

Tennessee Occupational Health and Safety Surveillance Program (TN-OHSSP)

Annual Report: July 2016 – June 2017

Tennessee Department of Health (TDH)
Occupational Health and Safety Surveillance Program (Fundamental Program)

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1. Summary

In its second year as a fundamental program, the Tennessee Occupational Health and Safety Surveillance Program (TN-OHSSP) continued to collect significant data for the Occupational Health Indicators (OHIs) Report. Those indicators helped to identify occupational health and safety trends and provided guides to surveillance. During the previous year, TN-OHSSP participated in many nationwide conferences (most recently, the SouthON conference in Nashville, TN, on April 6-7, 2017 and collaborated with other states, Council of State and Territorial Epidemiologists (CSTE), CDC/NIOSH, other Tennessee agencies and academic institutions. The program was enhanced significantly by those partnerships and coordinated activities.

2. Major Outputs and Outcomes

2.1. OHI Report

Last year, the TN-OHSSP team worked closely with Tennessee Department of Labor and Workforce Development in order to collect additional data. At present, the TN-OHSSP team is able to identify sources for 23 of 24 requested indicators. Tennessee does not collect data for indicator 21. Nineteen (19) indicators were completed in the 2013 OHIs Report. Twenty-three (23) indicators were provided in the 2014 OHIs Report. The TN-OHSSP team has already compiled most of the indicators for the 2015 OHIs Report. The OHIs have been analyzed for occupational health and safety trends, and the team plans to publish those indicators on departmental websites.

2.2. Data Mining

Tennessee's Hospital Discharge Data System (HDDS), Vital Statistics System, Tennessee Cancer Registry (TCR), and Behavioral Risk factor Surveillance System (BRFSS) were mined for various occupational health issues. Several topics were investigated, including but not limited to, work-related hospitalization cases, young workers and agriculture injuries. A significant amount of effort was spent on data cleaning. Industry and Occupation information (I&O) was collected in some of Tennessee's datasets. However,

those data elements were difficult to analyze because a majority of them were in text format instead of standardized coding system (i.e. NAICS, SOC). Thus, those data elements were converted into

standardized classification codes utilizing NIOSH's NIOCCS. To date, all available occupation and industry cancer data between 1983-2013 has been converted. There are over 1 million records containing cancer patients' industry and occupation information in the database. The conversion of data elements allows for "cleaner" datasets, easier data management, more robust analyses and enables record linkage and crosswalks between different datasets. Furthermore, the use of standard classification codes at the time of data entry will save valuable time and effort.

2.3. Significant Findings

As a result of the data cleaning efforts of the Industry & Occupation (I&O) information, the TN-OHSSP team was able to identify industries with high risk of cancer, namely manufacturing, construction, education and health care; in addition, industry sectors and occupations with high risk for a specific cancer type or cancer site were identified. For example, 55% of mesothelioma patients were from manufacturing and construction sectors, and the most common cancer sites for firefighters in Tennessee are the prostate gland, lung and bronchus, blood, bone marrow and hematopoietic system, urinary bladder, and large intestine – accounting for nearly two-thirds of cancers among firefighters. In addition to ongoing analysis of the Tennessee Cancer Registry, the team spent significant efforts examining the Death Statistical System (i.e. death certificates). Annually in Tennessee, there are approximately 765 inpatient admissions and 46 deaths due to pneumoconiosis. Pneumoconiosis mortality rates were highest in the manufacturing, construction and mining sectors. These findings have helped provide a better understanding of occupational health issues and prevention objectives.

2.4. Collaborations and Partnerships

The TN-OHSSP team participated in many nationwide surveillance activities over the course of the last year. Dr. Ramona Lainhart and Mr. Hantao Wang attended meetings in Atlanta, GA on Dec 6-8, 2016 for the CSTE Occupational Health Subcommittee, NIOSH Grantee State OH Surveillance Partners' Meeting and the NIOSH Workers' Compensation (WC) Meeting.

The Tennessee Department of Health hosted the 6th Annual Southeastern States Occupational Network (SouthON) meeting on April 6-7, 2017 in Nashville, TN. The overarching goal of the SouthON conference was to continue collaborations with other southeast state health departments, CDC/NIOSH, OSHA, CSTE, Regional Occupational Safety and Health Education and Research Centers (OSH ERC) and other occupational safety and health stakeholders. SouthON fosters and increases capacity for surveillance of work-related injuries and illnesses at the state and regional level. Specifically, the conference included breakout sessions to discuss multidisciplinary research studies/interventions with temporary workers and vulnerable populations and work-related opioid exposure surveillance. Mr. Hantao Wang demonstrated the importance of data cleaning in Industry & Occupation variables in many of the Department's datasets in a SouthON presentation, titled "Data Standardization May Improve Data Analysis".

On June 4-8, 2017, Mr. Hantao participated in the Council of State and Territorial Epidemiologists (CSTE) Annual Conference in Boise, ID, furthering partnerships with occupational health experts. TN-OHSSP has also submitted abstracts to TPHA and APHA, which describe investigations into COPD health and hospitalization outcomes. TN-OHSSP also contributed in many multi-state occupational health and safety studies. The technical staff collaborated with CDC to investigate silicosis mortality and hospitalization rates by providing supplemental information on indicators 9 and 10. CDC presented an aggregated summary of program data at the 2016 CSTE Occupational Health Surveillance Subcommittee Meeting. TN-OHSSP also provided data for an analysis of occupational heat-related illness led by the Southeastern Occupational Health Network (SouthON). A summary of the study results were presented by CDC at the SouthON conference.

3. Potential Outcomes and Outputs

3.1. Advisory and Steering Committees

TN-OHSSP has identified experts from academia and industry to join as members of the Advisory and Steering Committees. The first Advisory and Steering Committee meetings are scheduled for July and October 2017 respectively. The following persons have been identified as committee members:

Advisory Committee

- Mr. Edward Taylor (Executive Director, Construction Industry Research & Policy Center, College of Business Administration, University of Tennessee at Knoxville, Knoxville, TN.)
- Dr. Jon Parham (Director of Occupational Health Services, University of Tennessee Medical Center, Knoxville, TN 37996)
- Ms. Allie Bell (Research Coordinator III, Occupational Health Clinic, Vanderbilt University, Nashville, TN 37235)

Steering Committee

- Dr. Ken Silver (Associate Professor, College of Public Health, East Tennessee State University, Johnson City, TN 37604)
- Dr. Martha Jones (Associate Professor, Center for Medicine, Health, and Safety, Vanderbilt University, Nashville, TN 37235)
- Dr. Heather O'Hara (Assistant Professor, Family & Community Medical School, Meharry Medical College, Nashville, TN 37208)

3.2. Research

TN-OHSSP has identified several potential research projects working in partnership with academic partners (e.g., UTK's Construction Industry Research & Policy Center) and/or other state agencies (TN Department of Labor and Workforce Development). TN-OHSSP will assist surveillance efforts, identifying effected and at-risk populations and occupational hazards. TN-OHSSP continues to seek out other partners to support program initiatives and outcomes.

An environment health study of daily work-related hospitalization is ongoing and we are looking for relationship of environment factors and occupational health and safety. In addition, the TN-OHSSP team is currently conducting a survival analysis of mesothelioma patients. TN-OHSSP also works closely with Tennessee's Behavior Risk Factor Surveillance Survey (BRFSS) team. In 2014, Tennessee BRFSS adopted the Industry and Occupational Module and plans to continue its usage in future questionnaires. Preliminary analyses indicate this data's potential in assessing specific risk exposures, showcasing worksite wellness and health promotion programs and identifying industries and occupations for targeted interventions.

4. Intermediate Outcomes: Data Sharing

TN-OHSSP-generated reports will be posted on the [Tennessee Department of Health's website](#). Customers can readily request data and analyses via the Department's [Data Request Portal](#). Researchers may also complete the Department's Institutional Review Board (IRB) process online via <https://www.irbnet.org/release/index.html> (if applicable).

5. End Outcomes

Current Occupational Health Indicator data demonstrate stable counts and rates for most occupational injuries and illnesses in Tennessee. TN-OHSSP continues to monitor trends in OHI data, investigate fluctuations in outcomes and collaborate with partners to identify interventions that will prevent future injury and illness.