Wisconsin Final Close-out Report
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Terms/Abbreviations

ABLES	Adult Blood Lead Epidemiology and Surveillance
ACBS	Asthma Call-Back Survey
BEOH	Bureau of Environmental and Occupational Health
BLS	Bureau of Labor Statistics
BRFSS	Behavioral Risk Factor Surveillance System
CBO	Community-Based Organization
CDR	Child Death Review
CFOI	Census of Fatal Occupational Injuries
CSTE	Council of State and Territorial Epidemiologists
DATCP	Department of Agriculture, Trade and Consumer Protection
DHS	Department of Health Services
DPH	Division of Public Health
DWD	Department of Workforce Development
I/O	Industry/Occupation
LHD	Local Health Departments
NIOSH	National Institute of Occupational Safety and Health
NORA	National Occupational Research Agenda
NPDS	National Poison Data System
OH	Occupational Health
OHI	Occupational Health Indicators
OSAG	WI OH Program Advisory Board
OSHA	Occupational Safety and Health Administration
PCC	Poison Control Center
PPD	Permanent Partial Disability
RFP	Request for Proposal
SENSOR	Sentinel Event Notification System for Occupational Risk
SOII	Survey of Occupational Injuries and Illnesses
UW	University of Wisconsin
WARDS	Wisconsin Ambulance Run Data System
WC	Workers' Compensation

Abstract

NIOSH State-based Occupational Safety and Health Surveillance

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Wisconsin maintains a fundamental occupational disease and injury surveillance program within the Bureau of Environmental and Occupational Health (BEOH) in the Division of Public Health, Department of Health Services (DHS). These cooperative agreement funds have enabled the Wisconsin Occupational Health (OH) Program to dedicate one full-time professional staff to maintain core occupational disease and injury surveillance. The program manager serves as the strategic focal point to promote integration of occupational health into all Wisconsin's public health programs leveraging state and local public health capabilities, partnerships, and capacity to reduce occupationally-related injuries and death. The Wisconsin OH Program annually contributes all 22 Council of State and Territorial Epidemiologists (CSTE)/NIOSH occupational health indicators (OHI) to the NIOSH national surveillance system and actively collaborates with NIOSH and the other states' occupational health programs.

The OHI showed that some specific Wisconsin industry sectors and occupation groups (construction, manufacturing, and agriculture) have rates of injury and illness that are higher than the national average and therefore deserved priority programmatic attention while other indicator data showed stable or decreasing rates for many occupational health injuries and illnesses.

The OH Program developed innovative approaches to augment and enhance available surveillance data. Data use agreements were negotiated and in 2013 the program began utilizing National Poison Data System (NPDS) data to track work-related carbon monoxide poisonings and pesticide exposures. Also, a data sharing agreement was finalized that allowed access to Wisconsin Workers' Compensation (WC) claims data. The program collaborated with the Wisconsin Behavioral Risk Factor Surveillance System (BRFSS) to add work-related asthma questions to the Adult Asthma Call-Back Survey (ACBS) in 2006 and the industry/occupation (I/O) module to the BRFSS Survey in 2013. The program strengthened and expanded its data sharing partnerships through quarterly meetings of its multi-agency, interdisciplinary Occupational Surveillance Advisory Group (OSAG).

Small seed grants to local and tribal county health departments and community-based organizations have proven an effective strategy to focus local OH capacity building in

Wisconsin. During 2013-2014 and 2014-2015, the OH Program implemented a competitive small grant process to support community-based occupational health and safety interventions. The nine funded projects' topics ranged from agricultural safety trainings for farmers and first responders to working with large employers to incorporate occupational health into workplace wellness programs. These local activities led to an effective proposal to further engage the Workplace Wellness initiatives across the state to create occupational safety and health components.

Occupational health and safety for youth was a focus area through this grant period for education and outreach. One project included collaboration with Operation Fresh Start, a non-profit service organization that combines education and work experience for "at risk" youth. In addition, the OH Program developed a curriculum for high school education on young worker safety using the NIOSH curriculum as guidance. This curriculum was shared with the Safe-Skilled-Ready Workforce Initiative at NIOSH and implemented in 2014-2015.

The NIOSH cooperative agreement has allowed Wisconsin to build a more robust and diverse surveillance data system to support occupational disease and injury prevention.

Section 1

Significant Findings. The Wisconsin Occupational Health (OH) Program collected, analyzed and reported all CSTE/NIOSH occupational health indicators (OHI) for all five years of this cooperative agreement. The OH Program is finalizing its OHI Trend Report, which will be published in the fall of 2015. While some specific state-based industry sectors and occupation groups (construction, manufacturing, agriculture) have rates of injury that are higher than the national average, current Wisconsin CSTE occupational health indicator data show stable or decreasing rates for most occupational health injuries and illnesses in Wisconsin.

During this grant period, the OH Program successfully negotiated new data use agreements. In 2013, the program began utilizing National Poison Data System (NPDS) data to track work-related carbon monoxide poisonings and pesticide exposures. In 2014, the program obtained access to Wisconsin Workers' Compensation (WC) claims data. The program collaborated with the Wisconsin Behavioral Risk Factor Surveillance System (BRFSS) to add work-related asthma questions to the Adult Asthma Call-Back Survey (ACBS) in 2006 and the industry/occupation (I/O) module to the BRFSS Survey in 2013.

The OH Program implemented a request for proposal (RFP) mini-grant process for non-profit organizations to implement community-based OH and safety interventions that were supported by surveillance data, addressed community priorities and had a high likelihood of sustainability beyond the funding period. The Program Manager worked with nine funded agencies throughout the state during 2013-2014. These projects are outlined in Appendix 1 and mapped in Appendix 2.

Translation of Findings. Access to supplemental data sources has allowed the Wisconsin OH Program to identify health hazards that may not be captured in routine surveillance systems and inform program priorities. The program was involved in a follow-back investigation of carbon monoxide poisoning at an indoor ice hockey event in December 2014, using Poison Control Center (PCC) reports to identify exposures. PCC data on occupational pesticide exposures were shared with the Wisconsin Department of Agriculture, Trade and Consumer Protection to foster collaboration to decrease pesticide poisonings. Also, the program summarized agricultural injuries from WC claims specific to poultry, pork and dairy subsectors and shared aggregate data with the National Farm Medicine Center, a partner in addressing agricultural safety, to inform their program priorities. Finally, program analysis of I/O data identified industries and occupations at higher risk of fair/poor health in Wisconsin, including service-related industries and occupations. Inclusion of I/O on the BRFSS provided the opportunity to study the potential impact of work on a person's health, highlight areas of disease disparity and improve targeting of specific industries and occupations for workplace prevention and wellness programs.

The OH program strengthened and expanded its partnerships during this period through quarterly meetings of its Occupational Surveillance Advisory Group (OSAG). This inter-agency advisory team was developed by the program under previous NIOSH funding and continues to grow under current funding, with meetings facilitated by OH program staff. The program developed an inventory of available OH data through its OSAG partnerships

(Appendix 3). The program will continue to utilize OSAG as a resource for sharing of data sources and collaboration on translation of data into practice.

Program surveillance data has informed follow-back activities and interventions. Follow-back for elevated blood lead levels through the Adult Blood Lead Epidemiology and Surveillance (ABLES) Program has continued through this period. In addition, youth occupational health and safety was a focus area for education and outreach during this period. In 2011, the program collaborated with Operation Fresh Start, a non-profit service organization that combines education and work experience for "at risk" youth, on a worker safety project. In addition, the OH Program developed a curriculum for high school education on young worker safety using the NIOSH curriculum as guidance. This curriculum was shared with the Safe-Skilled-Ready Workforce Initiative at NIOSH and implemented in 2014-2015.

While the mini-grants were an extremely worthwhile endeavor for the OH Program, much of the technical assistance provided by the program focused on integrating occupational health components into existing worksite wellness programs. This local activity led to our proposal to engage the Workplace Wellness initiatives across the state to create occupational safety and health components. The program determined that OH mini-grants are best focused on areas of high need for work-related health and safety. As a result, the two follow-up mini-grants awarded by the OH Program in 2014-2015 were focused on agricultural safety.

Outcomes/Impact. Most of the findings described above include dissemination efforts that would contribute to reduced workplace risks.

Potential outcomes. Collaboration and engagement of Wisconsin's OH Program with the NIOSH Surveillance Steering Group through monthly representation, involvement and reporting on behalf of the CSTE put partnering into practice and increased coordination among agencies. OH Program presentations, meetings, website and partner collaboration increased partner awareness of the OH Program and public knowledge of occupational illness, injury and death in Wisconsin.

Intermediate Outcomes. Key intermediate outcomes from the mini-grant process included increased collaboration and engagement of Wisconsin's OH Program with local organizations throughout the state (e.g., health departments, colleges/universities and community-based groups) and the development of occupational health programmatic infrastructure within communities resulting in sustainable projects beyond the funding period. As a result of the ABLES Program work and its monthly reports of elevated blood lead levels, OSHA regularly monitors businesses exposing workers to lead.

End Outcomes. Work conducted by the OH Program has contributed to an increased capacity among local/tribal health departments and community partners to collectively address work-related concerns. Current indicator data show stable or decreasing rates of most occupational injuries and illnesses in Wisconsin.

Success Story: Partnerships to Improve Community Occupational Health

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The Wisconsin Occupational Health Surveillance Program (OH Program) focuses on surveillance and prevention of occupational injury, illness and fatality. Wisconsin Public Health has a strong network of county and city public health agencies responsible for community health as well as many supportive community groups and schools with public health interests. Although a component of local community health statutory responsibility, there is a chronic lack of fiscal resources and personnel expertise to effectively promote occupational health in local and tribal county health departments (LHDs) and community-based organizations (CBOs).

In Wisconsin, small seed grants to LHDs have proven an effective strategy to focus local capacity building. The Wisconsin OH Program during 2013-2014 and 2014-2015 implemented a competitive small grant process (up to $8,500 each) for Wisconsin non-profit organizations to implement community-based occupational health and safety interventions supported by local surveillance data and addressing community priorities with a high likelihood of sustainability beyond the funding period.

During 2013-2014, sixteen applications were received and nine were funded by the OH Program. The projects were located across the state. Funded projects included: training for farmers and first responders on farm accidents involving machinery and chemicals; community needs assessments related to occupational injury prevention and management; agricultural safety outreach and education; targeted education, health screenings and injury analysis, including one project targeting dairy farm workers; working with large employers to incorporate occupational health into workplace wellness programs; and a comprehensive radon survey of a university campus. During 2014-2015, the OH Program funded two continuation projects, Northcentral Technical College and University of Wisconsin-Eau Claire, which had clear occupational health components focused on agricultural safety.

These local activities led to an effective proposal to further engage the Workplace Wellness initiatives across the state to create occupational safety and health components. It was gratifying to see the community interest mobilized to address occupational injury and disease prevention and the innovative approaches used to build occupational health components into existing programs, especially expanding the chronic disease workplace wellness activities to include occupational health and safety.

Key intermediate outcomes from this grant process included increased collaboration and engagement of Wisconsin's OH Program with local organizations throughout the state (e.g., health departments, colleges/universities and community-based groups) and development of local expertise and sustainable occupational health projects which have had significant impact on the communities served.

Section 2: Scientific Report

Background. In 1984 Wisconsin's occupational health partnership with National Institute for Occupational Safety and Health (NIOSH) began with the receipt of NIOSH capacity building funds and subsequent participation in the NIOSH Sentinel Event Notification System for Occupational Risk (SENSOR) program. Wisconsin's Occupational Health (OH) Program within the Bureau of Environmental and Occupational Health (BEOH) in the Department of Health Services (DHS) has utilized NIOSH funding to strengthen a fundamental occupational disease and injury program and provide a full-time program manager. These funds have enabled the OH Program to develop the capabilities, partnerships, and capacity to reduce occupationally-related injuries and death in Wisconsin and contribute occupational health data to the national surveillance system. Wisconsin's OH Program activities effectively contribute to NIOSH priorities, National Occupational Research Agenda (NORA) priorities, Healthy People 2020 objectives and Healthiest Wisconsin 2020 objectives.

While some specific state-based industry sectors and occupation groups (construction, manufacturing, agriculture) have rates of injury that are higher than the national average, current Wisconsin CSTE occupational health indicator data show stable or decreasing rates for most occupational health injuries and illnesses in Wisconsin. According to the Bureau of Labor Statistics (BLS) Survey of Occupational Injuries and Illnesses (SOII), an estimated 85,000 injuries were reported by Wisconsin employers in 2013. In the same year, 96 fatalities occurred in Wisconsin workplaces. While the overall incidence rate of workplace injury involving days away from work in Wisconsin during 2013 was comparable to the United States (110 vs. 109 injuries per 10,000 full-time workers, respectively), rates of injury in construction and manufacturing sectors were markedly higher in Wisconsin than the national averages (190 vs. 155 per 10,000 full-time workers in construction and 120 vs. 101 per 10,000 full-time workers in manufacturing). The second highest rate of injury was in agriculture at 160 per 10,000 full-time workers. Wisconsin's agriculture sector includes a substantial dairy and milk products industry, as well as feed corn and soybeans, with 36% of Wisconsin land devoted to farming and 354,000 people (10% of the state's workforce), employed in farming or agricultural businesses. NIOSH reported that agriculture ranks among the most hazardous of industries, with a fatality rate eight times that of the all-industry average. According to 2013 BLS statistics, 15.7% of Wisconsin workers were employed in high-morbidity risk occupations, slightly higher than the national average of 15.5%.

The core of the OH program's surveillance system is access to data systems that allow annual calculation of the CSTE/NIOSH OH Indicators to track the health of Wisconsin workers. To augment these indicators, Wisconsin has identified other useful data sources that can contribute to occupational health surveillance. Our goal is for Wisconsin's occupational safety and health surveillance to be as comprehensive as possible. Current and expanded data surveillance yield important information about trends, injury clusters, and emerging issues that upon investigation are used by the OH program to develop effective, science-based interventions for targeted worker populations. These interventions

have the ultimate goal of reducing occupational injuries, illnesses and fatalities in the state of Wisconsin. The program has coordinated and facilitated quarterly Occupational Surveillance Advisory Group (OSAG) meetings.

The Wisconsin OH program also disseminates information to the public and other OH stakeholders through the OH program website, newsletters and other publications. Another goal of this project is for the OH program to act as the state's leading resource for public health interventions to prevent workplace hazards. Activities conducted through this project to further that aim include publishing occupational health research most relevant to Wisconsin occupational health and safety concerns, establishing and disseminating plans for targeted OH activities through county and city public health departments, and encouraging Wisconsin academics to study occupational health. Through this work, we believe there is an increased understanding of the importance of occupational health and safety concerns, leading to an increase in overall occupational health in the state of Wisconsin.

Specific Aims. The aims of our program have not changed from the original submitted application. These four aims include: 1) Continue Wisconsin's existing occupational illness, injury and death surveillance activities; 2) Expand Occupational Health Surveillance in Wisconsin; 3)Inform Wisconsin citizens about occurrence of OH illness, injury and death; and 4) Act as a Resource for Public Health Interventions to Prevent Workplace Hazards. Progress, methodology and results for each aim are detailed below.

Aim 1 - Continued surveillance of occupational illness, injury and death

Methodology. All CSTE occupational health indicators (OHI) were collected, analyzed and reported for all five years of this cooperative agreement. The OH Program is completing an OHI Trend Report, which will be released in the fall of 2015.

The Senior Epidemiologist for the WI OH Program, Dr. Carrie Tomasallo, has continued to serve as the WI ABLES director. The OH Program Manager provided follow-up to individuals with elevated blood lead levels during the past grant year. Despite lack of ABLES funding, the OH program continues to monitor adult blood lead levels and conduct follow-back activities for elevated levels above 25 µg/dl. On a monthly basis, information on elevated blood lead cases is provided to the appropriate Wisconsin Occupational Safety and Health Administration (OSHA) office for follow-up.

Results and Discussion. In addition, the Occupational Surveillance Advisory Group (OSAG) continued to review surveillance of occupational illness, injury and death. During Year 5, OSAG meetings included presentations on and discussions of data from Occupational Safety and Health Administration (OSHA) fatality logs, the Survey of Occupational Injuries and Illnesses (SOII) and the Census of Fatal Occupational Injuries (CFOI).

Conclusions. We anticipate a reduction in the rate of occupational injuries in Wisconsin through OH program response, collaborations and partnerships.

Aim 2 - Expanding occupational health surveillance in Wisconsin

Methodology. Three new sources of surveillance during this grant period included Workers' Compensation (WC), Poison Control Center (PCC) and the Behavioral Risk Factor Surveillance System (BRFSS). Preliminary analyses of Wisconsin WC data allowed us to identify numerous injuries, including farm-related animal incidents (e.g., crushing), as well as non-agricultural injuries such as burns and strains.

The OH Program also utilized PCC reports to identify exposures and monitor trends that warrant further inquiry, including carbon monoxide poisonings during an ice hockey event. As a result, BEOH was able to rapidly identify health hazards that may not be captured in routine surveillance systems. The Epidemic Intelligence Service officer assigned to the Bureau generated monthly queries to identify any unusual work-related exposures. He also conducted an analysis of pesticide-related calls (including disinfectants, fungicides, fumigants, herbicides, insecticides, repellants and rodenticides) from 2009-2014 for occupational exposures. During this period, there were a total of 324 calls, with 75% reporting a minor clinical effect, 14% a moderate clinical effect and 1% a major clinical effect (7% were not followed with minimal clinical effects deemed possible and 3% were unable to follow and judged a potentially toxic exposure). The most common exposures by category were disinfectants, insecticides and herbicides. Of the calls investigated, 11% were deemed to be agriculturally-related (with 31% related to crops, 29% an unknown sector, 14% dairy and 11% other).

In Year 3, the WI BRFSS began inclusion of an industry and occupational (I/O) module. In Year 5, we examined the health status of Wisconsin's employed population to identify industries and occupations at higher risk of fair/poor health in Wisconsin. Among the employed population, prevalence of fair/poor health was 8.8% (95% CI 7.1-10.5) and highest among Other Services industries (13.2%), particularly among the subcategory of Accommodation and Food Services (22.1%). Highest prevalence by occupation included Office/Administrative Support (13.1%) and Service occupations (12.4%), most notably among Building/Grounds Maintenance workers (21.7%) and Food Preparation and Serving Related occupations (19.0%). In multivariate analyses, factors related to fair/poor health included: older age, male gender, depression, occupation group (all $P<0.05$), lower education and obesity ($P<0.001$). While industry group was not significantly associated with health status, employment in Office/Administrative Support occupations was associated with a significantly elevated adjusted OR (4.7, 95% CI 1.9-11.8). Findings indicate that Service industries and occupations and Office/Administrative Support occupations consistently reported higher prevalence of adverse health indicators. Inclusion of employment questions on the WI BRFSS provides the opportunity to study the potential impact of work on a person's health, highlight areas of disease disparity and improve targeting of specific industries and occupations for workplace prevention and wellness programs. The Wisconsin OH Program plans to work with BRFSS to continue inclusion of the I/O module.

Results and Discussion. The OH program continues to expand surveillance to include new sources, including Department of Workforce Development-Unemployment Insurance, detailed Census of Fatal Occupational Injuries (CFOI) reports, expanded Occupational Safety & Health Administration (OSHA) data through a Sharing Letter, the Wisconsin Electronic Disease Surveillance System, the Wisconsin Ambulance Run Data System (WARDS) and the Wisconsin Child Death Review (CDR). The OH Program has continued conversations with DWD in Year 5 to expand our MOU with DWD to enhance the utility of this data source through inclusion of additional data elements for more complete industry and occupation coding, medical information on permanent partial disability (PPD) claims, claims where surgery is required and claims with more than three weeks of lost time.

The focus of the OH Program after data analyses was to collaboratively address surveillance trends and emerging issues. The Occupational Surveillance Advisory Group (OSAG) met quarterly throughout the grant period. Membership includes WI Department of Workforce Development (DWD) Workers' Compensation, academia (UW-Madison environmental and occupational safety program), OSHA, OSHA consultation, Bureau of Labor Statistics, Marshfield National Farm Medicine Center, and the WI Safety Council, among others. Meetings of OSAG in Years 4 and 5 focused on surveillance data and discussions of next steps and possible partnerships. The OH Program plans to work with BLS and OSHA in the next grant cycle to conduct educational sessions and staff outreach booths at industry booths.

Additionally, the OH Program provided the National Farm Medicine Center, a partner in addressing agricultural safety, with aggregate agricultural injury data from WC specific to poultry, pork and dairy subsectors to inform their program priorities. PCC data on pesticide exposures were shared with the Department of Agriculture, Trade and Consumer Protection (DATCP) to increase their knowledge of poisonings in Wisconsin and foster collaboration to decrease OH poisonings.

Conclusions. The OH program aims to significantly expand our OH surveillance and develop successful intervention strategies based on in-depth investigation of occupational injuries, illnesses and fatalities. Partnerships among OH stakeholders are crucial in developing these interventions targeting Wisconsin workers.

Aim 3 – Informing Wisconsin residents about occupational illness, injury and death

Methodology. Wisconsin OH indicator data have been disseminated nationally through CSTE and statewide through the OH Program website. The Program will publish a trend report of Wisconsin OH indicators in the fall of 2015. Additionally, OH staff presented a poster on the Years 4-5 mini-grants at the Wisconsin Public Health Association conference in May 2015 and an oral presentation on this topic at the CSTE conference in June 2015.

The WI OH Program webpage is continually updated to provide occupational health and safety information for the public and making the website more accessible and engaging to the Wisconsin public will continue to be a priority. In addition, the OH program has

utilized Twitter throughout the grant period to inform Wisconsin residents about topics including the Construction Falls Campaign and respiratory safety.

Occupational health and safety for youth was a focus area through this grant period for education and outreach. In 2011, the program collaborated with Operation Fresh Start, a non-profit service organization that combines education and work experience for "at risk" youth, on a youth worker safety project. In addition, a curriculum for high school education on young worker safety was created using the NIOSH curriculum as guidance and shared with Rebecca Guerin, the Project Officer of the Safe-Skilled-Ready Workforce Initiative at NIOSH. This curriculum was implemented in Year 5 and the OH Program plans to continue delivery of the curriculum in collaboration with BLS.

Results and Discussion. Initial evaluation results of the Year 5 youth education program indicate an overall 33% increase in knowledge from pre- to post-class. Of the students in the classes, 27% were currently employed and 61% have been employed in the past. Of those that had been employed, 10% had never received on-the-job training and 20% of those that had been employed were asked to do something that made them feel uncomfortable. Among topics of discussion were young worker rights and responsibilities, as well as information on resources such as the Department of Workforce Development and OSHA.

Conclusions. We anticipate that by increasing the amount and effectiveness of our occupational health and safety messages, we will influence workplace hazard and safety knowledge, attitudes and behaviors. According to the Health Belief Model of behavioral change, this will lead to the reduction of occupational illnesses, injuries and fatalities.

Aim 4 - Acting as a workplace safety and health resource

Methodology. Finding resources to make Occupational Health (OH) a priority has been a challenge for community organizations. There may be a lack of expertise of OH in local and tribal county health departments (LHDs) and community-based organizations (CBOs). Mini-grants have a demonstrated ability to build capacity and sustainability among smaller organizations, especially in the state of Wisconsin. In 2013, the Wisconsin OH Program implemented a request for proposal (RFP) mini-grant process for non-profit organizations in order to expand OH to LHDs and CBOs, generate expertise and interest in OH and engage LHDs and CBOs in delivery of OH. The projects were to be community-based OH and safety interventions supported by surveillance data which addressed community priorities and had a high likelihood of sustainability beyond the funding period. A scoring rubric was developed for reviewing the 18 proposal responses to assess target population, clarity and specificity of the project, work plan and budget. Nine mini-grant recipients were chosen at a maximum award level of $8,750 for the project period January-June 2014.

Throughout the five-year grant period, the OH program worked with student interns in occupational health surveillance activities. Projects for student interns have included work on blood lead surveillance and with the Children's Health Alliance on work-related asthma mini-grants. During Year 5, the OH Program worked with an MPH student on his field

practicum in the Occupational Health Nursing program at the University of North Carolina-Chapel Hill. The project was a qualitative and quantitative analysis to determine the need for additional occupational health and safety services in the 6-county area of Wisconsin impacted by a proposed mine of the potential deposits in the Northwestern corner of Wisconsin along the Gogebic Iron Range.

Results and Discussion. The Program Manager for the Wisconsin OH Program worked with the nine funded agencies throughout the six-month contract period to provide technical assistance. One of the main areas of technical assistance was to help incorporate occupational health components into already-existing workplace wellness programs. Projects resulted in outcomes that would not have been possible without the RFP. Given limited funds in public health agencies, funds are seldom available for occupational health and safety projects that can increase and improve capacity at the local level. Benefits include increased collaboration between the state and local organizations and acting as the catalyst for projects that have significant impact on local communities. Most LHDs and CBOs have worksite wellness programs; however, most of the time, these do not include OH. There are existing interventions to address workplace wellness needs in chronic disease programs; these are not best addressed through OH. OH mini-grants are best focused on risk factors not otherwise addressed. As a result, the two continuation mini-grants awarded in 2015 by the Wisconsin OH Program were aimed at agricultural safety.

The WI OH program is a statewide resource for workplace safety and health information. The OSAG, which consists of experts in occupational health, serves as a resource for the WI OH Program so that it better serves the state's worker populations. Formal and informal partnerships continue to be a focus of the WI OH Program, as they improve the quality and success of the outcomes. Continued alliances include the Wisconsin Asthma Coalition, Environmental Public Health Tracking Program, Medical College of Wisconsin, State Lab of Hygiene, and the DWD Bureau of Claims Management.

Conclusions. We have increased the OH programmatic capacity of community organizations through mini-grant and OH program technical assistance-supported sustainable projects. Through the use of student interns, it is anticipated that there will be more interest in, and understanding of, occupational health and safety issues and occupational health surveillance. Subsequently, we foresee more public health professionals investigating workplace illness, injury and death, resulting in an increase in overall occupational health in the state.

Inclusion Enrollment Table

Inclusion Enrollment Table was not part of the original application for this Fundamental Surveillance Project and is therefore not included here.

Publications During Grant Period, 2010-2015

Oguss M, Rogers P, Anderson HA. Occupational respiratory health: a survey of Wisconsin workers who wear respirators. *Wisconsin Medical Journal*, 109(3): 130-135, 2010.

Suarthana E, McFadden JD, Laney AS, Kreiss K, Anderson HA. Hunt DC, Meises D, Goodin K, Thomas A, Vandermeer M, Storey E. Occupational distribution of persons with confirmed 2009 H1N1 Influenza. *JOEM,* 52:12;1212-1216, 2010.

Lemen RA, Anderson H, Bailar JC, Bingham E et al. Exposure science will not increase protection of workers from asbestos-caused disease: NIOSH fails to provide needed public health action and leadership. *Journal of Exposure Science and Environmental Epidemiology*. 21, 114-115, 2011.

Zierold KM, Appana S, Anderson HA. Students enrolled in school-sponsored work programs: the effect of multiple jobs on workplace safety and school-based behaviors. *Wisconsin Medical Journal,* 110:4:171-177, 2011.

Tomasallo C. Burden of asthma in Wisconsin 2013. Wisconsin Department of Health Services. PPH 45055 (Rev. 05/2013), available at:
https://www.dhs.wisconsin.gov/publications/p4/p45055-2013.pdf
Welsh, EC., Appana, S., Anderson H.A., Zierold K.M. The association between school-to-work programs and school performance (2014). J Adolesc Health 54(2):221-7, 2014.

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https://www.dhs.wisconsin.gov/publications/p00990.pdf

NIOSH eNews submission (June 2015). Available at:
http://www.cdc.gov/niosh/enews/enewsv13n2.html

Ghaffar R. The Wisconsin Occupational Health Surveillance Program & the Coroner/Medical Examiner. The Examiner: Wisconsin Coroners and Medical Examiners Association Newsletter. Summer 2015. Available at:
http://www.wcmea.com/media/1043/wcmea_summer_2015_newsletter.pdf

Meiman J, Anderson H, Tomasallo C; Hypothermia-related deaths--Wisconsin, 2014, and United States, 2003-2013. Centers for Disease Control and Prevention (CDC). *MMWR Morb Mortal Wkly Rep. 2015* Feb 20;64(6):141-3.

Inclusion of gender and minority subjects

During the five years of this cooperative agreement, the population studied included all Wisconsin workers between the ages of 15 years and 85 years of age and did not target any specific age group, gender or racial/ethnic group. There were no criteria for inclusion or exclusion for any portion of this project. This project involved the collection of currently existing population-level data from across the state of Wisconsin.

In 2014 it was estimated that women comprised approximately 47.4 percent of the employed population in Wisconsin (1.5 million). Racial and ethnic minorities comprised 10.2 percent (315,000) and 5 percent (146,000) of the workforce in 2014, respectively. It is estimated at approximately 14.4 percent of the workforce (444,000) is youth under the age of 25 years.

Inclusion of children

During the five years of this cooperative agreement, children were not specifically targeted for data collection. We did not specifically seek the inclusion of non-working-age children. This project involved the collection of currently existing population-level data from across the state of Wisconsin. Only anonymous, de-identified data were used in our project.

Final Financial Report (FFR)

The final FFR was submitted through eRA Commons and is attached at the end of this report.

Final Invention Statement and Certification

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

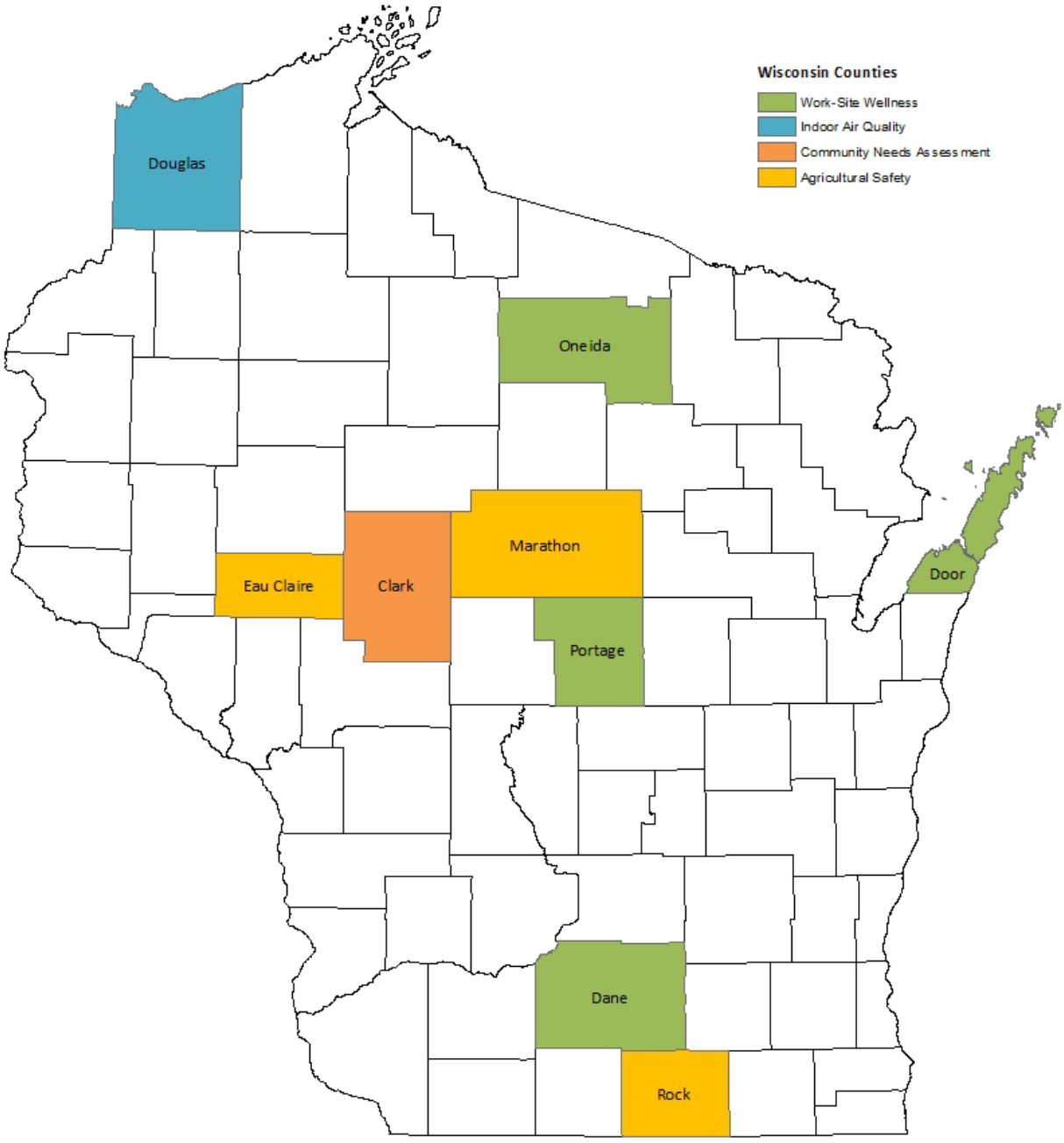
Equipment Inventory Listing

The Equipment Inventory Listing is attached at the end of this report.

Appendix 1: OH Initiatives Supported by Wisconsin OH Program Mini-Grants, February-June 2014

Funded Entity/Location	Focus Area	Description of Project
Northcentral Technical College; Wausau, WI	Agricultural Safety	This project trained farmers and first responders about farm machinery safety and farm chemical spills.
Oneida County Health Department; Oneida, WI	Work-Related Injury/Illness	This project identified chronic disease related challenges and solutions and focused on injury prevention and management related to fall prevention, reduced carpal tunnel syndrome, back injury prevention, etc. Focus groups were conducted as part of program evaluation.
Rock County Health Department; Janesville, WI	Agricultural Safety	The Rock County Agricultural Safety project aimed to increase awareness of farm safety and farm injury prevention to prevent childhood injury and death; this project will include education and outreach and evaluation of the intervention.
Clark County Health Department; Neillsville, WI	Community Needs Assessment	Clark County conducted a comprehensive assessment of residents and worksites to see what was already in place and to develop an action plan for improving policies, systems and the environment to support healthy lifestyles.
St Michael's Foundation; Stevens Point, WI	Work-Related Injury/Illness; Work-Site Wellness	Total Lifestyle Care delivered health and wellness services to underserved and underrepresented Portage County, Wisconsin. Services will include targeted education, health screenings and injury analysis.
University of Wisconsin, Eau Claire; Eau Claire, WI	Agricultural Safety; Vulnerable Populations	Companeros en Salud y Seguridad (Partners in Health and Safety) provided screenings, immunizations and education to farm workers at large dairy farms in west central Wisconsin.
Door County Medical Center Foundation; Sturgeon Bay, WI	Work-Site Health Promotion	"Keeping it R.E.A.L. Algoma!" targeted the 3 largest employers in Algoma and their employees with health coaching, injury prevention information and surveys to assess workplace injury/illness.
University of Wisconsin, Superior; Superior, WI	Indoor Air Quality	By conducting a radon survey, the University identified areas where radon may pose a risk to occupants and worked towards implementing corrective actions.
Stoughton Hospital; Stoughton, WI	Work-Related Injury/Illness	Stoughton Hospital's *My Wellness* Program partnered with businesses in Stoughton Hospital's service area to create and implement programs to improve employee wellness and decrease occupational injury/illness.

Appendix 2: Location of OH Initiatives Supported by Wisconsin OH Program Mini-Grants, February-June 2014



Appendix 3: Occupational Health Data Sources Utilized by WI OH Program

Agency: Wisconsin Department of Health Services—Division of Public Health		
Name of Database/Summary Description of Data	**Releasable to Public?**	**Format**
Adult Blood Lead Epidemiology and Surveillance (ABLES)—Adult blood lead level test results for Wisconsin residents (reported by laboratories directly to DPH)	Only in aggregate	Access or Excel
Emergency Room Visits (work-related)	No	SAS
Inpatient Hospitalizations (work-related)	No	SAS
Mortality Data (work-related)	No	SAS
Poison Control Center data on work-related injuries and illnesses	No	SAS
Agency: Wisconsin OSHA Offices		
Name of Database/Summary Description of Data	**Releasable to Public?**	**Format**
OSHA Inspection Reports: Basic information on employer that was inspected such as name, address, industry type, number of employees, etc.	Yes	Online or in Excel created by an OSHA office
OSHA Investigation Results: Basic information on a fatality, catastrophe or accident that occurred, who, what, where, when & how	Yes	Online or in Excel created by an OSHA office
Agency: Wisconsin Workers' Compensation		
Name of Database/Summary Description of Data	**Releasable to Public?**	**Format**
WCSSCHEMA: claim related data including, but not limited to, detailed claim information codes for nature, cause & body part; injury description; occupation (text field); gender; birthdate; date of hire; employer name, FEIN, location; average weekly wage at time of injury; etc. *NOTE: not all data fields are mandatory*	Only at the aggregate level, without specific identifying information. S. 102.33(2)(d) does allow for sharing of confidential data with government units, institutions of higher learning	Data has been shared in PDFs, flat files, spreadsheets and Oracle tables.

	and nonprofit research organizations.	
Agency: Wisconsin State Laboratory of Hygiene		
Name of Database /Summary Description of Data	**Releasable to Public?**	**Format**
BLS Survey of Occupational Injuries and Illnesses: annual sample of 6,000 WI establishments. Injury rates calculated per industry, lost time case details categorized by occupation, nature, event, part of body, source of injury.	Yes, in aggregate	Online, CSV, Excel, flat files
BLS Census of Fatal Occupational Injuries: annual count of "in scope" work injury fatalities in WI. Case details categorized by industry, occupation, nature, event, part of body, source of injury. Most source documents are confidential.	Yes, in aggregate	Online, CSV, Excel, flat files
Wisconsin Occupational Health Laboratories: testing results for occupational exposure levels to metals, bioaerosols, bacteria, silica, asbestos, pesticides, etc. from throughout the U.S.	No	Internal system