

A. OVERALL COVER PAGE

Project Title: Iowa Occupational Health and Safety Surveillance Program	
Grant Number: 5U60OH008460-14	Project/Grant Period: 07/01/2015 - 06/30/2020
Reporting Period: 07/01/2019 - 06/30/2020	Requested Budget Period: 07/01/2019 - 06/30/2020
Report Term Frequency: Annual	Date Submitted: 9/28/2021
Program Director/Principal Investigator Information: STUART C SCHMITZ , MS BS Phone Number: 5152818707 Email: kathy.leinenkugel@idph.iowa.gov	Recipient Organization: IOWA STATE DEPT OF PUBLIC HEALTH IOWA STATE DEPARTMENT OF PUBLIC HEALTH 321 E 12TH ST DES MOINES, IA 503191002 RECIPIENT ID:
Change of Contact PD/PI: No	
Administrative Official: LORI CONNER 321 E. 12th Street Des Moines , IA 50319 Phone number: 515-281-6645 Email: lori.conner@idph.iowa.gov	Signing Official: KEN SHARP 321 E 12th Street Des Moines, IA 50319 Phone number: 5152815099 Email: kenneth.sharp@idph.iowa.gov
Human Subjects: NA	Vertebrate Animals: NA
hESC: No	Inventions/Patents: No

B. OVERALL ACCOMPLISHMENTS

B.1 WHAT ARE THE MAJOR GOALS OF THE PROJECT?

Specific Aim 1: Conduct surveillance to track and trend selected occupational health indicators, illnesses, and injuries in the state.

Specific Aim 2: Conduct specific project surveillance, reporting, and case follow-up utilizing NIOSH and state protocols and priorities.

Specific Aim 3: Disseminate technical and lay findings and recommendations through targeted outreach to workers, employers, safety and health professionals, policy makers, and the public.

B.1.a Have the major goals changed since the initial competing award or previous report?

No

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

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B.3 COMPETITIVE REVISIONS/ADMINISTRATIVE SUPPLEMENTS

For this reporting period, is there one or more Revision/Supplement associated with this award for which reporting is required?

No

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

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B.5 HOW HAVE THE RESULTS BEEN DISSEMINATED TO COMMUNITIES OF INTEREST?

Exhibits and Presentations:

- Midwest Regional Agricultural Safety and Health Conference with presentation on Pesticide Surveillance in Iowa, November 17-18, 2015
- Midwest Regional Agricultural Safety and Health Conference with presentation "Humpty Dumpty Spends a Year on the Farm", November 15, 2016
- Iowa Environmental Health Conference with presentation, October 2018
- Midwest Regional Agricultural Safety and Health Conference with presentation, November 27-28, 2018
- Iowa CLMA/ASCLS (clinical laboratory professionals) conference regarding blood lead testing and reporting with presentation, April 16, 2019
- International Society for Agricultural Safety and Health annual conference with presentation – June 2019
- Preventing Childhood Injury Conference with presentation "Baby Shoes to Work Boots – Lead Exposure in Iowa", September 2019
- Midwest Rural Agricultural Safety and Health (MRASH) Conference with presentation "Oh, the Places We Can Go", November 2019

Exhibits Only

- Farm Progress Show Health & Safety Tent, coordination, multiple displays, August 30 – September 1, 2016
- Prevent Kids Injury Display (young worker safety), September, 2017

- Midwest Regional Agricultural Safety and Health Conference, November 14-15, 2017
- Iowa Governor's Conference for Public Health, April 3-4, 2018
- Farm Progress Show Health & Safety Tent, August 28-30, 2018
- Prevent Kids Injury (young worker safety), September 2018
- Iowa Governor's Safety Conference, November 2018
- Iowa Governor's Conference on Public Health, April 2019.
- National Environmental Health Association Region IV Fall Conference in Omaha, NE, adult and take-home lead concerns, October 2019
- Refugee Summit in Ankeny IA, lead concerns in special populations in Iowa, October 2019
- John Deere Ottumwa employee safety day, adult lead exposures in Iowa, take-home lead concerns, opioids and mental health in the work place, October 2019
- Iowa Governor's Safety Conference, adult lead exposures in Iowa, take-home lead concerns, opioids and mental health issues, November 2019

Presentations Only

- Iowa Governor's Conference on Public Health: The Burden of Injury in Iowa: A Statewide Report, April 13, 2016.
- The Intersection of Mental Health and Environmental and Occupation Public Health presentation, University of Iowa, February 2018
- A Man Walks into a Bar with a Jar of Mercury presentation, University of Iowa OH/EH graduate students, February 2018
- Burden of Occupational Injury in Iowa, 2009-2013 Full Report - October 2018; posted to web, shared by multiple electronic mail lists including the Healthy Iowans contacts. Presented overview to local environmental health contacts during quarterly webinar December 2018
- CSTE 2019 Annual meeting, Environmental Health Workshop panel – child and adult lead surveillance merged database – June 2019
- Not Gone But Often Forgotten-Why Lead Exposures Continue in Iowa (child and adult lead issues in Iowa) webinar presentation for medical providers through the Blank Children's Hospital Center for Advocacy & Outreach – October 2019
- Collins Aerospace employee training event in Cedar Rapids, IA presentation developed, Confessions of a Serial Multitasker (distracted driving prevention) for use December 2019
- University of Iowa rural health class on the intersections of mental & behavioral health and environmental & occupational public health, February 2020
- Nebraska, Iowa and Illinois Safety Council Virtual Conference, "Got Lead? Work Smart!", November 3, 2020
- University of Iowa virtual workshop, Mental Health Policies in the Workplace panel, February 11, 2021
- Iowa Illinois Safety Council Virtual Conference presentation "Got Lead? Work Smart!", May 6, 2021

Internships Provided

- Master of Public Health intern project at Farm Progress Show Health & Safety Tent regarding farmers accessing medical care, August 2018. Poster presentation given at MRASH conference, November 2018
- University of Iowa Master Public Health practicum project intern developed and disseminated materials targeting medical providers, workers and their families and local public health in four counties with the highest numbers of adult lead poisoning, January-May 2019
- College undergraduate, 30 hours, data visualization of OHI, Feb-May 2020
- College senior, 80 hours, ABLES and worker health disparities, Feb-May 2020
- Master of Public Health Intern, capstone November 2020

Other Trainings Provided

- Elevated blood lead investigator training, January 2018, October 2018, June 2019, October 2019
- Grand Rounds for medical, veterinarian, pharmacy, public health students – 2015-2020

Epi Update newsletter articles - distributed to over 1,300 medical providers, local public health and other contacts

- Don't collect capillary specimens for adult blood lead testing - August 2017
- Pesticide Exposure Reminders – August 2017
- Iowa influenza vaccinations by industry fact sheet –October 2017

- Change in OSHA requirements for worker blood lead testing laboratories - February 2019
- Take-home lead concerns was published August 2019

Media, Reports, Newsletters, social media

- Lead Poisoning Prevention Week materials for adult exposure messaging, October 2017
- 2018 Newspaper interview resulting in a story: For Farmers Harvest Time Poses Greater Safety Threats. The Cedar Rapids Gazette, September 30, 2018
- Burden of Occupational Injury in Iowa, 2009-2013 Summary Report, February 2018, full report October 2018, posted to web page and shared by multiple electronic mail lists including to the Healthy Iowans contacts.

B.6 WHAT DO YOU PLAN TO DO DURING THE NEXT REPORTING PERIOD TO ACCOMPLISH THE GOALS?

Not Applicable

5U60OH008460-14 Iowa

This is the Iowa Department of Public Health Occupational Health and Safety Surveillance Program closeout report for the July 2015 through July 2021 project period.

Stuart Schmitz was the PI/PD until his unexpected death in May, 2020. His total calendar months involvement was 59 months, although his work was not compensated by this funding.

Kathy Leinenkugel worked a total of 72 calendar months with some of her time funded by other sources. She was the key personnel throughout the project period and became the PI/PD after the death of Mr. Schmitz.

Section B2 – Accomplishments combined with publications and other activities not included elsewhere

Fundamental (Core) Surveillance and programming

The mission of the Iowa Department of Public Health (IDPH) Occupational Health & Safety Surveillance Program (OHSSP) was protecting and improving the health and safety of Iowans in the workplace. The program explored options to improve surveillance and data translation capacity, and provided analysis, dissemination and outreach functions to support the core surveillance activities including the Occupational Health Indicators (OHI) and Adult Blood Lead Epidemiology and Surveillance (ABLES). OHSSP also worked independently and with external partners on projects with state, regional and national significance.

Specific Aim 1: Conduct surveillance to track and trend selected occupational health indicators, illnesses, and injuries in the state.

Occupational Health Indicators (OHI)

- State of Iowa 2013-2018 data was used to calculate nationally established occupational health indicators. Data findings were reported to the National Institute for Occupational Health and Safety (NIOSH) and the Council of State and Territorial Epidemiologists (CSTE) occupational health subcommittee for national usage and used by OHSSP in the development of exhibit materials and presentations to a variety of audiences across the state.

Behavioral Risk Factor Surveillance System (BRFSS) industry and occupation coding.

- OHSSP advocated for the inclusion of the optional industry and occupation module questions in the 2018 Iowa survey and funded inclusion in the 2019-2021 BRFSS Iowa surveys that will provide additional data for research specific to Iowa workers.

Data Analysis and Dissemination – Burden of Injury Report

OHSSP produced a report of occupational injuries using 2009-2013 data. The report was published online in 2018 as two separate documents, a summary report and the full report. The findings were used in presentation and display materials as well as by others.

- *Burden of Occupational Injury in Iowa, 2009-2013* Full Report - October 2018. Online at <https://idph.iowa.gov/Environmental-Health-Services/Occupational-Health-and-Safety-Surveillance>.

Upper Midwest States Occupational Health Collaborative with Minnesota and Wisconsin.

Iowa OHSSP formed a Tri-State collaboration with the Wisconsin and Minnesota Occupational Health and Safety State Based Surveillance programs. The collaboration goals were to identify issues of occupational health and safety at a multi-state level.

- The Tri-State relationship helped execute a rapid response to a 2016 occupational incident involving hundreds of employees from the three states who were exposed to high levels of lead and other hazardous substances.
- Iowa OHSSP partnered with Wisconsin to submit a recommendation to the NIOSH ABLES program in 2018 and the CDC Childhood Lead Poisoning Prevention Program within the National Center for Environmental Health (NCEH) asking them to partner to make revisions to the Healthy Homes and Lead Poisoning Surveillance System (HHLPS) that would make it more user-friendly as an adult lead surveillance database. The CDC subsequently worked with Iowa and Wisconsin as user subject matter experts through teleconferences and site visits in August 2019 to pursue options with the database developer. Iowa and other states were cited in a journal article for their work. OHSSP follow-up by phone and email to a NIOSH consultant and the NCEH database developer continued into 2020.

Specific Aim 2: Conduct specific project surveillance, reporting, and case follow-up utilizing NIOSH and state protocols and priorities.

The Iowa Administrative Code 641 Chapter 1 lists diseases, poisonings, conditions and exposures that are required to be reported to the Iowa Department of Public Health (IDPH). OHSSP provided surveillance and response as appropriate.

Key Outputs and impacts

- Fall 2015: Investigation of a suspected case of progressive inflammatory neuropathy in a worker employed as part of a cleaning crew at a pork processing plant.
- 2016-2017: Investigation of pesticide exposures of detasseling crews.
- Fall 2019: Multi-agency response of a cluster of acutely ill workers and members of the public at an Iowa convenience store.
- Fall 2019: Collaborative response with multiple agencies to concerns of exposure to acetaldehyde at hog abattoir sites when gases used to euthanize animals were contaminated.
- 2020: Contract tracing and other activities for the state response to the Covid-19 pandemic.
- Winter 2020: Investigation into Ayurvedic products linked to adult lead exposure that led to a FDA investigation with the distributor in another state and a recall of the product.

Iowa Adult Blood Lead Epidemiology and Surveillance (ABLES):

Iowa consistently had high prevalence rates for adult lead exposures, with rates often double the US rates for elevated blood lead levels (EBLs). OHSSP ABLES surveillance involved the review of incoming adult BLL data, follow-up to determine exposure source or to gather missing or incomplete data. Work-related cases were coded by industry. Educational materials were provided to medical providers and new cases. Referrals were made by OHSSP to the Iowa OSHA enforcement program regarding elevated blood lead results that met developed criteria.

Key Outputs and impacts

- Reductions of worker lead exposures at an Iowa battery plant were believed to be a long-term outcome of a project begun in 2013. NIOSH ABLES worked with Missouri, Iowa and Ohio to recruit a battery plant that would allow a Health Hazard Evaluation (HHE) site visit and collaborate in the development of interventions and educational materials specific to the industry. Missouri was ultimately able to recruit an international company with plants in both Missouri and Iowa. The plant in Iowa implemented a variety of administrative and engineering practices to reduce worker exposure. In 2020, of 93 workers tested, only 8 workers had BLLs of 10 mcg/dL or higher, and no workers had BLLs greater than 14 mcg/dL.
- In 2018, OHSSP identified an increased number of EBL cases involving both children and adult family members. OHSSP made a referral to Iowa Occupational Safety and Health Administration (OSHA) of the non-battery plant manufacturing company. OSHA had not been aware of the potential for lead exposure at the plant and investigated. Lead hazards were identified and citations were issued. Employee testing at the plant increased significantly in 2019 after the OHA investigation and steps were taken by the company to reduce the risk of take-home lead. OHSSP prepared summary data and provided subject matter expertise to Iowa OSHA prior to settlement. Testing in 2020 showed 48 fewer adults with EBLs.
- Iowa OHSSP partnered with Wisconsin to submit a recommendation to the NIOSH ABLES program in 2018 and the CDC Childhood Lead Poisoning Prevention Program within the National Center for Environmental Health (NCEH) asking them to partner to make revisions to the CDC's national Healthy Homes and Lead Poisoning Surveillance System (HHLPSS). Suggested changes would make it more user-friendly as an adult lead surveillance database and would facilitate surveillance across multiple age groups, family members and sources of exposure including take-home lead exposures from workplace contamination.
 - Iowa ABLES worked with the NIOSH ABLES and CDC NCEH over multiple years on options for integrating child and adult lead surveillance databases. The Program Manager was requested as a speaker in March 2018 for a NCEH webinar.
 - The CDC worked with Iowa and Wisconsin as user subject matter experts. Through teleconferences and site visits in Iowa and Wisconsin in August 2019, the database developers gained a better understanding of processes for data reporting, database management and data uses.

- The program manager was a presenter at the 2019 CSTE Environmental Health Workshop regarding this issue. Iowa and other states were cited in a journal article for their work.
- Iowa OHSSP continued to work with both a NIOSH consultant and the NCEH database developer into 2020.

Specific Aim 3: Disseminate technical and lay findings and recommendations through targeted outreach to workers, employers, safety and health professionals, policy makers, and the public.

Collaborative Projects – Transportation Safety

OHSSP worked in partnership with the Governor's Traffic Safety Bureau (GTSB) and the Iowa Department of Transportation (IDOT) as a member of a number of advisory groups, task force groups and implementation teams. Transportation incidents were a leading cause of worker deaths in Iowa. The collaboration allowed OHSSP to utilize resources and gain synergy on projects that reduced transportation injuries and fatalities for Iowa workers and the general public.

Key Outputs and Outcomes:

- OHSSP participated in the development of the Iowa 2016 Impaired Driving Coalition Final Plan (October 2016), the Iowa Fatality Reduction Strategies report (October 2016) and the 2017 Highway Safety Plan.
- Two pieces of legislation intended to counteract the rising level of traffic fatalities related to distracted and intoxicated drivers were signed into law on April 17, 2017. The legislation utilized information from the plans and reports developed by the workgroups.
- Legislation was passed in the 2018 Iowa session addressing impaired driving, requiring the use of ignition interlock devices (IID) for first offenses. Legislation went into effect July 1, 2017 that increased the number of citations issued for texting and driving to 1,131 in the first year compared to 182 citations issued in the prior 12 months. Both legislative changes utilized strategies presented in reports authored by task groups in which the Iowa OHSSP actively participated.

Collaborative Projects – Iowa CFOI and fatality records

- 2015-2021: OHSSP continued to provide public-sourced surveillance findings of potential fatal occupational injuries to the Iowa Division of Labor to help identify worker deaths, especially deaths of self-employed workers and farmers. Fatalities meeting national criteria ultimately became part of the Iowa Census of Fatal Occupational Injury (CFOI) report to the U.S. Department of Labor Bureau of Labor Statistics.
- Hard-copy paper records collected by the Iowa FACE (Fatality Assessment & Control Evaluation) Program from 1995 to 2015 were scanned into searchable files for future reference, analysis and reporting.

Collaborative Projects – Beyond ABLES

The Beyond ABLES campaign was to provide targeted education, outreach, and awareness activities to the workers and medical providers in Iowa counties with the highest number of adults with elevated blood lead levels of 10 mcg/dL or higher while building capacity at the local public health level. Key messaging plans focused on take-home lead risks, medical impacts from long-term chronic lead exposure, and risks to young adults entering the battery manufacturing workforce. Each phase involved at least one county that lacked a local lead program. About half of Iowa's counties had established local public health childhood lead prevention programs.

- Phase 1 included three NE Iowa counties with the largest battery plant in Iowa and included 48% of all adult EBLs in 2013, and 55% of all battery plant worker EBLs.
- Phase 2 included four counties in the south-central part of Iowa near the second largest battery plant in the state and four counties adjacent to Phase 1 counties.
- Phase 3 focused on two SW Iowa counties with workers of a battery plant and another manufacturing plant with the risk of lead exposure.

Key Outputs and Outcomes:

- The campaign was presented at four regional state meetings in September 2016, with key contacts identified at the local level. A number of local programs voluntarily extended their childhood lead poisoning prevention activities to network with local employers and businesses regarding lead issues in their communities.

- In 2019 an occupational medicine resident working on his Master of Public Health practicum worked on the community-level outreach and awareness work plan. This resulted in the development of two trifold brochures targeting workers and medical providers, local public health or community groups for use at conference displays, trainings and mailings.
- Data analysis compared 2012 data with 2020 data using three criteria. Findings for all of Iowa showed the percent of total cases at a level of 5 mcg/dL or higher dropped from 40% to 27%, at 10 mcg/dL or higher from 27% to 11%, and at 20 mcg/dL or higher from 12% to 2%. Decreases varied when analyzed by phase of the project but all showed improvement.

Collaborative Projects – Agricultural Safety Outreach

Iowa OHSSP knew that addressing agricultural safety and health was important to stakeholders and collaborated throughout the project period with multiple partners to network agricultural safety outreach projects. Iowa OHSSP represented the Iowa Department of Public Health on the board of Iowa's Center for Agricultural Safety and Health. OHSSP data related to farm and rural injuries and fatalities was used by many of the I-CASH partners in their blogs, safety articles, project planning and educational training.

Key Outputs and Outcomes:

- OHSSP coordinated the Health and Safety Tent at the 2016 and 2018 Farm Progress Shows in Iowa by recruiting partners to participate in space donated by the event (over \$50,000 value). The biennial event attracts over 100,000 farmers and agricultural producers from around the Midwest and beyond.
 - OHSSP recruited over 25 other agencies or programs including the Nebraska, Iowa and Minnesota Ag Centers, the National AgrAbility Project from Purdue University, the Grain Handling Safety Coalition, AgriSafe Network, Healthier Workforce Center of the Midwest, the Iowa Department of Agriculture and Land Stewardship Pesticide Bureau, the Iowa Department of Transportation Zero Fatalities project, the Iowa Stop the Bleed project, and others to offer displays and materials to those in attendance. Exhibitors in the tent estimated over 1,000 direct contacts over the two and a half days of each show.
 - OHSSP work included coordinating placement of exhibits within the space, finding volunteers to help with demonstrations, media and promotional marketing, and interacting with the Show's management team. The success of the project resulted in a neighboring state adopting a similar outreach.
- OHSSP was coordinating the 2020 Farm Progress Show Health & Safety Tent area but due to the Covid-19 pandemic, the in-person show was canceled.

Other Activities

- OHSSP Participation in IDPH Public Health Accreditation Board process throughout year, materials submission and on the site visit interview team. PHAB awarded to department November 2018
- Reviewed and provided comments for NIOSH draft "Workplace Solutions: Preventing Occupational Exposure to Legionella" - December 2018
- Covid-19 assignments, 2020
- Iowa Injury and Violence Prevention Program State Technical Assessment Team (STAT) virtual site visit, August 2020
- IDPH Injury and Violence Prevention Advisory Committee
- OHSSP and ABLES web page postings and updates
- NIOSH Surveillance Coordinating Group monthly call co-liaison for CSTE Occupational Health subcommittee
- I-CASH (Iowa's Center for Agricultural Safety and Health) Board of Directors member, quarterly meetings, annual conference (MRASH) planning committee
- Materials for ag safety and health developed and distributed by the I-CASH for seasonal campaigns; input provided by OHSSP and linked from the OHSSP web page
- Lead in Spices, Herbs & Ayurvedic national teleconferencing workgroup participation
- University of Iowa Ag Safety & Health Grad Program External Advisory Group member
- University of Iowa DOT study; Cost of Unbelted Drivers, Technical Advisory Group member
- Governor's Traffic Safety Bureau – Impaired Drivers Task Group participation
- Healthy Iowans data updates annually

B.2 (B2 activities outcomes impact.pdf)

- IDPH Childhood Lead Poisoning Prevention Program collaboration and input as a subject matter expert, including participation in the MCEH ColIN (Maternal and Child Environmental Health Collaborative Improvement and Innovation Network) project in Iowa.
- Surveillance of blood lead levels reported for those 6 to 15 years of age not covered by funded childhood or adult lead surveillance
- Iowa State University Extension Services Pesticide Applicator Training reported that they surveyed 800 applicators and 65% reported being injured while using ATVs for pesticide application. ISU Extension developed a video about the overturn risks when using ATVs during pesticide application using data and scenarios provided by OHSSP. They received good comments from private applicators.
- IDPH Childhood Lead Poisoning Prevention Program collaboration and subject matter expert, including participation in the MCEH ColIN (Maternal and Child Environmental Health Collaborative Improvement and Innovation Network) projects in Iowa
- Consultation provided to a NIOSH contractor regarding NIOSH adult lead data visualization in the Worker Health Charts.
- NIOSH Surveillance Coordinating Group monthly call co-liaison on behalf of the Council of State and Territorial Epidemiologists (CSTE) Occupational Health (OH) subcommittee
- Participation in the national OHI Workgroup and CSTE OH subcommittee

Activities canceled due to coronavirus pandemic April 2020 – June 2021:

- Display regarding child and adult lead poisoning at the 2020 Iowa Governor's Conference on Public Health, Des Moines – April 2020
- Presentation "*Multi-Agency Response to a Cluster of Acute Illness at a Convenience Store*" at the 2020 CSTE Annual Conference, Seattle WA – June 28-July 1, 2020
- 2020 Farm Progress Show Health and Safety Tent – displays

Trainings attended

- CSTE OH/NIOSH Partners Meetings, Winter 2015, 2016, 2017, 2018, 2019
- CSTE OH/ NIOSH partners virtual meetings, February 2021
- CSTE Annual Conference, June 2016-2019; virtual Conference June, 2021
- Iowa Environmental Health Conference, October 2018
- Iowa Environmental Health Association virtual Fall Conference, October, 2020
- Iowa Governor's Safety Conference, Fall 2015-2019
- Midwest Regional Agricultural Safety and Health Conference, Fall 2015-2019
- Midwest Rural Agricultural Safety and Health Virtual Conference, November 2020
- International Society for Agricultural Safety and Health annual conference, June 2019
- Iowa Governor's Conference for Public Health, 2016,2018, 2019
- National Environmental Health Association Region IV Fall Conference, October 2019
- Refugee Summit in Ankeny IA, October 2019
- Preventing Childhood Injury Conference, Fall 2015-2019
- National Safety Council virtual conference, March, 2021

Internships Provided

- Master of Public Health intern project at Farm Progress Show Health & Safety Tent regarding farmers accessing medical care, August 2018. Poster presentation given at MRASH conference, November 2018
- University of Iowa Master Public Health practicum project intern developed and disseminated materials targeting medical providers, workers and their families and local public health in four counties with the highest numbers of adult lead poisoning, January-May 2019
- College undergraduate, 30 hours, data visualization of OHI, Feb-May 2020
- College senior, 80 hours, ABLES and worker health disparities, Feb–May 2020
- Master of Public Health Intern, capstone November 2020

Other Trainings Provided

- Elevated blood lead investigator training, January 2018, October 2018, June 2019, October 2019
- Grand Rounds for medical, veterinarian, pharmacy, public health students – 2015-2020

C. OVERALL PRODUCTS

C.1 PUBLICATIONS

Are there publications or manuscripts accepted for publication in a journal or other publication (e.g., book, one-time publication, monograph) during the reporting period resulting directly from this award?

No

C.2 WEBSITE(S) OR OTHER INTERNET SITE(S)

Category	Explanation
Data or Databases	<p>IDPH OHSSP web page including reports: https://idph.iowa.gov/Environmental-Health-Services/Occupational-Health-and-Safety-Surveillance IDPH OHSSP ABLES web page including reports: https://idph.iowa.gov/Environmental-Health-Services/Occupational-Health-and-Safety-Surveillance/Adult-Blood-Lead-Epidemiology Iowa Public Health Tracking, adult lead data: https://tracking.idph.iowa.gov/Health/Lead-Poisoning Healthy Iowans, report, updates occupational and farm safety: https://idph.iowa.gov/healthy-iowans/plan CSTE Occupational Health Indicators and guidance document: https://www.cste.org/group/OHIndicators NIOSH ABLES 2016 data: https://www.cdc.gov/niosh/topics/ables/data.html NIOSH Worker Health Charts, ABLES annual data interactive database with Iowa data: https://wwwn.cdc.gov/niosh-whc/chart/ABLES-AB?OU=L03&T=ZS&V=C</p>

C.3 TECHNOLOGIES OR TECHNIQUES

NOTHING TO REPORT

C.4 INVENTIONS, PATENT APPLICATIONS, AND/OR LICENSES

Have inventions, patent applications and/or licenses resulted from the award during the reporting period? No

If yes, has this information been previously provided to the PHS or to the official responsible for patent matters at the grantee organization?

C.5 OTHER PRODUCTS AND RESOURCE SHARING

Category	Explanation
Other	<p>Publications Iowa OHSSP July 2015-June 2021 Magnitude and characteristics of acute paraquat-and diquat-related illnesses in the US: 1998–2013. Gamola Z.Fortenberry , John Beckman, Abby Schwartz, Joanne Bonnar Prado, Lucia S.Graham, Sheila Higgins, Michelle Lackovic, Prakash Mulay, Heidi Bojes, Justin Waltz, Yvette Mitchell, Kathy Leinenkugel, Michel S.Oriel, Elizabeth Evans, Geoffrey M.Calvert; Published by Elsevier Inc. Environmental Research 146 (2016)191–199.</p>

	<p>http://dx.doi.org/10.1016/j.envres.2016.01.003. January 2016</p> <p>Acute occupational pesticide-related illness and injury —United States, 2007-2010. Calvert GM, Beckman J, Prado JM, Bojes H, Mulay P, Lackovic M, Waltz J, Schwartz A, Mitchell Y, Moraga-McHaley S, Leinenkugel K, Higgins S. In Centers for Disease Control and Prevention. Summary of Notifiable Non-infectious Conditions and Disease Outbreaks. October 23, 2015 for MMWR 2015; 62 (No. 54): 5-10.</p> <p>Notes from the Field: Acute Mercury Poisoning After Home Gold and Silver Smelting - Iowa, 2014. Koirala S, Leinenkugel K. MMWR Morb Mortal Wkly Rep. 2015 Dec 18; 64(49):1365-6. doi: 10.15585/mmwr.mm6449a4. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6449a4.htm</p> <p>Trends in non-fatal agricultural injuries requiring trauma care. Celestin Missikpode, Corinne Peek-Asa¹, Tracy Young, Amanda Swanton, Kathy Leinenkugel, and James Torner. Injury Epidemiology (2015) 2:30 DOI 10.1186/s40621-015-0062-3 Epub 2015 Dec 4. Abstract: http://www.injepijournal.com/content/2/1/30.</p> <p>Elevated Blood Lead Levels Among Employed Adults — United States, 1994–2012. Centers for Disease Control and Prevention. Summary of Notifiable Non-infectious Conditions and Disease Outbreaks. Alarcon, Walter A. and state program contacts (listed in report). Published October 23, 2015 for MMWR 2015; 62 (No. 54): 52-75. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6254a4.htm?s_cid=mm6254a4_w</p>
<p>Other</p>	<p>Publications Iowa OHSSP July 2015-June 2021</p> <p>Acute occupational pesticide-related illness and injury —United States, 2007-2010. Centers for Disease Control and Prevention. Summary of Notifiable Non-infectious Conditions and Disease Outbreaks. Calvert GM, Beckman J, Prado JM, Bojes H, Mulay P, Lackovic M, Waltz J, Schwartz A, Mitchell Y, Moraga-McHaley S, Leinenkugel K, Higgins S. Published October 23, 2015 for MMWR 2015; 62 (No. 54): 5-10. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6254a2.htm</p> <p>Wozniak RJ, Hirsch AE, Bush CR, Schmitz S, Wenzel J. Mercury Spill Responses — Five States, 2012–2015. MMWR Morb Mortal Wkly Rep 2017;66:274–277. DOI: http://dx.doi.org/10.15585/mmwr.mm6610a3</p> <p>Secondary use of program outputs: Jennissen CA, Harland KK, Wetjen K, Hoogerwerf P, O'Donnell L, Denning GM. All-terrain vehicle safety knowledge, riding behaviors and crash experience of Farm Progress Show Attendees. Journal of Safety Research 60 (2017) 71-78.</p> <p>A cluster of lead poisoning among consumers of Ayurvedic medicine. Laura Breeher, Marek A. Mikulski, Thomas Czeczok, Kathy Leinenkugel, Laurence J. Fuortes. Int J Occup Environ Health. 2015 Oct; 21(4):303-7. doi: 10.1179/2049396715Y.0000000009. http://www.ncbi.nlm.nih.gov/pubmed/25843124 - abstract, full text available on request.</p> <p>Burden of Occupational Injury in Iowa, 2009-2013 Summary Report, February 2018; posted to web https://idph.iowa.gov/Portals/1/userfiles/100/BoI%20Occ%20Summary%20021918%20rev%20101218.pdf</p> <p>Burden of Occupational Injury in Iowa, 2009-2013 Full Report - October 2018; posted to web https://idph.iowa.gov/Portals/1/userfiles/100/IA%20Burden%20Occupational%20Injury%202009_2013%20full%20report%20Oct%202018.pdf</p>
<p>Education al aids or curricula</p>	<p>IDPH Adult Lead Exposure Info Cards: https://idph.iowa.gov/Portals/1/userfiles/100/IDPH%20Adult%20Lead%20info%20cards%202020.pdf IDPH Adult Lead 2020 Info Banners:https://idph.iowa.gov/Portals/1/userfiles/100/LeadRetractableBannersNew2020.pdf</p>

	<p>Iowa Adult Lead Basics for Medical Providers flier: https://idph.iowa.gov/Portals/1/userfiles/100/Adult%20Lead%20Med%20Care%20Providers%20trifold%20May%202019_1.pdf</p> <p>Iowa Adult Lead Worker Basics flier: https://idph.iowa.gov/Portals/1/userfiles/100/Adult%20Lead%20Worker%20trifold%20May%202019_1.pdf</p>
Data or Databases	<p>Iowa Adult Blood Lead Data Charts and Tables - available at https://idph.iowa.gov/Environmental-Health-Services/Occupational-Health-and-Safety-Surveillance/Adult-Blood-Lead-Epidemiology</p> <p>Iowa Occupational Health Indicators Summary Chart - available at https://idph.iowa.gov/Environmental-Health-Services/Occupational-Health-and-Safety-Surveillance</p> <p>Burden of Occupational Injury in Iowa, 2009-2013, summary report: https://idph.iowa.gov/Portals/1/userfiles/100/BoI%20Occ%20Summary%20021918%20rev%20101218.pdf</p> <p>Burden of Occupational Injury in Iowa 2009-2013, full report https://idph.iowa.gov/Portals/1/userfiles/100/IA%20Burden%20Occupational%20Injury%202009_2013%20full%20report%20Oct%202018.pdf</p>
Other	<p>Outreach for agricultural audiences - Biennial Coordination of the Farm Progress Show Health and Safety Tent, 2016 and 2018; 2018 information document https://idph.iowa.gov/Portals/1/userfiles/100/2018%20Health%20Safety%20Tent%20Exhibitor%20details%20URLs.pdf</p>

D. OVERALL PARTICIPANTS

D.1 WHAT INDIVIDUALS HAVE WORKED ON THE PROJECT?

Commons ID	S/K	Name	Degree(s)	Role	Cal	Aca	Sum	Foreign Org	Country	SS
SCSCHMITZ	Y	Schmitz, Stuart C	BS,MS	PD/PI	11.0	0.0	0.0			NA
KLLEINEN	Y	Leinenkugel, Kathy Lou	MPA	PD/PI, Program Manager, Assistant to PD/PI, Project Staff	11.0	0.0	0.0			NA

Glossary of acronyms:

S/K - Senior/Key

DOB - Date of Birth

Cal - Person Months (Calendar)

Aca - Person Months (Academic)

Sum - Person Months (Summer)

Foreign Org - Foreign Organization Affiliation

SS - Supplement Support

RE - Reentry Supplement

DI - Diversity Supplement

OT - Other

NA - Not Applicable

D.2 PERSONNEL UPDATES

D.2.a Level of Effort

Not Applicable

D.2.b New Senior/Key Personnel

Not Applicable

D.2.c Changes in Other Support

Not Applicable

D.2.d New Other Significant Contributors

Not Applicable

D.2.e Multi-PI (MPI) Leadership Plan

Not Applicable

E. OVERALL IMPACT

E.1 WHAT IS THE IMPACT ON THE DEVELOPMENT OF HUMAN RESOURCES?

Not Applicable

E.2 WHAT IS THE IMPACT ON PHYSICAL, INSTITUTIONAL, OR INFORMATION RESOURCES THAT FORM INFRASTRUCTURE?

NOTHING TO REPORT

E.3 WHAT IS THE IMPACT ON TECHNOLOGY TRANSFER?

Not Applicable

E.4 WHAT DOLLAR AMOUNT OF THE AWARD'S BUDGET IS BEING SPENT IN FOREIGN COUNTRY(IES)?

NOTHING TO REPORT

G. OVERALL SPECIAL REPORTING REQUIREMENTS SPECIAL REPORTING REQUIREMENTS

G.1 SPECIAL NOTICE OF AWARD TERMS AND FUNDING OPPORTUNITIES ANNOUNCEMENT REPORTING REQUIREMENTS

NOTHING TO REPORT

G.2 RESPONSIBLE CONDUCT OF RESEARCH

Not Applicable

G.3 MENTOR'S REPORT OR SPONSOR COMMENTS

Not Applicable

G.4 HUMAN SUBJECTS

G.4.a Does the project involve human subjects?

Not Applicable

G.4.b Inclusion Enrollment Data

NOTHING TO REPORT

G.4.c ClinicalTrials.gov

Does this project include one or more applicable clinical trials that must be registered in ClinicalTrials.gov under FDAAA?

G.5 HUMAN SUBJECTS EDUCATION REQUIREMENT

NOT APPLICABLE

G.6 HUMAN EMBRYONIC STEM CELLS (HESCS)

Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)?

No

G.7 VERTEBRATE ANIMALS

Not Applicable

G.8 PROJECT/PERFORMANCE SITES

Not Applicable

G.9 FOREIGN COMPONENT

No foreign component

G.10 ESTIMATED UNOBLIGATED BALANCE

Not Applicable

G.11 PROGRAM INCOME

Not Applicable

G.12 F&A COSTS

Not Applicable

I. OVERALL OUTCOMES

I.1 What were the outcomes of the award?

Project: Iowa Occupational Health and Safety Surveillance Program

Project Period: July 2015 - June 2021

PI: 2015-May 2019: Stuart Schmitz; June 2019-June 2021: Kathy Leinenkugel

Organization: Iowa Department of Public Health

The mission of the Iowa Department of Public Health (IDPH) Occupational Health & Safety Surveillance Program (OHSSP) was protecting and improving the health and safety of Iowans in the workplace. The program explored options to improve surveillance and data translation capacity, and provided analysis, dissemination and outreach functions to support the core surveillance activities including the Occupational Health Indicators (OHI) and Adult Blood Lead Epidemiology and Surveillance (ABLES). OHSSP also worked independently and with external partners on projects with state, regional and national significance.

Surveillance reports, materials and resources can be found on the program web pages <https://idph.iowa.gov/Environmental-Health-Services/Occupational-Health-and-Safety-Surveillance> and <https://idph.iowa.gov/Environmental-Health-Services/Occupational-Health-and-Safety-Surveillance/Adult-Blood-Lead-Epidemiology>.