

Health Priority: Environmental and Occupational Health Hazards Objective 2: Respiratory Diseases (Template)

Long-term (2010) Subcommittee Outcome Objective:

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

2a: By 2010, reduce the asthma hospitalization rate to 8.5 per 10,000 from the 2000 baseline asthma hospitalization rate of 10.6 per 10,000.

2b: Reduce public exposures to indoor radon in all buildings with radon concentrations >4 pCi/L in occupied spaces.

2c: By 2010, reduce occupational mesothelioma illness and death by 30 percent, below the 2000 baseline.

2d: By 2010, reduce occupational pneumoconiosis illness and death by 30 percent, below the 2000 baseline.

Long-term outcome objective updated as of: Sept 2004

| Wisconsin Baseline | Wisconsin Sources and Year |
|---|--|
| 2a. The 2000 age-adjusted asthma hospitalization rate for Wisconsin Residents is 10.6 asthma hospitalizations per 10,000 population. | 2a. 1990-2002 Inpatient Hospital Discharge Data, Bureau of Health Information, Division of Health Care Financing, Department of Health and Family Services (DHFS) |
| 2b. All data are estimates, as there is not a formal data collection program for this issue. Data are voluntarily gathered from radon-mitigation contractors. | 2b. Bureau of Environmental Health and Occupational Health, Division of Public Health, DHFS/Radon Program http://www.dhfs.wisconsin.gov/dph_beh/RadonProt |
| 2c. The incidence rate for mesothelioma in 2000 was 18 per million residents. | 2c. Bureau of Environmental Health and Occupational Health, Division of Public Health, DHFS /Hospital Discharge Data; Tumor Registry |
| 2d. The occupational population adjusted total hospitalization rate for pneumoconiosis in 2000 was 50 per million residents. | 2d. Bureau of Environmental Health and Occupational Health, Division of Public Health, DHFS /Hospital Discharge Data |

Refer to Appendix B for additional detail.

| Federal/National Baseline | Federal/National Sources and Year |
|--|---|
| See Appendix A - Reduction in air pollutants baseline and target data. | <i>Healthy People 2010</i> , November 2000, USDHHS cites the following sources for this baseline data: Aerometric Information Retrieval System, Environmental Protection Agency, Office of Air and Radiation |
| See Appendix A - Allergen baseline and target data. | <i>Healthy People 2010</i> , November 2000, USDHHS cites the following sources for this baseline data: National Survey of Lead and Allergens in Housing, National Institute of Environmental Health Sciences, and U.S. Department of Housing and Urban Development |

| Federal/National Baseline | Federal/National Sources and Year |
|--|---|
| 2,928 pneumoconiosis deaths among persons aged 15 years and older occurred in 1997. | <i>Healthy People 2010</i> , November 2000, USDHHS cites the following sources for this baseline data: National Surveillance System for Pneumoconiosis Mortality (NSSPM), Centers for Disease Control and Prevention (CDC), National Institute for Occupational Safety and Health |
| See Appendix A – Reduce asthma deaths baseline and target data | <i>Healthy People 2010</i> , November 2000, USDHHS cites the following sources for this baseline data: National Vital Statistics System (NVSS), CDC, National Center for Health Statistics (NCHS) |
| 27% of children aged 6 years and under lived in a household where someone smoked inside the house at least 4 days per week in 1994. Target: 10% | <i>Healthy People 2010</i> , November 2000, USDHHS cites the following sources for this baseline data: National Health Interview Survey (NHIS), CDC, NCHS |
| 65% of nonsmokers aged 4 years and older had a serum cotinine level above 0.10 ng/mL in 1988-94 (age adjusted to the year 2000 standard population). | <i>Healthy People 2010</i> , November 2000, USDHHS cites the following sources for this baseline data: National Health and Nutrition Examination Survey (NHANES), CDC, NCHS |

| Related USDHHS Healthy People 2010 Objectives | | | |
|--|---|-------------------------|--|
| Chapter | Goal | Objective Number | Objective Statement |
| 8 – Environmental Health | Promote health for all through a healthy environment. | 8-1 | Reduce the proportion of persons exposed to air that does not meet the U.S. Environmental Protection Agency’s health-based standards for harmful air pollutants. |
| | | 8-16 | Reduce indoor allergen levels. |
| | | 8-17 | (Developmental) Increase the number of office buildings that are managed using good indoor air quality practices. |
| | | 8-20 | (Developmental) Increase the proportion of the Nation’s primary and secondary schools that have official school policies ensuring the safety of students and staff from environmental hazards, such as chemicals in special classrooms, poor indoor air quality, asbestos, and exposure to pesticides. |

| Related USDHHS Healthy People 2010 Objectives | | | |
|--|--|-------------------------|---|
| Chapter | Goal | Objective Number | Objective Statement |
| | | 8-21 | (Developmental) Ensure the State health departments establish training, plans, and protocols and conduct annual multi-institutional exercises to prepare for response to natural and technological disasters. |
| 20- Occupational Safety and Health | Promote the health and safety of people at work through prevention and early intervention. | 20-4 | Reduce pneumoconiosis deaths. |
| 24- Respiratory Diseases | Promote respiratory health through better prevention, detection, treatment, and education efforts. | 24-1 | Reduce asthma deaths. |
| 27 – Tobacco Use | Reduce illness, disability, and death related to tobacco use and exposure to secondhand smoke. | 27-9 | Reduce the proportion of children who are regularly exposed to tobacco smoke at home. |
| | | 27-10 | Reduce the proportion of nonsmokers exposed to environmental tobacco smoke. |

| Definitions | |
|------------------------------|---|
| Term | Definition |
| Allergen | A substance capable of inducing allergy or specific hypersensitivity. |
| Cumulative health risk | Health risk associated with exposures of concern occurring by multiple simultaneous routes of exposure, such as inhalation, ingestion of food, water, or soil, and dermal uptake. |
| Hypersensitivity pneumonitis | Inflammation of the lungs characterized by an exaggerated response to a foreign agent; this condition is commonly found in agricultural workers. |
| MSHA | Mine Safety and Health Administration, an agency within the U.S. Department of Labor. |

| Definitions | |
|---------------------------------------|--|
| Term | Definition |
| OSHA | Occupational Safety and Health Administration, an agency within the U.S. Department of Labor. |
| Respiratory diseases - pneumoconiosis | Respiratory condition characterized by tissue fibrosis caused by permanent deposition of inorganic particulate matter in the lungs; this condition is most frequently encountered among persons occupationally exposed to dust containing asbestos, coal, and/or silica. |
| Toxic release inventory (TRI) | Federal database compiled by the U.S. Environmental Protection Agency containing information on toxic chemical releases and other waste management activities reported annually by some industrial sectors and federal facilities. |

Rationale:

Despite advances in exposure assessment, diagnosis and treatment, respiratory disease continues to be a major contributor to illness and death related to exposures in the workplace and from environmental sources. While the numbers of new cases of many of the respiratory diseases chiefly associated with occupational dust exposure have declined in recent decades, the incidence of asthma has increased, most notably among urban populations.

Asthma is a chronic condition marked by intense, recurrent attacks of bronchial contraction. Described by one five-year-old asthma sufferer as feeling like “a fish with no water,” asthma attacks can be fatal. While asthma symptoms can arise with little or no provocation, they are often associated with particular triggers, such as exercise, exposure to a biological or chemical irritant or sensitizer, or psychological stress. Commonly encountered asthma triggers include exposure to particulate matter, ozone, insect antigens, and environmental tobacco smoke. It has been estimated that 7 percent of adults and 9 percent of children have been told by a physician that they have asthma (DHFS, 1999). According to national data, the asthma-related mortality rate doubled between 1975 and 1994 (MMWR, 1998). Reducing mortality and hospitalization rates from asthma represent critical goals for Wisconsin in assessing progress in decreasing the burden of respiratory disease. Data collected during the 1996 Summer Olympics in Atlanta suggests that reducing pollution from motor vehicle traffic can lower the incidence of asthma-related health events (Freidman, 2001). However, it is also clear that a sustained reduction in hospitalization and mortality from asthma is likely to be achieved by increasing the availability of appropriate primary healthcare among asthmatics and those populations most at risk for asthma.

The number of new cases of fibrotic dust-related lung diseases such as silicosis and asbestosis have declined in recent decades. The national mortality rate for asbestosis, however, has continued to increase over the past two decades, and the mortality rate for silicosis has remained relatively unchanged in recent years, according to national data (NIOSH, 1999). Surveillance efforts at the Marshfield Clinic have generated useful insights into the occurrence of hypersensitivity pneumonitis among Wisconsin farm workers. There is a growing body of literature documenting the prevalence of acute and chronic respiratory diseases and dysfunction among poultry and swine workers from exposures in animal confinement facilities (ISU/UI Study Group, 2002). These findings demonstrate the value of a statewide surveillance system for

respiratory diseases, especially among farmers whose work-related symptoms are generally not reported to the Occupational Safety and Health Administration because of the small number of employees per operation.

Cancer of the lung remains one of the most lethal forms of the disease, and exposures in the workplace and from the environment are important contributors. Exposure to radon—a colorless, odorless gas that occurs naturally in homes across Wisconsin and elsewhere—is the leading modifiable cause of lung cancer among non-smokers. Given the important focus on tobacco use as the chief cause of lung cancer, convincing homeowners to test their homes for radon and take remediative action to reduce levels of radon in indoor air is a difficult task for the environmental health community. New regulations from the U.S. Environmental Protection Agency for radon in drinking water have taken an innovative approach: encouraging utilities to lead campaigns to reduce radon in indoor air (to which radon in water is a small contributor) in the homes of their customers. Novel regulatory approaches such as this may bring about desired reductions in health risk that can have appreciable benefit within the public health system.

In addition to these conditions and contaminants, new opportunities for preventing respiratory disease remain on the horizon. Issues such as health risks associated with asbestos-containing vermiculite insulation, the relationship between environmental and indoor air contaminants and cardiovascular mortality, and concerns about air quality in commercial air travel pose challenges that typify the work ahead in recognizing and addressing determinants of respiratory disease in our communities.

Outcomes:

Short-Term Outcome Objective (2002-2004)

- Increase recognition of occupational and environmental respiratory disease hazards in the residential dwelling service industry (e.g., realtors, lenders, inspectors, construction trades).
- Increase motivation to reduce risks to naturally occurring or man-made contaminants.
- Increase awareness of policymakers and the public.
- Increase awareness among targeted populations such as schools.
- Establish a comprehensive asthma surveillance program.
- Increase awareness of engineering controls and personal protective equipment.
- Increase the number of contact hours in medical, nursing, and related curricula on occupational and environmental respiratory disease.
- Develop a comprehensive state asthma plan.
- Increase the availability of scientific information written to be accessible to the public.
- Increase the role of occupational and environmental respiratory disease as an evaluation component in assessing community health needs.

Inputs: *(What we invest – staff, volunteers, time money, technology, equipment, etc.)*

- Health educators
- Partners in residential service industry
- State and local health departments
- Tribes
- State legislature and local units of government

- Media
- K-12 and preschool educators
- Educational administrators
- State and local public health staff
- Resources to carry out surveillance activities
- Labor unions
- Public and private sector employers
- Federal and state agencies
- Academic partners
- Department of Regulation and Licensing
- Community-based organizations

Outputs: *(What we do – workshops, meetings, product development, training. Who we reach-community residents, agencies, organizations, elected officials, policy leaders, etc.)*

Activities:

- Development and dissemination of information for residential service industry professionals to provide for appropriate guidance and intervention.
- Provide useful comparative information on equality of benefit in reducing risk associated with radon and other contaminants.
- Increased willingness to use legislative process to bring about steps to reduce occupational and environmental respiratory disease.
- Improved curriculum emphasis and improved staff training on air pollutants.
- Increased quality and quantity of data on statewide asthma prevalence.
- Increased inclination to use product substitution, worker isolation, ventilation and respiratory protection when appropriate as hazard control strategies.
- Heightened awareness and competence with occupational and environmental respiratory disease and associated risk factors among healthcare practitioners.
- Organized framework for developing and assessing asthma prevention and intervention efforts.
- Increased effectiveness in disseminating information among individuals and communities.
- Better coordination in assessing community health needs related to occupational and environmental respiratory disease.

Participation/Reach:

- Citizens
- Healthcare and child care providers
- Policymakers
- Public institutions
- Private and non-profit organizations
- Business
- Schools
- Faith communities

- Home owners
- Industry
- Health agencies
- Federal government
- Tribes
- Laboratory staff
- Labor unions

Medium-Term Outcome Objective (2005-2007)

- Increase the number of buildings constructed and operated to meet indoor air quality guidelines.
- Reduce excesses of occupational and environmental standards through voluntary and enforcement efforts.
- Reduce industrial use and discharge of respiratory hazards.
- Increase appropriate use of engineering controls and personal protective equipment.
- Increase awareness of occupational and environmental respiratory disease among communities, healthcare providers, and individuals.
- Increase access to knowledgeable healthcare providers and information sources.
- Increase the adoption of practice guidelines for occupational and environmental respiratory disease.
- Increase the use of uniform case definition and diagnostic protocols for respiratory disease.
- Increase timely availability of data relevant to respiratory hazards and diseases.
- Increase the use and availability of disease and hazard coding systems relative to occupational and environmental respiratory diseases.
- Increase local and regional public health capacity and training relative to occupational and environmental respiratory disease.
- Increase community access to knowledgeable healthcare providers and information sources.
- Increase use of accurate and precise methods for assessing cumulative health risk from respiratory hazards.

Inputs: *(What we invest – staff, volunteers, time money, technology, equipment, etc.)*

- Building inspectors
- Construction trade workers
- State and local agencies
- State and local health departments
- Tribes
- Public and private sector employers
- Labor unions
- Federal, state, and local government
- Federal and state agencies
- Industries
- Public and private sector employers
- Agricultural organizations
- Health education staff

- Community-based organizations (e.g., American Lung Association)
- Resources to disseminate the message to the public
- Healthcare providers
- Healthcare practitioners
- Professional healthcare organizations
- Physicians and other healthcare practitioners
- State health department
- Academic sector

Outputs: (*What we do – workshops, meetings, product development, training. Who we reach-community residents, agencies, organizations, elected officials, policy leaders, etc.*)

Activities:

- Decrease exposure to contaminants, conditions, and organisms associated with respiratory disease and illness.
- Fewer workers and citizens at risk of respiratory disease from elevated exposure.
- Reduce consumption of materials and products associated with respiratory disease risks.
- Reduce in exposure to persons exposed to occupational and residential settings.
- Formulate public health messages targeted to appropriate populations.
- Increase quality and quantity of information on occupational and environmental health for guidance and intervention and to the public on occupational and environmental respiratory disease.
- Achieve consensus on guidance for diagnosing and managing occupational and environmental respiratory disease.
- Increase confidence by data users in morbidity data on occupational and environmental respiratory disease.
- Increase ability to track respiratory disease and related exposures in Wisconsin.
- Strengthen ability of data systems to capture respiratory disease diagnoses with accuracy and specificity.
- Improve capacity for guidance and intervention on occupational and environmental respiratory disease in Wisconsin localities.
- Improve quality and quantity of information provided to the public on occupational and environmental respiratory disease.
- Improve methodology for health and environmental analyses on which to base community decisions about respiratory hazards.

Participation/Reach:

- Citizens
- Healthcare and child care providers
- Policymakers
- Public institutions
- Private and non-profit organizations
- Business

- Schools
- Faith communities
- Home owners
- Industry
- Health agencies
- Tribes
- Federal government
- Laboratory staff
- Labor unions

Long-term Outcome Objectives (2008-2010)

- Reduce exposure to environmental and occupational determinants that contribute to respiratory disease.
- Increase the percentage of people with respiratory disease who manage their disease in accordance with recommended practices.
- Increase accurate and appropriate diagnosis of occupational and environmental respiratory disease.
- Achieve full integration of data on respiratory hazards and occupational and environmental respiratory disease to accomplish optimal surveillance.
- Reduce the number of communities disproportionately affected by respiratory hazards.

Inputs: *(What we invest – staff, volunteers, time money, technology, equipment, etc.)*

- Federal, state, and local government
- Labor unions
- Local health departments
- Community-based organizations
- Professional organizations
- Healthcare providers
- K-12 educators and administrators
- Professional healthcare organizations
- Academic sector
- State and local health departments
- Tribes
- Wisconsin Department of Natural Resources
- Laboratories
- Hospitals and healthcare organizations
- Local and regional planners

Outputs: *(What we do – workshops, meetings, product development, training. Who we reach-community residents, agencies, organizations, elected officials, policy leaders, etc.)*

Activities:

- Reduction in mean and peak exposures to determinants of occupational and environmental respiratory disease.

- Fewer emergency room and acute care visits related to asthma and other respiratory diseases.
- Increased compliance with medication and exposure avoidance strategies.
- Greater percentage of affected individuals with access to appropriate treatment.
- Increased ability to detect and intervene when acute exposures of concern arise.
- Increased ability to identify, specify and quantify exposure-response relationships in populations at risk for respiratory disease.
- Reduce burden of respiratory disease in communities most seriously affected.

Participation/Reach:

- Citizens
- Healthcare and child care providers
- Policymakers
- Public institutions
- Private and non-profit organizations
- Business
- Schools
- Faith communities
- Home owners
- Industry
- Health agencies
- Tribes
- Federal government
- Laboratory staff
- Labor unions

Evaluation and Measurement

Progress toward this objective may be measured to a limited degree by monitoring existing data sources on hospital discharges, asthma mortality, toxic release inventory, and federal OSHA and MSHA inspection data. Development of new systems to track data on asthma incidence and occupational and environmental exposures to respiratory hazards will be required in order to assure that substantive progress toward the achievement of this objective.

Crosswalk to Other Health and System Priorities in Healthiest Wisconsin 2010

Tobacco Use and Exposure: Restriction on the use of tobacco in public places, for example, may impact the respiratory health of individuals who are currently exposed to tobacco smoke in the workplace. The risk of lung cancer from radon and asbestos is significantly increased among smokers.

Integrated Electronic Data and Information Systems: Developing data systems that capture information on respiratory disease and related exposures will be critical in identifying exposure-response relationships related to environmental and/or occupational determinants.

Significant Linkages to Wisconsin's 12 Essential Public Health Services

This objective relates most directly to two essential public health services: the identification, investigation, control, and prevention of environmental health hazards; and the enforcement of laws and regulations related to health and safety.

Identify, investigate, control, and prevent health problems and environmental health hazards in the community: Given the direct relationship between environmental and occupational exposures such as radon, environmental tobacco smoke, silica and asbestos, and respiratory disease, environmental intervention is essential if the burden of respiratory disease is to be reduced.

Enforce laws and regulations that protect health and insure safety: While effective occupational and environmental standards exist for many substances and work practices, the enforcement of these standards remains wholly too inadequate to protect those most at risk for respiratory disease.

Connection to the Three Overarching Goals of Healthiest Wisconsin 2010

Protect and promote health for all: The importance of reducing respiratory disease to promote and protect health for all is illustrated in a study demonstrating that reduction in air pollution from motor vehicle traffic in Atlanta during the 1996 Summer Olympics corresponded to a 40 percent reduction in asthma acute care events (Friedman, 2001). These results and similar findings elsewhere demonstrate that reduction in respiratory hazards can equate to a population-wide improvement in health.

Eliminate health disparities: Like other types of conditions, respiratory disease is unevenly distributed across the state's population. The presence of particularly heavy burdens of respiratory disease in urban settings, areas with higher-than-average air pollution rates, and in certain high-risk industries offers opportunity to eliminate disparities.

Transform Wisconsin's public health system: Developing new, comprehensive data systems and bringing in important new partners to address respiratory health issues are high-level goals that will require substantive effort and a transformation in structure across existing boundaries.

Key Interventions and/or Strategies Planned:

A reduction in the burden of occupational and environmental respiratory disease will be brought about by stressing enhanced management of respiratory disease by both individuals and their healthcare providers. Educational intervention is stressed for individuals when it is necessary to bring about change in risk-related behavior for individuals and for healthcare providers and public health staff in assessing patient and client exposures to respiratory hazards. Finally, improving statewide capacity for the collection, analysis, and dissemination of data on respiratory diseases and their occupational and environmental causes will shed new light on effective means of recognizing, evaluating, and controlling respiratory disease.

References:

Centers for Disease Control and Prevention. (1998). Surveillance for asthma – United States, 1960-1995. *Morbidity and Mortality Weekly Report* 47:SS-1.

Friedman, et. al.(2001). Impact of transportation and commuting behaviors during the 1996 Summer Olympic Games in Atlanta on air quality and childhood asthma. *JAMA* 285(7): 897-905.

Iowa State University and the University of Iowa Study Group (2002). *Iowa Concentrated Animal Feeding Operations Air Quality Study, Final Report*.

National Institute for Occupational Safety and Health (1999). *Work-related lung disease surveillance report, 1999*. U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention.

Wisconsin Department of Health and Family Services (1999). *Wisconsin Family Health Survey, 1998*.

Wisconsin Department of Health and Family Services, Division of Health Care Financing, Bureau of Health Information. (1990-2002). Inpatient Hospital Discharge Data.

Wisconsin Department of Health and Bureau of Environmental Health and Occupational Health, Division of Public Health, DHFS/Radon Program. Available at: http://www.dhfs.wisconsin.gov/dph_beh/RadonProt

Bureau of Environmental Health and Occupational Health, Division of Public Health, DHFS /Hospital Discharge Data; Tumor Registry

APPENDIX A

Healthy People 2010, November 2000, USDHHS cites the following baseline and target data:

| Reduction in Air Pollutants. | 1997 Baseline (Percent) | 2010 Target (Percent) |
|-------------------------------|----------------------------|--------------------------|
| (8-1a) Ozone* | 43 | 0 |
| (8-1b) Particulate matter* | 12 | 0 |
| (8-1c) Carbon monoxide | 19 | 0 |
| (8-1d) Nitrogen dioxide | 5 | 0 |
| (8-1e) Sulfur dioxide | 2 | 0 |
| (8-1f) Lead | <1 | 0 |
| | Number | |
| (8-1g) Total number of people | 119,803,000 | 0 |

* The targets of zero percent for ozone and particulate matter are set for 2012 and 2018, respectively.

Healthy People 2010, November 2000, USDHHS cites the following baseline and target data:

| Allergen | 1998-99 Baseline (Number of Homes - in millions) | 2010 Target (Number of Homes - in millions) |
|--|--|--|
| (8-16a) Group 1 dust mite allergens that exceed 2 micrograms per gram of dust in the bed. | 36.3 | 29.0 |
| (8-16b) Group 1 dust mite allergens that exceed 10 micrograms per gram of dust in the bed. | 18.6 | 14.9 |
| (8-16c) German cockroach allergens that exceed 0.1 microgram per gram of dust in the bed. | 4.7 | 3.8 |

Healthy People 2010, November 2000, USDHHS cites the following baseline target data:

| Reduce asthma deaths – Age Group | 1998 Baseline (Rate per Million) | 2010 Target (Rate per Million) |
|---|-------------------------------------|-----------------------------------|
| (24-1a) Children under age 5 | 2.1 | 1.0 |
| (24-1b) Children aged 5 to 14 years | 3.3 | 1.0 |
| (24-1c) Adolescents and adults aged 15 to 34 years. | 5.0 | 2.0 |
| (24-1d) Adults aged 35 to 64 years | 17.8 | 9.0 |
| (24-1e) Adults aged 65 years and older | 86.3 | 60.0 |

APPENDIX B

Environmental and Occupational Health Hazards, Objective 2: Respiratory Diseases

Long-Term (2010) Subcommittee Outcome Objective: By 2010, reduce the incidence of illness and death from respiratory diseases related to or aggravated by environmental and occupational exposures.

Overview:

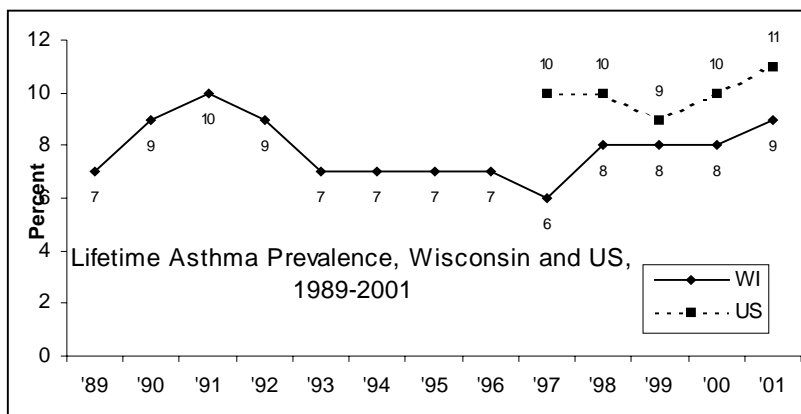
Despite advances in exposure assessment, diagnosis and treatment, respiratory disease continues to be a major contributor to illness and death related to exposures in the workplace and from environmental sources. While the numbers of new cases of many of the respiratory diseases chiefly associated with occupational dust exposure have declined in recent decades, the prevalence of asthma has increased.

Asthma is a chronic lung condition marked by ongoing airway inflammation that results in recurring acute episodes (attacks) of breathing problems such as coughing, wheezing, chest tightness, and shortness of breath. Described by one five-

year-old asthma sufferer as feeling like “a fish with no water,” asthma attacks can be fatal. While asthma symptoms can arise with little or no provocation, they are often associated with particular triggers, such as exercise, weather changes, exposure to a biological or chemical irritants or stress. Commonly encountered asthma triggers include exposure to particulate matter, mold, ozone, insect and pet antigens, and environmental tobacco smoke. It has been estimated that 8 percent of Wisconsin residents have been told

by a physician that they have asthma (Burden of Asthma Report). According to national data, the asthma-related mortality rate doubled between 1975 and 1994 (MMWR, 1998). Reducing asthma emergency department visits and hospitalization rates represent critical goals for Wisconsin in assessing progress in decreasing the burden of respiratory disease. Data collected during the 1996 Summer Olympics in Atlanta suggests that reducing pollution from motor vehicle traffic can lower the incidence of asthma-related health events (Freidman, 2001). The Institute of Medicine’s “Clearing the Air” also identifies indoor air contaminants that cause or exacerbate asthma. In addition to addressing these indoor and outdoor pollutants, a sustained reduction in asthma hospitalization and mortality can be achieved by increasing the availability and use of appropriate primary healthcare by people with asthma and improving asthma self-management.

The number of new cases of fibrotic dust-related lung diseases such as silicosis and asbestosis have declined in recent decades. The national mortality rate for asbestosis, however, has continued to increase over the past two decades, and the mortality rate for silicosis has remained relatively unchanged in recent years, according to national data (NIOSH, 1999). Surveillance efforts at the Marshfield Clinic have generated useful insights into the occurrence of hypersensitivity pneumonitis among Wisconsin farm workers. There is a growing body of literature documenting the prevalence of acute and chronic respiratory diseases and dysfunction among poultry and swine workers from exposures in animal confinement facilities (ISU/UI Study Group, 2002). These findings demonstrate the value of a statewide



Source: *Burden of Asthma in Wisconsin, 2004*; WDHFS PPH 45055 (02/04)

surveillance system for respiratory diseases, especially among farmers whose work-related symptoms are generally not reported to the Occupational Safety and Health Administration because of the small number of employees per operation.

Cancer of the lung remains one of the most lethal forms of the disease, and exposures in the workplace and from the environment are important contributors. Exposure to radon – a colorless, odorless gas that occurs naturally in homes across Wisconsin and elsewhere – is the leading modifiable cause of lung cancer among non-smokers. Given the important focus on tobacco use as the chief cause of lung cancer, convincing homeowners to test their homes for radon and take remedial action to reduce levels of radon in indoor air is a difficult task for the environmental health community. Proposed regulations from the U.S. Environmental Protection Agency for radon in drinking water have taken an innovative approach: encouraging utilities to lead campaigns to reduce radon in indoor air (to which radon in water is a small contributor) in the homes of their customers. Novel regulatory approaches such as this may bring about desired reductions in health risk that can have appreciable benefit within the public health system.

In addition to these conditions and contaminants, new opportunities for preventing respiratory disease remain on the horizon. Issues such as health risks associated with asbestos-containing vermiculite insulation, the relationship between environmental and indoor air contaminants and cardiovascular mortality, and concerns about air quality in commercial air travel pose challenges that typify the work ahead in recognizing and addressing determinants of respiratory disease in our communities.

2010 Outcome Objectives

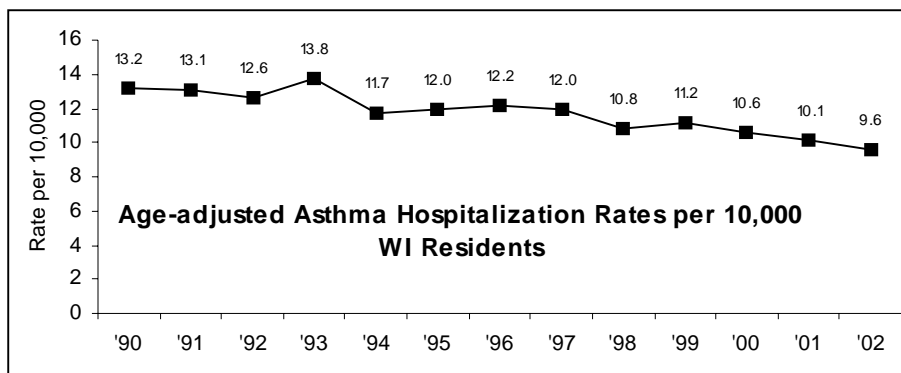
Progress towards this long-term objective will be addressed with the following four subobjectives.

Outcome Objective 2a: By 2010, reduce the asthma hospitalization rate to 8.5 per 10,000 from the 2000 baseline asthma hospitalization rate of 10.6 per 10,000.

Data Source: 1990-2002 Inpatient Hospital Discharge Data, Bureau of Health Information, Division of Health Care Financing, Wisconsin Department of Health and Family Services

Baseline Data: The 2000 age-adjusted asthma hospitalization rate for Wisconsin Residents is 10.6 asthma hospitalizations per 10,000 population.

Target: An asthma hospitalization rate to 8.5 per 10,000 by 2010.



Source: *Burden of Asthma in Wisconsin, 2004*; WDHFS PPH 45055 (02/04)

Comment: Wisconsin DHFS’s Asthma Program is collaboratively working with a wide variety of Wisconsin partners through the Wisconsin Asthma Coalition to address the asthma issue. The report *Burden of Asthma in Wisconsin* (2004) has been produced, and the Coalition finalized the *Wisconsin Asthma Plan* in 2003.

Burden of Asthma Report:

<http://dhfs.wisconsin.gov/eh/asthma/pdf/boawi04.pdf>

Asthma Plan: <http://www.chawisconsin.org/asthma.htm>

Outcome Objective 2b: Reduce public exposures to indoor radon in all buildings with radon concentrations >4 pCi/L in occupied spaces.

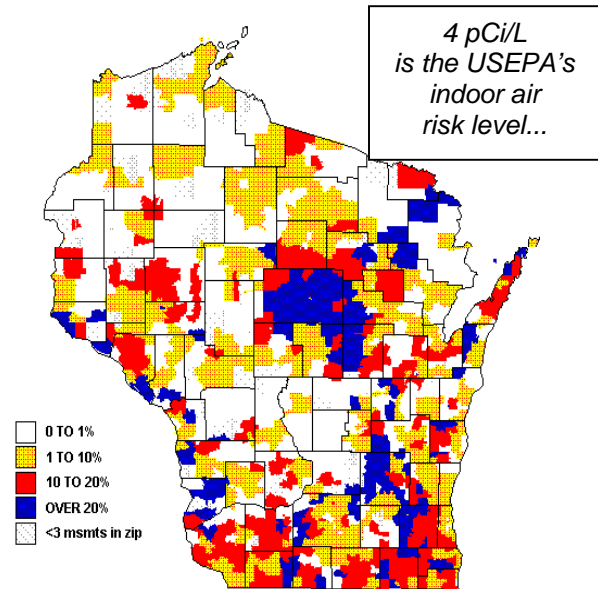
Data Source: Bureau of Environmental and Occupational Health/Radon Program (http://www.dhfs.wisconsin.gov/dph_beh/RadonProt)

Baseline Data: All data are estimates, as there is not a formal data collection program for this issue. Data are voluntarily gathered from radon-mitigation contractors
Target: By 2010, reduce the fraction of homes with elevated indoor radon from about 7 percent to 5 percent, and increase the fraction of new construction built with radon-resistant features from a current small percentage to 15 percent.

Comment: The Wisconsin DHFS Radon Program is working through a variety of channels to improve public awareness of:

- the lung cancer risk from radon;
- radon testing in homes;
- retrofit mitigation of existing homes with elevated radon concentrations; and,
- new homes built with radon-resistant features.

Estimated Percent of Homes with Radon > 4 pCi/L, Main Floor Year Average
 48,000 Measurements, by Zip Code



Retrofits of approximately 2,000 homes are performed each year to mitigate radon risks, thus addressing an estimated 2 percent of the 100,000 homes in Wisconsin that are estimated to exceed the USEPA's risk guideline of 4 pCi/L of radon in living areas. Without radon-resistant new construction, the number of new homes with elevated radon that will be added to the state's housing stock roughly equals the number of existing homes that will be retrofitted.

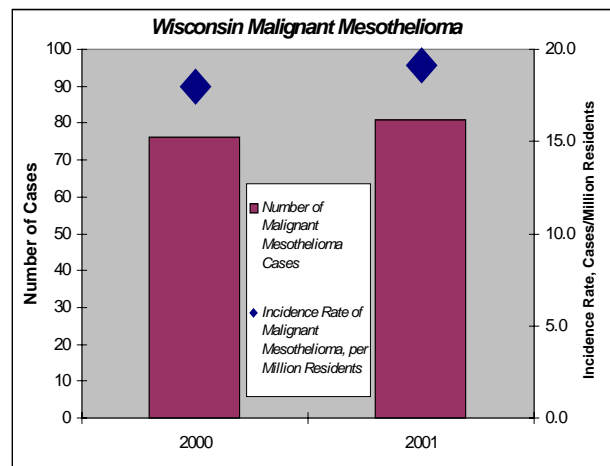
Outcome Objective 2c: By 2010, reduce occupational mesothelioma injury, illness and death by 30 percent, below the 2000 baseline.

Data Source: Bureau of Environmental and Occupational Health/Hospital Discharge Data; Tumor Registry

Baseline Data: The incidence rate for mesothelioma in 2000 was 18 per million residents.

Target: A 30 percent reduction below the 2000 baseline; therefore, a numerical target of 12.6 mesothelioma hospitalizations .

Comment: DHFS monitors trends in mesothelioma cases, watching for unusual patterns of this disease. When patterns are detected, staff will delve into the situation more closely to determine cause and other issues so that we might better protect the health of Wisconsin's workers and citizens.



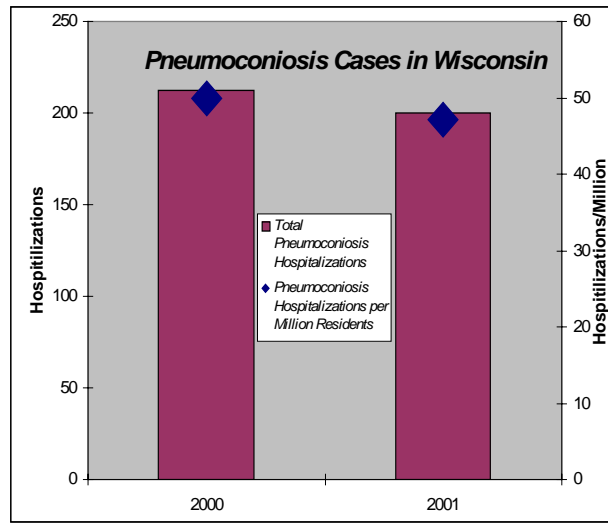
Outcome Objective 2d: By 2010, reduce occupational pneumoconiosis injury, illness and death by 30 percent, below the 2000 baseline.

Data Source: Bureau of Environmental and Occupational Health/Hospital Discharge Data

Baseline Data: The occupational population adjusted total hospitalization rate for pneumoconiosis in 2000 was 50 per million residents.

Target: A 30 percent reduction below the 2000 baseline; therefore, a numerical target of total pneumoconiosis hospitalizations per million residents is established.

Comment: DHFS monitors trends in pneumoconiosis cases, watching for unusual patterns of this disease. When patterns are detected, staff will delve into the situation more closely to determine cause and other issues so that we might better protect the health of Wisconsin's workers and citizens.



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