

North Carolina: Annual Report of Accomplishments and Impacts – Year 5
July 1, 2014 – June 30, 2015

Fundamental Program/OHI

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Major Accomplishments and Outputs

The aims of the North Carolina (NC) Fundamental occupational surveillance program are to:

- 1) collect, analyze, interpret, use, and disseminate findings on the incidence of occupational exposures, injuries, illnesses, and deaths using existing state-level data;
- 2) identify trends, emerging issues, and high-risk occupations and industries and vulnerable worker populations; and
- 3) develop recommendations for workplace interventions.

These efforts have resulted in potential outcomes that may decrease the risk of injury and illness if recommendations are used.

Aim 1. Collection, analysis, interpretation, use, and dissemination of findings on the incidence of occupational injuries, illnesses, deaths and exposures using existing state-level data.

OCCUPATIONAL HEALTH INDICATORS (OHI)

The NC Occupational Surveillance Unit (OSU) of the Occupational and Environmental Epidemiology Branch (OEEB), NC Division of Public Health (DPH), utilizes nationally collected OHI data to provide a basic description of worker health in the state and identify priorities for expanded epidemiologic profiling to better characterize problem areas impacting NC workers.

- Twenty of twenty-two OHIs for 2012 were compiled and submitted in June, 2015 to the National Institute for Occupational Safety and Health (NIOSH) for quality checks, and the Council of State and Territorial Epidemiologists (CSTE) for publication on their website. The NC 2012 OHI includes data for the new Indicator #22: Work-Related Severe Traumatic Injury Hospitalizations.

STATE-SPECIFIC INDICATORS

In an effort to build surveillance capacity in unfunded states and strengthen regional collaboration on occupational health issues, representatives from 12 state-level occupational health surveillance programs in the Southeast region of the US came together in 2011 to form the Southeastern States Occupational Network (SouthON). In Year 5, NC OSU collaborated with SouthON to achieve the following:

- Finalized a guidance document on how to generate a state-specific occupational health indicator for work-related heat illness using hospital discharge and emergency department visit data.

Guidance document is currently being voluntarily pilot-tested by other state occupational surveillance programs.

- Finalized a manuscript of a multi-state, regional occupational heat-related illness report to be submitted to the American Journal of Industrial Medicine. Data was included from nine states (GA, FL, KY, LA, NC, SC, MS, TN, and VA) for years 2007-2011. Rates of hospital and ED visits were significantly higher among males and non-Hispanic Blacks. Younger workers aged 18-35 had the highest rates of ED visits, whereas older workers aged 35-39 years had the highest rates of hospitalizations for occupational heat-related illness. This study was one of the first of its kind to evaluate occupational heat-related illness hospitalizations and ED visits in the southeast region of the US. Findings can help state and local health departments to track and evaluate work-related heat illness.

Aim 2. Identification of trends, emerging issues, high-risk occupations, industries, and worker populations.

TRENDS AND EMERGING ISSUES

NC currently supports two case-based surveillance programs: NC LEAD and Pesticide Incident Surveillance. These programs provide continual case-based surveillance for reported work-related pesticide exposures, and elevated adult blood lead levels in adults ≥ 40 ug/dL. Work-related burns was the remaining priority area identified in Year 4 that was addressed in Year 5.

- Work-related burns: ten years of OHI data (2001-2011) for Indicator 6: "Hospitalizations for Work-Related Burns," were compiled using counts, rates, and some stratifications to examine trends, identify high-risk worker groups, and inform potential prevention efforts. Results were published as an independent report on the OEEB website, available at <http://epi.publichealth.nc.gov/oeo/oii/docs/Burns.pdf>.

PARTNERSHIPS TO ENHANCE SURVEILLANCE INFRASTRUCTURE

OSU has engaged various partner agencies to explore additional data sources and ways to better describe work-related injury and illnesses necessary for developing targeted interventions.

- Behavioral Risk Factor Surveillance System (BRFSS) data: OSU has taken steps to support health promotion in the workplace through the addition of industry and occupation questions to the state survey during early 2014. Industry and occupation (I/O) data are currently being collected on the BRFSS survey for North Carolina, with support from NIOSH. OSU will continue discussions with chronic disease partners on means of collaboration once multiple years of data are available for analysis.
- NIOSH Industry & Occupation Computerized Coding System (NIOCCS): OSU provided training in September, 2014 to partner agency representatives to help code industry and occupation text fields and provide standard North American Industry Classification System (NAICS) coding to existing datasets. Data coded with NIOCCS can help OSU expand surveillance capacity using additional alternate data sources. Agency representatives were present from:

- East Carolina University
 - NC Agromedicine Institute
 - UNC Chapel Hill Gillings School of Global Public Health
 - Duke University
 - NC State Center for Health Statistics
 - NC Division of Public Health, Injury and Violence Prevention Branch
 - Social & Scientific Systems, Inc.
 - ABT Associates
- OSU collaborated with NIOSH, the Massachusetts Department of Public Health, and other state partners to complete the first draft the “CSTE Temporal Analysis Guidelines/ Recommendations for Using OHI Data”. This document is currently being pilot-tested and edited by partners with technical expertise in state health departments, academia, and NIOSH. A second draft is expected to be completed in late 2015. A finalized draft will be posted on the CSTE website as an optional guideline for use by states for OHI data trend analysis.
 - OSU collaborated with NIOSH and nine states in the southeastern US region (KY, FL, VA, LA, GA, TN, AR, WV, and MS) to draft a manuscript describing fatal work-related industries in these states using BLS Census of Fatal Occupational Injuries data from 2008 through 2011. Manuscript was submitted in May, 2015 to the the American Association of Occupational Health Nurses *Workplace Health and Safety Journal* for publication.
 - OSU collaborated with its Advisory Group members to address surveillance issues concerning temporary workers in North Carolina. A basic profile of NC temporary workers was also provided to stakeholders at the biannual Advisory Group meeting in May, 2015. This profile used Bureau of Labor Statistics data and NC Department of Commerce Labor and Economic Analysis Division data, and included information on:
 - How NC ranks against other states regarding number of employees within the temporary services industry
 - How job growth and wages in the temporary services industry compared to total private jobs over time
 - The top 15 staffing agencies in NC by employee number and by sales
 - Wage comparisons of the top occupations within the employment service industry
 - Which industries and occupations have the highest concentration of temporary workers (eight of the top ten economic subsectors with the highest concentration of temporary workers are within the manufacturing industry)

A speaker from the US Department of Labor also presented information on US OSHA’s Temporary Worker Initiative and recommendations on how host and staffing agencies can collaborate to ensure temporary worker health and safety. The Advisory Group was surveyed in June, 2015 to determine best “next steps” for a North Carolina initiative to address temporary worker surveillance issues in the state. Results will be compiled in late August, 2015.

- OSU presented select OHI data results at the Safety and Health Council of North Carolina (NC SHC) Manager of Environmental Safety and Health (MESH) Programs training seminar in June, 2015. NC SHC is part of OSU’s Advisory Group.

Aim 3. Development of recommendations for workplace interventions.

To follow up with the workplace carbon monoxide (CO) exposure prevention initiative addressing agricultural industry workers in Year 4, target stakeholders (farm/grower commodity associations, state and local partner agencies) were surveyed to determine adaptation and usage of outreach materials published by the program. Materials were:

- Disseminated at stakeholders' periodic meetings.
- Distributed to each group's members and constituents.
- Posted on the associations' and agencies' respective websites.

Results of this initiative were also accepted as an abstract and presented as a poster at the Council of State and Territorial Epidemiologists annual conference in Boston, MA in June, 2015.

NC OSU expanded its CO exposure prevention initiative into a data-driven intervention effort targeting industry sectors at high-risk for CO exposure in the state. In November, 2014, using North Carolina's National Toxic Substances Incident Program (NTSIP) surveillance system data, OSU determined the manufacturing industry sector was at highest risk, with the largest proportion of work-related CO release incidents occurring in manufacturing worksites within an eight-year period (2002 through 2014). OSU partnered with Advisory Group members affiliated with the NC Department of Labor Occupational Safety and Health Division, and the NC American Society of Safety Engineers (ASSE) Tar Heel Chapter, to engage local key stakeholders in the manufacturing industry to determine preferred methods of outreach. These stakeholders included the NC Manufacturing Alliance, members of the ASSE Tar Heel Chapter, and two independent health and safety contractors. Key stakeholder engagement included:

- Attendance and a presentation at a NC ASSE Tar Heel Chapter meeting in January, 2015, in which 80% of those in attendance worked in the manufacturing industry.
- A needs assessment survey disseminated to the 288 Tar Heel Chapter members via email.

Feedback was received, and OSU designed four electronic factsheets that were:

- Disseminated to key stakeholders on April, 2015.
- Provided to local health departments via emailed links.
- Posted on the OEEB website.

Factsheets provided information on:

- How manufacturing workers can recognize and prevent potential CO exposures.
- How manufacturing business owners can recognize and prevent potential CO exposures.
- How workers in any industry can recognize and respond to workplace CO exposure.
- How CO release can be monitored at any workplace.

In May, 2015, follow-up survey was sent out to all groups and agencies that received outreach materials to assess their adaptation and usage of the materials. Results will be compiled by the end of August, 2015.

Publications/Presentations/Posters/Reports/Webinars

Dang GTT. 2014. Work-Related Burns in North Carolina, 2001-2011 NC Division of Public Health.

Available: <http://epi.publichealth.nc.gov/oeo/oii/docs/Burns.pdf>. (Report)

Harduar Morano L, Bunn T, Lackovic M, Lavender A, Dang GTT et. al. Occupational Heat-Related Illness Emergency Department Visits and Inpatient Hospitalizations in the Southeast Region, 2007-2011.

American Journal of Industrial Medicine. (Pending)

Brinker K, Jacobs T, Shire J, Bunn T, Chalmers J, Dang GTT et. al. Fatal Work-Related Injuries —

Southeastern United States, 2008–2011. American Association of Occupational Health Nurses: *Workplace Health and Safety*. (Pending)

Dang GTT, Kapadia S, Tutor R et al. 2015. North Carolina Occupational Surveillance Response to Agricultural Worksite Carbon Monoxide Release, 2013. 2015 CSTE Annual Conference, Council of State and Territorial Epidemiologists, Boston, MA, 14-18 June. (Poster/Abstract)

Earnest E, Dang GTT. Recognize the Signs of Carbon Monoxide (CO) Poisoning at Your Worksite! NC Division of Public Health. Available: http://epi.publichealth.nc.gov/oeo/a_z/co.html. (Factsheet)

Earnest E, Dang GTT. Carbon Monoxide (CO) Monitoring – What You Need to Know. NC Division of Public Health. Available: http://epi.publichealth.nc.gov/oeo/a_z/co.html. (Factsheet)

Earnest E, Dang GTT. Carbon Monoxide in the Workplace – What Workers in Manufacturing Need to Know. NC Division of Public Health. Available: http://epi.publichealth.nc.gov/oeo/a_z/co.html. (Factsheet)

Earnest E, Dang GTT. How Employers Can Prevent Carbon Monoxide (CO) Poisoning at the Worksite. NC Division of Public Health. Available: http://epi.publichealth.nc.gov/oeo/a_z/co.html. (Factsheet)

Dang G. Occupational Health Indicators, 2010. Manager of Environmental Safety and Health Programs Training, Safety and Health Council of North Carolina. June, 2015. Raleigh, NC. (Presentation)