

Strategic Plan for Addressing Work-Related Asthma in Minnesota

Recommendations of the Work-Related Asthma Advisory Workgroup

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In June 2002, the Minnesota Department of Health (MDH) published the recommendations of the Commissioner's Asthma Advisory Work Group in a document called "A Strategic Plan for Addressing Asthma in Minnesota." The MDH Asthma Program received funding from the Centers for Disease Control and Prevention (CDC) in the fall of 2002 to implement this plan. However, this plan did not contain goals, objectives, or strategies to specifically address work-related asthma (WRA).

In 2005, the CDC reviewed the MDH Asthma Program activities and determined that Minnesota needed to incorporate WRA into the existing state plan in order to have a complete and comprehensive asthma program. Hence, in September 2005, Subha Chandar and Laura Oatman convened and facilitated an external advisory workgroup. This advisory workgroup was called the Work-Related Asthma (WRA) Advisory Workgroup and consisted of 17 members. This group was made up of union representatives, physicians, nurses, industrial hygienists, and government representatives (see Table 1). The workgroup came together for five meetings over seven months to discuss WRA in Minnesota.

The WRA Advisory Workgroup was charged with assessing the issues, determining the priorities, and making recommendations to deal with WRA including strategies to support asthma self-management and minimize exposures in the work environment. This strategic plan - goals, objectives, and strategies - is the product of the hard work, time, and commitment of the WRA Advisory Workgroup to fulfill this charge and provide recommendations to address WRA throughout Minnesota.

Table 1: Work Related Asthma (WRA) Advisory Workgroup Members

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What is asthma?

In the existing Minnesota asthma plan, asthma is defined as a complex chronic disease associated with inflammation of the airways in the lungs and narrowing of the airways (bronchial constriction or spasm) among adults and children. The symptoms are variable and, depending on medical management and environmental factors, may be severe and can even be fatal. Uncontrolled asthma may include wheezing, cough, shortness of breath, or chest tightness. The exact causes of asthma or the prevention of asthma are unclear. There is a higher chance of developing asthma if you have family members with asthma, but environmental factors certainly play a significant role. We do know how to control the symptoms and inflammation of asthma and there are ways to avoid environmental factors that aggravate or potentially cause asthma (MDH, 2002).

What is work-related asthma (WRA)?

According to the National Institute of Occupational Safety and Health, WRA is asthma that is caused or made worse by exposures in the workplace (DHHS, 2004). According to the CDC, WRA includes new-onset asthma caused by workplace exposure to sensitizers or irritants and preexisting asthma exacerbated by workplace exposures (CDC, 1999).

In the CDC Morbidity and Mortality Weekly Report on WRA in 1999, WRA encompasses two major categories of asthma that are described below. “These guidelines are not intended as the sole criteria for establishing clinical diagnoses; additional clinical, exposure, and laboratory data might be needed to establish a diagnosis of WRA” (CDC, 1999).

WRA Surveillance Categories

1. Work-Aggravated Asthma - preexisting asthma exacerbated by workplace exposures
2. New-Onset Asthma - asthma caused by workplace exposure to sensitizers or irritants
 - a) Reactive Airways Dysfunction Syndrome (RADS) - persistent asthma symptoms induced by a one-time, high-level irritant exposure at work
 - b) Occupational Asthma - classic sensitizer-induced asthma and irritant-induced asthma not meeting the Reactive Airways Dysfunction Syndrome (RADS) criterion

For purposes of this document, WRA encompasses all of the above.

What is going on nationally?

According to the American Thoracic Society, “15% is a reasonable estimate of the occupational contribution to the population burden of adult asthma” (ATS, 2003). In at least one out of every six asthmatics, their asthma is caused or made worse by workplace exposures. There are over 350 asthmagens. The Association of Occupational and Environmental Clinics maintains an updated list of asthmagens located at: www.aoc.org/aoccode.htm. The New York Health Department Web site provides two tables with information on occupational asthma triggers (New York Department of Health, 2006). These reference tables list common

occupational asthma triggers and the occupations where they are often encountered. The first table is sorted by workers at risk. The second table is sorted by agents in the workplace.

What is going on in Minnesota?

Data on the prevalence of asthma in Minnesota adults come from the Behavioral Risk Factor Surveillance Survey. The BRFSS is a joint CDC/state survey which asks adults 18 years and older about risk factors for chronic disease. This telephone survey is completed yearly among approximately 4,000 randomly-selected non-institutionalized adults age 18 years and older residing in Minnesota. In 2005, 11.8% of Minnesota adults (444,049 people) have ever been told by a doctor they have asthma (lifetime asthma prevalence) (CDC, 2005). Using the American Thoracic Society estimate of 15%, approximately 66,600 Minnesota adults have asthma that is attributable to occupational factors.

The Occupational Respiratory Disease Information System (ORDIS) was established by the 1998 Legislature to address concerns about occupational respiratory disease in northeastern Minnesota and eventually elsewhere in the state. ORDIS initially had two main areas of activity. One activity was a pilot test in NE Minnesota for a system to track the occurrence of occupational respiratory diseases such as asthma, asbestosis, and silicosis in the current workers. A follow-up study of the causes of death among approximately 70,000 former iron miners was later added as a third ORDIS activity. Neither of the latter two activities was completed before funding cuts and the repeal of ORDIS in early 2002.

A search of the DLI workers' compensation claims data shows that there were 19 work-related asthma indemnity claims from 2003-2005. An indemnity claim requires that the injured worker be disabled for more than three days. The workers' compensation database does not include most injury and illness cases which involve three days or less of disability. The Bureau of Labor Statistics' (BLS) Survey of Occupational Injuries and Illnesses shows that nationally, there were an estimated 450 cases of work-related asthma with days away from work recorded on OSHA logs in 2004. The BLS acknowledges that occupational diseases are generally undercounted/underreported in their survey.

Minnesota was one of three states that participated in the 2005 BRFSS National Asthma Survey. Approximately 10,000 Minnesota adults were interviewed using the standard BRFSS questionnaire. All adults who said they had ever been diagnosed with asthma were asked to participate in the follow-up National Asthma Survey. Four WRA questions were included in the asthma survey.

1. Was your asthma caused by chemicals, smoke, fumes, or dust in your current job?
2. Is your asthma made worse by chemicals, smoke, fumes, or dust in your current job?
3. Was your asthma caused by chemicals, smoke, fumes, or dust in any job you ever had job?
4. Was your asthma made worse by chemicals, smoke, fumes, or dust in any job you ever had?

Results from the National Asthma Survey should be available in late 2006.

Challenges

In the 2002 “A Strategic Plan for Addressing Asthma in Minnesota,” gaps in asthma information were identified. WRA was an area identified in that document as having an information gap. This gap still exists as can be seen from our current information on WRA nationally and in Minnesota. This is a common circumstance in states throughout the country. To overcome this challenge, CDC and other states have focused their efforts on programs to raise awareness and prevent exposure. This is not to say that data collection, surveillance, and research are not important, but that they can be conducted simultaneously with awareness programs. In Minnesota, the gap in WRA information was partially filled with the expertise and experience of the WRA Advisory Workgroup.

Results

The members of the WRA Advisory Workgroup offered expert anecdotal information to devise several strategies. Some themes that arose immediately from their experience included:

- Occupational physicians see people for WRA who frequently work for small “mom and pop” companies such as auto body shops and the cleaning industry.
- Smaller companies do not have the money to implement the changes required to protect their employees.
- Some workers who have WRA do not change jobs for economic reasons.
- Many employees do not notify their employer they are having problems.
- Because it is difficult to identify a specific injury date for WRA, it is difficult to claim under workers’ compensation.
- Only a small portion of WRA cases are recognized by physicians and reported, so workers’ compensation data are not useful because they under represent WRA data.
- This is a multifaceted concern: providers may not recognize WRA, employees may not notify anyone about respiratory problems, and insurance companies may not accept claims.
- Accommodations, such as application of Americans with Disabilities Act, are difficult to obtain.
- The hierarchy of controls may influence where our efforts will be applied and the impact these efforts will have.
- Minnesota and Wisconsin have similarities, such as types of industries, when it applies to WRA.
- Good WRA management tools are needed.

It was difficult for the advisory workgroup to develop goals, objectives, and strategies with the limited existing data we described earlier. Therefore, MDH suggested four assumptions to encourage the progress of the advisory workgroup. They were:

1. Minnesota does not have state-specific surveillance data on WRA, although we have information from other states
2. We will not be receiving this kind of detailed WRA data anytime soon
3. We have expert anecdotal information on WRA
4. We have access to general information on Minnesota workplaces such as types of businesses and numbers of these establishments

Ultimately, the WRA Advisory Workgroup identified three main goals for WRA activities in the state:

1. Increase awareness about WRA and about identifying and documenting WRA
2. Improve information on WRA in Minnesota to tailor interventions
3. Reduce exposure to asthmagens

The goals objectives and strategies are summarized in Table 2 and the logic model (see Appendix A). These items are not listed in order of importance; the highest priority is not necessarily listed first. The advisory workgroup also provided the names of numerous organizations that should be involved the implementation of any WRA activity in Minnesota. These organizations were summarized in Table 2 along with the objectives and strategies recommended by the advisory workgroup to achieve the WRA goals mentioned above.

Table 2: Minnesota Work-Related Asthma Strategic Plan

Goals & Objectives	Strategies	Potential Supporting Organizations
<p>Goal #1 - Increase awareness about WRA and about identifying and documenting WRA</p>		
<p>a. Promote use of existing resources to identify asthmagens in order to implement control measures in the work place</p>	<p>1. Identify existing informational resources on asthmagens such as</p> <ul style="list-style-type: none"> • National Institute for Occupational Safety and Health (NIOSH) • U.S. Occupational Safety and Health Administration (OSHA) • Asmanet.com occupational asthma Web site • Air Toxics Emission Inventory <p>2. Promote these resources and their use to business owners, employers, health and safety staff of:</p> <ul style="list-style-type: none"> • Salons • Auto body shops • Paint shops • Other at-risk settings identified in State Profile (see Goal 2 Objective a) 	<p>Minnesota state government agencies</p> <p>Federal government agencies</p> <p>Unions</p> <p>Local chapters of occupational health & safety organizations</p> <p>Minnesota health plans</p> <p>Minnesota hospitals and clinics</p> <p>Academic institutions and programs</p> <p>Health, environment and safety consulting organizations</p>

Goals & Objectives	Strategies	Potential Supporting Organizations
<p>b. Develop and provide learning opportunities on WRA for health and safety staff who serve Minnesota businesses and workers</p>	<ol style="list-style-type: none"> 1. Develop a training program that encourages documentation of WRA and appropriate follow-up 2. Improve existing educational materials to supplement the training program 3. Provide seminars for health and safety staff 	<p>Minnesota health plans Minnesota hospitals and clinics Local chapters of occupational health & safety organizations Academic institutions and programs Continuing education, certification, and licensing organizations Minnesota state government agencies Unions Business associations Non-profit/Private health and safety organizations</p>

Goals & Objectives	Strategies	Potential Supporting Organizations
<p>c. Develop and provide learning opportunities on WRA for health care providers including emergency department staff, nurse practitioners, physician assistants, community health clinics and others</p>	<ol style="list-style-type: none"> 1. Incorporate WRA into emergency physician conference through Hennepin County Medical Center or Regions Hospital 2. Incorporate WRA into one-day conference for family practice residents/primary care providers 3. Develop or modify an existing tool for assessing WRA that addresses cultural and/or language disparities 4. Submit WRA articles to publications for Minnesota health care providers 5. Provide seminars for medical students, occupational nurses, and/or occupational medicine 6. Present WRA at hospital grand rounds 	<p>Minnesota health plans Minnesota hospitals and clinics Local chapters of occupational health & safety organizations Academic institutions and Programs Continuing education, certification, and licensing organizations Minnesota state government agencies Minnesota health care provider associations</p>
<p>d. Develop and promote tools for community organizers, workers, employers, unions and others to identify asthma caused or aggravated by the work environment</p>	<ol style="list-style-type: none"> 1. Develop tool for identifying WRA including how to distinguish it from adult asthma 2. Develop self-assessment tool for identifying WRA 3. Identify community organizers, workers, employers, unions and others who encounter WRA 4. Promote tools to identified audiences who encounter WRA 	<p>Minnesota state government agencies Unions Minnesota health care provider associations Minnesota health plans Minnesota hospitals and clinics</p>

Goals & Objectives	Strategies	Potential Supporting Organizations
Goal #2 – Improve information on WRA in Minnesota to tailor interventions		
a. Create a State Profile of risk factors for WRA using existing data to guide strategic plan activities	<ol style="list-style-type: none"> 1. Include existing data on the incidence of WRA, such as workers’ compensation claims 2. Gather existing work place exposure data from Minnesota OSHA 3. Gather information on WRA activities and data from other states and determine if they are applicable to Minnesota 4. Identify occupations or industries where asthmagens may be found 5. Generate a list of asthmagens used in Minnesota and existing substitution programs 6. Summarize 1 through 5 into a State Profile 	<p>Minnesota health plans Minnesota hospitals and clinics Academic institutions and programs Minnesota state government agencies Unions</p>
b. Promote data searches and/or needs assessments on WRA by other organizations including health plans, workers’ compensation insurers, unions, post-secondary schools, and government agencies	<ol style="list-style-type: none"> 1. Work with health plans and workers’ compensation insurers to search their records for WRA cases 2. Work with unions to search their records for WRA cases or conduct a needs assessment of their members 3. Survey occupational health care providers to obtain WRA trends 	<p>Minnesota health plans Minnesota hospitals and clinics Academic institutions and programs Minnesota state government agencies Unions Minnesota health care provider</p>

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Goals & Objectives	Strategies	Potential Supporting Organizations
c. Develop model policies for reporting WRA to the State	1. Review policies and regulations for reporting WRA in other states 2. Encourage addition of WRA as a reportable disease in Minnesota	ALL
Goal #3 – Reduce exposure to asthmagens		
a. Develop model partnerships to facilitate innovative interventions	1. Support Minnesota OSHA Consultation alliances with industries or businesses to implement hierarchy of controls <ul style="list-style-type: none"> • Identify current relationships that OSHA Consultation has with businesses and evaluate efficacy of current alliances • Work with Minnesota OSHA to identify opportunities for new alliances • Work with Minnesota OSHA to incorporate WRA as appropriate into existing alliances 2. Identify and encourage potential partners among businesses, agricultural industry, unions, environmental groups, nonprofit organizations, and others to reduce asthmagens mentioned in the State Profile using the hierarchy of controls used by schools, service industry, health care organizations and others 3. Identify and encourage partnerships that implement hierarchy of controls for cleaning products used by schools, service industry, health care organizations and others <ul style="list-style-type: none"> • Identify specific districts/businesses that use environmentally preferable products • Explore existing partnerships that accomplish this 	Minnesota state government agencies Federal government agencies Unions Local chapters of occupational health & safety organizations Minnesota hospitals and clinics Academic institutions and programs Manufacturers of cleaning products Local & national agricultural trade associations Environmental groups

	<ul style="list-style-type: none"> •Select one of these settings to implement a substitution program •Partner with hospital association for education around chemical hazards in the work environment •Partner with cleaning products manufacturers for education of customers •Partner with minority and multicultural organizations to educate workers especially service and health care workers 	Non-profit/private health organizations
Goals & Objectives	Strategies	Potential Supporting Organizations
b. Promote existing product substitution programs	<ol style="list-style-type: none"> 1. Talk to manufacturers about existing environmentally preferable products and national certification to encourage production of environmentally preferable products 2. Promote substitution programs identified in State Profile (see Goal 2 Objective a) and model profile strategies 3. Promote model contract language for purchasing and use of environmentally preferable products 	<p>Minnesota state government agencies</p> <p>Academic institutions and programs</p> <p>Unions</p> <p>Environmental groups</p> <p>Manufacturers of cleaning products</p>
c. Incorporate WRA educational materials, prevention messages and assessment tools into existing education programs	<ol style="list-style-type: none"> 1. Incorporate WRA into Minnesota State Colleges & Universities (MNSCU) courses for occupations and industries where asthmagens may be found 2. Incorporate WRA into University of Minnesota School of Public Health courses 3. Incorporate WRA into <ul style="list-style-type: none"> • Certification courses • Continuing education • Continuing licensure 	<p>Local chapters of occupational health & safety organizations</p> <p>Academic institutions and programs</p> <p>Minnesota health care provider associations</p> <p>Minnesota health professional schools & training programs</p>

	<p>4. Incorporate WRA into trainings provided by unions to their members</p> <p>5. Incorporate WRA into medical school, nursing, & pharmacy curricula</p>	Continuing education, certification, and licensing organizations
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Goals & Objectives	Strategies	Potential Supporting Organizations
d. Promote organizational policy changes	<p>1. Support adoption of policies to utilize tools to identify WRA in businesses and industries identified in State Profile (see Goal 2 Objective a)</p> <p>2. Notification and hazard communication of asthmagen use/application by workers at multi-employer work sites</p> <ul style="list-style-type: none"> • Contact Minnesota OSHA to determine if this is addressed by the hazard communication rule • Promote placard notification <p>3. Promote development of new environmentally preferable products by manufacturers</p> <ul style="list-style-type: none"> • Explore public recognition program • Promote model contractual language to require <p>4. Promote model contract language for purchasing and use of environmentally preferable products</p>	<p>Minnesota state government agencies</p> <p>Minnesota health care provider associations</p> <p>Unions</p>

Recommendations of the WRA Advisory Workgroup

Because it would take extensive resources to accomplish all of the activities in Table 2, each advisory workgroup member was given the opportunity to vote for the objectives they felt were the most important. The objectives receiving the most votes were:

1. Develop and promote tools for community organizers, workers, employers, unions and others to identify asthma caused or aggravated by the work environment (Objective 1d)
2. Create a State Profile of risk factors for WRA using existing data to guide strategic plan activities (Objective 2a)

3. Promote use of existing resources to identify asthmagens in order to implement control measures in the work place (Objective 1a)
4. Develop model partnerships to facilitate innovative interventions (Objective 3a)
5. Develop and provide learning opportunities on WRA for health and safety staff who serve Minnesota businesses and workers (Objective 1b)

MDH will continue to work with the WRA Advisory Workgroup and partner with the potential supporting organizations they identified to implement activities in these priority areas. MDH will also be updating the “Strategic Plan for Addressing Asthma in Minnesota” for the next five years and incorporate these WRA goals, objectives, and strategies into this revision.

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New York Department of Health. Occupational Asthmagens; 2006. Retrieved from: <http://www.health.state.ny.us/nysdoh/lung/toolkit/asthmagens.htm>

Other Work-Related Asthma Resources

American Thoracic Society. Guidelines for Assessing and Managing Asthma Risk at Work, School, and Recreation. Am J Respir Crit Care Med 2004; 169: 873-881.

Asmapro, a web server for occupational asthma. Retrieved from: www.asmanet.com

Association of Occupational and Environmental Clinics. AOEC Exposure Codes; 2006. Retrieved from: <http://www.aoec.org/aoeccode.htm>

United States Centers for Disease Control and Prevention (CDC), Asthma and Allergies Web site. Retrieved from: <http://www.cdc.gov/health/asthma.htm>

Work-Related Asthma; links to selected state asthma plans that address WRA:

California Department of Health Services: <http://www.dhs.ca.gov/ps/cdic/caphi/documents/Final%20Strategic%20Plan.pdf>

Connecticut Department of Public Health: http://www.dph.state.ct.us/BCH/new_asthma/pdf/asthma_%20plan_2005.pdf

Michigan Department of Community Health: http://getastmahelp.com/AIM_Strategic_Plan6%2706.pdf

Wisconsin Department of Health and Family Services: <http://dhfs.wisconsin.gov/eh/Asthma/pdf/WAPcomplete.pdf>

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Minnesota Department of Health staff:

Subha Chandar, MPH, Prevention Specialist from the CDC Public Health Prevention Service – Provided skills in public health planning and facilitation to ensure the success of the WRA Advisory Workgroup.

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Sally Sabathier, Program Support Staff for the MDH Asthma Program – Ensured that all of the WRA Advisory Workgroup meetings went smoothly, and prepared all the materials and supplies for the meetings.

Acronyms

BRFSS – Behavioral Risk Factor Surveillance Survey

CDC – Centers for Disease Control and Prevention
HCMC – Hennepin County Medical Center
MDH – Minnesota Department of Health
MMWR – Morbidity and Mortality Weekly Report
Minnesota OSHA – Minnesota Occupational Safety and Health
MNSCU – Minnesota State Colleges and Universities
NIOSH – National Institute for Occupational Safety and Health
ORDIS – Occupational Respiratory Disease Information System
OSHA – U.S. Occupational Safety and Health Administration
RADS – Reactive Airways Dysfunction Syndrome
WRA – work-related asthma

Glossary

Air Toxics Emission Inventory – Air toxics are substances known or suspected to cause cancer or other serious health effects at elevated levels. An air toxics emission inventory is a compilation of air toxics emission estimates from a wide variety of sources.

Asthmagens – Agents in the workplace that may cause or worsen asthma. These include triggers, sensitizers, or irritants

Environmentally preferable products – Products that have a lesser or reduced effect on human health and the environment when compared to competing products that serve the same purpose.

Health and safety staff – Any staff person who is responsible for developing and implementing health & safety programs.

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

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

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.

Model Partnership – A relationship between two organizations identified by the WRA Advisory Workgroup to serve as a demonstration of an innovative approach to address WRA for future interventions.

New-Onset Asthma - Asthma caused by workplace exposure to sensitizers or irritants.

Occupational Asthma - Classic sensitizer-induced asthma and irritant-induced asthma not meeting the Reactive Airways Dysfunction Syndrome (RADS) criterion

OSHA Consultation Alliances – Minnesota OSHA Workplace Safety Consultation Program provides consultation services to help employers prevent accidents and diseases through several employer-assistance programs. OSHA Consultation establishes partnerships with organizations committed to workplace safety and health to prevent injuries and illnesses in the workplace. Workplace Safety Consultation and its allies work together to reach out to, educate, and lead Minnesota employers and their employees in improving and advancing workplace safety and health.

Potential Supporting Organizations – Agencies identified by the WRA Advisory Workgroup that should be involved in the implementation of WRA strategies throughout the state.

Reactive Airways Dysfunction Syndrome (RADS) – Persistent asthma symptoms induced by a one-time, high-level irritant exposure at work.

State Profile – A document reviewing information on business, industry, and agriculture and worker health in Minnesota specifically addressing risk factors and asthmagens associated with work-related asthma to guide strategic plan activities (see Goal #2, Objective a).

Trigger – A substance or environmental condition that causes asthma or allergy symptoms to appear.

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

Work-related asthma – Asthma that is caused (RADS or OA) or aggravated (work-aggravated asthma) by exposures in the workplace

Work-Related Asthma Strategic Plan – Logic Model

Inputs	Activities	Outputs	Activities	Short-term Outcomes	Intermediate Outcomes	Long-term Outcomes
<p>Advisory Workgroup</p> <p>WRA Reports/Activities/Products from federal agencies, other states and countries</p> <p>Available Minnesota economic and health data</p>	<p>Develop partnerships with potential supporting organizations</p> <p>Promotion of the strategic plan</p> <p>Promotion of existing asthmagens & WRA information resources</p> <p>Health care provider trainings</p> <p>Promote data searches and data gathering</p>	<p>State Profile</p> <p>Self-assessment tool</p> <p>WRA versus Adult Asthma education tool</p>	<p>Promote substitution programs and environmentally preferable products</p> <p>Health and Safety staff training</p> <p>Hierarchy of Controls education</p> <p>Incorporation of WRA tools & info into existing professional training programs</p> <p>Policy research</p> <p>Develop model partnerships</p>	<p>Increase awareness about WRA and about identifying and documenting WRA</p>	<p>Improve information on WRA in Minnesota to tailor interventions</p> <p>Adoption of tools and hierarchy of controls principle</p> <p>Use of environmentally preferable products</p> <p>Policy development and implementation</p>	<p>Reduce exposure to asthmagens in Minnesota</p>