Wisconsin

NIOSH State-based Occupational Safety and Health Surveillance

Cooperative agreement: 2U60OH008484
Principal Investigator: Henry Anderson, MD

Final Close-out Report

Grant period: July 1, 2008-June 30, 2008

April 13, 2009

Table of Contents

Terms/Abbreviations

BEOH	Bureau of Environmental and Occupational Health
BLL	Blood Lead Level
BRFSS	Behavioral Risk Factor Surveillance Survey
CDC EIS Officer	Centers for Disease Control and Prevention, Epidemic Intelligence Service Officer
COSS	Consortium of Occupational States Surveillance
CSTE	Council of State and Territorial Epidemiologists
DHS	Department of Health Services
DPH	Division of Public Health
DRDS	Division of Respiratory Disease Surveillance
FTE	Full time employee
GPR	General Program Revenue – state program funding through taxes
MCW	Medical College of Wisconsin
NHCA	National Hearing Conservation Association
NIHL	Noise-induced hearing loss
NIOSH	National Institute of Occupational Safety and Health
NORA	National Occupational Research Agenda
OH	Occupational Health
OHS	Occupational Health Surveillance
OSHA	Occupational Safety and Health Administration
Prevention Center	Illness and Injury Prevention Center – our OH advisory board
UW	University of Wisconsin
UW-IRB	University of Wisconsin – Institutional Review Board
WAC	Wisconsin Asthma Coalition
WEDSS	Wisconsin Electronic Disease Surveillance System
WisDOT	Wisconsin Department of Transportation
WMJ	Wisconsin Medical Journal
WRA	Work-related Asthma
WSC	Wisconsin Safety Council
WVDR	Wisconsin Violent Death Registry

Abstract

Not all of the tasks outlined in our original application were completed due to limitation of funds. This was primarily due to a salary increase of the epidemiologist/program manager. However, we were able to complete many tasks outlined in our application and progress was made in reaching the stated aims.

Because workplace illness and injury include a wide variety of industries, occupations, tasks and issues, it is necessary for our program, in addition to tracking the occupational health indicators, to narrow the focus of our intervention activities to two main areas each grant period. These priority areas are determined by trends in indicator data, as well as NORA, NIOSH, CSTE and State priorities. During the period of this cooperative agreement, the Wisconsin Occupational Health Surveillance Program has focused on noise-induced hearing loss and respiratory issues such as work-related asthma.

Wisconsin's approach to occupational health surveillance has been through partnerships and leveraging of others expertise. While staff within the Occupational Health Surveillance Program gather and compile data for the occupational health indicators we share these data with others so that they can develop and implement interventions. Some of the interventions developed by others based on our data, include, a web-based program to deliver work-related asthma knowledge to medical students and practitioners, information for asthma coalition newsletters, a study and publication of asthmagens in the dairy industry, and an educational program that includes audiograms, for carpenters and construction workers. Additionally, our program directly develops and delivers educational materials and information sessions.

The occupational health indicators (OHI) have been collected and analyzed each year of this cooperative agreement. There continues to be an improvement in most measures. Since 2000, the first year of OHI data collection, the rate of non-fatal workplace injuries has declined from a rate of 2500/100,000 workers to 1400/100,000 workers (2007 data). The only area that is an exception to these improving trends is in the area of pneumoconiosis hospitalizations – while pneumoconiosis incidence has remained steady, hospitalizations have been increasing. This may be more a factor of the disease process and lack of medical treatment options rather than worsening workplace hazard. We will further explore this indicator in the future. Another area we will watch is the rate of adults with blood lead levels greater than 25µg/dL. After years of decline, 2007 data showed an increase at this level.

This NIOSH cooperative agreement has also allowed our program to become more organized, acknowledged, and knowledgeable. Successes include easily accessible data and information, inquiries by state agencies and the public for data/information, and expanded partnerships and alliances. The Occupational Health Surveillance program has worked with the Asthma Coalition and the American Lung Association to convince Wisconsin voters that all businesses, including bars and restaurants should be smoke free – on July 10, 2010 a statewide smoking ban went into effect. We are currently working

with these groups to develop anti-idling information and policy. We have continued the Occupational Illness and Injury Prevention Center (Prevention Center) a collaboration of academia, OSHA, state agencies and others and have attended National and State meetings and trainings to learn best practices and other helpful information.

Information obtained from the above activities has been used mainly for the education of workers, employers, local health departments, physicians OSHA and others, in an effort to proactively reduce workplace illness and injury. The Occupational Health Surveillance Program has developed reports on the OHI's and work-related asthma which were distributed to local health departments and occupational health practitioners. We have developed a workplace safety calendar to be distributed to unions and local health departments in December of this year. We have also used respiratory and work-related asthma surveillance information to bolster the smoke-free message which helped pass anti-smoking legislation in Wisconsin.

Final FSR

The final FSR will be sent directly from the DHS Fiscal Department under a separate cover.

Final Invention Statement

There were no inventions that came from this cooperative agreement. The final invention statement is included at the end of this report.

Highlights/Significant Findings

Indicators

Data for the 19 CSTE occupational health indicators were collected during both years of this cooperative agreement. There continues to be a downward trend (i.e. reduction) in most measures of the health effects of work, while the percentage of Wisconsin workers in industries and occupations considered at high-risk for injury or death has remained steady. The number/rate of OSHA inspections, safety and health professionals and amount paid in workers' compensation claims has also remained fairly steady. The only exception to these trends appears to pneumoconiosis hospitalizations, which has been rising since 2000.

One area that we will continue to watch is the rate of adults with blood lead levels >25ug/dl. While the trend has been a yearly decrease in the number/rate of adults with high BLL's, during the past year (2007 data) we have seen an increase in the incidence at this level.

Program management:

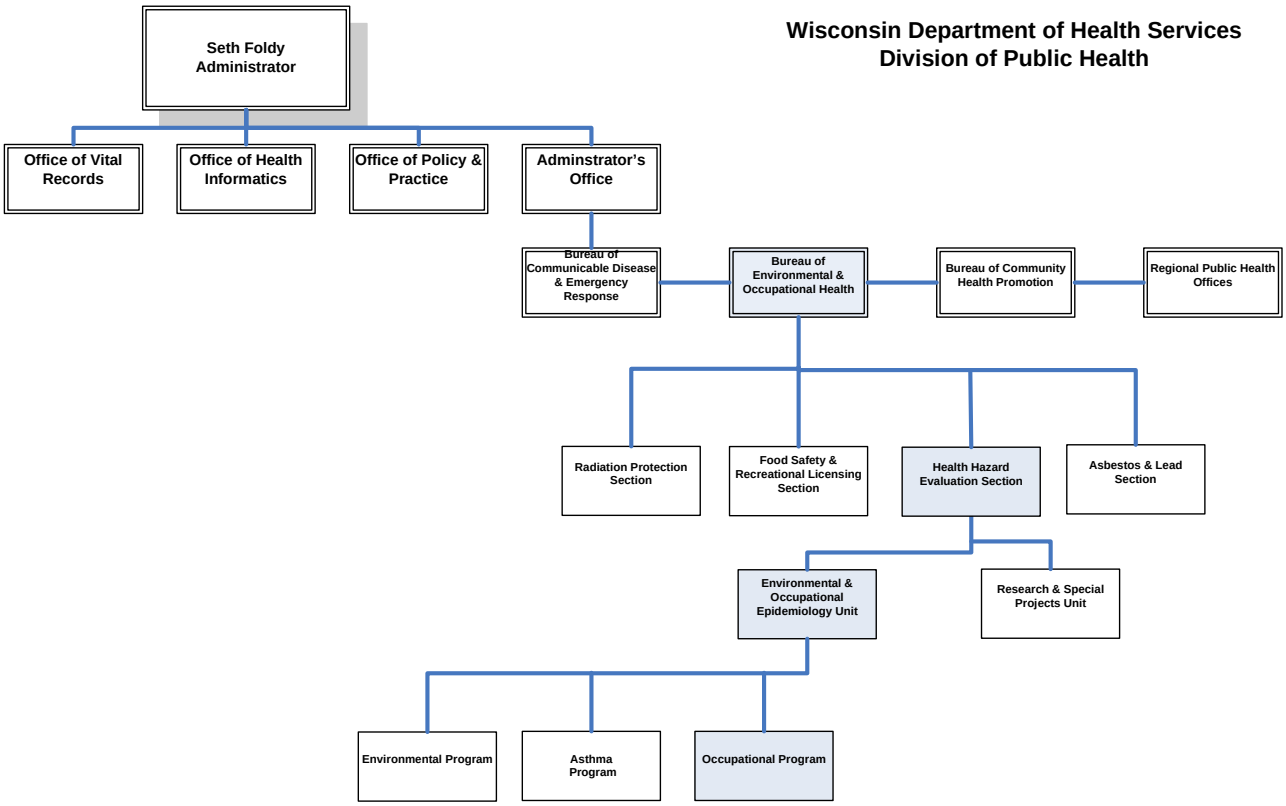
No Wisconsin Department of Health Services (DHS) general program revenue (State-funding) is allocated by the legislature to support the Wisconsin's Occupational Health Surveillance Program. To be fiscally responsible with NIOSH funding, we limit the number of paid staff and the activities undertaken. Dr. Anderson, the principal investigator, contributes his time to the project.

Currently, the only other staff for this project, the epidemiologist/program manager, is fully funded (1.0 FTE) through this cooperative agreement.

In addition to performing occupational health duties, during the last two-years of this cooperative agreement we have focused on organizing the program to make it as efficient as possible. This has included writing standard operating protocols and documenting activities routinely done in administering the program as well as organizing and filing grant related documents.

Program organization:

The NIOSH cooperative agreement 2U06-OH008484 is held in the Wisconsin Department of Health Services, Division of Public Health and administered by the Bureau of Environmental and Occupational Health, Occupational Health Surveillance program. An organization chart is below:



Interest in program

While the Occupational Health Surveillance program generates interest through distributing at least one educational publication and giving presentations each year, it suffers from a lack of a clear identity or brand. Our program is often confused with OSHA, especially among public officials. During the past two years we have worked to mitigate this by better defining the program through Bureau strategic planning, collaborations and through seeking opportunities to generate interest in workplace safety issues. In the past two years we have also

worked with the University of Wisconsin to generate interest in the field of occupational epidemiology and the prevention of workplace injury. We have done this by providing a student internship/learning opportunity. From April to August, 2009 an undergraduate student worked to design and implement a survey of workers who had been medically evaluated for respirator wear. After collection and analysis of the data, she wrote and submitted a manuscript to the Wisconsin Medical Journal. It was published in June, 2010 - Volume 109 Issue 3. Other activities to garner interest include speaking engagements and publications. During the two years of the cooperative agreement we have had a booth and poster at a DHS Asbestos seminar where we demonstrated the importance of wearing hearing protection and gave out ear plugs, we have done a similar demonstration at the Wisconsin Farm Progress Days. We have collaborated with the Wisconsin Safety Council, OSHA, Wisconsin Manufacturers and Commerce, Wisconsin Laborers District Council, the University of Wisconsin audiology department, the Wisconsin Illness and Injury Prevention Center, the DHS Program Integration Workgroup, and the Wisconsin Asthma Coalition. One particularly important collaboration effort has been with the Medical College of Wisconsin to apply for grant money to develop research to practice (R2P) activities. Our proposal is to study injuries that occur in 'green technology' industries. We are awaiting word on awards.

Department staff are discouraged from contacting legislators directly with any publications, presentations or other program information, however, we have regularly briefed the Department Administrator on Program activities to include in legislative briefings in the hope that additional interest and possibly money will be generated at a state level.

Measuring interest in what we do is often difficult. Two ways we gauge interest in our program is through counting web hits and attendance at presentations. During the cooperative agreement the number of web hits has increased. In the 2008-2009 grant year there were 3,099 hits on the occupational health surveillance web home page. This number varied widely each month from a low of 8 in September to a high of 1,230 during the month of June. During the 2009-2010 grant year there were 6,737 unique hits to our web page. The numbers again varied widely with the lowest, 34, coming in October, 2009 and the highest, 1,698 hits in February, 2010. The numbers of people attending presentations and other education sessions depends on the conference or session opportunity. The number of attendees ranged from 20 at the smaller Wisconsin Epidemiology meeting to 243 booth visitors at larger venues such as Wisconsin's Farm Technology Days.

Outreach & interventions:

Outreach and interventions include the production of educational pieces. During the two years of this cooperative agreement we have created two annual reports – Work-related Asthma in Wisconsin (2009) and in 2010 of an 'annual report', *A Comparison of Occupational Health Indicators from 2000 – 2007*. These were

sent to all local health departments in Wisconsin and to occupational health physicians in the State. A workplace safety calendar has been developed and is currently in the printing process. This calendar will be sent to businesses, unions and vocational instructors. Additional educational activities have included a booth with information on work-related asthma and noise induced hearing loss at Wisconsin Farm Progress Days and a conference on Wisconsin's new lead/asbestos abatement regulations.

Staff have also taken part in the education process by attending state and national meetings to learn about new hazards in the workplace, new sources of surveillance data, and other topics. Educational opportunities have included attendance at University of Wisconsin –Institutional Review Board (UW-IRB) training sessions, an OSHA update at Waubonsee College, monthly construction rule breakfasts hosted by OSHA, the National Hearing Conservation Association (NHCA) conference, the Council of State and Territorial Epidemiologist (CSTE) annual conference, Consortium of Occupational State Surveillance (COSS) meetings, CSTE-occupational indicator workgroup meetings, and the NIOSH Work-related Asthma meeting. Staff are also members of the Wisconsin Safety Council and are Wisconsin Asthma Coalition executive committee members.

We also continue to facilitate quarterly Illness and Injury Prevention Center meetings. This group was developed by us during our first NIOSH cooperative agreement to act as our advisory board. This groups leverages member knowledge and expertise to understand new safety challenges and regulations in the workplace and the meetings act as a forum to share and discuss these issues.

Scientific Report

The aims of our program have not changed from the original submitted application. These three aims include: 1) Enhance the Wisconsin occupational safety and health surveillance system; 2) Expand partnerships and increase communication capacity; 3) Address priorities through professional education and promotion of evidence based worksite intervention strategies.

Aim 1: ***Enhance Wisconsin occupational safety and health surveillance system***
Maintaining current surveillance activities -

During this 2-year NIOSH cooperative agreement the WI Occupational Health Program has continued to do occupational health surveillance using the 19 CSTE OH indicators. Surveillance activities include data collection, data calculations, assessing trends and submission these data and summary information to CSTE as requested so that it can be included in national reports. We have also used these data to identify state-specific priority areas. Priority areas are defined as issues/conditions identified through a decline/worsening rate of a Wisconsin indicator from year to year as well as areas that have been identified as priorities to NIOSH, NORA, CSTE, and/or CDC. During this cooperative agreement Wisconsin's occupational health priorities continue to be respiratory illnesses

(e.g. work-related asthma, silicosis) and occupational hearing loss (e.g. noise-induced hearing loss).

We continue to enhance occupational health surveillance by adding additional indicators (e.g. carbon monoxide, back injuries) and data sources (e.g. BRFSS., Wisconsin Violent Death Registry (WVDR), Wisconsin Electronic Disease Surveillance System (WEDSS))

Our surveillance system includes dissemination of findings. Staff have contributed to a CSTE workgroups charged to create a 'success stories' document and also a workgroup to develop a format for a national report of the collation of state indicators. At a State level, we produce some sort of 'Indicator' or educational document each year that we send to local health departments and occupational health physicians. Documents developed and sent during the past two years of this cooperative agreement have included: the 2009 annual report – *Work-related Asthma in Wisconsin*; the 2010 annual report – *A Comparison of Occupational Health Indicators from 2000-2007*; a 2011 Workplace Safety calendar.

Staff have learned new ways to enhance our program through attending various meetings and conferences. Some of these are required by the grant and others are not. During each year of this cooperative agreement, both the PI and the program manager have attended CSTE occupational health indicator workgroup meetings twice a year, NIOSH Consortium of State-based occupational health surveillance (COSS) meetings twice a year, and NIOSH/CDC annual work-related asthma (WRA)
meetings. Additionally, staff have attended the CSTE annual meeting, a NHCA meeting, and the PI has attended NORA sector meetings. (he is a member of the construction and manufacturing sector committees)

New surveillance activities –
Student mentoring:

We have worked with the University of Wisconsin to support an internship for an undergraduate student with our program, to generate interest in workplace health and safety issues. In 2009 we hosted an undergraduate senior who was interested in applying for graduate school in public health. Her project was to research workplace asthma, one of our priority areas. This student developed a patient survey to determine prevalence of work-related asthma (WRA) and worker experiences around being fitted for and wearing respirators. Research questions included who uses respirators, how many respirator wearers have asthma, how is fitness to wear respirators evaluated in Wisconsin and what industry or occupation do workers seem to be at risk for asthmagen exposure. The student remained with us from April through July, 2009 to develop, compile analyze data and document findings. The project resulted in a poster that will be displayed at the Wisconsin Asthma Coalition meeting in October 2010, two oral

presentations of findings, and a manuscript publication in the Wisconsin Medical Journal (2010 vol. 109 issue 3), a peer-reviewed publication.
Other mentoring opportunities have included working with the CDC EIS officer on an H1N1 survey of Wisconsin workplaces, and working with the CSTE fellow to develop a surveillance system to capture illnesses and injuries in 'green-technology' industries.

Publications:

The occupational health program produces, publishes and disseminates new educational material every year. In 2009 the annual publication was a report on work-related asthma in Wisconsin. This report used data from several sources (e.g., BRFSS, hospital discharge) to determine the prevalence of this condition among workers in the state. In 2010 we developed an updated fact sheet/comparison of the 19 CSTE OH indicators from the year 2000 to 2007, and a 2011 calendar with injury statistics from the occupational health indicators and safety messages for workers.

Speaking engagements/posters/information booths:

Due to the small number of staff (i.e. writing grant applications, preparing manuscripts, monitoring OHI's and developing educational material) during the past two years of this cooperative agreement, it has been difficult to prepare and give formal presentations. However, staff often are asked to give information presentations at meetings they attend or to act as meeting facilitators. During the past two years the occupational health surveillance epidemiologist has given two formal presentations:
1) Wisconsin Farm Technology Days July 21-23, 2009 & July 20-22, 2010.
2) Department of Health Services Asbestos Renovators Conference, Dec. 3, 2009

Aim 2: ***Expand partnerships and increase communication capacity***

Partnerships are a way to leverage existing knowledge and capacity to get things done in the Occupational Health Surveillance Program – especially the use of 'social networks' to communicate our findings. During the past two years of this cooperative agreement we have continued partnerships and added new ones.
Continued Partnerships:

Wisconsin Asthma Coalition Executive Committee activities have included planning of semi-annual coalition conferences, coalition meeting and conference evaluation, physician and community education, co-chairing Environmental and Occupational workgroup activities such as developing anti idling legislation, '

Wisconsin Safety Council (WSC) membership has included attendance to yearly meetings. As well, staff continue participation through attendance at quarterly Occupational Health Professional Committee meetings. This WSC committee is responsible for incorporating health messages into workplace safety by promoting occupational health careers, ensuring that WSC training opportunities include public health-related topics and issues and the annual conference includes public health speakers/sessions.

WI Epidemiologists (Epi group) was formed in 2007 to support individuals working as epidemiologists within the State of Wisconsin. It is mainly comprised of epidemiologists working at the State or local health department but is open to others such as those working in the University system or private industry. Occupational Health Surveillance staff regularly participate in this group through listserv membership, teleconference access and attendance at the annual two-day conference in which information is shared through presentations and workgroup activities.

DHS Program Integration Workgroup is a group within the Wisconsin Department of Health Services whose mission is to become aware of what other programs in the Department are doing, and develop connections and opportunities for project collaboration. This group is funded through a CDC grant and meets monthly. Membership in this group has enabled our program to work outside of a vacuum and integrated occupational health surveillance into others' projects. A current workgroup project is to outline public health issues throughout one's lifetime. Since work is a large part of human existence, workplace health and safety issues (occupational health surveillance indicator data) have been incorporated into this publication.

Bureau of Environmental and Occupational Health (BEOH) *Health Educators* group is made up of health educators and others involved in health education in programs within the Bureau. This includes 13 individuals from the Lead program, environmental program, radiation protection program, food and lodging licensing program, asthma program and the occupational health program. These individuals meet monthly to discuss new teaching techniques, educational outreach opportunities and to plan monthly 'brown bag' lunch discussions. The brown-bag lunches during the past two years of this cooperative agreement have ranged from a nanotechnology primer to radiation protection case studies to presentation of a doctoral student's dissertation on carnival ride injuries and safety issues.

The Occupational Safety and Health Administration (OSHA) in Wisconsin holds educational meetings for construction businesses and their workers every month. Occupational Health Surveillance staff have attend these meetings to keep informed of new OSHA standards and regulations for the construction industry. We also have worked with OSHA to supply injury statistics for some of the meeting presentations. A regional OSHA meeting attended by staff was the regional *OSHA Update at Waubonsee College* in Illinois.

Noise-induced hearing loss (NIHL) has been a priority issue in Wisconsin during the past two years of this cooperative agreement. In 2009 one person from the program attended the *National Hearing Conservation Association's Annual Conference* in Atlanta in order to learn what others are doing and how to incorporate those ideas in order to reduce this injury in Wisconsin's workforce. As a result of this opportunity, staff have met with representatives of the Wisconsin Department of Transportation (WisDOT), road construction employers, carpenter union representatives, OSHA, OSHA consultation, construction equipment manufacturers and audiologists to discuss what measures can be incorporated into what each does to reduce exposure to noise at work. Ideas discussed

included giving contracts to companies on the 'approved' list (e.g. companies who have not had any noise violations, who regularly use hearing PPE, have hearing training programs, and use machinery marked with decibel levels), new data collection tools and methods, a hearing conservation outline, and development of a hearing protection training program that would include audiograms.

The Council of State and Territorial Epidemiologist (CSTE) holds an annual conference which Wisconsin's Occupational Health staff regularly attend. During the past two years of this cooperative agreement we have participated in the planning and in facilitation of the occupational health sessions of this conference. The *CSTE Occupational health surveillance indicator workgroup*, a group sponsored by CSTE, meets to discuss the occupational health indicators, their data collection, calculation and use to measure occupational health. Wisconsin was one of the initial States to help develop and test the indicators and still takes a lead role in the continuation of these indicators. As such we attend regular teleconferences and in-person meetings during the year sponsored by CSTE to improve the tracking of occupational health.

The *National Institute of Occupational Safety and Health (NIOSH)*, as part of the cooperative agreement, requires participation in *Consortium of Occupational State-based Surveillance (COSS)* meetings. These meetings take place semi-annually to as an information exchange where NIOSH can share their expectations regarding the grant and other states can share what they are doing. All Wisconsin Occupational Health Surveillance staff members attend these meetings.

While Wisconsin has not been funded for an 'expanded' occupational health surveillance program doing work-related asthma surveillance we have an interest in the topic. Every year we have been invited and attend the annual meeting for WRA sponsored by *NIOSH Division of Respiratory Disease Studies (DRDS)*. During these meetings we have met with other states and formed many important relationships around research and intervention activities for WRA. These have included asking other States to come to Wisconsin to present their projects and project outcomes to groups such as the Wisconsin Asthma Coalition or to have them review manuscripts and project ideas.

Other collaborations:

Green-technology industry surveillance: Wisconsin has received federal funds to develop and implement new/green technology (i.e. high-speed rail, wind farms). While most of this discussion has centered on the creation of jobs in the industry, we want to ensure the jobs created are safe and healthy. To do this the occupational health program has proposed a project to the Healthier Wisconsin Partnership Program (HWPP) to develop an injury surveillance system to study near miss incidents in this industry. We will use the information collected to develop awareness of the issues, and mitigate the problems through education and policy development. The proposal is a collaboration between DHS, the Medical College of Wisconsin (MCW), 'green-technology' industry representatives, environmental advocates, worker advocates and community members. This

group has met multiple times during the past to develop, write and submit a proposal to HWPP.

Aim 3. ***Address OH priorities through professional education and promotion of evidence based worksite intervention strategies*****.**

Workplace illness and injuries are numerous and varied. In a small program such as ours, we must limit our efforts at workplace illness and injury mitigation by choosing prioritizing. This is done by reviewing OH indicator data (e.g. worsening indicator trends, rate above the national average), NIOSH/CDC/NORA priorities, and optimizing funds. The two priorities during this cooperative agreement period have been work-related asthma (WRA) and noise induced hearing loss (NIHL). These priorities have been addressed by gathering information to educate ourselves and then repackaging this information for delivery to public health practitioners, employers and workers. Activities that have been undertaken for these priorities can be found in the above dialog. This includes the survey of workers who have had a respirator evaluation prior to fit testing - surveys sent to 1079 patients tested at 4 clinics throughout Wisconsin with 169 respondents. Information collected gave us insight into the actual testing process, the prevalence of workers with asthma who wear respirators, and the industry, occupation and exposures of workers who wear respirators. This survey project has lead to publication of a manuscript in the Wisconsin Medical Journal, and a poster display at the 2010 Fall Wisconsin Asthma Coalition meeting. Other activities included working with the American Lung Association – Wisconsin to review information on work-related asthma that could be used to support promotion of a 'Smoke-free Wisconsin' bill. This legislation passed last year (after a previous failure) and went into effect 7/5/10. We are currently working with the Wisconsin Asthma Coalition (WAC) and the American Lung Association – Wisconsin to review, refine and propose diesel anti-idling legislation. To date, we have worked together on planning a statewide educational anti-idling 'summit'. Additionally, we have created a poster display and provided information on work-related noise-induced hearing loss, as well as given demonstrations on how to correctly insert and wear hearing protection to the general public during Wisconsin's Farm Technology Days and the Asbestos Renovation Workshop.

Publications:

Oguss, Madeline, BA, Pamela Rogers, MPH, Henry Anderson, MD. *Occupational Respiratory Health: A survey of workers who wear respirators*. Wisconsin Medical Journal, Vol. 109, Issue 3. 2010

2009 Annual report: Work-Related Asthma in Wisconsin

2011 Occupational Safety calendar (2010)

Presentations:

Farm technology days (NIHL poster presentation, July, 2009)

Asbestos Remodeler Workshop (NIHL poster presentation and hearing protection usage demonstration, December, 2009)

Mini-grants:

Mini-grants were planned and request for proposals were sent out and proposals were returned. One proposal was deemed reasonable and worthy of funding. However, due to funding and time constraints it was decided to not support the project during this cooperative agreement but at a later date. La Crosse Partners, an Asthma Coalition in the western part of the state, has agreed to produce an online/electronic educational module of their previously created WRA education program for medical students, interns and other health practitioners during the next grant period.

Inclusion of gender-specific, minorities and children

During the two-years of this cooperative agreement, gender, minorities and/or children were not specifically targeted for data collection. This project involved the collection of currently existing data and these data are obtained from across the state of Wisconsin. Only anonymous, de-identified data are used in our project.

Form Approved Through 06/30/2012
OMB No. 0925-0001

Department of Health and Human Services

Final Invention Statement and Certification

(For Grant or Award)

DHHS Grant or Award No.

2U60OH008484

A. We hereby certify that, to the best of our knowledge and belief, all inventions are listed below which were conceived and/or first actually reduced to practice during the course of work under the above-referenced DHHS grant or award for the period

7/1/2008 *original effective date* through 6/30/2010 *date of termination*.

B. Inventions (Note: If no inventions have been made under the grant or award, insert the word *"NONE"* under Title below.)

NAME OF INVENTOR	TITLE OF INVENTION	DATE REPORTED TO DHHS
	NONE	
(Use continuation sheet if necessary)		

C. Signature — This block ***must*** be signed by an official authorized to sign on behalf of the institution.

Title
State-based Occupational Safety & Health Surveillance

Typed Name
Henry A. Anderson, MD

Signature

Date
9/30/10

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