p>Propose as code language to Building Codes and Standards Division</p>	<p>American Lung Association of Minnesota</p>	<p>Building Official Associations Insurance Industry</p>
<p>Work with legislature to require options for performance-based codes</p>	<p>American Lung Association of Minnesota</p>	<p>Cold Climate Housing <i>(University of Minnesota)</i> National Sanitation Foundation</p>
<p>Prepare performance-based options into industry and consumer piece that can be incorporated into construction process</p>	<p>American Lung Association of Minnesota</p>	<p>Chamber of Commerce Building Owners and Managers Association</p>
<p>Develop education modules for key players including subcontractors, code officials, health community, design industry and consumer</p>	<p>American Lung Association of Minnesota</p>	<p>Minnesota Department of Children Families & Learning HVAC Industry Architects</p>
<p>Develop education modules for key players including subcontractors, code officials, health community, design industry and consumer</p>	<p>American Lung Association of Minnesota</p>	<p>Minnesota Housing Finance Agency</p>



Working Group Summary Reports Data and Surveillance

Due to the nature of data issues, the Data and Surveillance Working Group of the Commissioner’s Asthma Advisory Work Group took a somewhat different approach to developing their recommendations. First, a framework for asthma surveillance was developed. Second, the pros and cons of available datasets were described. Third, gaps in our current understanding were identified. And fourth, priorities for new data gathering efforts were determined and strategies for obtaining these data were discussed. We tried to focus on that data that should be obtained on an ongoing basis to guide intervention efforts, as opposed to questions best answered in the context of a research study.





Working Group Summary Reports Data and Surveillance

1. Framework for Asthma Surveillance

There are four types of data:

- Asthma *incidence*, by age and gender, rate of new cases of asthma
- Asthma *prevalence*: overall and by chronicity (i.e. persistent vs. intermittent)—proportion of people who have asthma in a given time period
- *Outcomes* (mortality, hospitalizations, emergency room visits)
- “*Continuous Quality Data*” (CQI) data:
Non-disease data that measure quality of care, either directly, such as Health Plan Employer Data and Information Set (HEDIS) measures; or indirectly, such as healthcare professional distribution, school nurse/student ratio, or lost work or school days.

The first three are generally considered part of asthma surveillance (ongoing systematic collection, analysis and dissemination of data). The fourth type is also essential to understanding both the impact of asthma, factors that affect how well it’s managed, and/or the efficacy of asthma interventions.

The first three should be collected on an ongoing basis and should be statewide. The fourth category should be collected on a periodic but not a continuous basis, and might be collected on a local, regional or statewide basis.



Working Group Summary Reports Data and Surveillance

2. Pros and Cons of Available Data Sources

The pros and cons of each currently available data source are described in the table. (*Please see Appendix E*). The majority of these are already collected by the MDH (*mortality data, Behavioral Risk Factor Surveillance System data*) or have been obtained by MDH (*hospitalization and emergency room data, administrative claims data*). In fact, much of the data-related information presented previously in this report is based on analyses of those datasets. A comprehensive report of these analyses is being prepared.

administrative claims data

Administrative claims data holds promise as an important new data source. If methods are developed to follow people as they change health plans, and if additional datasets are added, there will be new possibilities for monitoring quality of care and effects of interventions, and possibly for measuring asthma incidence. However, administrative data cannot take the place of other surveillance efforts. Prevalence estimates for asthma derived from health plan data have consistently been less than half of the lowest estimates derived from prevalence surveys. Whether this inconsistency is the result of a coding issue or a true difference in health status is unclear. In addition, there have been no validation studies that would provide information on this issue. Until there is a better understanding of the validity of administrative claims data, it should not be assumed that this data source can supplant more traditional surveillance efforts. In addition, this data source, by definition, does not include people who lack health insurance, a proportion of the population that is likely to increase over the next few years.



Working Group Summary Reports Data and Surveillance

3. Current Gaps in Asthma Information

The following information gaps were identified:

- Current emergency room and hospitalization data lack information on race and ethnicity.
- **Data on school-aged children.** There are very incomplete data on prevalence, and no data on important covariates (e.g. smoking status, exposure to environmental tobacco and other triggers), an outcome such as absenteeism, and CQI measures such as asthma action plans and Indoor Air Quality in schools.
- **Work-related asthma.** There is currently a pilot project to look at other forms of occupationally related respiratory disease but no data on work-related asthma.
- **Provider knowledge.** In addition to having data on provider knowledge of asthma guidelines, it would be very useful to link outcomes of patients to the knowledge status of providers.
- **Environment.** We would like to have outcomes linked to residence, air quality information (not necessarily linked to outcomes) and a better understanding of the distribution of sick buildings.
- **Immigrant populations.** We know something about asthma in African Americans and American Indians but virtually nothing about Hmong, Somalis, and other more recent immigrant populations.
- **Performance measures.** A significant problem is that asthma performance measures (e.g. HEDIS) are incompletely developed and thus measurement of quality of care is difficult.



Working Group Summary Reports Data and Surveillance

4. Priorities for new data acquisition

The two priorities for acquisition of new data were determined to be data on school-aged children and on immigrant populations. Lack of data on race and ethnicity was also recognized as a crucial problem, given the large disparities between blacks and whites that have been identified in national data and can be inferred in Minnesota from looking at geographic data. However, this problem extends to other diseases and has been identified by the MDH as an issue that needs to be addressed.

School-aged children

The attached table (*Please see Appendix F*) describes the various data elements that should be collected, how the data should be collected, the time frame for collection, and the resources required. Minimal resources means that the resources are primarily personnel that are already hired; moderate resources suggests some additional funding would be necessary; and significant indicates that major funding (i.e. over \$100,000) would be required.

Some of these data, e.g., mortality, hospitalizations, and emergency department data, are already being collected and analyzed. While the working group felt these efforts should be continued, they also recognized the limitations that have been previously discussed. In order to determine the rate of repeat visits in the hospital and emergency department, and the race and ethnicity of the asthmatic patients, the group suggested that a *pilot study be conducted* with two hospitals, one in Minneapolis and one in St. Paul. The purpose of the pilot study would be to test methods for collecting hospital discharge and emergency data from the hospitals themselves that allowed for identification of race and repeat visits. The group recognized that privacy issues would need to be addressed.



Working Group Summary Reports Data and Surveillance

Mortality data should also continue to be analyzed. In addition a *follow-back case review* should be conducted of all asthma deaths. This method has been used previously to study the circumstances of infant deaths and of maternal mortality, and provides an opportunity to gain a greater understanding of the circumstances that directly lead to the death. For deaths occurring among the elderly, it would also present an opportunity to assess the validity of the coding of deaths that are attributed to asthma. This should start as a pilot study until the feasibility has been assessed.

The third major recommendation, and the one requiring the greatest resources, is to conduct a *questionnaire survey* in volunteer schools. The questionnaire would assess asthma prevalence, exposure to environmental triggers, medication use, and other factors. The group felt that developing the questionnaire and a protocol for implementation in schools could best be done by the MDH asthma epidemiologist with the assistance of a broad-based advisory board. Although the schools would volunteer, they would be compensated for any resources they required to implement the survey.

There was also discussion of collecting data on *asthma action plans*, since there is substantial interest in increasing the number of people with asthma who have plans. Simply asking students about whether they have one has proved problematic. Two separate approaches were discussed. One was to ask schools (probably the same ones that are collaborating on the questionnaire) to conduct a baseline assessment of the number of asthma action plans that are present in students' files during the fall update and then to repeat this each year during the fall update. A second approach is to conduct a parent survey, although this would probably require significant resources and should take place in the future as part of a quality improvement effort.



Working Group Summary Reports Data and Surveillance

Missed school days, or *absenteeism*, is another important asthma outcome. Currently schools use diverse methods to collect these data and their validity is uncertain. The possibility was again discussed of working with the volunteer schools on collecting these data and potentially linking them to the school survey.

Other variables that were discussed but considered to be of lower importance were the following:

- decreased activity days;
- missed opportunities to participate in activities;
- missed sleep;
- preventive asthma visits;
- family environment;
- body mass index; and
- school performance.

The first three could be gathered as part of the school survey; the latter three present greater difficulties and should be reconsidered in the future.



Working Group Summary Reports Data and Surveillance

In summary, the three new data collection activities recommended by the working group are:

- a student survey with collaboration with the schools to collect some additional data;
- a pilot study with hospitals to collect enhanced data on hospitalization and emergency department visits; and
- a mortality follow-back.

Data PROPOSED COLLECTING ACTIVITIES

- Student survey
- Pilot study with hospitals
- Mortality follow-back

Immigrant populations

Quantitative data collection on immigrant populations appears to be extremely difficult. In addition to language and cultural barriers, there is no defined population base or method of randomly surveying members. As a first step, the group recommends collecting qualitative data aimed at learning how the various immigrant populations *understand asthma* as a disease, appropriate treatment, and patterns of care. This could be done through *key informant interviews* and through *focus groups* with members of immigrant populations.





Other Issues Of Concern

.....

In the course of discussions in the various working groups, several issues repeatedly emerged that, while seeming beyond the scope of the current Advisory Group's efforts, nonetheless have a large impact on people with asthma. While efforts to address these issues are being lead by other groups, the Commissioner's Advisory Work Group felt it important to emphasize the connection between these issues and asthma.

The three issues are affordable housing, outdoor air pollution, and tobacco smoke.

affordable housing

There are currently no enforceable statewide building codes that address asthma triggers.

The *lack of affordable housing* has reached a crisis level in many different parts of the state. One of the consequences of this lack is that many people are forced to live in substandard housing, in environments where asthma triggers such as mold and cockroaches are likely to be common. When housing choices are severely limited, individuals and families are not able to leave unhealthy environments. The lack also contributes to landlords having little incentive to improve housing conditions, as there are currently no enforceable statewide building codes that address asthma triggers.



Other Issues Of Concern Affordable Housing

One more consequence of the lack of affordable housing is the resulting increase in residential mobility. In a situation where individuals or families are moving frequently, the continuity of medical care that is so critical for treatment of any chronic illness is often compromised. In addition, when an individual or family is in crisis, preventive treatment is often forgotten or ignored as they struggle to deal with the most immediate problems. Thus many emergency departments and urgent care visits are never followed by a visit to a primary care provider to assure that treatment and medication is adequate. The lack of affordable housing in Minnesota will assure that many people's asthma is not adequately controlled.

The lack of affordable housing in Minnesota will assure that many people's asthma is not adequately controlled.

Also, when housing is not easily affordable, individuals and families have fewer resources available to devote to essential (daily) asthma medications which are important in controlling asthma and preventing asthma episodes. The absence of resources is also seen in the inability to purchase basic household cleaning equipment and cleaning supplies (e.g. vacuums, buckets/sponges, cleaning solutions, etc.) which by using could benefit individuals with asthma by decreasing their exposure to indoor environmental triggers.



Other Issues Of Concern Outdoor Air Pollution

outdoor air pollution

*There is every reason to surmise that air quality will decline
and that people with asthma will be impacted...*

While the role of outdoor air pollution as a cause of asthma remains controversial, there is no doubt that outdoor pollution, particularly ozone and particulates, can exacerbate asthma.

The decisions Minnesota and others make regarding the regulation of existing power plant emissions, and the citing of additional power plants, may also adversely impact asthma in Minnesota. The Minnesota Pollution Control Agency estimates that during 2000 and 2001, fine particle concentrations in urban areas reached levels EPA considers unhealthy for sensitive groups (including asthmatics). On at least one day, fine particle levels were considered unhealthy for the general public.

With the increases in population projected over the next decades and with the lack of commitment to public transportation, there is every reason to surmise that air quality will decline and that people with asthma will be increasingly impacted by this decline.

*While the role
of outdoor air
pollution as a cause
of asthma remains
controversial,
there is no doubt
that outdoor
pollution,
particularly ozone
and particulates,
can exacerbate
asthma.*



Other Issues Of Concern Tobacco Smoke

tobacco smoke

Secondhand smoke exacerbates asthma and may cause serious adverse reactions in people with asthma.

There is increasing evidence that parental tobacco smoking causes asthma in their offspring. This may occur both with prenatal and postnatal exposure. There is also abundant evidence that environmental tobacco smoke (secondhand smoke) exacerbates asthma and may cause serious adverse reactions in people with asthma. While public information campaigns have highlighted the dangers of tobacco smoke both to smokers and to those around them, there is still limited public awareness of the links between smoking and asthma. In this light the data from the Behavioral Risk Factor Surveillance System that shows that people with asthma smoke at the same or even higher rate as those without asthma is particularly troubling.

*...there is still
limited public
awareness of
the links
between
smoking and
asthma...*



Conclusion

Asthma is a major public health problem, both nationally and in Minnesota. Untreated or inadequately treated, it results in excess hospitalizations, elevated rates of school and work absenteeism, lost productivity, disability, and increased health care costs. Because it is treatable and manageable, successful public health education and prevention efforts could reap large returns in cost savings, productivity gains, and improved quality of life for individuals with asthma and their families.

successful EDUCATION & PREVENTION

- Large returns in cost savings
- Productivity gains
- Improved quality of life

The Commissioner's Asthma Advisory Work Group encourages the Minnesota Department of Health and its partners in asthma to move forward with the recommendations in this plan with a sense of urgency. Implementing and evaluating these recommendations will significantly reduce medical emergencies and enhance the lives of people with asthma. We urge the MDH to seek implementation funding for this plan from the federal government, the state legislature, and private sources in order to implement these recommendations, and we look forward to continuing as active partners in working with the MDH to implement this plan and monitor intervention activities.





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Appendix A

Commissioner's Asthma Advisory Work Group Membership

Chair

Stuart Hanson, M.D. Park Nicollet Clinic

Members

Karin Alaniz, Ph.D., R.N.	American Lung Association of Minnesota
John Cambronne, M.S.	Superintendent of Schools -East Central School District #2580
Dale Darrow	U.S. Department of Housing & Urban Development
Cecelia DuPlessis Erickson, R.N., MPH, L.S.N	School Nurse Organization of Minnesota
Neal Holtan, M.D., MPH	Saint Paul Ramsey County Department of Public Health
Paul Iverson, R.Ph.	Minnesota Pharmacists Association
LaRhae Grindal Knatterud, M.A.P.A.	Minnesota Department of Human Services
Aggie Leitheiser, R.N., MPH.	Assistant Commissioner, Minnesota Department of Health
Ruth Ellen Luehr, R.N., M.S., F.N.A.S.N	Minnesota Department of Children, Families, & Learning
Nancy Ott, M.D	Minnesota Allergy Society
Ashok Patel, M.D.	Mayo Clinic
Joan Porraz, M.A.O.M	Tri-Valley Opportunity Council, Migrant Head Start Program, MN Head Start Association
Michael Scandrett, J.D.	Minnesota Council of Health Plans
Elizabeth Shevi	Minnesota Pollution Control Agency
Kathy Tingelstad	State Representative, Minnesota House of Representatives
Charles Wiger	Senator, Minnesota State Senate
Mohamed S. Yassin, M.D.	Allergy & Asthma Associates, PA & Minnesota Asthma Coalition

Minnesota Department of Health Asthma Program Staff

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Janet Keysser, MA, M.B.A.	Assistant Section Manager, Chronic Disease and Environmental Epidemiology
Marian Marbury, Sc.D	Environmental Epidemiologist
Debra Krein	Support Staff
Jennifer Walker	Support Staff
Patti Pinnow	Office Manager



Appendix B Technical Working Groups

Data and Surveillance Working Group Membership

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<i>Members</i>	Janny Brust, M.P.H.	Minnesota Council of Health Plans
	Dale Darrow	U.S. Department of Housing and Urban Development
	Kevan Edwards	Health Policy & System Compliance, MDH
	Terry Hietpas, M.S., PharmD.	Staff Pharmacist – Cub Pharmacy
	Berit Peterson, R.N., M.P.H.	School Nurse Organization of Minnesota
	Joan Porraz, M.A.O.M.	Tri-Valley Opportunity Council, Migrant Head Start Program, MN Head Start Association
	Ellen L. Sieferman	Health Policy and System Compliance, MDH
<i>Minnesota Department of Health Staff:</i>		
	Marian Marbury, Sc.D.	Chronic Disease and Environmental Epidemiology

Environment Working Group Membership

<i>Chair:</i>	John Cambronne, M.S.	Superintendent of Schools, East Central School District #2580
<i>Members:</i>	Phil Allmon	Minnesota Department of Children, Families & Learning
	Linda Bruemmer	Minnesota Department of Health, Division of Environmental Health
	Dale Darrow	U.S. Department of Housing and Urban Development
	Mary Deering	U Care
	Sue Gunderson	Sustainable Resource Center
	Steven Klossner	Advanced Certified Thermography
	Angie Lien	American Lung Association of Minnesota
	Jo Miller	City of Minneapolis, Environmental Services Division
	Elizabeth Shevi	Minnesota Pollution Control Agency
	Lisa Smestad	City of Minneapolis, Environmental Services Division
	Kathy Tingelstad	State Representative, Minnesota House of Representatives
	Jim Yannarely, B.A.	Saint Paul Ramsey County Department of Public Health
	<i>Minnesota Department of Health Staff:</i>	
	Laura Oatman, M.S.	Division of Environmental Health
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Appendix B Technical Working Groups

Health Professional and Provider Education Working Group Membership

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Stephanie Bisson Belseth, C.P.N.P.	Minneapolis Public Schools/ Healthy Learners Asthma Initiative
Mark Bixby, M.D.	North Memorial Family Practice
Naomi Duke, M.D.	Model Cities Health Center
Roger Durand, M.D.	Metropolitan Pediatrics
Deb Haider, R.C.P.	Minnesota Society for Respiratory Care (MSRC)
Doug Hiza, M.D.	Minnesota Council of Health Plans/Blue Cross Blue Shield
Kay Kufahl, R.R.T., R.C.P.	Pediatric Home Service
Paula Mackey, M.D.	Children's Hospital and Clinics (Pediatrics)
Karen Mathias, C.N.S.	Children's Hospital (ER)
Nancy Ott, M.D.	Minnesota Allergy Society
Carmen Teskey, R.N., L.S.N.	School Nurse Organization of Minnesota
Don Uden, PHARM.D.	University of Minnesota College of Pharmacy
Ron Van Beusekom, R.R.T., R.C.P.	American Lung Association of Minnesota/ Minnesota Asthma Coalition
Mohamed S. Yassin, M.D.	Allergy & Asthma Associates, PA

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Kelly Albright Raatz, B.S.	Asthma Program Coordinator



Appendix B Technical Working Group

Individual/Family/Community Concerns Working Group Membership

Chair: Luanne Nyberg, M.P.A. Hennepin County, Center for Health Policy and
Community Integration

Members:

Karin Alaniz, Ph.D., R.N.	American Lung Association of Minnesota
Dory Baker, R.N., C.P.N.P.	Saint Paul Children's Hospital
Sheila Beacher, R.Ph.	Minnesota Council of Health Plans / Metropolitan Health Plan
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Ruth Ellen Luehr, R.N., MS, F.N.A.S.N.	Minnesota Department of Children, Families, & Learning
Christine Reisdorf, B.S., M.P.H.	Minnesota Department of Human Services
Steve Simenson, R.Rh.	Minnesota Pharmacists Association
Linda Solum, R.N., B.S.N., L.S.N.	School Nurse Organization of Minnesota
Jeffrey Wigren, M.P.H.	American Lung Association of Minnesota

Minnesota Department of Health Staff:

Kelly Albright Raatz, B.S. Asthma Program Coordinator



Appendix C

Asthma Programs and Activities in Minnesota

The purpose of this document is to offer a view of asthma programs and other activities that relate to asthma that are currently being developed and implemented by agencies and organizations statewide. This document does not provide a complete comprehensive inventory of all asthma programs or activities going on in Minnesota.

Asthma and Children:

Family Asthma Program

The Twin Cities Minnesota Asthma Coalition received funding from the Alliance of Community Health Plans for three years to work with inner-city children with asthma. A consortium of clinics in Minneapolis and St. Paul will implement the National Cooperative Inner-City Asthma Study protocol through a single inter-vention unit serving 80 children ages 5 to 11 with moderate to severe persistent asthma. This program is designed to teach children and their families techniques to help control their asthma. The asthma counselor also teaches families how to better communicate within their family, with their doctor and can help identify other community resources to help manage the child's asthma.

For more information contact: Janelle O'Brien,
American Lung Association of Minnesota at 651-268-7616.

Controlling Pediatric Asthma in America Cities

The Twin Cities Asthma Coalition and the Minneapolis Public Schools Healthy Learners Board are combining efforts to develop a new coalition that will develop coordinated comprehensive population-based pediatric asthma care in the Twin Cities of Minneapolis and St. Paul. The two-year planning grant recently awarded by the Centers for Disease Control will provide opportunities to expand and refine successful local initiatives and develop new initiatives.

For more information contact: Jill Heins,
American Lung Association of Minnesota at 651-268-9578.



Appendix C Asthma Programs and Activities in Minnesota

Camp Super kids and Camp Super tots

The American Lung Association of Minnesota sponsors summer camp experiences for over 200 children with asthma each year. Camp Super kids is for children ages 8-11 and Camp Super tots are for children ages 4-7. The purpose of the camps is to provide a summer camp for children, who because of their disease might otherwise be denied a camp experience.

For more information contact: Glory Dennison,
American Lung Association of Minnesota at 651-268-7581.

Asthma and Adults

Project 2030

Project 2030 is a state initiative to identify the impacts of the baby boom generation that begins to turn 85 in 2030, and prepare a state response to the changes that will accompany the aging of Minnesota's population.

Four policy directions have been identified and are being implemented in a variety of ways:

1. Help baby boomers prepare for their retirement.
2. Increase personal responsibility for health and long-term care, in order to reduce disability rates and the need for long-term care.
3. Create "age-sensitive" communities for 2030 by building, strengthening and redesigning the physical, social and service "infrastructures of our communities.
4. Make creative use of the state's aging population both in the labor force and in non-paid roles.

The project supports any activities that lead to the reduction in disability among Minnesotans, believing that reducing disability is essential to improving the quality of lives for Minnesotans in the future and reducing the health care costs associated with care for chronic conditions. Asthma is one of the disability rates that has been increasing, so attention needs to be paid to how these rates can be reduced and the condition prevented whenever possible.

For more information contact: LaRhae Grindal Knatterud,
Minnesota Department of Human Services,
Aging Initiative, 651-296-2062.



Appendix C

Asthma Programs and Activities in Minnesota

Asthma and Health Plans

Breathe EZ An Asthma Program that meets the Metropolitan Health Plan (MHP) member's needs. The Minnesota Visiting Nurse Agency's (MVNA) Breathe EZ program focuses on the proper utilization of primary care and reductions in reoccurring hospitalizations/ED visits and school absenteeism. MVNA teaches disease management and ways to avoid crisis management by providing physiological and environmental assessments; educating parents/children about their prescribed written Asthma Action Plan, medications, equipment utilization and care, and appropriate follow-through with medical care; assisting individuals and families with removal of environmental factors that may trigger an asthma exacerbation and initiating referrals to appropriate community resources.

For more information about referring MHP member's contact:
Anita Simbana, MHP Benefits at 612-347-5054.

Asthma and Schools

Open Airways for Schools Open Airways for Schools is a major initiative of the ALA to help children ages eight to eleven with asthma in the school environment. The purpose of Open Airways for Schools is 1) to empower children with asthma by teaching them how to prevent asthma episodes and emergencies, and 2) to help schools control asthma by creating partnerships in asthma care with school personnel and school nurses, physicians, families and local ALA volunteers.

For more information contact:
American Lung Association of Minnesota
at 651-227-8014 or 1-800-642-LUNG.



Appendix C Asthma Programs and Activities in Minnesota

Minneapolis Public Schools *Healthy Learners Asthma Initiative*

The Healthy Learners Asthma Initiative is a community-wide collaboration between the Minneapolis Public Schools (MPS), health care delivery and public health systems, and community organizations. The ambitious goal of this project, which involves eight pilot MPS schools in 2000-2001 and seven area clinics, to decrease student absent days, emergency department visits and inpatient admissions related to asthma by 50 percent. The initiative has been expanded to include all 100 schools in the District during this current school year. An evaluation of the pilot was recently completed. Noteworthy achievements of the pilot include “increased capacity within partnering community clinics, abridging services to connect families and students to health care options, increased capacity with the District’s health offices, and a ten-fold increase in the use of asthma action plans (AAP)”. The purpose of the pilot was to develop a blueprint for a population based asthma care and control system with public schools in Minneapolis and Saint Paul being a key component of the overarching strategy.

More information contact: Stephanie Bisson Belseth,
Minneapolis Public Schools,
Healthy Learners Asthma Coordinator at 612-668-0852.

Saint Paul Public Schools

District-wide screening for asthma among new students to the District is conducted on a regular basis. The District also supports two asthma related pilot projects, a health-based achievement enrichment program and a family asthma support group. The goal of these projects is to reduce asthma morbidity, improve family functioning, and increase academic achievement.

For more information contact Denise Ornelas
at 651-632-3733.
www.stpaul.k12.mn.us



Appendix C

Asthma Programs and Activities in Minnesota

Tools for Schools Indoor Air Quality Training

MDH in collaboration with the Department of Children Families and Learning (DCFL) sponsored a series of ten training sessions throughout Minnesota in 1997 and again in 2000. These workshops provided copies of the Environmental Protection Agency's (EPA) Tools for Schools Indoor Air Quality action kit and information on implementing the program in Minnesota schools. MDH has a grant from the EPA to assist school districts in developing district-specific Indoor Air Quality Management Plans and to track the progress of districts in implementing these Plans. MDH and CFL plan to offer annual workshops for school personnel who need indoor air training.

For more information contact: Dale Dorschner
at MDH at 651-215-0932 or visit the MDH web site.

Managing Asthma Triggers, Keeping Kids Healthy, Air Quality Issues

This program was developed by the National Association of School Nurses through a grant from the U.S. Environmental Protection Agency. School Nurse Organization of Minnesota received a grant from the National Association of School Nurses and disseminated the program in Fall 2001 at regional meetings attended by school nurses and other school staff. Each school nurse received a manual in this train-the-trainer program that included key principals, transparency masters and talking points for providing school-staff in-service on asthma issues. The topics include a discussion of triggers including animals and pets, classroom cleanliness and potential irritants, smoke and odors. Also were references on school wide support.

For more information contact: Ceceila DuPlessis Erickson
School Nurse Organization of Minnesota
612-668-0850.



Appendix C Asthma Programs and Activities in Minnesota

Health Care Professional Education

Physician Asthma Care Education (PACE)

The PACE program is a multi-faceted seminar to improve physician awareness, attitudes, ability, and application of communication and therapeutic skills for asthma. Fifteen physicians in the Saint Paul area will be participating in this study from the University of Michigan, Ann Arbor and funded by the Robert Wood Johnson Foundation.

*For more information contact: Lyann Yates
at American Lung Association of MN, 651-268-7601.*

Legislation

Asthma Inhaler Law

The Minnesota legislature enacted language during the 2001 session that allows public elementary and secondary school students to possess and use inhalers prescribed for asthma or reactive airway disease. The student may carry their inhaler with parent/guardian and health care providers consent and after assessment by school nurse in districts with school nurse. In districts without a school nurse, parent and health care provider consent is sufficient.

*For more information see the American Lung Association
of Minnesota website:
www.alamn.org/asthma/inhalerlaw/default.asp*

Asthma Emphasis in Children's Environmental Health

Part of the Legislative Commission on Minnesota Resources (LCMR) provides funding for specific projects.

*For more information contact: John Velin, Director
at LCMR at 651-296 -2406.*



Appendix C Asthma Programs and Activities in Minnesota

Coalition Activities

Minnesota Asthma Coalition

The MDH has been collaborating with the ALAMN in establishing the Minnesota Asthma Coalition (MAC). The creation of the MAC serves as a unique opportunity for individuals and groups to come together and work on asthma in a collaborative approach by promoting awareness, prevention and culturally sensitive education, ensuring access to state-of-the-art-care, and providing monitoring, analysis, and dissemination of information. A network of seven regional asthma coalitions has been set-up across Minnesota, to provide support for local asthma awareness and prevention efforts throughout the state.

For additional information contact: Lyann Yates
at American Lung Association of MN at 651-268-7601.

Asthma Surveillance and Data

Minnesota Department of Health Asthma Surveillance

Minnesota was one of four states originally funded by CDC to develop approaches to address asthma as an emerging public health problem. The MDH Asthma Program is establishing a surveillance system to better understand how asthma effects people in Minnesota. MDH is currently collecting mortality data from death certificates; administrative (claims) data from managed care organizations, prevalence data from Behavior Risk Factor Surveillance System (BRFSS), and hospital discharge data. The asthma program also provides technical assistance to local public health agencies and other organizations that seek information regarding asthma data in their communities.

For more information contact: Wendy Brunner at
MDH Asthma Program at 612-676-5541.



Appendix C Asthma Programs and Activities in Minnesota

Hennepin County Community Health Department Epidemiology and Environmental Health

Hennepin County Community Health Department Epidemiology and Environmental Health – produced two documents on asthma hospitalization: A report titled “Asthma-related Hospitalization for Residents of Hennepin County 1996-2000 and Seven County Metro Residents in 2000” and “Epidemiology Update on Asthma-related Hospitalization Disparities”.

For more information regarding these reports, contact
Milica Mitterhauser, Hennepin County Epidemiology and
Environmental Health at 952-351-5230.

General Outreach/Education

Hennepin County Medical Center (HCMC) Emergency Department Asthma Education

HCMC received \$50,000 from the Medica Medicaid Consortium to plan an “Emergency Department Asthma Education Program”. The program will include: developing a language appropriate video in 3 languages (English, Spanish, Somali) to view while in the ED, a nurse or respiratory therapist curriculum for patient education, and writing and translating an asthma information packet to take home. Another goal of this planning grant is to develop a program implementation in the ED’s at Hennepin County Medical Center and Children’s Hospitals and Clinics -Minneapolis.

For more information, contact Lisa Hagen, HCMC
at 612-347-3796 or
Gail Brottman, M.D. at HCMC at 612-347-2671.

Indian Asthma Video Project

The purpose of this project was to produce and disseminate a culturally sensitive video about the impact of asthma on American Indian children and their families. The award winning “Breathing a Word: Indian Stories of Asthma” video was developed in partnership with Indian youth and families, graduate learners and faculty in CUPES project, and Allies: Media/Art which is a Dakota-owned media production company. Three Indian youth participated in a 6-week training session in which they learned about asthma, videography and story telling. After the training, the youth videotaped their stories about living with asthma. Film footage from each of the teen’s stories was incorporated into the final video, which includes a prologue about the need for asthma information identified by the Indian community, stories about living with asthma, and demonstrations of an inhaler and peak flow



Appendix C

Asthma Programs and Activities in Minnesota

Indian Asthma Video Project (continued)

meter. This project was funded by the Community University Partnership in Education and Services (CUPES) project which receives support from the Kellogg Foundation and the University of Minnesota Academic Health Center.

For more information, contact: Dr. Ann Garwick,
University of Minnesota, at 612- 624-1141 or
visit the Indian Family Stories website:
<http://www.nursing.umn.edu/IndianFamilyStoriesProject/>

Minnesota Visiting Nurse Agency (MNVA)

As a division of the Family Health Program, clinical and educational, home-based services are dispensed to families living with asthma or with concerns about asthma. All ethnic groups represented throughout Minnesota are eligible to received services, and 70-75% of the clientele is from an ethnic or racial minority background, more than 40% is non-English speaking, and 95% are below living below the federal poverty level. To close the language gap, interpreting services are a main component of educational activities. Costs per visit are \$130.00 and are usually paid by the client's respective insurance provider, or through local public health budgets. The focus of the educational intervention is helping families struggling with disease crisis management by teaching effective preventive disease-management.

For more information contact Cheryl Lanigan,
Clinical Manager, at 612-617-4600.



Appendix C Asthma Programs and Activities in Minnesota

Children’s Hospitals and Clinics Asthma Education Clinic

Children’s Hospitals and Clinics have developed an asthma education clinic, that is staffed by Pediatric Nurse Practitioners, to provide state-of-the-art asthma care and education to children and their family, supported by links to their primary care providers, schools and community organizations. A Nurse Practitioner performs a history and physical assessment and a Respiratory Therapist then performs pulmonary function testing to assess the child’s asthma. The Nurse Practitioner provides individualized asthma education to the child and family regarding recognizing early warning signs of asthma, asthma triggers and how to avoid them, understanding asthma medicine, developing an asthma action plan and how to use their inhaler. The staff at Children’s work closely with the child’s Primary Care Provider and the School Nurse. A letter, an asthma action plan and the pulmonary function test results are sent to the Primary Care Provider. The School Nurse receives an asthma action plan to help manage the child’s asthma at school.

For more information contact: Dory Baker or Mary Sachs,
Children’s Hospital and Clinics at (651) 220-6748.

Children’s Hospitals and Clinics/HealthStart Asthma Clinic

Children’s Hospitals and Clinics and HealthStart (a non-profit agency that has been providing medical care in St. Paul High Schools since 1973), teamed up to offer students in the HealthStart system seeking health care and a more comprehensive program for asthma care. Pediatric Nurse Practitioners, from Children’s Hospitals and Clinics, have an asthma clinic in five of the St. Paul High Schools Health Start Clinics 1 day per month. The Nurse Practitioner performs a history and physical assessment to assess the student’s asthma severity. A Respiratory Therapist then performs pulmonary function testing on the students to further assess their asthma. The Nurse practitioner will develop an asthma management plan based on the National Institute of Health Asthma Guidelines and provide individualized asthma education. Letters regarding the visit are sent to the student’s Parent and Primary Care Provider. An asthma action plan is filled out for the student, the school nurse and the Primary Care Provider.

For more information contact: Dory Baker or Mary Sachs,
Children’s Hospital and Clinics at (651) 220-6748.



Appendix C

Asthma Programs and Activities in Minnesota

Mayo Clinic The Mayo Clinic is a tightly integrated, geographically dispersed care network with over 20,000 health professionals distributed across 55 sites in Southeastern Minnesota and surroundings serving over 300,000 patients a year (3,500+local-regional asthma patients). In addition the educational resources include community partnerships for multicultural health information needs, patient education center, accredited graduate level training programs, as well as an active, internationally recognized basic research program in eosinophil biology. The multidisciplinary asthma program includes a core team of experts from allergy, pediatrics, pulmonary, and primary care as well as technology infrastructure to enable virtual integration of clinical data, educational resources, and remote phone-based care support. Physician leaders such as Dr. James Li and Dr. Ashok Patel participate on several national level asthma activities, but also have been active within Minnesota on programs associated with the Institute for Clinical Systems Improvement (asthma guidelines development and implementation), Minnesota Asthma Coalition, and the ALA-sponsored Asthma Clinical Research Centers Initiative.

For more information, contact Dr. Ashok Patel at 507-284-2447

Environment and Housing

Minnesota Department of Agriculture Free home visits and pest management consultations/kits are available upon request. General information about controlling cockroaches, vermin, and other suspected problem pests for asthma is given out upon request as well. An educational program teaching families about the health significance of pests in home is currently underway.

For more information contact Collie Graddick at 651-296-1235 or email:



Appendix C Asthma Programs and Activities in Minnesota

Mid-Minnesota Legal Assistance

Working with the Legal Aid Society of Minneapolis (LASM) and the Southern Minnesota Regional Legal Services (SMRLS) the MMLA has developed a video (copyrighted in 2000) and an annually updated fact sheet for housing consumers. The theme of both is how to get a landlord to make repairs and do upkeep on commercial units to improve indoor air quality. Materials are printed at a sixth grade reading level, although intended audiences include health care providers, parents, school, teachers, and school health nurses. All major and minor ethnic and linguistic groups are target, notwithstanding the fact that the video is produce in English only, with same or similar information available in fact sheet form in Spanish, Hmong, Russian, and Somali. The cost of the video is \$5.00 and the fact sheet is free. Both explain the legal steps to seek landlord-approved repairs that in turn reduce environmental triggers for asthma, e.g., mold, substandard heating systems, vermin, pests, and old carpet

For information to obtain the educational resources, call Elsa Marshall at 612-588-2099.

To find out which of the three organizations serves your community, call 651-222-5863

Sustainable Resources Center

Conducts residential home and day care home assessments for asthma triggers and provide help in removing identified IAQ threats.

Outreach education is an integral component in the organization's mission and model of change.

For more information contact Sue Gunderson, at 612-872-3283.
www.src-mn.org



Appendix D

Summary of Guidelines for the Diagnosis and Management of Asthma

Summary of the National Institutes of Health Guidelines for the Diagnosis and Management of Asthma

Component 1: Measures of Assessment and Monitoring

Initial Assessment and Diagnosis of Asthma

Making the correct diagnosis of asthma is extremely important. Clinical judgment is required because signs and symptoms vary widely from patient to patient as well as within each patient over time. To establish the diagnosis of asthma, the clinician must determine that:

- Episodic symptoms of airflow obstruction are present.
- Airflow obstruction is at least partially reversible
- Alternative diagnoses are excluded.

Asthma severity classifications reflect the clinical manifestations of asthma. They are: mild intermittent, mild persistent, moderate persistent, and severe persistent. The Panel emphasizes that patients at any level of severity can have mild, moderate, or severe exacerbations.

Periodic Assessment and Monitoring

To establish whether the goals of asthma therapy have been achieved, ongoing monitoring and periodic assessment are needed. The goals of asthma therapy are to:

- Prevent chronic and troublesome symptoms
- Maintain (near) normal pulmonary function
- Maintain normal activity levels (including exercise and other physical activity)
- Prevent recurrent exacerbations of asthma and minimize the need for emergency department visits of hospitalizations
- Provide optimal pharmacotherapy (i.e., medication) with minimal or no adverse effects
- Meet patients' and families' expectations of and satisfaction with asthma care



Appendix D

Summary of Guidelines for the Diagnosis and Management of Asthma

Several types of monitoring are recommended: signs and symptoms, pulmonary function, quality of life/functional status, history of asthma exacerbations, medication, and patient-provider communication and patient satisfaction.

The Panel recommends that patients, especially those with moderate-to-severe persistent asthma or a history of severe exacerbations, be given a written action plan based on signs and symptoms and/or peak expiratory flow. Daily peak flow monitoring is recommended for patients with moderate-to-severe persistent asthma. In addition, the Panel states that any patient who develops severe exacerbations may benefit from peak flow monitoring.

Component 2: Control of Factors Contributing to Asthma Severity

Exposure of sensitive patients to inhalant allergens has been shown to increase airway inflammation, airway hyper responsiveness, asthma symptoms, need for medication, and death due to asthma. Substantially reducing exposures significantly reduces these outcomes. Environmental tobacco smoke is a major precipitant of asthma symptoms in children, increases symptoms and the need for medications, and reduces lung function in adults. Increased air pollution levels of respirable particulates, ozone, sulfur dioxide and nitrogen dioxide have been reported to precipitate asthma symptoms and increase emergency department visits and hospitalizations for asthma. In addition to irritants (e.g., tobacco smoke and pollutants) and occupational exposures, reducing exposure to allergens may be required for successful long-term management of asthma. Examples of inhalant allergens include: animal allergens, house-dust mites, cockroach allergens, indoor fungi (molds) and outdoor allergens. Other factors that can contribute to asthma severity include rhinitis and sinusitis, gastro esophageal reflux, some medications, and viral respiratory infections.



Appendix D

Summary of Guidelines for the Diagnosis and Management of Asthma

Component 3: Pharmacologic Therapy

The updated Guidelines offer an extensive discussion of the pharmacologic management of patients at all levels of asthma severity. It is noted that asthma pharmacotherapy should be instituted in conjunction with environmental control measures to factors known to increase the patient's asthma symptoms.

A stepwise approach to pharmacologic therapy is recommended, with the type and amount of medication dictated by asthma severity. The updated Guidelines continue to emphasize that persistent asthma requires daily long-term therapy in addition to appropriate medications to manage the asthma exacerbations. Medications are classified into two general classes: long-term-control medications to achieve and maintain control of persistent asthma and quick-relief medications to treat symptoms and exacerbations.

Observations into the basic mechanisms of asthma have had a tremendous influence on therapy. Because inflammation is considered an early and persistent component of asthma, therapy for persistent asthma must be directed toward long-term suppression of inflammation. Thus the most effective medications for long-term control are those shown to have anti-inflammatory effects. For example, early intervention with inhaled corticosteroids can improve asthma control and normalize lung function, and preliminary studies suggest that it may prevent irreversible airway injury. The updated guidelines also include discussion of the management of asthma in infants and young children that incorporates recent studies on wheezing in early childhood. Another addition is discussions of long-term-control medications that have become available since 1991.



Appendix D

Summary of Guidelines for the Diagnosis and Management of Asthma

Component 4: Education for a Partnership in Asthma Care

Education for an active partnership with patients remains the cornerstone of asthma management and should be carried out by health care providers delivering asthma care. Education should start at the time of asthma diagnosis and be integrated into every step of clinical asthma care. Asthma self-management education should be tailored to the needs of each patient, maintaining sensitivity to cultural beliefs and practices, and involving family members, particularly for pediatric and elderly patients. New emphasis is placed on evaluating outcomes in terms of patient perceptions of improvement, especially quality of life and the ability to engage in usual activities. Health care providers need to systematically teach and frequently review with patients how to manage and control their asthma. Patients also should be provided with and taught to use a written daily self-management plan and an action plan for exacerbations. It is especially important to give a written action plan to patients with moderate-to-severe persistent asthma or a history of severe exacerbations. Appropriate patients should also receive a daily asthma diary. Adherence should be encouraged by promoting open communication; individualizing, reviewing, and adjusting plans as needed; emphasizing goals and outcomes; and encouraging family involvement.

Source: U.S. Department of Health and Human Services. Action Against Asthma: A Strategic Plan for the Department of Health and Human Services. Washington, DC: U.S. Dept. of Health and Human Services, May 2000.

Institute for Clinical Systems Improvement (ICSI)

The Institute for Clinical Systems Improvement a collaboration of health care organizations in Minnesota has created best clinical guidelines for their patients with asthma. The complete ICSI guidelines are available on the web at: www.icsi.org/guidelst.htm.



Appendix E

Data Sources Pros and Cons

DATA SOURCE	ADVANTAGES	LIMITATIONS
Mortality Data <i>(Outcomes)</i>	<ul style="list-style-type: none"> • Timely • Readily available and free • Population-based • Long-term historical data available • Can compare to other states and nationally 	<ul style="list-style-type: none"> • Relatively rare event 75% occur in elderly where diagnosis is least clear • Usual death certificate limitations
Behavioral Risk Factor Surveillance System (BRFSS) <i>(Prevalence)</i>	<ul style="list-style-type: none"> • Population-based • Ten years of lifetime prevalence data now includes data on current asthma • Performed annually • Includes risk behavior information Could use as basis for call backs for more detailed information 	<ul style="list-style-type: none"> • Based on self-report • Confined to adults (children asked about one year) with telephones • Misses frequent movers, cell phone only users • Expensive to add questions • Relatively small sample size makes it difficult to draw inferences about sub-groups
Hospital discharge data <i>(Outcomes)</i>	<ul style="list-style-type: none"> • Potentially preventable outcome • Covers 85% of hospitals and 95% of discharges • Collected on a standardized form (UB 92) • Zip code data available • Charge data available (not reliable) • Predictive value reasonably good 	<ul style="list-style-type: none"> • No information on race/ethnicity • No individual identifiers so number of events only • Validity concerns • No information on out-of-state hospitalizations • Gender codes may be unreliable • No data on federal hospitals (VA, IHS) • Misses snowbirds and residents who receive care out of state • Bias towards DRG codes with highest reimbursement



Appendix E Data Sources Pros and Cons

DATA SOURCE	ADVANTAGES	LIMITATIONS
Emergency room data <i>(Outcomes)</i>	<ul style="list-style-type: none"> • Potentially preventable outcome • Covers 85% of hospitals and 95% of discharges • Zip code data available • Charge data available 	<ul style="list-style-type: none"> • Statewide data only available recently • No information on race/ethnicity • No individual identifiers so number of events only • Validity concerns • Mixes outpatient, UC, ED visits • Misses snowbirds and residents who receive care out of state
<p style="text-align: center;">School data Minnesota Student Survey School District specific</p>	<ul style="list-style-type: none"> • MSS- comprehensive survey of high school-aged children 	<ul style="list-style-type: none"> • Question asks about asthma and other chronic conditions • Data on asthma in school children comes from a variety of different sources in different districts, not compiled systematically. • Not all schools have school nurses.



Appendix F

Data on School Age Children

The following table reflects data that the group believed had the highest priority

Data element	How should it be collected	Time frame	Resources
Mortality-rates – Circumstances of death	Death Certificates – primary and all cause mortality	Yearly	Minimal
	Follow-back case review	Pilot	Moderate
Hospitalizations by age, race, and gender -recidivism	Hospital discharge data set – no race available	Yearly	Minimal
	Hospital specific collaboration (2 St. Paul/Minneapolis)	Pilot	Moderate - recidivism - race
Emergency room visits by demographics– recidivism	ED data sets	Yearly	Minimal
	Hospital specific collaboration (2 St. Paul/Minneapolis)	Pilot	Moderate - recidivism - race
Incidence	Not feasible		
Days of school missed	School data-linked to survey- volunteer schools	Pilot (within 2 yrs)	Moderate
Written asthma action plans	School-volunteer (fall update)	Pilot	Modest
	Personal one (Parent surveys)	Future	Significant
Medication use– linked to severity	Unknown-Student survey (volunteer schools)	Pilot	Significant
Exposure to environmental triggers & allergens	School-EPA & tools for schools - IAQ collaboration	Pilot	Minimal
	Personal – smoke exposure, student survey, animals in classroom	Pilot	Significant



Appendix G

Suggested School-based Approaches to Supporting School-age Children and Youth with Asthma

Objective

Identify the key elements in the school setting the promote asthma self-management in individual school-aged children and create a supportive environment.

Strategy

- Link efforts regarding management of students with chronic health problems with other state initiatives. This will reduce duplication of effort and provide the opportunity to learn from the standards and principles being established for general management of children with chronic health problems as well as for specific diseases. (In consideration in Minnesota are task forces to deal with medication management in schools and school-based care for students with diabetes, joint efforts of the Minnesota Department of Health and the Minnesota Department of Children, Families & Learning.)
- Survey the schools to determine the extent to which there are school-wide comprehensive approaches to asthma including; include questions on the health status of children with asthma, education issues (attendance) and the number of children with current asthma action plans.

Objective

Promote asthma self-management in individual school-aged children by instituting systematic planning, education and monitoring by school nurses.

Strategy

- Summarize and promote best practices in schools for care of students with asthma according to the NHLBI guidelines. These will clarify the case management role of the school nurse as coordinator of care and of the school team approach. Consider addressing these areas:
- Communication among parents, health care providers and school nurses as the key school contact. For example, identify strategies for school nurses to encourage parents and health care providers to submit asthma action plans. This will initiate communication at the beginning of the school year and sustain it through out the year to promote basic health and plan for effective care of exacerbations of the disease and any medical emergencies.



Appendix G

Suggested School-based Approaches to Supporting School-age Children and Youth with Asthma

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- The asthma action plan should be linked to or incorporated into, as needed, the IEP (Individualized Education Plan), 504 Plan (disabilities accommodations), IHP (Individualized Health Care Plan including assessment/monitoring of self administration of medications) and EP (Emergency Action Plan) and/or other learning plans of the student.
 - For students and families, promote the use of guidelines for individual health education and counseling and strategies using support groups that reinforce self-management skills and that includes at least health education, environmental controls and behavior modification (cognitive behavioral asthma management). Tailor approaches based on the unique needs of the children such as
 - a) the age/stage of development and level of competence in self-management
 - b) culture and language of children and their families
 - c) children whose asthma management is complicated, thus confounding their ability to learn self-management skills, to attend school and to achieve academically.
 - d) children whose learning disabilities interfere with their ability to grasp and sustain principles of asthma self-management.
 - Children with chronic health problems are at greater risk for emotional or mental health problems (coping with being different, stress, depression) and may be at higher risk for negative health behaviors (tobacco, alcohol and other drug use, injuries, poor nutrition, limited physical activity or early unsafe sexual behavior*). To ensue that children maintain good health and a focus on learning, these areas need to be addressed in their asthma action plan, IEP or health care plan or other learning plan:
 - a) support for emotional stressors and monitoring for mental health problems.
 - b) building skills in positive health behaviors (ex. assertive skills to avoid and deflect peer and media pressure, coping skills, decision-making and problem solving, communication skills).
 - Collaborate with community resources including private and public healthcare providers and voluntary health organizations for efficient and effective use of materials, professional expertise, volunteers and philanthropic contributions.



Appendix G

Suggested School-based Approaches to Supporting School-age Children and Youth with Asthma

Objective

Institute a school environment that supports the child with asthma in good management to reduce exacerbations that occur in school and in school-age childcare programs.

Strategy

- Based on best practice, promote the importance of and components of a school-wide comprehensive approach to management of asthma for children. Elements of the school-wide approach include at least:
 1. School policy that requires training for school personnel.
 - a. Promote asthma awareness programs to be orchestrated by school nurses for
 - 1) general education staff (overview)
 - 2) teachers/other educators with children with asthma in their classrooms (awareness)
 - 3) educators and staff needing tailored programs such as
 - building engineers for environmental assessment and IAQ.
 - physical education teachers
 - coaches. (Examples include linking the asthma action plan to the Minnesota State High School League sports physical forms; creating training programs for educating coaches through the Minnesota State High School League.)
 - special education teachers
 - b. Encourage education to students in classrooms where there are children with asthma using currently available curricula.
- Increased communication among parents, health care providers and school personnel.
- Case management and care coordination by school nurse who have assignments that allow for adequate time to effectively and efficiently carry out the role.**
- Conducting assessment of school buildings on an annual and ongoing basis (Indoor Air Quality).

** Centers for Disease Control and Prevention, Division of Adolescent and School Health: *Six Priority Health Risk Behaviors*. (www.cdc.gov/nccdphp/dash)

** *Healthy People 2010 (US DHHS)* recommend a school nurse-to-student ratio of 1:750. For populations with students with special needs including asthma, the ratio needs to be decreased according to the needs of the students.



Appendix H

Glossary

Asthma Action Plan

A document that outlines the treatment approach for an individual asthma patient; developed in consultation with the health care provider, family members and caregivers. Effective action plans help patients control their asthma and live healthy active lives.

Asthma Self-Management

Provided with the necessary information, tools, resources, therapeutic regimen, and asthma care plan, the ability for an individual to exercise their knowledge of their condition and acquired skills to effectively monitor, make decisions, and implement appropriate measures regarding their asthma care, including when to seek further medical attention.

Certified Asthma Educator

A certified asthma educator is a credentialed health care professional who has expertise and skills to educate patients about their asthma. This expertise and skills are verified through a national certification exam that will be available beginning October 2002. Only after successful completion of this national certification exam can a health care professional call themselves a "certified asthma educator."

Environmental Tobacco Smoke

(ETS)– has been defined (Daisey et al., 1994) as: ...the smoke to which non-smokers are exposed when they are in an indoor environment with smokers. It is composed largely of sidestream tobacco smoke (SS), the smoke emitted by the smoldering end of a cigarette between puffs, with minor contributions from exhaled mainstream smoke (the smoke which is directly inhaled by the smoker) and any smoke that escapes from the burning part of the tobacco during puff-drawing by the smoker. ETS differs from SS in that it is highly diluted and dispersed within a room and it undergoes aging.

Health Care Provider

Licensed and highly trained medical professions such as physicians, certified nurse practitioners, pharmacists, physician assistants, nurses, etc. Provide medical services in the areas of prevention, treatment, and management of illness.



Appendix H Glossary

Health Plan

Health maintenance organizations, preferred provider organizations, community integrated service networks, insured plans and other plans that cover health care services.

High Quality

Degree or grade of excellence.

Licensed School Nurse

A registered nurse with public health certification and licensure by the Minnesota Board of Teaching to practice professional school nursing.

Trigger/Triggers

A substance or environmental condition that cause asthma or allergy symptoms to appear.

Physician Asthma Care Education (PACE)

A multifaceted training program to improve physician awareness, attitudes, ability, and application of communication and therapeutic skills for asthma.



Appendix I

Asthma Partner Websites

MDH/Environmental Health	www.health.state.mn.us/divs/eh
MDH/Tobacco	www.health.state.mn.us/divs/fh/assist/tpc.htm
Minnesota Children With Special Health Needs	www.health.state.mn.us/divs/fh/mcshn
Coordinated School Health	www.mnschoolhealth.com
Department of Children, Families, and Learning	http://children.state.mn.us
Department of Human Services	www.dhs.state.mn.us
Minnesota Society of Respiratory Care	www.MSRCnet.com
Minnesota Pharmacists' Association	www.mpha.org
Minnesota Council of Health Plans	www.mnhealthplans.org
School Nurse Organization of Minnesota	www.minnesotaschoolnurses.org
Minnesota Public Health Association	www.mpha.net
Hennepin County Medical Center	www.hcmc.org/depts/pedspdfs/HCMC-10-Blank.pdf
Children's Hospitals and Clinics	www.childrenshc.org
Minnesota Medical Association	www.mnmed.org
Minnesota Coaches Association	www.mshca.org
Education Minnesota	www.educationminnesota.org
Department of Housing & Urban Development	www.hud.gov/
Minnesota Nurses Association	www.mnnurses.org
Healthy Learners Asthma Initiative	www.healthylearners.org
Centers for Medicare & Medicaid Services	http://cms.hhs.gov
Health Policy and Systems Compliance	www.health.state.mn.us/divs/hpsc/hpsc.html
Healthy Child Care Minnesota	www.health.state.mn.us/divs/fh/mcshn/CAREweb/abc.html
Early Childhood Family Education	http://cfl.state.mn.us/ecfi/ecfe.htm
Minnesota Community Action Association	www.mncaa.org
American Cancer Society	www.cancer.org
American Heart Association	www.americanheart.org
Department of Human Services, Aging Initiative	www.dhs.state.mn.us/agingint/default.htm
Minnesota Center for Cross-Cultural Health	www.crosshealth.com
Minnesota Head Start Association	http://cfl.state.mn.us/OEO/head_start



Appendix I Asthma Partner Websites

Child Care Resource & Referral	http://cfl.state.mn.us/childcare/
Department of Commerce	www.commerce.state.mn.us
Realtors Association	www.mnrealtor.com
Builders Association	www.nahb.org
Building Codes and Standard Division	www.state.mn.us/ebranch/admin/buildingcodes
Housing Finance Agency	www.mhfa.state.mn.us
Association of Minnesota Counties	www.mncounties.org
League of Minnesota Cities	www.lmnc.org
Department of Human Services	www.dhs.state.mn.us
Tenants Union	www.directory.tenantsunion.org/minnesota.html
Minnesota School Board Association	www.msba.org
Minnesota Association of School Administrators	www.mnasa.org
Berkley Administrators	www.employerhealth.com/EHR_sample_pages/sp5526.htm
Minnesota Pollution Control Agency	www.pca.state.mn.us
Child Care Health Consultants	www.health.state.mn.us/divs/fh/mch/CAREweb/care-con.html
Building Owners & Managers Association	www.bomastpaul.org
Minnesota Safety Council	www.mnsafety.org
University of Minnesota Extension	www.extension.umn.edu
City of Minneapolis	www.ci.minneapolis.mn.us
St. Paul/Ramsey County Public Health	www.co.ramsey.mn.us/PH
St. Paul Tenants Union	www.solutionsrfund.org/Members/individualmember/sptenants.htm
Institute of Inspection, Cleaning, and Restoration	www.iicrc.org
Xcel Energy	www.xcelenergy.com/community/Community/Environment.asp
Minnesota Department of Transportation	www.dot.state.mn.us
Smoke-Free Coalition	www.smokefreecoalition.org
Minnesota Multi-Housing Agency	www.mmha.com
University of Minnesota	www.umn.edu
Minnesota Children's Environmental Health Coalition	www.kidsforsavingearth.org/mnchec.htm



Appendix I Asthma Partner Websites

Rebuild America	www.eren.doe.gov/buildings/rebuild
National Association of the Remodeling Industry	www.nari.org
University of Minnesota Cold Climate Housing	www.cnr.umn.edu/WPS/exten/excchp.html
National Sanitation Foundation	www.nsf.org
Department of Children, Families, and Learning	http://cfl.state.mn.us
Minnesota Visiting Nurses Association	www.mnva.org
Build America	www.eren.doe.gov/buildings/building_america
American Academy of Pediatrics	www.mnaap.org
Healthy Child Care Minnesota	www.health.state.mn.us/divs/fh/mch/CAREweb/abc.html
Minnesota Academy of Family Physicians	www.mafp.org
Minnesota Pharmacists' Association	www.mpha.org
Minnesota Society of Health Systems Pharmacists	www.mnshp.org
Minnesota Society for Respiratory Care	www.msrcnet.com
National Association of Pediatric Nurse Associates and Practitioners (MN Chapter)	www.mnapnap.org
Minnesota Medical Association	www.mnmed.org
School Nurse Organization of Minnesota	www.minnesotaschoolnurses.org
Minnesota Thoracic Society	www.thoracic.org
National Institutes of Health	www.nih.gov
American Academy of Allergy Asthma and Immunology	www.aaaai.org
American College of Allergy, Asthma and Immunology	http://allergy.mcg.edu/About.html
American College of Physician	www.acponline.org
Minnesota Department of Health	www.health.state.mn.us
American College of Emergency Physicians	www.acep.org
Minnesota Council of Health Plans	www.mnhealthplans.org/healthplans
American Lung Association of Minnesota	www.alamn.org
Minnesota Public Health Association	www.mpha.net



A Strategic Plan For
Addressing Asthma in Minnesota



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Minneapolis, Minnesota 55440-9441

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Toll-Free: 877-925-4189
Fax: 612-676-5458
TDD: 651-215-8980

www.health.state.mn.us/divs/hpcd/cdee/asthma

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