ASTHMA IN MINNESOTA

2014 TO 2020

STRATEGIC PLAN

MDH Minnesota Department *of* Health
ASTHMA PROGRAM

A Strategic Plan for Addressing Asthma in Minnesota 2014 to 2020

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Asthma Program
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MINNESOTA MDH DEPARTMENT OF HEALTH

Protecting, maintaining and improving the health of all Minnesotans

March 2014

Dear Colleague:

I am pleased to present *A Strategic Plan for Addressing Asthma in Minnesota 2014 to 2020*. This update to the Minnesota state asthma plan was developed with broad input and assistance from our partners and we thank them for their efforts.

One in 14 children and one in 12 adults in Minnesota have asthma. Minnesotans who have asthma are heterogeneous, falling into every age group, from infancy to old age, and present a spectrum of signs and symptoms that vary in degree and severity from patient to patient as well as within an individual patient over time. Asthma can be mild, moderate, or serious – even life-threatening. In Minnesota, in 2010, asthma cost an estimated $605 million, including $544 million in direct medical expenses and $62 million in lost work days.

While we don't know the exact causes of most asthma or how to prevent it, we do know how to alleviate the symptoms and manage the disease. There is evidence that asthma care in Minnesota is improving, but there is still work to be done. Reducing the impact of asthma on Minnesotans, especially among those disproportionally affected by the condition groups such as people of color, remains a major public health challenge. This plan can help us build collaborative action across private and public sectors to ensure quality asthma care, quality of life and health equity for people who have asthma in our state.

We want all Minnesotans who have asthma to have healthy environments and be able to enjoy life because their asthma is appropriately managed and well controlled. We invite you to join with us in achieving that vision

Sincerely,

Edward P. Ehlinger, MD, MSPH
Commissioner
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Executive Summary

Asthma is a complex, chronic disease characterized by variable and recurring symptoms, an underlying airway inflammation leading to narrowing of the airways, bronchial hyperresponsiveness, and acute bronchoconstriction (airway obstruction) that makes breathing difficult. Typical symptoms of asthma can include wheezing, cough (especially at night), shortness of breath, or chest tightness. Asthma episodes (also called attacks or exacerbations) can be mild, moderate, or serious – even life-threatening.

People in Minnesota who have asthma are heterogeneous, falling into every age group, from infancy to old age, and present a spectrum of signs and symptoms that vary in degree and severity from patient to patient as well as within an individual patient over time. Asthma develops as the result of a complex interaction between genetics and environmental exposures. In Minnesota, in 2010, asthma cost an estimated $605 million, including $544 million in direct medical expenses and $62 million in lost work days. One in 14 children and one in 12 adults in Minnesota have asthma, adding up to more than 410,000 Minnesotans directly impacted by the disease. Asthma prevalence in Minnesota is lower than the national average; however, there are significant disparities in prevalence by race/ethnicity and by geography. Asthma prevalence is higher among African American and American Indian populations and asthma-related hospitalizations are greater in the Twin Cities metro area than in outstate Minnesota.

There is evidence that asthma care in Minnesota is improving. The percentage of young people who have asthma and report having an asthma action plan increased from 29% in 2008 to 47% in 2011. Nearly half of child and 40% of adult asthma patients met the Statewide Quality Reporting and Measurement System criteria for optimal asthma care in 2012/2013. These measures have continued to improve since the optimal asthma care measure was introduced in 2010.

Our current understanding of asthma is that it is a multi-factorial disease that is associated with genetic, infectious, allergenic, socioeconomic, psychosocial, and environmental factors. How these factors interact to cause asthma is not completely understood. However, we know that asthma morbidity and mortality are largely preventable. Statewide prevention of morbidity and mortality related to asthma can only be accomplished through a combination of coordinated public and private efforts.

The Minnesota Department of Health's Asthma Program worked with a broad group of stakeholders to develop the first strategic plan to address the health and economic impacts of asthma in Minnesota and provide guidance for our collaborative work in 2001. That plan was updated in 2007 and has now been updated in 2014. The intended users of the state plan include but are not limited to health and public health professionals, patients, supporting organizations, educators, administrators, policy makers, purchasers and payers of healthcare services, schools and communities —this includes people working across a range of healthcare, public health and community settings in private and public sectors.

The aim of this state plan is to provide a blueprint for collaborative action moving forward to implement asthma management practices that best align with quality asthma care and quality of life for people who have asthma. Achieving the vision requires understanding the current evidence regarding effectiveness of quality improvement efforts, and finding ways to effectively translate knowledge into practice.

An important part of Minnesota's efforts to address asthma has consistently been to conduct evaluation of the efforts and interventions to inform progress and next steps. Evaluation is also an inherent part of this 2014 plan update and we expect to work with partners to conduct evaluation on plan activities going forward.

The following four goals identified were identified by the Asthma Program and its partners as important areas for action to address asthma in Minnesota. Each goal has key objectives and strategies identified to point toward action to achieve the goals.

Addressing Asthma in Minnesota

GOAL 1: Build on current data and monitoring systems to inform asthma intervention and management efforts and advance health equity in Minnesota.

GOAL 2: Engage public health and health systems and health care professionals in using National Asthma Education and Prevention Program based guidelines for asthma care to help people who have asthma achieve and maintain optimal asthma control.

GOAL 3: Build systems and capacity for asthma management and self-management for people who have asthma in Minnesota.

GOAL 4: Continue to improve indoor and outdoor environments for all Minnesotans with asthma.

We will work with our partners to identify the next steps to move this plan forward. To improve outcomes and quality of life for people with asthma in Minnesota we will need to take collaborative action across the levels of individual, family, community, and society and in multiple sectors including health care, schools, work place and community settings. Reducing the impact of asthma in Minnesota remains a major public health challenge, even more so for populations disproportionately affected by asthma.

Defining the Problem

What is asthma?

Asthma is a complex, chronic disease characterized by variable and recurring symptoms, an underlying airway inflammation leading to narrowing of the airways, bronchial hyperresponsiveness, and acute bronchoconstriction (airway obstruction) that makes breathing difficult. Typical symptoms of asthma can include wheezing, cough (especially at night), shortness of breath, or chest tightness. Asthma episodes (also called attacks or exacerbations) can be mild, moderate, or serious – even life-threatening. Episodes can be triggered by a number of factors from exposure to allergens or irritants, to respiratory infections or aerobic exercise. Every person's triggers are unique to them as is the most effective treatment plan. Asthma treatment options continue to evolve as research progresses, but it is clear that asthma control improves quality of life, decreases medical expenditures, and increases productivity at work and school.

We know little about the exact causes of asthma or how to prevent it, but we do know how to alleviate the symptoms and control airway inflammation for the majority of those who have asthma. Patients with asthma are heterogeneous, falling into every age group, from infancy to old age, and present a spectrum of signs and symptoms that vary in degree and severity from patient to patient as well as within an individual patient over time. Asthma develops as the result of a complex interaction between genetics and environmental exposures. Asthma is not currently curable, but it is treatable with appropriate control and rescue medications, avoiding asthma triggers and sustaining a healthy lifestyle, working with well-informed health care providers and following an individualized asthma self-management plan. It is also essential that we address the air quality in indoor and outdoor environments through policy and environmental change.

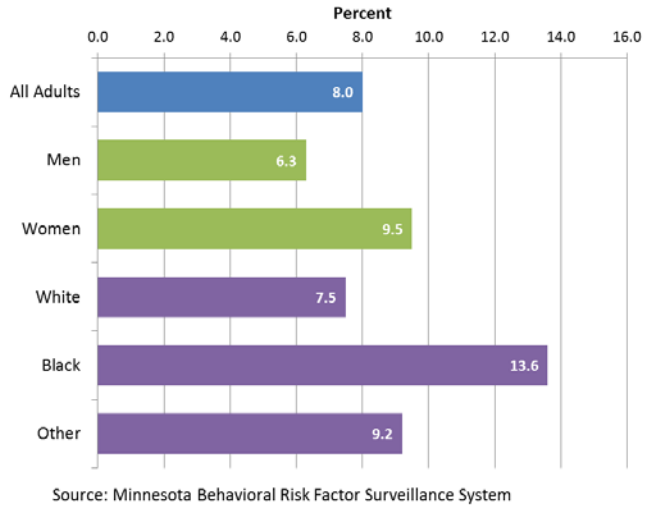
Anyone can develop asthma, although there is a greater chance if you have family members who have asthma or allergies, have experienced certain viral respiratory infections during childhood, have eczema or work in an environment where you are exposed to chemical lung irritants, industrial dusts, vapors or fumes. Socio-economic, environmental and cultural factors can make it more difficult for people to manage asthma effectively. Disparate populations living in poorly maintained housing and environmentally challenged areas are at greater risk of being diagnosed with asthma.

Diagnosing a patient as having asthma is only the first step in reducing the symptoms, functional limitations, impairment in quality of life, and risk of adverse events associated with the disease. The ultimate goal of treatment is to enable patients to live healthy and productive lives without these manifestations of asthma. An initial assessment of the severity of the disease allows an estimate of the type and intensity of treatment needed. Responsiveness to asthma treatment is variable and the processes underlying asthma can vary in intensity over time. In order to achieve the goals of asthma management, ongoing monitoring and treatment plan adjustments are needed.

What is the impact of asthma in Minnesota?

In Minnesota, in 2010, asthma cost an estimated $605 million, including $544 million in direct medical expenses and $62 million in lost work days. One in 14 children and one in 12 adults in Minnesota have asthma, adding up to more than 410,000 Minnesotans directly impacted by the disease. Asthma prevalence in Minnesota is lower than the national average; however, there are significant disparities in prevalence by race/ethnicity. According to data from the Minnesota Student Survey, American Indian and African American students are more likely than other students to have been diagnosed with asthma. Among adults in Minnesota, the prevalence of asthma is higher among blacks than whites. Disparities in asthma prevalence by race/ethnicity are also evident in enrollees in Minnesota's medical assistance programs.

Percentage of Minnesota adults (age 18 and older) with asthma

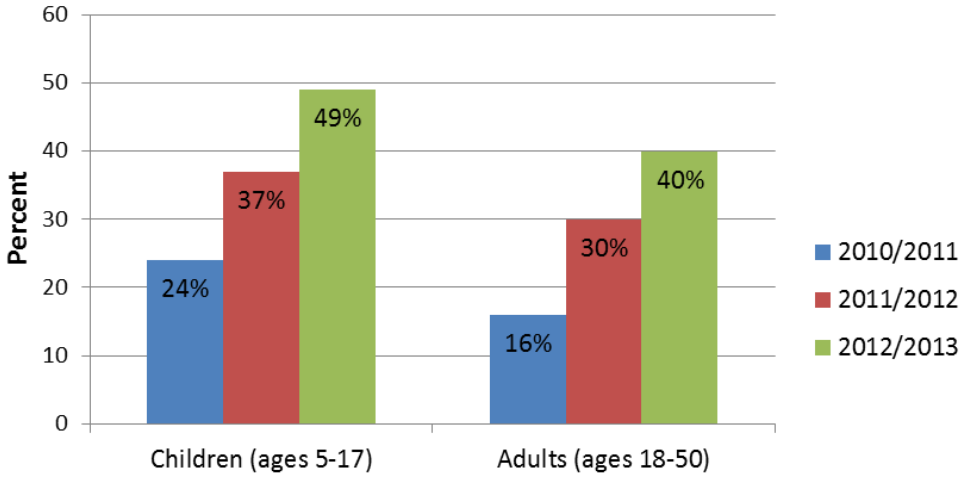


Source: Minnesota Behavioral Risk Factor Surveillance System

There is evidence that asthma care in Minnesota is improving. The percentage of young people who have asthma and report having an asthma action plan increased from 29% in 2008 to 47% in 2011. Nearly half of child and 40% of adult asthma patients met the Statewide Quality Reporting and Measurement System (SQRMS) criteria for optimal asthma care in 2012/2013.[1] These measures have continued to improve since the Optimal Asthma Care composite measure was introduced in 2010.

[1] See page 11 for description of the Optimal Asthma Care composite measure and its components.

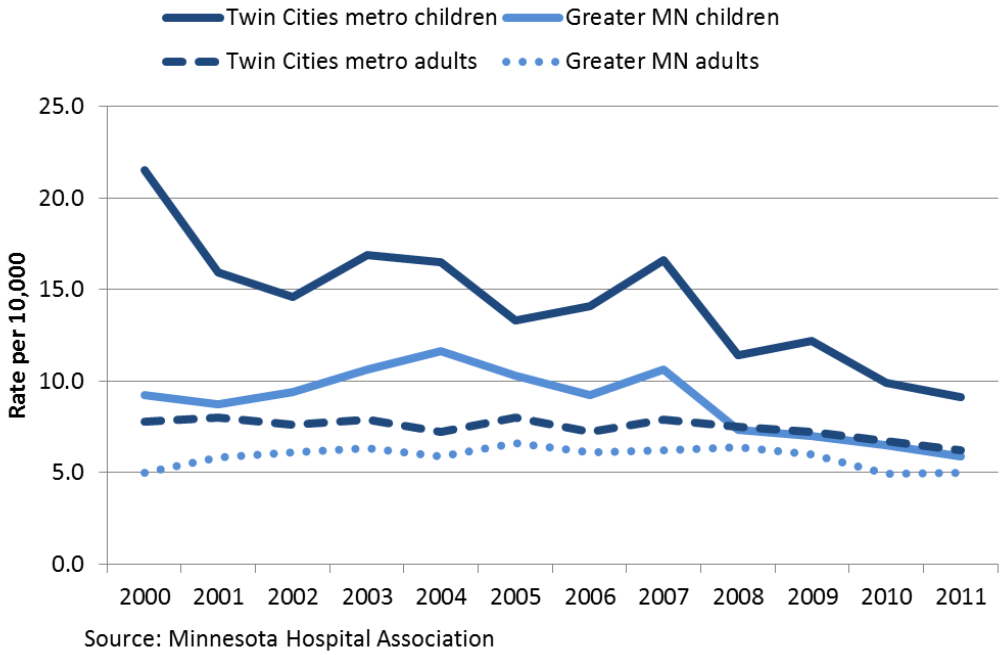
Percentage of Minnesota asthma patients receiving optimal asthma care



Source: Minnesota Statewide Quality Reporting and Measurement System (SQRMS)
Measure steward: MN Community Measurement

Many of the indicators of the impact of asthma in Minnesota are improving. Asthma hospitalization rates continue to decline, particularly among children in the seven-county Twin Cities metropolitan area. Rates of asthma-related emergency department (ED) visits have remained relatively stable since 2005.

Age-adjusted asthma hospitalization rates by age group and region

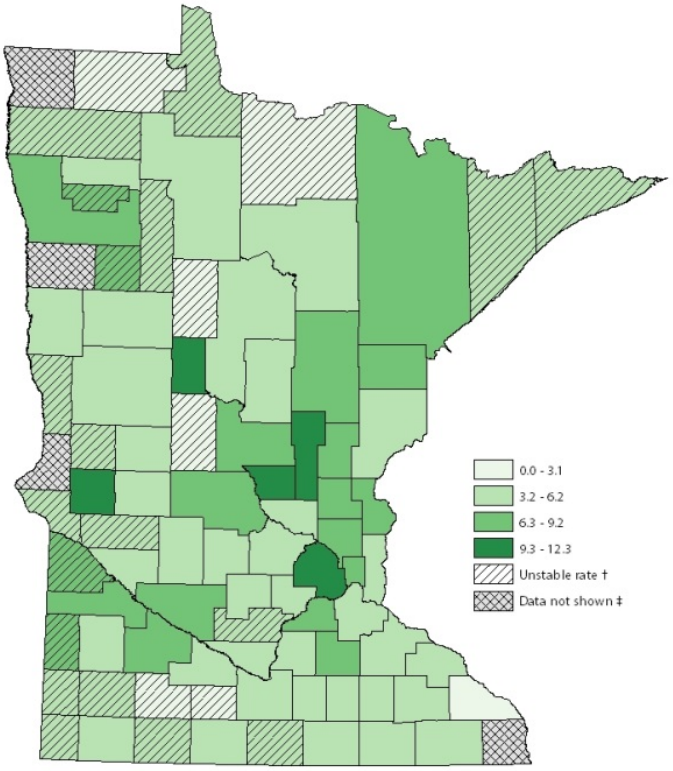


Source: Minnesota Hospital Association

Despite these positive trends, there is much work to be done. According to data from the Minnesota Youth Tobacco and Asthma Survey, young people with asthma are just as likely as their peers who never had asthma to smoke cigarettes. In addition, young people with asthma are more likely than those without asthma to report being exposed to secondhand smoke in the past week. Striking geographic disparities in rates of asthma-related ED visits and hospitalizations remain. Asthma hospitalization rates among children living in the Twin Cities metro area are 54% higher than among children living in Greater Minnesota. Rates of asthma-related ED visits are nearly two times higher among children in the seven county Twin Cities metro area than among their peers in Greater Minnesota. After a dramatic decrease through 2006, statewide asthma mortality rates have been rising slowly since then, with a small decline in 2011.[2]

Asthma hospitalization rates by county, Minnesota, 2009-2011

Age-adjusted rates per 10,000



†Rates based on 20 or fewer hospitalizations may be unstable and should be interpreted with caution.
‡To protect an individual's privacy, rates based on 1-5 hospitalizations are suppressed if the underlying population is less than or equal to 100,000.

[2] Additional information about the impact of asthma in Minnesota can be found in the companion document to this report, Asthma in Minnesota: 2012 Epidemiology Report, Minnesota Department of Health. St. Paul, MN. 2012. http://www.health.state.mn.us/asthma/Research.html

Framework for the Plan

Our current understanding of asthma is that it is a multi-factorial disease that is associated with genetic, infectious, allergenic, socioeconomic, psychosocial, and environmental factors. How these factors interact to cause asthma is not completely understood. However, we know that asthma morbidity and mortality are largely preventable. With improved patient education that promotes self-management, appropriate medical management, and with public policies that support people who have asthma, the impact of asthma can be greatly ameliorated and people with asthma can lead healthy normal lives. This can only be accomplished through a combination of coordinated public and private efforts.

Controlling asthma requires a multifaceted approach focusing on patient behaviors; home, work, and school environments; knowledge and skills of health care providers; and public health programs and policies that influence asthma management and self-management practices. The Minnesota Department of Health's Asthma Program worked with a broad group of stakeholders to develop the first strategic plan to address the health and economic impacts of asthma in Minnesota and provide guidance for our collaborative work in 2001. That plan was updated in 2007 and included the vision that

Minnesotans who have asthma will have healthy environments and will be able to enjoy life not limited by their asthma because their asthma is appropriately managed and well controlled.

In this third update of the plan, we affirm that vision. We recognize that in order for a state plan to be effective in guiding the work that needs to be done, reach the widest audience and ultimately influence positive patient outcomes, the plan's goals, objectives and strategies must reflect a consensus across a the broad range of individuals, professionals and organizations that are stakeholders in the outcomes. In developing this update of the plan, stakeholders in each of the key areas of action were presented with the objectives and strategies from the last update and asked for their input in moving the plan forward considering what had been accomplished and what new opportunities and needs were identified. Their suggestions were incorporated in a new draft and that draft circulated again for review and input. Conference calls were held to gain input and perspective. Finally, the draft plan was presented to the Minnesota Asthma Alliance at their meeting last October.

The intended users of the state plan include but are not limited to health and public health professionals, patients, supporting organizations, educators, administrators, employers, policy makers, purchasers and payers of healthcare services - this includes people working across a range of healthcare and public health settings in private and public sectors. The aim of this state plan is to provide a blueprint for collaborative action moving forward to implement asthma management practices that best align with quality asthma care and quality of life for people who have asthma. Achieving the vision requires understanding the current evidence regarding effectiveness of quality improvement efforts, and finding ways to effectively translate knowledge into practice.

National Guidance

The work of the stakeholders in developing this plan update has been guided by several key documents that provide a framework for action. The National Asthma Education and Prevention Program (NAEPP) of the National Heart, Lung, and Blood Institute (NHLBI) convened three Expert Panels to initially prepare and then update guidelines for the diagnosis and management of asthma. A common organizing principle across the three reports has been definition of the four components of effective asthma management.

Four Components of Effective Asthma Management

COMPONENT 1: ASSESSMENT AND MONITORING. To diagnose and assess the characteristics and severity of asthma and to monitor whether asthma control is achieved and maintained.

COMPONENT 2: EDUCATION. To build a solid partnership for effective asthma self-management education among the patient, family/caregiver, and health care provider.

COMPONENT 3: ENVIRONMENTAL CONTROL. To implement multi-faceted strategies to control environmental factors and to treat comorbid conditions that affect asthma.

COMPONENT 4: PHARMACOLOGIC THERAPY. To select the appropriate medications and to review the patient's technique and adherence to meet the patient's needs and circumstances.

The third and most recent report**, *Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma (EPR-3)*** was released in August 2007.[3] The NAEPP Guidelines are the nation's gold standard for asthma care and management and identify critical measures that have the greatest impact on asthma care and patient health. These critical measures include the use of inhaled corticosteroids to control asthma, use of a written action plan to guide patient self-management, regular follow-up visits with a primary care provider, and control of environmental triggers that worsen the patient's asthma.

In 2008, the ***Guidelines Implementation Panel Report for: Expert Panel Report 3 – Guidelines for the Diagnosis and Management of Asthma*** was developed by a 17-member panel selected to represent a wide range of asthma guideline end-users that was convened by NAEPP.[4] The goal was to engage the intended users and close gaps between the scientific advances summarized in the guidelines and their practical implementation in the field. This panel was charged with preparing a companion report that identified the top priority clinical practice

[3] National Asthma Education and Prevention Program Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma. US Department of Health and Human Services, National Institutes of Health, National Heart Lung and Blood Institute. NIH Publications Number 08-5846. April 2008. http://www.nhlbi.nih.gov

[4] Guidelines Implementation Panel Report for: Expert Panel Report 3 – Guidelines for the Diagnosis and Management of Asthma. Partners Putting Guidelines Into Action. US Department of Health and Human Services, National Institutes of Health, National Heart Lung and Blood Institute. NIH Publications Number 09-6147. December 2008. http://www.nhlbi.nih.gov

recommendations of the EPR-3, shape key messages around these priorities and present strategies for implementing these clinical practices. The immediate challenge to improving asthma guidelines utilization was to convert the guidelines implementation, quality improvement, and health care systems research into useful tools, processes and pathways that would build a system of quality care for patients. The Guidelines Implementation Panel (GIP) identified six priority, action-oriented messages.

Priority Messages

USE INHALED CORTICOSTEROIDS – Inhaled corticosteroids are the most effective medications for long-term management of persistent asthma.

USE WRITTEN ASTHMA ACTION PLANS – All people who have asthma should have a written asthma action plan to guide their self-management efforts.

ASSESS ASTHMA SEVERITY – All patients should have an initial severity assessment based on measures of current impairment and future risk in order to determine type and level of initial therapy needed.

ASSESS AND MONITOR ASTHMA CONTROL – At planned follow-up visits, asthma patients should review level of control with their health care provider based on multiple measures of current impairment and future risk in order to guide clinician decisions to either maintain or adjust therapy.

SCHEDULE FOLLOW-UP VISITS – Patients who have asthma should be scheduled for planned follow-up visits at periodic intervals in order to assess their asthma control and modify treatment if needed.

CONTROL ENVIRONMENTAL EXPOSURES – Clinicians should review each patient's exposure to allergens and irritants and provide a multipronged strategy to reduce exposure to those allergens and irritants to which a patient is sensitive and exposed, i.e. that make the patient's asthma worse.

In 2010, the NAEPP created the National Asthma Control Initiative (NACI) to focus on enhancing partnerships and collaborative activities among asthma stakeholders for implementing the Guidelines Implementation Report. The initiative's report, ***Putting the Guidelines Implementation Panel Report in Motion: A Plan of Action for the National Asthma Control Initiative*** [5] identified five overarching action items to support implementation of the guidelines:

1. Convene leaders and stakeholders.
2. Develop a communication infrastructure to promote dialogue among stakeholders, give access to resources and share information.

[5] Putting the Guidelines Implementation Panel Report in Motion: A Plan of Action for the National Asthma Control Initiative. US Department of Health and Human Services, National Institutes of Health, National Heart Lung and Blood Institute. NIH Publications Number 10-7543. April 2010. http://naci.nhlbi.nih.gov

3. Encourage and support partnerships to enhance integration of clinical and community-based interventions and strengthen sustainability.
4. Fund and support best practices and evidence-based demonstration projects.
5. Monitor and assess progress by using outcome measures and sharing lessons learned.

In updating *Minnesota's Strategic Plan for Addressing Asthma in Minnesota*, the national guidelines, priority messages and strategies were used as the underlying framework. Additionally, we are trying to reach the Healthy People 2020 Objectives for Asthma in our goals and strategies.

Healthy People 2020 Objectives Related to Asthma

1. Reduce asthma deaths.
2. Reduce hospitalizations for asthma.
3. Reduce emergency room visits for asthma.
4. Reduce activity limitations among persons with current asthma.
5. Reduce the proportion of persons with asthma who miss school or work days.
6. Increase the proportion of persons with current asthma who receive formal patient education.
7. Increase the proportion of persons with current asthma who receive appropriate asthma care according to the NAEPP guidelines.
8. Increase the number of states, territories and the District of Columbia with a comprehensive asthma surveillance system for tracking asthma cases, illness and disability at the state level. [6]

Minnesota Health Care Reform

Minnesota is currently involved in both state and federal health reform efforts. MDH is committed to the health reform goals of better health care, lower costs, and healthier communities. Minnesota's 2008 Health Reform Law requires the Commissioner of Health to establish a standardized set of quality measures for health care providers across the state. The goal is to create a uniform approach to quality measurement in order to enhance market transparency. The Minnesota Department of Health (MDH) seeks to build on community standards and input in developing the standardized measures set. The quality measures must be based on medical evidence, must be developed through a process in which health care providers participate, and reviewed on at least an annual basis.

This system of measures makes up the Statewide Quality Reporting and Measurement System (SQRMS). The Minnesota Department of Health has contracted with MN Community

[6] Healthy People 2020. US Department of Health and Human Services, Office of Disease Prevention and Health Promotion. 2010. http://www.healthypeople.gov

Measurement (MNCM), a nonprofit organization working with partners statewide and nationally to increase quality and value in health care, to collect these data. In accordance with state statute and rule, MDH: (1) selects measurement areas and measures for development, (2) annually promulgates rules that define the standardized set of measures, (3) and publicly reports summary data.

The Optimal Asthma Care composite measure is part of the current set of quality measures that are reported by clinics annually to the Statewide Quality Reporting and Measurement System. The asthma care measure is made up of three component measures that together make up the composite measure of optimal asthma care.

Optimal Asthma Care Composite Measure

- Asthma is well controlled (asthma control tool/test results indicate control)
- Patient is not at risk for future exacerbations (patient reports less than two total emergency department visits and hospitalizations during previous 12 months)
- Patient has been educated about asthma and asthma self-management, and has a current written asthma management plan containing information on medication doses and effects, what to do during an exacerbation, and information on the patient's triggers (written/reviewed within the measurement period).

Beginning July 2011, the Optimal Asthma Care composite measure became mandatorily reportable by individual medical clinics and by medical groups for children ages 5-17 and adults ages 18 to 50. Clinics differ from medical groups in that they represent one or a small number of health care providers at a single location. Medical groups are often made up of many providers, at multiple clinics and multiple locations. Currently this data is publicly reported through MN Community Measurement's Minnesota HealthScores http:/www.mnhealthscores.org/.

After a review process of the Optimal Asthma Care Composite measure by a technical workgroup, made up of provider, health plan, public health, and consumer representatives in 2014, the workgroup's recommendation was considered by MN Community Measurement's Measurement and Reporting Committee (MARC) that is charged with reviewing and making recommendations on measures and reporting policies. The MARC decided to remove the patient education and written asthma management plan measure component from the composite measure. How this decision will be operationalized through clinic reporting is currently being discussed by MDH and MN Community Measurement. Important considerations include the interaction with existing performance contracts between providers and payers, and the tradeoffs involved with changing a measure mid-stream (the reporting period extends from July 1, 2013 to June 30, 2014).

The Statewide Quality Reporting and Measurement System gives Minnesota a unique source of data to evaluate our progress on some of the key measures of improving asthma care. The quality measure data present significant opportunities for understanding the effectiveness of

the Optimal Asthma Care composite measure and its components. For example, some preliminary research about the association between the presence of an asthma action plan and the degree to which asthma was controlled was performed by MN Community Measurement to inform its technical workgroup's deliberations about the asthma composite measure. This work should be extended by assessing the association between an asthma management plan and potentially preventable utilization of the emergency department and inpatient care. An important part of Minnesota's efforts to address asthma has consistently been to conduct evaluation of the efforts and interventions to inform progress and next steps. Evaluation is also an inherent part of this 2014 plan update and we expect to work with partners to conduct evaluation on plan activities going forward.

The following sections describe the four goals identified by the Asthma Program and its partners as important areas for action to address asthma in Minnesota. Each goal has key objectives and strategies identified to point toward action to achieve the goals.

Goals, Objectives and Strategies

Goal 1: Data and monitoring

Build on current data and monitoring systems to inform asthma intervention and management efforts and advance health equity in Minnesota.

Since 2000, the MDH Asthma Program has been collecting and analyzing data on asthma for the purpose of better understanding the impact of asthma in Minnesota. The data can be used to establish baselines for asthma prevalence and outcomes; target and plan education and intervention programs; evaluate the impact of public health efforts; and develop policies that are necessary for preventing and controlling asthma in the future. We will continue to identify the most effective ways to collect, analyze and use data, as well as identify additional data sources that can be applied.

Objective A: Prevalence trends

Monitor trends in asthma prevalence among Minnesota residents.

STRATEGIES:

- Track the proportion of Minnesota residents with asthma using surveys such as the Behavioral Risk Factor Surveillance System (BRFSS) survey.
- Track asthma prevalence in subpopulations such as public health care program enrollees and immigrant groups, and by race/ethnicity using Minnesota Health Care Program data from the MN Department of Human Services and surveys such as the Minnesota Student Survey and BRFSS.
- Track the prevalence of work-related asthma using surveys such as the BRFSS.

Objective B: Morbidity and mortality trends

Monitor trends in asthma morbidity and mortality among Minnesota residents.

STRATEGIES:

- Monitor trends in asthma-related office visits, emergency department visits, hospitalizations and mortality using data from the Minnesota Hospital Association, Minnesota Center for Health Statistics, Minnesota Health Care Programs and other sources.
- Monitor trends in asthma control using metrics such as activity limitations, missed school and work days and sleep disturbances using surveys such as BRFSS.
- Identify disparities in the burden of asthma in Minnesota by analyzing data by subcategories such as race/ethnicity, immigrant status, income, subsidized health plan enrollment, and geography (urban/rural) in Minnesota Health Care Program data and other sources.
- Monitor trends in factors associated with asthma exacerbations such as environmental tobacco smoke, wood smoke, air pollution and pollen using surveys

such as the Minnesota Youth Tobacco Survey and data from the Minnesota Pollution Control Agency and local pollen monitors.

- Estimate the direct costs of asthma in Minnesota using the Centers for Disease Control and Prevention Chronic Disease Cost Calculator and hospital discharge data from the Minnesota Hospital Association.

Objective C: Asthma management trends

Monitor trends in asthma management among Minnesota residents with asthma.

STRATEGIES

- Monitor trends in elements of recommended asthma management such as influenza vaccinations, self-management education and asthma medication prescriptions and fills using data from surveys such as BRFSS and other sources such as Minnesota Health Care Program data.
- Track the rates of optimal asthma care in children and adults through the Optimal Asthma Care composite measure of the MN Statewide Quality Reporting and Measurement System and work with MN Community Measurement to further understand and assess the effectiveness of the Optimal Asthma Care composite measure and its components.

Objective D: Partnerships

Establish and maintain partnerships to explore new data sources, share data and identify research opportunities.

STRATEGIES:

- Collaborate with the MDH Environmental Public Health Tracking program to share data, explore new data sources and examine data linkages.
- Collaborate with the Minnesota Pollution Control Agency and others to include asthma surveillance data in health impact assessment and environmental impact analysis and planning.
- Explore new data sources for asthma surveillance such as electronic medical records.
- Explore sources of finer resolution (e.g., community-level) asthma surveillance data.
- Identify and pursue areas for further study related to epidemiology, health care resource utilization and the economics of asthma in Minnesota.

Objective E: Informing with data

Use asthma surveillance data to inform policymakers, public health and health care providers and systems, and others; and inform strategies and interventions to address asthma and support efforts to achieve health equity.

STRATEGIES:

- Respond to requests for asthma surveillance data.
- Provide public education regarding asthma data through reports, fact sheets, MDH web site, presentations, newsletters and other formats.

Goal 2: Asthma care

Engage public health and health systems, and health care professionals in using National Asthma Education and Prevention Program based guidelines for asthma care to help people with asthma achieve and maintain optimal asthma control.

Activities in this section involve the variety of health care team members who support patients in asthma care and self-management. Health plan and clinical system quality initiatives focus on process and policy, adoption of clinical support education tools, patient engagement and implementation of the Optimal Asthma Care Composite Measure in the Statewide Quality Reporting and Measurement System.

Objective A: Asthma medications

Increase the appropriate use of asthma medications.

STRATEGIES:

- Work with health plans, clinic systems, private practice groups, and professional organizations to determine and implement the best methods to communicate guidelines, updates and critical diagnosis and management steps to providers, with a focus on primary care.
- Collaborate with Pharmacists dispensing medication to identify the overuse of prescriptions of albuterol and other rescue medications and refer the patient back to the prescribing provider for follow-up.
- Qualified health professionals will provide culturally and linguistically appropriate one on one education and supporting materials to people with asthma, parents or caregivers about use of medications to manage asthma.
- Pharmacist provided Medication Therapy Management (MTM) services will include Collaborative Practice Agreements when delivering medication therapy management of asthma.

Objective B: Asthma action plans

Increase use, documentation of use, and appropriate distribution of asthma action plans that are based on the NAEPP guidelines.

STRATEGIES:

- Engage health systems and provider networks to provide user-friendly asthma action plans that are based on the NAEPP guidelines and meet patients' health literacy needs and ensure that providers complete and share them with schools, daycare centers and coaches.
- Ensure that asthma patients or their parents or caregivers receive individualized, patient-specific asthma education using their asthma action plan.
- Work with School Nurses of Minnesota, Minnesota Department of Education, school district officials and clinicians to promote statewide policy change to include an Asthma Action Plan with the annual asthma medication consent process.

- Work with Certified Health Care Homes (HCH) on the asthma benchmarking measures and culturally appropriate approaches to improve quality of care for adult and pediatric patients.

Objective C: Asthma in health care

Ensure implementation of NAEPP evidence-based guidelines for asthma care in health care practice.

STRATEGIES:

- Work with the CDC, NIH, and other national organizations to promote incorporation of evidence-based electronic health record decision making tools.
- Work with Health Care Homes (HCH) and clinics to develop a searchable electronic registry for tracking asthma patients' care, data processing and notification for follow-up.
- Work with Clinics and Health systems to incorporate automatically contacting patients who have asthma to schedule yearly routine follow-up visits in order to assess their asthma control and modify treatment as necessary.
- Engage health systems and provider networks to encourage health care providers to view currently available online educational programs based on the NAEPP asthma guidelines.
- Develop evidence-based educational tools for presentation to primary care practice clinicians related to implementation of the NAEPP evidence-based guidelines in practice.
- Develop accredited online continuing educational programs for health care providers and identify an appropriate organizational partner to host these programs on an internet website.
- Work with MDH's Health Care Homes unit to incorporate evidence-based asthma practice and benchmarks in health care home implementation.

Objective D: Curriculum for comprehensive asthma care

Expand incorporation of NAEPP guideline training into the Public Health Nursing and Respiratory Therapy curriculums increasing opportunities for students to learn comprehensive asthma care.

STRATEGIES:

- Support the inclusion of internships with asthma specialists for students in nursing and respiratory therapy programs.
- Work with secondary institutions who are educating non-licensed health personnel to develop evidence-based guideline driven curriculums that support professional standards of asthma care.

Objective E: Certified Asthma Educators

Increase awareness among organizations providing asthma care of the value of Certified Asthma Educators (AE-C) and promote certification testing to health professionals.

STRATEGIES:

- Promote the benefits of hiring Certified Asthma Educators to clinical health systems, health plans and individual clinics.
- Support the continued offering of Certified Asthma Educator preparatory courses across the state.
- Coordinate with health plans and state agencies to facilitate coverage and reimbursement for a comprehensive chronic disease management approach to asthma.
- Encourage reimbursement by employers for the cost of taking the AE-C certification course, exam and for on-going education required to maintain certification.
- Encourage cost coverage reimbursement for patient specific, individualized asthma education provided by certified asthma educators by public and private health care payer systems.
- Work with MN partners to increase the number of Certified Asthma Educators in Minnesota.

Goal 3: Asthma management and self-management

Build systems and capacity for asthma management and self-management for people who have asthma in Minnesota.

People who have asthma need information, education, tools and support in making the decisions and practicing the healthy behaviors needed on a day-to-day basis to manage their asthma. The Minnesota Asthma Program and its partners have been working in a variety of settings to provide individuals and organizations with needed programs, education and services, as well as to develop tools and resources that meet identified needs. More work is needed.

Objective A: Asthma self-management tools, education and information

Provide people who have asthma, parents and caregivers, with tools, education and information to successfully self-manage their asthma.

STRATEGIES:

- Increase the use of the Chronic Disease Self-Management Program (CDSMP) by adults who have asthma.
- Promote and encourage individuals who have asthma and their families to get yearly flu vaccinations by partnering with the MDH Immunization Program, local public health, and Minnesota's Community Health Centers.

- Identify, review and/or develop focused patient-centered educational materials and tools for dissemination through organizations that are frequented by and accessible to the public.
- Identify, review and/or develop focused patient-centered educational materials and tools for dissemination through organizations that meet the needs of disparate populations and those disproportionately affected by asthma.
- Work with partners to provide access to tobacco cessation services and programs.
- Ensure that health care providers ask about the smoking status of the patient and family members at every office visit, and refer to smoking cessation services as needed.

Objective B: Asthma action plans for self-management

Promote use of current written asthma action plans to guide self-management at home, school, workplace and other settings.

STRATEGIES:

- Promote use of plan formats that are appropriate for all literacy levels and meet the needs of non-English speaking populations.
- Promote the use of patient-centered scripts "Questions to ask about your asthma" to assist patients in their communication with their health care providers.
- Publicize the availability of Asthma Action Plan templates that meet federal health and education privacy (HIPAA and FERPA) requirements.
- Promote and direct consumers to the Minnesota Health Scores website to seek information on clinics who meet MN Statewide Quality Reporting and Monitoring System's Optimal Asthma Care Measure.
- Collaborate with the Minnesota Council of Health Plans to promote the MDH Asthma Program resources via public health collaborations and committees.

Objective C: School and community-based organizations

Increase the capacity of school and community organizations to support effective asthma management and self-management for students and community members who have asthma.

STRATEGIES:

- Continue to offer "Managing Asthma in Minnesota Schools" training and update training throughout Minnesota and promote the corresponding on-line training resources.
- Support policy change to increase the number of licensed school nurses in Minnesota by requiring every school district to employ one full-time licensed school nurse for every 750 students in the district.
- Provide best practice technical resources and interventions developed by MDH programs, federal and other organizations that focus on low or no cost solutions for addressing environmental asthma triggers in schools and community sites.

- In partnership with the Minnesota State High School League (MSHSL), develop a web-based asthma education e-learning module that would be a mandatory requirement for Minnesota's 26,000 high school coaches.
- Continue to market and promote the availability of the on-line Coaches Asthma Clipboard Program Wining with Asthma http://www.winningwithasthma.org/ to community sports organizations, schools, physical education teachers, volunteer coaches, parents, and young athletes.
- Continue to market and promote the availability of training for identifying asthma triggers in the home environment, **Reducing Environmental Triggers for Asthma in the Home** https://apps.health.state.mn.us/asthmahealthyhomes/, through public health agencies, AE-Cs and community organizations.
- Communicate recent data on asthma in Minnesota students to school nurses, educators and others by providing presentations or other tools in partnership with established school nurse networks and workgroups in Greater Minnesota.
- Foster partnerships and collaborations between schools and local public health agencies to support and sustain financial resources and technical assistance for asthma management and education.
- Notify schools and local public health agencies of upcoming ALAMN/Minnesota Asthma Coalition asthma discussion group meetings accessible in person or by webinar.
- Support inclusion of asthma in school wellness and health and safety policies and provide appropriate materials and model policies.
- Collaborate with MDH School Health Consultant to provide technical assistance and resources that support ongoing asthma education in schools and the community.
- Identify exhibit opportunities that are effective opportunities to disseminate asthma information, tools and resources to groups like the School Nurse Organization of Minnesota, Minnesota Association of Health, Physical Education, Recreation, and Dance, Minnesota School Board and Minnesota School Administrators and other school-related events.

Objective D: Local public health

Increase the capacity of local public health agencies to support effective asthma management and self-management interventions in their communities.

STRATEGIES:

- Expand training opportunities for local public health nurses related to asthma assessment, management and self-management education and assessment for environmental triggers of asthma in the home and community sites.
- Provide asthma medication posters and other patient education resources to local public health.
- Work with local public health agencies to conduct social marketing campaigns and events to support asthma management and self-management and addressing asthma triggers in indoor and outdoor environments.

Objective E: Cultural asthma information, education, tools and strategies

Identify and address unmet needs related to culturally and linguistically appropriate asthma information, education, tools and strategies that support patient-centered asthma management and self-management.

STRATEGIES:

- Review MDH Asthma Program and partners' tools and resources to identify those with message consistency and appropriate content to promote health literacy, reach targeted audiences or those with limited English proficiency.
- Prioritize gaps and needs in asthma education tools and resources and identify a process to address gaps through community partnerships supporting long-term best practice approaches.
- Identify and address cultural competency and health literacy factors that affect the delivery of asthma self-management.
- Support health literacy and cultural competency training for health professionals in the community, including healthcare providers and public health officials.
- Explore opportunities to include appropriately-trained Community Health Workers and other paraprofessionals in home visit and clinic and community education efforts.
- Seek ways to pool resources and foster collaborations between partners to offer sustainable long-term culturally responsive community based approaches to asthma education.
- Work with other MDH chronic disease programs and partners to garner financial and administrative support to maintain the availability of the Chronic Disease Self-Management Program (CDSMP) in Minnesota and to promote and offer the CDSMP Program to disparate and high risk populations.

Goal 4: Indoor and outdoor environments

Continue to improve indoor and outdoor environments for all Minnesotans with asthma.

We need to ensure that all Minnesotans are able to live in healthy environments whether outdoors or indoors; in their homes, workplaces, schools and child care facilities, or other locations. Progress has been made over the past several years but there remains room for improvement and especially to achieve health equity. To date, over 229 clinic staff, including 90 physicians, have been trained on asthma management and environmental triggers of asthma. In addition, over 100 local public health professionals from Minnesota have been trained on asthma triggers and home visits for children who have been diagnosed with asthma. Over the past several years over 200 home interventions have been initiated and we are working with others to target work-related asthma in cosmetologists and workers with potential exposures to isocyanates and other chemicals that can cause or worsen asthma.

Objective A: Outdoor exposures

Prevent or reduce exposures to outdoor environmental factors that can cause or exacerbate asthma.

STRATEGIES:

- Provide tools to assist health care providers in educating patients about outdoor environmental triggers of asthma.
- Support use of the Minnesota Pollution Control Agency's (MPCA) air quality alert system to help those with asthma to better manage their activities during periods with high air pollution.
- Increase the availability of smoke-free outdoor areas including building entrances, outdoor dining areas, parks, and campuses in Minnesota.
- Support collaboration for education and policy change to reduce exposure to wood smoke and its components such as particulate pollution (PM and $PM_{2.5}$) and volatile organic hydrocarbons (VOCs).
- Support use of building and environment design strategies to reduce outdoor triggers of asthma.
- Support use of tools such as health impact assessments (HIAs) and a health in all policies approach to protect and improve the health of Minnesotans and improve health equity related to outdoor air quality.
- Collaborate on wise transportation initiatives [7] that support improvement of outdoor air quality.
- Expand education and technical assistance for small and medium-sized businesses to reduce VOC emissions through use of low-VOC solvents, products and processes, thereby reducing the formation of ground-level ozone.
- Promote safe use of chemicals to prevent and reduce impact of work-related asthma (WRA).

Objective B: Indoor exposures

Prevent or reduce exposures to indoor environmental factors that can cause or exacerbate asthma.

STRATEGIES:

- Continue efforts to educate health care providers about the importance of addressing environmental factors related to asthma.
- Increase the number of health care providers who ask about work-related issues that can cause or exacerbate asthma when caring for a teenager or adult who has asthma.
- Increase the number of and the capacity for home visits for children and adults diagnosed with asthma through home interventions that use multi-trigger, multicomponent interventions to eliminate or reduce asthma triggers in the home

[7] See glossary for definition of wise transportation initiatives.

with attention to those with poorly controlled asthma and those living in high risk housing.

- Explore opportunities to include appropriately-trained Community Health Workers and other paraprofessionals in home visit and clinic and community education efforts.
- Increase reimbursement for multi-trigger, multi-component asthma trigger interventions offered by qualified professionals.
- Support efforts to decrease the number of current smokers.
- Support efforts to increase the availability of smoke-free multi-family housing, hotels/motels, in-home child care, and foster care facilities through partnerships with housing officials, tenant and landlord organizations.
- Encourage adoption of smoke-free casino policies.
- Work with Minnesota's Healthy Home efforts, the state energy codes program, and the U of MN Cold Climate Housing Program to support building practices, codes and regulations that will result in more asthma-safe homes and work places.
- Provide model policies to schools and work places to encourage best practices to address asthma triggers.
- Work with the MDH Center for Occupational Health and Safety and other stakeholders to promote education and awareness of Work-Related Asthma for workers, employers, and health care providers.
- Increase awareness of asthma triggers and the hierarchy of controls[8] for products used in homes, schools, service industry, health care organizations, work places and other locations.
- Support use of tools such as health impact assessments (HIAs) and a health in all policies approach to protect and improve the health of Minnesotans and improve health equity related to indoor air quality.

[8] See definition of hierarchy of controls in the glossary.

Next Steps

The Minnesota Asthma Program will work with its partners to continue to move forward on these goals and objectives, which we know from research and consensus guidelines like the EPR3 ***Guidelines for the Diagnosis and Management of Asthma*** are the most promising areas for action. To improve outcomes and quality of life for people with asthma in Minnesota we will need to take collaborative action across the levels of individual, family, community, and society and in multiple sectors including health care, schools, work place and community settings. The MN Asthma Program will continue to convene the MN Asthma Alliance, at least annually, to review progress on the plan and will convene targeted advisory and work groups to facilitate collaborative action on plan strategies.

It will be important to rely on sound evaluation to identify those approaches and activities that are successful in Minnesota and to find ways to scale those interventions to maximize impact as well as identify new approaches to address our issues and problems. We will need to continue to build on existing partnerships and identify additional partners who can contribute to the collaborative and synergistic linkages needed to achieve these goals. Particular attention needs to be given to achieving health equity and addressing needs among those populations at greatest risk for poor outcomes. We need to continue to improve asthma care processes across the continuum of medical and community care and seek to ensure that all people in Minnesota who have asthma are able to get the services, information and resources they need to manage their asthma successfully day-to-day.

Though Minnesota has an outstanding record in improving indoor air quality, work still needs to be done to ensure that Minnesotans have clean air where they live and work. We also need to take more action in our communities to address outdoor air quality, particularly from unregulated sources.

The Minnesota Department of Health's Asthma Program will continue to monitor and assess progress towards the meeting this plan's goals. We will work with partners to evaluate our interventions so that we can maximize our impact. This plan is a living document. As progress is made, issues emerge or opportunities are presented we can modify our approaches.

Reducing the impact of asthma in Minnesota remains a major public health challenge, even more so for populations disproportionately affected by asthma. Though the number of people receiving optimal asthma care is increasing and the number of hospitalizations is decreasing, there is still a lot of work to be done to reduce asthma's burden of illness, death and societal cost. Acting together we can make the progress that none of us can individually.

Appendices

Glossary

Asthma Control Test (ACT): A validated, five-question patient-administered health survey used to measure asthma control in individuals 12 years of age and older. The survey measures the elements of asthma control as defined by the National Heart, Lung, and Blood Institute (NHLBI). The Childhood Asthma Control Test is available for children ages 4 to 11.

Affordable Care Act (ACA): The Patient Protection and Affordable Care Act (ACA) was enacted by Congress in 2010 to increase the number of Americans covered by health insurance and decrease the cost of health care. The ACA is responsible for the most sweeping reforms of the United States' healthcare system since the 1965 passage of Medicare and Medicaid.

Air quality alert system: Informs people when there is poor air quality and provides messages of what can be done to protect their health and reduce air pollution. The air alert system is part of the Minnesota Pollution Control Agency (MPCA) efforts and is tied into the Air Quality Index (AQI).

American Lung Association in Minnesota (ALAMN): The local chapter of the American Lung Association; a key partner of MDH and instrumental in convening dialog and programing for asthma and other lung diseases.

Allergens: Substances that set off an immune response in which the body's immune system fights off a perceived threat that would otherwise be harmless. Common allergens include pollen, dust mites, animal dander, and some medications.

AE-C: see Certified Asthma Educator

Asthma action plan (AAP): A document (usually written) that provides patient-specific directions of how to effectively control asthma through self-management steps. AAPs are developed in consultation with the health care provider, patients and family members/caregivers. AAP's include information on medication doses and purposes of these medications, how to recognize symptoms, what to do when having an asthma episode and information on the patient's triggers.

Asthma attack: Also referred to as an asthma exacerbation or episode, a sudden worsening of asthma symptoms caused by a constriction of the muscles that surround the airways due to exposure to asthma triggers. During an asthma attack, the lining of the airways becomes inflamed and thicker mucus is produced. Typical symptoms of an asthma attack include difficulty breathing, wheezing, coughing, shortness of breath, and difficulty performing normal daily activities.

Asthma management plan: See asthma action plan

Asthmagens: Agents in the environment that may trigger or worsen asthma symptoms.

Asthma trigger: A substance or event that can cause asthma symptoms or an asthma episode. Some of the most common triggers include allergens such as pollen, pests, and animal dander; irritants such as chemicals, cigarette or other smoke; dust and other particulates; cold air; exercise; viral infections and some medications.

Bronchoconstriction: Contraction or tightening of bronchial smooth muscles that surround the airways. This narrowing of the air passages impedes the normal flow or air into and out of the lungs.

Bronchial hyperresponsiveness/hyperactivity: An inflammatory process causing airway narrowing due to an increase in airway sensitivity to a wide variety of inhaled stimuli.

Certified Asthma Educator (AE-C): A health professional who has additional training in asthma management and skills in educating patients about their asthma and whose expertise and skills expertise and skills have been verified through a national certification exam developed by the National Asthma Education Certification Board. After successful completion of the national certification exam health care professionals can use the credentials AE-C and refer to themselves as a "Certified Asthma Educator."

Chronic Disease Self-Management Program (CDSMP): An evidence-based peer-led self-management education program developed by Stanford University Patient Education Research Center that addresses patient concerns across multiple chronic conditions and teaches self-management skills and techniques including action planning, goal setting, problem solving, decision-making, symptom management and communications and increases participant self-efficacy in managing their chronic conditions.

Environmental impact analysis: An assessment or analysis of the possible impacts that a proposed project may have on the environment, consisting of the environmental, social and economic aspects of a project. The purpose of the assessment is to ensure that decision makers consider the environmental impacts when deciding whether or not to proceed with a project.

Environmental Public Health Tracking (EPHT): An MDH program that collects and analyzes data about environmental hazards, people's exposures to them, and the health of the population. The MN Tracking Program makes these data accessible to the public through the MN Public Health Data Access portal.

Epidemiology: The study of the distribution and determinants of health-related states or events in specified populations, and the application of this study to the control of health problems.

Evidence-based: A program or practice that closely replicates a specific intervention that has been tested through randomly controlled experiments with results published in peer-reviewed journals.

Family Educational Rights and Privacy Act (FERPA): A federal law that protects the privacy of student education records. FERPA gives parents certain rights with respect to their children's education records. These rights transfer to the student when he or she reaches the age of 18 or attends a school beyond the high school level. The law applies to all educational agencies and

institutions that receive funds under any program administered by the Department of Education.

Guidelines Implementation Panel Report (GIP): A companion report to the EPR-3, aimed at identifying the top 6 priority clinical practice recommendations of the EPR-3, shaping key messages around these priorities, and presenting clear and achievable strategies for overcoming known barriers to implementing these clinical practices. Another aim of the report is to motivate healthcare providers and their patients to implement asthma management practices that best align with quality asthma care and quality of life for people who have asthma.

Greater Minnesota: The less urbanized part of Minnesota outside the Twin Cities metropolitan area.

Health care home (HCH): Also called a 'medical home', is a model or philosophy of primary care that is patient-centered, comprehensive, team-based, coordinated, accessible, and focused on quality of life.

Health disparity: A population-based difference in health outcomes.

Health equity: Achieving the conditions in which all people have the opportunity to attain their highest possible level of health.

Health Impact Assessment (HIA): A systematic process that uses an array of data sources and analytic methods and considers input from stakeholders to determine the potential effects of a proposed policy, plan, program, or project on health of a population and the distribution of those effects within the population. HIA provides recommendations on monitoring and managing those effects, often as they relate to pollution and siting of facilities.

Health in all policies: A collaborative approach that integrates and articulates health considerations into policy making across sectors, and at all levels, to improve the health of all communities and people.

Health inequity: A health disparity based in inequitable, socially-determined circumstances.

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

Healthy home: Is free of asthma triggers. It is dry, clean, contaminant free, well-ventilated, well-maintained, safe, and pest free using integrated pest management.

Healthy Learner's Asthma Initiative (HLAI): Collaborative program between Minneapolis Public Schools, local health care providers, payers, parents, and other partners, which included development of enhanced asthma care policies in school health offices and clinic performance improvement. Goals were to improve asthma management among school children and reduce asthma-related school absences, hospitalizations, and emergency department visits.

Hierarchy of controls: An approach used to determine feasible and effective exposure control solutions. A common representation of the hierarchy is: elimination, substitution, engineering controls, administrative controls, and personal protective equipment. Control methods at the

top (elimination) are potentially more effective and protective than those at the bottom (personal protective equipment) and should be used first whenever possible.

Health Insurance Portability and Accountability Act (HIPAA): The HIPAA Privacy Rule provides federal protections for individually identifiable health information held by covered entities and their business associates and gives patients an array of rights with respect to that information. At the same time, the Privacy Rule is balanced so that it permits the disclosure of health information needed for patient care and other important purposes.

Inhaled Corticosteroid (ICS): The most potent and effective inhaled anti-inflammatory agent currently available. Corticosteroids are man-made drugs that closely resemble cortisol; a hormone that your adrenal glands produce naturally. The inhaled form is used as a controller medicine for the long-term control of asthma.

Isocyanates: Reactive chemicals used in industrial processes. Isocyanides are known to irritate the eyes, skin and respiratory system and is an example of a chemical that has been linked to the development of asthma in workers.

Irritants: Inhaled substances in the environment such as diesel exhaust, perfume and tobacco smoke that may cause an asthma exacerbation (attack).

Licensed School Nurse (LSN): A registered nurse with public health certification and licensure by the Minnesota Board of Teaching to practice professional school nursing.

Managing Asthma in Minnesota Schools (MAMS): A comprehensive resource and training for school personnel, developed by the MDH Asthma Program, that provides guidance on how to manage asthma in the school setting and includes a detailed manual with forms and tools for use in the school setting.

Medicaid: A social health care program for families and individuals with low income and resources and for people with disabilities.

Medical assistance (MA): Minnesota's Medicaid program.

Medical home: See "health care home"

Medication Therapy Management (MTM): Medical care provided by pharmacists whose aim is to optimize drug therapy and improve therapeutic outcomes for patients. MTM includes but is not limited to performing patient assessment and/or a comprehensive medication review, formulating a medication treatment plan, monitoring efficacy and safety of medication therapy, enhancing medication adherence through patient education, and documenting and communicating MTM services to prescribing providers.

MinnesotaCare: A publicly subsidized health care program for residents who do not have access to affordable health care coverage. It is funded by a state tax on Minnesota hospitals and health care providers, federal Medicaid funds and enrollee premiums.

Minnesota Community Measurement (MNCM): A nonprofit organization working with partners statewide and nationally to increase quality and value in health care. MNCM creates and refines measures, and collects and reports health care data used to drive improvement in health care.

Minnesota Council of Health Plans: A trade association of licensed nonprofit regional health care/ health plan organizations.

Minnesota Pollution Control Agency (MPCA): A state agency that monitors environmental quality, and offers technical and financial assistance related to environmental quality, enforces environmental regulations, develops statewide policy, and supports environmental education.

The Coach's Asthma Clipboard Program Winning with Asthma: A free 25-minute online educational video that provides information on what coaches, referees, and physical education teachers should know about asthma. It was by the MDH Asthma Program in collaboration with the Asthma Program at the Utah Department of Health. **The Coach's Asthma Clipboard Program Winning with Asthma:** http://www.winningwithasthma.org/

Morbidity: The incidence or rate of disease

Mortality: The incidence or rate of death, usually from a specific disease such as asthma

National Asthma Education Prevention Program (NAEPP): A program within the NIH (National Institutes of Health) under the NHLBI (National Heart Lung & Blood Institute) created to address asthma nationwide. The NAEPP works with intermediaries including major medical associations, voluntary health organizations, and community programs to educate patients, health professionals, and the public to enhance the quality of life for patients with asthma and decrease asthma-related morbidity and mortality. They are responsible for the development of the National Asthma Guidelines.

New-onset asthma: Asthma that develops after exposure to sensitizers or irritants in the workplace.

Outdoor wood boilers: Is a variant of the classic wood stove adapted for set-up outdoors while still transferring the heat to interior buildings. They are also known as hydronic heaters and can be a considerable source of area air pollution.

Particulate pollution (PM, PM10, PM2.5): Also called particulate matter or PM, is the term for a mixture of solid particles and liquid droplets found in the air. Some particles such as dust, dirt, soot, or smoke, are large or dark enough to be seen with the naked eye. Others such as $PM_{2.5}$ and ultrafine particulate are so small they can only be detected using an electron microscope.

Pathophysiology: The functional changes that accompany a particular disease such as asthma.

Patient-centered care: Health care that establishes a partnership among practitioners, patients, and their families to ensure that decisions respect patients' wants, needs, and preferences and

that patients receive the education and support they need to make decisions and participate in their own care.

Peak Expiratory Flow (PEF): PEF or peak expiratory flow rate (PEFR) is the maximum flow rate generated during a forceful exhalation of air from the lungs measured with a peak flow meter; a small, hand-held device used to monitor a person's ability to breathe out air.

Prevalence: The proportion of individuals in a population who have the disease or condition of interest.

Primary care provider (PCP): A health care practitioner who sees people that have common medical problems. This person may be a physician, nurse practitioner or a physician's assistant.

Reducing Environmental Triggers of Asthma (RETA), Communities Reducing Environmental Triggers of Asthma (CRETA) and Housing and Urban Development (HUD-RETA): Minnesota based demonstration projects providing home interventions for children diagnosed with asthma. Home visits included education on medical self-management of asthma as well as identification of low cost environmental interventions in the home.

RETA-Home: Reducing Environmental Triggers of Asthma in the home is a free online training video developed by the MDH Asthma Program. **RETA-Home:** https://apps.health.state.mn.us/asthmahealthyhomes/

School Nurse Organization of Minnesota (SNOM): A professional statewide organization of licensed school nurses (LSN) who provide health care in Minnesota's schools.

Secondhand smoke (SHS): Also known as environmental tobacco smoke (ETS), it is a mixture of smoke from the burning end of a cigarette, pipe, or cigar and smoke exhaled by the smoker.

Self-management: Related to health, it is the decisions and behaviors that individuals engage in on a day-to-day basis that affect their health. It includes three self-management tasks--medical management, role management, and emotional management, and six self-management skills--problem solving, decision making, resource utilization, the formation of a patient-provider partnership, action planning, and self-tailoring. For people who have asthma, their medical self-management includes the ability to assess and appropriately react to changes in their asthma symptoms including when to seek help from their health care provider or emergency care.

State-wide Quality Reporting and Measurement System (SQRMS): The system of standardized quality measures reported by health care providers to the state to support Minnesota's health care reform efforts.

Surveillance: The discipline of continuously gathering, analyzing, and interpreting data about asthma or other diseases, and disseminating conclusions of the analyses to relevant organizations.

Rescue/reliever medication: A medication used when a person who has asthma is experiencing an escalation of symptoms (having an asthma episode). The medication is usually an inhaled bronchodilator such as albuterol which relaxes the muscles surrounding the airways.

Trigger: A substance, factor, or environmental condition that causes asthma symptoms or allergy symptoms to appear or worsen.

Volatile Organic (hydro) Carbons (VOCs): These are organic chemical compounds whose composition makes it possible for them to evaporate under normal indoor atmospheric conditions of temperature and pressure.

Wheezing: A high pitch whistling noise in the chest.

Wise transportation initiatives: Wise transportation includes but is not limited to initiatives such as retro-fits and engine upgrades for diesel trucks and buses, increased number of "no idling" policies, reduction of idle time during loading or unloading of trucks, expanded public transportation usage, use of cleaner transportation fuels, alternative powered vehicles, and the right-sizing of fleets.

Work-Aggravated Asthma: Preexisting asthma exacerbated by workplace exposures.

Work-related asthma (WRA): Asthma that develops after exposure to sensitizers or irritants in the workplace (new-onset asthma) or is aggravated by exposures in the workplace. The terms work-aggravated asthma (WAA) and work-exacerbated asthma (WEA) are interchangeable.

Acronyms

AAP – Asthma Action Plan

ACA – Affordable Care Act

AE-C – Certified Asthma Educator

ALAMN – American Lung Association of Minnesota

AQI – Air Quality Index

BRFSS – Behavioral Risk Factor Surveillance System

CDC – Centers for Disease Control and Prevention

CHW – Community Health Worker

COPD – Chronic Obstructive Pulmonary Disease

DHHS – U.S. Department of Health and Human Services DHS

– Minnesota Department of Human Services

ECHO – Emergency and Community Health Outreach

ED/ER – Emergency Department / Emergency Room

EHR – Electronic health (or medical) record

EMT – Emergency Medical Technician

EPA – U.S. Environmental Protection Agency

EPR – Expert Panel Report

FERPA - Family Educational Rights and Privacy Act

FQHC – Federally Qualified Health Center

HCMC – Hennepin County Medical Center

HCP – Health care professional

HEDIS – Health Plan Employer Data and Information Set

HIPAA - Health Insurance Portability and Accountability Act

HLAI – Healthy Learners Asthma Initiative

HUD – U.S. Department of Housing and Urban Development

ICS – Inhaled corticosteroid

ICSI – Institute for Clinical Systems Improvement

LPH – Local Public Health

LPHA – Local Public Health Association

LSN – Licensed School Nurse

MAC – Minnesota Asthma Coalition

MAMS – Managing Asthma in Minnesota Schools

MCSHN – Minnesota Children with Special Health Needs

MDE – Minnesota Department of Education

MDH – Minnesota Department of Health

MHA – Minnesota Hospital Association

MMWR – Morbidity and Mortality Weekly Report

MNCM – MN Community Measurement

MN OSHA – Minnesota Occupational Safety and Health Administration

MNSCU – Minnesota State Colleges and Universities

MnTAP – Minnesota Technical Assistance Program

MPHA – Minnesota Public Health Association

MPhA – Minnesota Pharmacists Association

NAAQS – National Ambient Air Quality Standards

NHLBI – National Heart, Lung, and Blood Institute

NIH – National Institutes of Health

NIOSH – National Institute for Occupational Safety and Health

NP – Nurse Practitioner

OSHA – U.S. Occupational Safety and Health Administration

PA – Physician Assistant

RETA – Reducing Environmental Triggers of Asthma

RRT – Registered Respiratory Therapist

SNOM – School Nurse Organization of Minnesota

UC – Urgent Care

UMN SPH – University of Minnesota School of Public Health

WIC- Women, Infants, and Children

WRA – Work-related asthma

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It is not possible for a single organization or agency to take on this effort alone, but with a shared vision and coordinated approach that is inclusive of the many stakeholders, Minnesota can continue to make progress and improve the health and quality of life for people with asthma.

American Academy of Pediatrics – Minnesota Chapter
American Lung Association in Minnesota
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Anoka County Community Health and Environmental Services
Association of Non Smokers' Rights MN
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Blue Cross Foundation
Centers for Disease Control and Prevention
Center for Global Environmental Education, Hamline University
Children's Defense Fund
Children's Health Network
Children's Hospital & Clinics of Minnesota
Clearway Minnesota
Common Bond Communities
Dakota County Public Health
Data Intelligence Consultants, LLC
Essentia Health
Grand Portage Tribal Nation
Great Lakes Inter-Tribal Epidemiology Center
Greater Minnesota Housing Fund
HealthPartners
Healthcare Information & Management Systems Society – Minnesota Chapter
Hennepin County Community Health Department
Hennepin County Medical Center
Hubbs Center, St. Paul Public Schools
Institute for Agriculture & Trade Policy (IATP)
Institute for Clinical Systems Improvement (ICSI)
Iverson Corner Drug, Bemidji, Minnesota
Mayo Health System
Metropolitan Council
Migrant Health Service
Mille Lacs Health System
Minneapolis Public Schools
Minnesota Academy of Family Physicians
Minnesota Academy of Physician Assistants
Minnesota Board of Cosmetologist Examiners
Minnesota Center for Environmental Advocacy
Minnesota Certification and Licensing Organizations
Minnesota Chamber of Commerce
Minnesota Community Health Worker Alliance
Minnesota Council of Health Plans
Minnesota Department of Agriculture
Minnesota Department of Education

Minnesota Department of Employment and Economic Development
Minnesota Department of Health
Alcohol and Tobacco Prevention and Control Unit
Center for Health Statistics
Center for Occupational Health & Safety
Child and Adolescent Health Unit
Environmental Health Division
Environmental Public Health Tracking Program
Health Care Homes Program
Health Economics Program
Immunization Program
Minnesota Department of Human Services
Minnesota Department of Public Safety
Minnesota Department of Transportation
Minnesota Educational Facilities Management Professionals
Minnesota Environmental Health Association
Minnesota Environmental Initiative
Minnesota Hospital Association
Minnesota Local Public Health Agencies
Minnesota Medical Association
Minnesota Nurses Association
Minnesota Occupational Safety and Health Consultation
Minnesota Pharmacists Association
Minnesota Pollution Control Agency
Minnesota Public Health Association
Minnesota Safety Council
Minnesota School Districts (K-12)
Minnesota Service Cooperatives
Minnesota Smoke-Free Coalition
Minnesota State High School League
Minnesota Tenants Union
Minnesota Tobacco Law Center
Minnesota Visiting Nurses Association
Minnesota's Schools of Cosmetology
National Association of Pediatric Nurse Practitioners – Minnesota Chapter
North Dakota State University School of Pharmacy
Olmsted Medical Center
Park Nicollet Health Services
St. Paul - Ramsey County Public Health Department
School Nurse of Minnesota Organization
Saint Paul College
Sustainable Resources Center
University of Minnesota
College of Pharmacy
Cold Climate Housing Program
Mn Technical Assistance Program (MnTAP)
School of Public Health
United States Department of Housing and Urban Development
United States Environmental Protection Agency
WellShare International
White Earth Tribal Nation