

North Carolina Occupational Health Surveillance Program  
Annual Report of Accomplishments and Impacts – Year Two  
July 1, 2016 – June 30, 2017

## Major Accomplishments and Outputs

The goal of the Fundamental – Plus North Carolina (NC) Occupational Health Surveillance Program (OHSP) is to enhance North Carolina's capabilities to characterize occupational risks to health in greater detail, focusing on state-identified priority areas, and use what is learned to inform and develop targeted interventions and other prevention strategies with the help of partners. Outcomes resulting from these efforts contribute to decreasing the health risks of occupational injuries and illnesses among North Carolina's workers. Outputs and outcomes are listed below by OHSP's three aims, as recommended by the *Guidelines for Minimum and Comprehensive State-Based Public Health Activities in Occupational Safety and Health*. NC OHSP operates from within the Occupational and Environmental Epidemiology Branch (OEEB) of the NC Department of Health and Human Services, Division of Public Health (DPH).

***Aim 1. Assessment of occupational injuries, illnesses, and vulnerable worker groups through the collection, analysis and reporting of occupational surveillance data.***

Occupational Health Indicators (OHI): Data for a total of twenty-two of the twenty-four OHI for Year 2014 were compiled by OHSP in June 2017 and reported to the National Institute for Occupational Safety and Health (NIOSH) and the Council of State and Territorial Epidemiologists (CSTE). In Summer of 2016, OHSP recruited a student intern from the University of North Carolina at Chapel Hill to collect missing NC OHI data for years 2004 through 2007. This data was compiled with other available NC OHI data (2000 through 2013, for Indicators #1 through #20, and demographic information) to conduct trend analyses. Select results on OHI trends of fatal work-related injuries were presented as a poster at the NC Public Health Association Conference in September 2016. Comprehensive results were published in December 2016 in a report available on the OEEB website.

Case-Based Surveillance: OHSP has assembled two teams composed of new and current OEEB staff dedicated to case-based surveillance activities – a team of four staff dedicated to elevated blood lead level (EBLL) case surveillance activities that includes: a newly hired processing assistant for case data entry and follow-back with workers and clinics for missing information; an administrative assistant for electronic and hard-copy data collection; an industrial hygienist (IH) for site visits and investigation consultation; an occupational health nurse consultant for quality assurance on case data, conducting worker interviews and industry site visits with IH and developing outreach information; and (on occasion) a graduate-level public health student to compile bi-annual, summary report of state EBLL case data as part of a summer internship project. A report summarizing findings for EBLL 2015 data was completed in July 2016 and published on the OEEB website. Additionally, a total of two staff are dedicated to acute pesticide-related poisoning surveillance: a newly hired social clinical research assistant to coordinate data collection, data entry and case investigations; and an occupational health nurse consultant to perform case data quality assurance, produce reports and coordinate outreach initiatives.

Additional Data Sources: OHSP has continued to explore factors contributing to disparities in occupational health among the North Carolina workforce. In Year Two, OHSP used the American Community Survey Public Use Microdata Sample to describe disparities by socioeconomic measures (e.g. race/ethnicity, English-speaking ability, poverty threshold, health insurance coverage, travel time to work, immigration status and education). An abstract summarizing select findings was submitted as an abstract and presented as a poster at the 2017 CSTE Annual Meeting in Boise, ID in June. Additionally, the OHSP plans to hire a social

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research assistant in August or September of 2017 to collect work experience data from a sample of a vulnerable working population in North Carolina (e.g. immigrant workers in high injury-risk industry sectors) using a survey instrument. This is a continuation of a multi-year project for OHSP to address occupational health disparities in North Carolina.

***Aim 2. Promotion of occupational health policy and programs through the development of partnerships.***

Advisory Group: OHSP hosted its biannual Occupational Surveillance Advisory Group Meetings in November 2016, and May 2017. The program presented findings for a site investigation involving take-home lead exposure affecting children of workers from a lead oxide manufacturing plant, reviewed the survey instrument to be used to collect worker experience data for describing occupational health disparities, solicited collaboration on projects from Advisory Group members, and voted on priority deliverables for Year Three. Priorities selected included exploring additional data sets for more occupational injury information, such as the NC Trauma Registry and the Behavioral Risk Factors Surveillance System.

Additional Partnerships: In January 2017, OHSP met with and established partnerships with the North Carolina Refugee Assistance Program (RAP) and the North Carolina Office of Minority Health and Health Disparities (OMHHD). These groups will be used as recruitment and distribution networks for work experience interview data and educational outreach information, respectively. Recruited social research assistant staff will train and work with community health workers and volunteers working with NC RAP and NC OMHHD networks to administer surveys in-person within workers' communities.

Policy Development: In Year Two, the OHSP collaborated with OEEB to pass an amendment, through the North Carolina Commission for Public Health, to the Occupational Health Surveillance rule 10A NCAC 41C .0702 under N.C. General Statute 130A to include carbon monoxide poisonings in the list of state reportable occupational health diseases, illnesses, and injuries. This rule amendment took affect April 2017, and requires all cases of occupational carbon monoxide poisoning to be reported to OEEB within 15 working days of diagnosis. OHSP and OEEB have also negotiated a contract with the Carolinas Poison Center (CPC) to provide weekly case data submissions to OEEB, with OHSP to sponsor the contract. OHSP plans to work with OEEB to evaluate if this reporting rule amendment has resulted in significant increases in the number and quality of CO poisoning reporting during Year Four of the OHSP's funding cycle.

***Aim 3. Assure protection of the workforce through intervention and prevention strategies.***

A crucial part of state surveillance is to use data analysis results to inform preventive interventions focused on identified priority risks to workers' health and safety. During Year Two, OHSP has performed outreach and interventions focused on prevention of elevated blood lead levels in adults and acute pesticide poisonings using its consultative IH and occupational health nurse functions within OEEB. These functions will continue performing consultation and site visitation services targeting small businesses, local government, self-employed workers, and low-wage and minority workforces throughout the program's entire funding cycle.

Adult EBLL Case Investigations and Outreach: May 2016, OEEB was notified by the NC DPH Children's Environmental Health Branch (CEHB) of elevated levels of blood lead levels >5µg/dL found in children of employees of a lead oxide manufacturing plant, Company X in Forsyth

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County, NC. Company X is also part of OHSP's EBLL surveillance network that submits monthly reports of employee BLL to OHSP. OHSP collaborated with the CEHB, the Forsyth County Health Department, and Company X management to attempt to decrease EBLL in both the employees and their children. Activities have included: finding and linking additional cases of EBLL in workers to EBLL records for children, multiple plant tours, over 20 employee interviews to gather behavior-linked exposure data, employee and management training, and meetings with Company X's corporate headquarters. A consultation meeting was also held with the NC OSH Consultative Services Bureau for lead level sampling. OHSP has continued to monitor EBLL among the Company X employees, and since OHSP and OEEB involvement, there have not been any new cases of EBLL reported among the Company X employees' children. Findings were submitted and accepted as an abstract presented at the 2017 Epidemic Intelligence Service Conference in Atlanta, GA in April, and as a Breakout Session presentation at the 2017 CSTE Annual Meeting in Boise, ID in June.

Acute pesticide-related poisoning prevention outreach: OHSP has detected several acute pesticide poisoning events triggering field investigations, which have included referrals from the NC Department of Agriculture and Consumer Services. Outreach activities have included meetings, seminars, courses taught, and workgroup initiatives with partner agencies including: the NC Cooperative Extension Annual Conference; the NC Pest Management Association, East Carolina University, NC State University, and the East Carolina University Agromedicine Institute to raise awareness regarding pesticide exposure prevention among pesticide applicators and occupational health workers.

### **Publications/Presentations/Reports**

- Dang GTT. Using the American Community Survey to Describe Factors Contributing to Occupational Health Disparities Among Hispanic/Latino Workers in North Carolina, 2010-2014. 2017 CSTE Annual Conference, Council of State and Territorial Epidemiologists, Boise, ID, 4-8 June. (Abstract)
- Fortenberry et al. 2016. Characteristics of acute paraquat and diquat-related illnesses in the US: 1998 - 2013 Environmental Research. Vol 146:191-199.
- Higgins S, Langley R, Buhler W. 2016. Establishment of the North Carolina Pesticide Surveillance Program and the Integration of Its Findings into Pesticide Safety Education Programs. The Journal of Pesticide Safety Education. Vol 18:12-28.
- Phillips AJ, Dang GTT. 2016. Disparities in Fatal Work-Related Injuries in North Carolina, 2003-2013. 2016 North Carolina Public Health Association Conference, Chapel Hill, NC, September. (Poster)
- Phillips AJ, Dang GTT. 2016. North Carolina Occupational Health Trends, 2000-2013: Putting Data to Work. Occupational & Environmental Epidemiology Facts & Figures, North Carolina Division of Public Health. (Report)
- Rinsky et al. Occupational and take-home lead exposure associated with a lead oxide manufacturing plant – North Carolina, 2016. 2017 EIS Conference, Epidemic Intelligence Service, Atlanta, GA, 24-27 April. (Abstract)

**Contact:** Gregory Dang; Principal Investigator; (919) 707-5904; [gregory.dang@dhhs.nc.gov](mailto:gregory.dang@dhhs.nc.gov)