

Annual Report, July 2016 - June 2017
Occupational Health Surveillance Program (OHSP)
Massachusetts Department of Public Health (MDPH)
Expanded Occupational Health Surveillance in Massachusetts
Fundamental Project

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Web address – www.mass.gov/dph/ohsp

The aim of the Fundamental Project is to reduce the incidence of work-related injuries and illness in Massachusetts (MA) by:

- Generating and disseminating state occupational health indicators (OHIs),
- Conducting more extensive analysis of available population-based data sets and disseminating findings,
- Conducting sentinel case surveillance and follow-up of serious occupational health events,
- Maintaining working relationships with stakeholders to promote use of surveillance findings for prevention,
- Integrating occupational health with other ongoing public health activities, and
- Promoting collaboration among Northeastern states to improve occupational health surveillance capacity.

A supplemental aim of this project is to conduct interventions to reduce occupational lead exposure, working in collaboration with the MA Department of Labor Standards (DLS).

MAJOR OUTPUTS/PRODUCTS

Occupational Health Indicators (OHIs)

- Generated 23 of the 24 MA Occupational Health Indicators (OHIs) for 2014, which were submitted to NIOSH/CSTE as well as all 4 MA-specific indicators.
- Took the lead on updating the CSTE *How-To Guides* for OHIs #7 & #18.
- Assisted Work-Related Lung Disease project in collecting additional information for the silicosis indicators.
- Obtained access to newly reconfigured Occupational Lead Poisoning Registry database maintained by the DLS, and working with DLS and the MDPH Bureau of Environmental Health to include adult lead indicator data in the MA Environmental Public Health Tracking System.

Population-based surveillance

- Completed study assessing MA employer compliance with new OSHA reporting requirements for amputations during 1/1/15-6/2/16. A total of 184 unique work-related amputations were identified using Workers' Compensation records and employer amputation reports submitted to OSHA. Of these, 50% [CI: 42-57%] were reported by employers. Employment reporting varied by industry and establishment size. Findings were presented at NEON and CSTE (See presentations).
- Contributed data on work-related asthma with the WRLD Project, fatal and nonfatal work injuries, occupational lead poisoning and asbestos-related diseases for inclusion the MDPH State Health Assessment (SHA), an essential component of the Department's application for public health accreditation.

- Participating in the MDPH BRFSS Working Group, working closely with the MA BRFSS Coordinator. Collaborated with other states through the CSTE/NIOSH national BRFSS workgroup and incorporated a question about work-related injuries in the 2017 MA BRFSS.

Sentinel Case surveillance. Collected case level data of reportable conditions on flow basis from the workers' compensation system, the state Burn Registry and the regional poison control center resulting in referrals of 100 cases of work-related amputations (65), serious burns (27), poisonings (4), and other events to other agencies [OSHA (97) and DLS (3)] for follow-up. Of the cases referred, 74 were otherwise unknown to these agencies.

- **Interventions to reduce lead exposure.** The Occupational Lead Poisoning Registry completed healthcare provider interviews for 78% of the 94 cases of blood lead levels (BLLs) ≥ 25 $\mu\text{g}/\text{dl}$ and provided technical assistance regarding clinical management of lead poisoning, lead-safe practices and the deleterious effects of take-home lead. Sixteen persons had BLL ≥ 40 $\mu\text{g}/\text{dl}$ of which five were interviewed; each person received a letter informing them of their exposure, with information about health effects of lead and resources for follow-up.

Collaborations/integration

- **Special highlight:** MDPH has recently codified recognition of employment and working conditions as a social determinant of health in department regulatory guidance pertaining to the hospital Determination of Need (DoN) process. OHSP is incorporating local area information about employment and occupational health outcomes in a new Public Health Information Tool (PHIT) –a data query system that hospitals can use to complete required community health needs assessments. This MDPH initiative aligns well with OHSP's efforts to encourage consideration of work and health in local public health planning. The PHIT involves many MDPH programs in providing data to inform hospital prevention spending in their communities for DoN and community benefits requirements.
- Co-chaired four meetings of the MA Occupational Health and Safety Team (MOHST), bringing together representatives of state and federal agencies that share responsibility for protecting workers in MA. The MOHST experience was submitted to CSTE as a MA Success Story to be posted on the CSTE website.
- Participated in planning and provided financial support for the 26th Annual Northeast Regional Occupational Health Surveillance meeting (NEON) held in Chester, Connecticut in May. Over 40 people attended representing health departments from CT, MA, NJ, VT, NY State and NYC as well as the New England Center for Agricultural Medicine and Health, NIOSH, Harvard ERC, NY/NJ ERC, ME Department of Labor, CT OSHA, Mount Sinai School of Medicine (World Trade Center medical surveillance), Yale School of Medicine, the CT Agricultural Experiment Station, and the University of Connecticut.
- Community Health Workers (CHWs) like all workers face risks on the job. They can also potentially serve as a source of health and safety information for their clients. OHSP collaborated with the MDPH CHW program to include questions on workplace health and safety training in statewide surveys of both CHWs and the agencies that employ them. These surveys are intended to create a baseline to assess the impact of new CHW certification requirements. Three quarters of CHWs reported receiving workplace health and safety training, but only half reported learning about workers' compensation. CHW employers were more likely to report health and safety training had been provided, than the

CHWs reported themselves. Findings will inform future plans to provide CHWs with health and safety training.

- The MDPH Working on Wellness (WoW) program, which supports wellness programs in workplaces throughout MA, is in process of planning for the future. OHSP is providing input to this process promoting a vision of Worksite Wellness that addresses worksite risks as well as personal behaviors. As part of this effort, we are exploring approaches to incorporating data on employment and occupational health outcomes in community health needs assessments. (See special highlight above.) The OHSP Director also continues to serve on Advisory Boards to two NIOSH-funded centers for excellence on “total worker health.”
- OHSP staff serves on the Healthcare Services Board of the Department of Industrial Accidents. This period OHSP has engaged DIA’s collaboration in a successful MDPH grant proposal to address risks of opioid abuse and overdose among injured workers using data from the prescription drug monitoring program, the workers’ compensation system and death certificates. This work also involves OHSP collaboration with multiple MDPH programs including, among others, the MA Violent Death Reporting System and the Bureau of Substance Abuse Services.

Presentations

- Pechter E. “Casinos in Massachusetts: New Jobs, Old Hazards. Is This Covered in Problem Gaming Prevention?” presented at New England College of Occupational and Environmental Medicine Annual Conference, Integrating OEM in the Workplace and Beyond, December 2, 2016
- Hawkins D., Laing J. “Poison Center and DPH Occupational Health: Ongoing Partnership on Occupational Exposures” – presented as part of a MA/RI Regional Center for Poison Control and Prevention Legislative Briefing at the MA State House. March 29, 2017,
- Davis L, Grattan K. “Employer Reporting under new OSHA amputation reporting requirements, Massachusetts, 1/1/15-6/2/16”, presented at the CSTE Annual Conference, June 7, 2017, and Northeast Occupational Health Surveillance Network (NEON) meeting, Chester, CT, May 9-10, 2017.
- Hawkins D. “Modeling Opioid Overdoses Attributable to Workplace Injuries and the Impact of Interventions”, presented at the Northeast Occupational Health Surveillance Network (NEON) meeting, Chester, CT, May 9-10, 2017.

MAJOR OUTCOMES

Intermediate outcomes

- OHSP findings on work-related injuries and illnesses to local government workers were used by the MA Department of Labor Standards (DLS) to target outreach to local municipalities to improve compliance with OSHA standards and to prioritize high-risk areas for community-level intervention and prevention.
- “Dying for Work in Massachusetts” released on Workers’ Memorial Day in April 2017, by Massachusetts Coalition for Occupational Safety and Health (MassCOSH) and the Massachusetts AFL-CIO, relies on fatality investigations by FACE and occupational health data collected by OHSP. This year’s report highlighted the importance of surveillance and

the contributions of OHSP to occupational injury and disease prevention.

<http://www.masscosh.org/publications/featured-articles/masscosh-honors-fallen-workers>

- OSHA conducted at least 32 investigations of worksites in response to OHSP referrals, of which 19 resulted in citations. An additional 8 OHSP referrals resulted in OSHA contacting employers in the form of a rapid response letter or other follow-up. OSHA's worksite follow-up of the additional cases referred is still in progress. OHSP met with new OSHA Region I Administrator (4/20/17) at which time OSHA reiterated that these referrals are a useful means of targeting fruitful investigations. While we have not assessed the impact of these specific investigations, prior research indicates that OSHA enforcement investigations contribute to the improvement of working conditions.
- Several community partners have taken steps to promote inclusion of health and safety training for CHWs in training provided as part of the CHW certification process.

Potential and end outcomes

The MA Fundamental Project has not tracked specific end outcomes in relation to its activities. The interagency collaborations and substantial efforts to integrate occupational health into other ongoing public health activities, including several new important initiatives this period - MA PHIT and the state response to the opioid epidemic- have the potential to promote increased consideration of the influence of work on health by the broader public health community and, in turn, improve the health and safety of working people in Massachusetts and throughout the nation.

PUBLICATIONS AND WEB RESOURCES

- Massachusetts Department of Public Health, 2016. "Work-related Injuries and Illnesses among Local Government Workers in Massachusetts, 2009-2011."
<http://www.mass.gov/eohhs/docs/dph/occupational-health/local-government-worker-report.pdf>
- MDPH Blog Post National Poison Prevention Week (March 30, 2017) "Do You Work Around Chemicals? Learn How to Protect Yourself."
<https://blog.mass.gov/publichealth/workplace-health-and-safety/do-you-work-around-chemicals-learn-how-to-protect-yourself/>
- MDPH Blog Post in collaboration with FACE and WRLD project: "Asbestos: An Old Hazard Still with Us Today." Mass Public Health Blog (June 20, 2017).
<https://blog.mass.gov/publichealth/workplace-health-and-safety/asbestos-an-old-health-hazard-still-with-us-today/>
- Last period, OHSP took the lead, with the CSTE OHI Workgroup sub-state measures team, to develop *How-to Technical Guidance* for analysis of workers' compensation data by place of work Public Use Microdata areas (PUMAs); this was incorporated in the CSTE document "Occupational Health Sub-State Measures Technical Guidance and Examples" posted this period on CSTE website. www.cste.org/resource/resmgr/occupationalhealth/Sub-State_Measures_Guidance_.pdf

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The Young Workers Injury Surveillance and Prevention Project (YWP) within the Massachusetts Department of Public Health aims to prevent work-related injuries to young workers by:

- Continuing case ascertainment using multiple data sources,
- Conducting case follow-up with injured youths,
- Analyzing surveillance data and disseminating findings,
- Developing and conducting intervention and prevention activities, and
- Collaborating with government and community partners to promote use of surveillance findings for prevention.

Since 1993, YWP has conducted a range of surveillance and outreach activities that aim to make jobs safer for workers under age 18. Beginning in 2010 we expanded our efforts to include young adult workers ages 18-24. Listed below are highlights from Fiscal Year 2017.

MAJOR OUTPUTS/PRODUCTS

- **Case based surveillance.** YWP identified 149 injuries to teen workers this year, through lost time workers' compensation (WC) claims and the Poison Control Center (PCC). Twenty interviews were completed resulting in 2 cases being referred to enforcement agencies. Educational materials on health and safety and child labor laws were mailed to all employers of injured teens. YWP also identified 3,421 injuries to young adults this year through lost time WC claims, the PCC, and the MA Burn Registry. Interviews were attempted with all young adults sustaining an amputation or burn and temporary workers; 23 interviews were completed; 3 temporary workers referrals were made (see below) and 6 amputation and burn referrals were made through the Fundamental Project. In addition a random sample of young adults was selected for interviews; 18 interviews have been completed.
- **Information on injuries to young adult workers.** YWP completed an updated analysis of injuries among young adult workers (ages 18-24) based on statewide hospital discharge and emergency department data for 2010-2014.
- **Young Worker Indicator.** A state specific Occupational Health Indicator for young workers (for three age groups: <18, 18-24, <25) was generated using emergency department data.
- **Youth Health Survey.** In collaboration with MDPH BRFSS two questions about work were added to the 2017 Youth Health Survey of middle and high school students. This will update previous information collected in 2007 and 2009 on how many youth are working and where they are working.

- **Work-related concussions.** Prompted by finding a notable number of concussions among young adult workers in the Workers' Compensation data, YWP has initiated a project to learn more about the problem. The aim is to understand more about whether work-related head injuries reported as concussions are likely to be true concussions and how the injuries occurred. A Harvard School of Public Health Resident on rotation at OHSP has reviewed the medical records of approximately 100 young workers diagnosed with a concussion and treated in an ED to assess whether CDC concussion guideline symptoms were present. Information on industry and occupation was also abstracted. Analysis of these data is underway. In addition, the data will be linked with workers' compensation records to assess the predictive value positive of the concussion code in the workers' compensation records.
- **Social Media.** YWP posts all output materials online within the MDPH website, and uses MDPH frontline media aggressively to promote YWP messages, through Tweets, blog posts (see below) , and MDPH homepage stories.
- **Collaboration with MA FACE.** YWP helped develop and disseminate a MA *FACE Facts* on amputation hazards associated with wearing gloves while operating machinery. This alert was prompted in part by injuries to young workers identified by YWP. In addition YWP and MA FACE collaborated on developing a *FACE Facts* on driving safety for work which is now finalized and will be disseminated later this year. YWP joined MA FACE at a MA Safety Stand-down event sponsored by Region I OSHA, Youth Build Boston, and Madison Park Vocational High School. The event was held at a house, which the city was building as affordable housing, and consisted of safety workshops, and fall protection equipment demonstrations.

Presentations

"Multiple agencies work together to launch a social media campaign targeting young workers in Massachusetts". Poster presentation at 2016 American Public Health Association Annual Meeting.

"Multiple agencies work together to launch a social media campaign targeting young workers in Massachusetts". Presented at 2017 Council for State and Territorial Epidemiologists Annual Meeting.

A description of the surveillance system, key findings and use of data for action were presented at the Harvard School of Public Health (in two courses) and Tufts School of Medicine.

MAJOR OUTCOMES

Intermediate Outcomes

MA YES Team & Social Media Campaign

YWP continues to lead the MA Youth Employment and Safety Team (YES Team), which brings together representatives from government agencies to coordinate efforts to protect youth at work. This spring, the YES Team worked with the social marketing division within the MA Office of Information Technology (MassIT) to relaunch our highly successful comprehensive young worker health and safety social marketing campaign, first introduced in June 2016. The goal of

the campaign was to raise awareness about worker rights and encourage youth to speak up in the workplace about unsafe conditions.

The campaign, “Getting hurt is not in your job description” launched in May 2017 via Facebook and Twitter. DPH featured a blog and homepage story about the campaign and posted it on digital billboards. Posters of the campaign were also placed on the subway cars throughout Greater Boston.

As part of the last year’s campaign a YES Team website was developed; it includes information about health and safety resources for young workers from all of the agencies. Over 13,000 hits to the website occurred during the 4 week 2017 Facebook campaign.



Partner agency citations

Two referrals were made of young workers injuries for worksite follow-up. One referral was made to the US Department of Labor Wage and Hour Division and the other to the MA Office of the Attorney General. Both referrals resulted in citations. Three referrals of temporary agencies were made to the Department of Labor Standards for potential violations of the MA Temporary Worker Right to Know Law; no violations were found.

YWP online and social media expanded outreach

Web traffic to YWP’s website remains consistently high, with over 50,000 hits to our webpages and materials in FY17. Our most accessed online materials are the MA Guide for Working Teens (average of 1,700 hits per month), the Child Labor Laws in Massachusetts poster (average of 445 hits per month), and our various Youth @ Work: Talking Safety curriculum materials (average 535 web hits per month). In addition to website hits, over 3,000 print versions of our materials were distributed through the MDPH clearinghouse. The most popular materials were the MA Guide for Working Teens, Protecting your Working Teen: A Guide for Parents, and the First Aid for Burns in Restaurant Poster.

Policy initiative to promote safe driving for Work

YWP staff sit on the MDPH Safe Driving Policy Advisory Board. This advisory board is working on developing language and a “tool kit” around MDPH’s new initiative that youth-serving organizations receiving funding from MDPH must have a safe employee transportation policy in place in order to be eligible for funds.

Potential and End Outcomes

The surveillance findings and educational materials that YWP disseminates including, via social media, have the potential to reduce injuries to young workers both in MA and throughout the nation. They not only serve to provide stakeholders (teachers, employers, parents, and teens) with specific tools and resources to address risks faced by youth at work but also have the long term potential to contribute to a change in community norms that result in improved young worker safety.

PUBLICATIONS AND WEB RESOURCES

Young Workers Project website

<http://www.mass.gov/dph/teensatwork>

Youth Employment and Safety Team website

<http://www.mass.gov/youngworkers>

DPH Feature Story - Twenty-one Work Injuries a Day: 21 too Many

<http://www.mass.gov/eohhs/feature-story/twenty-one-work-injuries.html>

DPH Blog – Young Workers: Know Your Rights in the Workplace

<http://blog.mass.gov/publichealth/workplace-health-and-safety/young-workers-know-your-rights-in-the-workplace/>

DPH Blog – Got Temp Workers? Make Sure They're Trained (with MA FACE)

<http://blog.mass.gov/publichealth/workplace-health-and-safety/got-temp-workers-make-sure-theyre-trained/>

The Massachusetts Guide for Working Teens (updated 2017)

<http://www.mass.gov/eohhs/docs/dph/occupational-health/18-and-under/ma-guide-working-teens.pdf>

Hospitalizations for work-related injuries among 18-24-year-olds, 2010-2014 (under review)

Emergency department visits for work-related injuries among 18-24-year-olds, 2010-2014 (under review)

Getting hurt is not in your job description campaign toolkit

<http://www.mass.gov/eohhs/docs/dph/ohsp/young-worker-campaign-toolkit.pdf>

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Expanded Occupational Health Surveillance in Massachusetts
Massachusetts FACE Project

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The overarching aim of MA FACE within the Massachusetts Department of Public Health (MDPH) is to reduce the incidence of fatal occupational injuries by:

- Using multiple data sources to rapidly identify all fatal occupational injuries
- Conducting fatality investigations to identify risk factors and prevention strategies
- Disseminating prevention recommendations to stakeholders who can intervene
- Planning and conducting targeted prevention activities

MAJOR OUTPUTS

Surveillance and Investigations

- Identified and documented 89 fatal injuries; information about these deaths was included in the MA Workers' Memorial Day report published by MA AFL-CIO and MassCOSH.
- Initiated 17 MA FACE fatality investigations of which we were able to complete seven with an eighth investigation scheduled.
- Finalized five MA FACE reports and several others are in various stages of completion.

Development and dissemination of prevention recommendations

Reports and FACE Facts Dissemination

- Wrote or contributed to five Workplace Health and Safety posts for the MDPH Blog.
 - July: Some Workers Face Higher Risk of Injury – But Employers Can Make a Difference.
 - September: Got Temp Workers? Make Sure They're Trained (MA FACE contributed)
 - January: It's Gloves Off When Operating Certain Machinery.
 - April: Employers: Let's Keep Massachusetts Workers Safe!
 - June: Asbestos: An Old Health Hazard Still With Us Today
- Mass.gov Blog – the Official Blog of the Website of the Commonwealth of Massachusetts – authored a post on “Crosswalk Safety for Parents and Children”, August 2016, that included information on crossing guard safety and a link to the MA FACE Facts on crossing guards.
- Finalized MA FACE reports were disseminated to individuals involved in the incidents; the victims' families; the broader community using databases developed for each incident (between 130-250 companies per incident); and to a list of health and safety stakeholders.
- Released a comprehensive data report, with MA CFI, titled *Fatal Occupational Injuries in Massachusetts 2008–2013*. This was disseminated to over 4,220 email contacts, including health and safety professionals, local municipalities and others. An additional 180 hardcopies of the report were also disseminated.

- Developed a *FACE Facts* based on investigations of amputation incidents in school shops where the common contributing factor for these injuries were wearing gloves while operating machinery with exposed rotating or moving parts. The *FACE Facts* was disseminated in collaboration with the MA Young Workers Injury Surveillance and Prevention Project (YWP) and the Department of Elementary and Secondary Education (DESE), to high schools, vocational school cooperative education placement coordinators, municipalities and to woodworking shops and machine shops. Initial dissemination included over 673 hardcopies (includes requests). There were also over 1,705 downloads of this *FACE Facts* from our website through February 2017 (latest data available). Employers and educator feedback was positive: “posted safety article in cafeteria”; “our employees have been instructed not to wear gloves around turning or milling machines, great idea thanks!”; “will make sure all employees are aware”; “thank you for sending the notice”.
- Finalized a driving safety *FACE Facts* that focuses on employers having motor vehicle safety programs in place that address seatbelt use and limiting cellphones use and distracted driving. This *FACE Facts*, which developing in collaborated with YWP, is currently being printed and posted to the MDPH web site and then will be disseminated.

Fall Prevention in Residential Construction

The MA FACE coordinator participates on the NORA Construction Sector Council, sharing state public health agency perspectives, during biannual meetings. MA FACE continues to promote preventing falls in construction in MA through the national fall prevention campaign and the safety-stand down.

Email dissemination:

- MA FACE reached out by email to local state employee unions, which have many members who routinely work from heights, and to the Division of Capital Asset Management and Maintenance (DCAMM). DCAMM is responsible for major public building construction, and state facilities management. Emails included information and resources on how unions and DCAMM could participate in the national fall prevention campaign and safety stand-down and asked DCAMM to involve private contractors that were working on public projects.

In person outreach:

- MA FACE along with YWP attended a Safety Stand-down event MA sponsored by Region I OSHA, Youth Build Boston, and Madison Park Vocational High School. The event was held at a house, which the city was building as affordable housing, and consisted of safety workshops, and fall protection equipment demonstrations. MA FACE provided students with copies of our fall prevention brochures (falls myths, ladder safety, scaffold safety, PFAS) and the national fall prevention campaign hardhat stickers to start the conversation with students about the importance of recognizing job hazards and use of fall protection.

MAJOR OUTCOMES

Intermediate Outcomes

- Worked with OSHA Region I to establish an agreement whereby MA FACE and OSHA Region I MA Area Offices can conduct simultaneous work fatality investigations. Two MA FACE and OSHA Region I simultaneous work fatality investigations have taken place. Some logistics still need to be worked out, but we are optimistic that this new partnership will be of great

benefit to both MA FACE and OSHA, with access to workplaces for MA FACE and additional support while on site for OSHA.

- Two MA FACE reports were highlighted by the National Safety Council in their Safety and Health Magazine, February 2017 issue - *Operator Dies When Forklift Falls Off Loading Dock* (13MA036) and March 2017 issue – *Worker Struck, Killed By Outrigger* (14MA003).
- MA FACE reports were used as a teaching tool in several courses at the Harvard School of Public Health (HSPH), University of Massachusetts at Lowell and Northeastern University.
- OSHA highlighted the MA FACE report *Landscaper Working from a Raised Portable Work Platform Was Electrocuted When a Pole Saw Contacts Overhead Power Line* (13MA019) in a recently released publication *Electricity and tree Care Work: A Deadly Combination*.
- MA FACE and CFOI are collaborating with the MA Violent Death Reporting System (MVDRS) to assist in tracking opioid overdose deaths related to work and in coding employment information in the MVDRS database (June 2016 forward). In addition, we are collaborating with the MDPH Bureau of Substance Abuse Services to industry and occupation code all opioid overdose deaths (2011-2015, N=5,571) using the NIOSH Industry and Occupation Computerized Coding System (NIOCCS) and preparing a data brief on opioid deaths in MA by industry and occupation.
- OSHA Region I provided their employees with suicide prevention training that included suicide warning signs, risk factors and prevention. During the training, OSHA cites the MA work fatality data available in the MA FACE/MA CFOI annual Fatality Injuries at Work Updates that show suicides are one of the top three leading causes of deaths at work in MA since 2010. In addition, MA FACE has been serving as a liaison between OSHA Region 1 and the MDPH Suicide Prevention Program leading to two additional suicide prevention trainings being provided to construction industry associations in MA.

Potential and end outcomes

All FACE reports and educational materials include recommendations that if used have the potential to reduce workplace hazards.

The annual number and rate of fatal occupational injuries in MA since 2000 has fluctuated over the years with no consistent upward or downward trend. The numbers of deaths per year during 2012 through 2014 were low compared to the 10 year average. More recently, in 2015 and 2016, the number of identified fatal occupational injuries in MA has increased. In 2016, the number these deaths hit at an all-time high and we are predicting another high year for 2017 based on the first half of the year. Given the relatively small number of deaths in any single year, however, it is challenging to differentiate the effect of the project from normal yearly fluctuations in the fatality rate or the effects of external factors such as changes in employment patterns and enforcement activities.

PUBLICATIONS AND WEB RESOURCES

- MA FACE reports
 - 15MA004 – Tree Service Foreman Fatally Injured While Repairing a Skid-steer Loader (www.mass.gov/eohhs/docs/dph/occupational-health/15ma004.pdf)
 - 15MA007 – Tow Truck Operator Fatally Injured When Struck by a Box Truck While Assisting a Motorist (www.mass.gov/eohhs/docs/dph/occupational-health/15ma007.pdf)
 - 15MA037 – Carpenter Fatally Injured after Falling from an Extension Ladder (www.mass.gov/eohhs/docs/dph/occupational-health/15ma037-fin.pdf)
 - 15MA1NF – High School Student Sustains a Partial Thumb Tip Amputation While Using a Sander in Shop Class (www.mass.gov/eohhs/docs/dph/occupational-health/15ma1nf-fin.pdf)
 - 16MA001 - Laborer Fatally Injured After Falling from a Home Under Construction (www.mass.gov/eohhs/docs/dph/occupational-health/16ma001-fin.pdf)
- Workplace Health and Safety posts for the MDPH Blog
 - July: Some Workers Face Higher Risk of Injury – But Employers Can Make a Difference. (<http://blog.mass.gov/publichealth/workplace-health-and-safety/some-workers-face-higher-risk-of-injury-but-employers-can-make-a-difference/>)
 - September: Got Temp Workers? Make Sure They're Trained (<http://blog.mass.gov/publichealth/workplace-health-and-safety/got-temp-workers-make-sure-theyre-trained/>)
 - January: It's Gloves Off When Operating Certain Machinery. (<http://blog.mass.gov/publichealth/workplace-health-and-safety/its-gloves-off-when-operating-certain-machinery/>)
 - April: Employers: Let's Keep Massachusetts Workers Safe! (<http://blog.mass.gov/publichealth/workplace-health-and-safety/employers-lets-keep-massachusetts-workers-safe/>)
 - June: Asbestos: An Old Health Hazard Still With Us Today (<http://blog.mass.gov/publichealth/workplace-health-and-safety/asbestos-an-old-health-hazard-still-with-us-today/>)
- MA *FACE Facts*
 - Remove Your Gloves When Using Machinery with Accessible Rotating or Moving Parts! (www.mass.gov/eohhs/docs/dph/occupational-health/face-facts/gloves-face-facts-2016.pdf)
 - Keep employees in motor vehicles safe by preventing distracted driving and ensuring seat belts are worn!
- Data reports
 - Fatal Occupational Injuries in Massachusetts, 2011-2013 (www.mass.gov/eohhs/docs/dph/occupational-health/fatal-reports/work-related-fatalities-2008-2013.pdf)

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Occupational Health Surveillance Program (OHSP)
Massachusetts Department of Public Health (MDPH)
Expanded Occupational Health Surveillance in Massachusetts
Surveillance and Prevention of Sharps Injuries and
Musculoskeletal Disorders among Massachusetts Hospital Workers

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The overarching aim of this project is to reduce the incidence of sharps injuries and musculoskeletal disorders (MSDs) among hospital workers in Massachusetts by:

- Collecting data on sharps injuries among hospital workers annually,
- Analyzing data and disseminating surveillance findings to promote prevention efforts,
- Conducting intervention and prevention activities to reduce sharps injuries,
- Characterizing MSDs among hospital workers using administrative data sets, and
- Continuing collaborations with stakeholders to address sharps injuries and extend these efforts to address MSDs.

MAJOR OUTPUTS/PRODUCTS

Sharps Injury Surveillance

Data Collection

- For the fifteenth consecutive year, OHSP Hospital Worker Project (HWP) staff has collected data on sharps injuries among Massachusetts hospital workers from all MDPH licensed hospitals (N=94). For the calendar year 2016, 2,925 sharps injuries were reported to OHSP. Data from 2016 is in the process of being cleaned and coded for analysis. HWP staff continue to refine and update the SAS program to improve coding of text-fields, thus minimizing manual re-coding to more precisely categorize data provided.

Data Reports

- *Sharps Injuries among Hospital Workers in Massachusetts: Findings from the Massachusetts Sharps Injury Surveillance System*, for 2015 was published in this project period. This statewide annual report of sharps injuries by hospital, worker, incident and device characteristics also includes data on sharps injury rates over time, generated using two denominators - number of licensed beds and FTEs.
- A new report of sharps injuries at the hospital level with hospital specific sharps data for all MDPH licensed acute care hospitals has been prepared and is currently under departmental review.
- A short fact sheet, *Sharps Injuries among Hospital Workers in Massachusetts*, summarizing sharps injury surveillance findings for 2002-2015 has been updated to include 2015 data and is in review for publication. The summary includes rates by hospital size and also highlights persistent issues to be addressed.

Safe Patient Handling

Data Collection

- Previous findings on musculoskeletal disorders associated with patient handling (PH-MSDs) captured by the Bureau of Labor Statistics Survey of Occupational Injuries and Illnesses during 2004 through 2010 have been updated with data through 2015. In addition to rates of injury over time from 2004 through 2015, the updated findings include distribution by gender, age, occupation, nature of injury and body part for 2015. An unexpected and statistically significant decline in the rates in 2014 and 2015 prompted a more detailed examination and consultation with the local and national BLS offices. It was determined that this decline was not likely due to changes in the survey sample or methods.
- Workers' compensation claims data for 2011-2015 were obtained from the Massachusetts Department of Industrial Accidents and coded to identify claims for PH-MSDs. Preliminary analysis has been completed. Final results will be combined with findings of the analysis of the SOII data described above in a new updated fact sheet on PH-MSDs among hospital workers.

Other

- HWP staff continue to work with the Bureau of Infectious Disease and Laboratory Sciences (BIDLS) regarding the collection and evaluation of standardized occupation data in MDPH's electronic infectious disease surveillance system (MAVEN). An updated occupation pick list developed with OHSP input, with an option of text narrative for other occupations, was incorporated in MAVEN first for enteric diseases (2014) then all for infectious disease surveillance systems (May 2015). This period, HWP staff analyzed the occupation data for enteric disease cases to determine the extent to which the pick list was used, how well it performed, and the distribution of cases by occupation. Findings suggest that it is feasible to collect standardized, codable occupation information in infectious disease surveillance systems and that a pick list is an efficient way of doing so. MDPH staff were invited to present findings on during the National Notifiable Diseases Surveillance System (NNDSS) Modernization Initiative (NMI) eSHARE session, a national webinar hosted by CDC. (The webinar was held on July 18, 2017.)
- Under-reporting of sharps injuries is well documented, which makes determining the true count of sharps injuries among Massachusetts hospital workers difficult without an assessment of the level of under-reporting. To address this issue, HWP worked with a student from UMass Lowell to adapt an under-reporting survey from the CDC Workbook on Designing, Implementing and Evaluating a Sharps Injury Prevention Program. The survey was then piloted using an online survey platform in one hospital, as part of a student research project. Results were presented to occupational health staff at the participating hospital in May, 2017. The purpose of the pilot was two-fold: to assess the feasibility and methodology of conducting the survey using an electronic survey platform and to determine the level of underreporting among physicians and nurses. This survey was conducted with the intent of administering the survey more broadly in the future to assess under-reporting of sharps injuries in multiple hospitals to help evaluate the extent to which the MA Sharps Injury Surveillance System captures the full magnitude of the problem.

- The HWP project Coordinator continues to serve as co-chair of a sharps injury stakeholder group hosted by the American Nurses Association. The stakeholder group meets quarterly by phone to discuss sharps injury prevention measures and foster collaborations among participants.

Presentations

- HWP staff presented information about occupational health surveillance, including sharps injury surveillance and prevention in several graduate classes at the Harvard School of Public Health, and Tufts University School of Medicine.
- Updated findings on PH-MSDs among Massachusetts hospital workers based on SOII and workers compensation claim data were presented to the Safe Patient Handling Workgroup (March, 2017).

MAJOR OUTCOMES

Intermediate Outcomes

HWP, in collaboration with the Massachusetts Hospital Association and the Massachusetts Nurses Association, convened four meetings of the Safe Patient Handling (SPH) Stakeholder Workgroup. The SPH Stakeholder Workgroup has resulted in a new working relationship between HWP and the Betsy Lehman Center, a Massachusetts agency which focuses on patient safety. The Workgroup has also fostered linkage with the NIOSH funded Center for the Promotion of Health in the New England Workplace (CPH-NEW). CPH-NEW has used the Workgroup as a venue for gathering input on webinar content as they develop training modules for the healthcare sector. This period, the Workgroup conducted four focus groups with targeted audiences: chief financial officers, chief nursing officers, risk managers, staff nurses to further refine messages for outreach. Planning for a statewide conference on SPH in hospitals, to be held in spring 2018, is underway.

End Outcomes

There has been an overall decline in the sharps injury rate since the inception of the Massachusetts Sharps Injury Surveillance System and it is reasonable to assume that our activities have contributed to this decline. Findings for the last several years, however, indicate that this decline is leveling off. Whether this represents improved injury reporting (a success), a plateau following prevention activities directed at solving the more straight forward, less complex problems or a shift in attention given the many issues facing hospitals in the era of healthcare reform is not clear. Regardless of the explanation, it underscores the need for continued surveillance and new approaches to maintaining a focus on preventing sharps injuries in Massachusetts hospitals.

There has also been an observed decline in PH-MSDs among Massachusetts hospital workers in recent years. This decline follows activities of the HWP project and MDPH Hospital Ergonomics Task Force, including a survey of MA hospitals regarding SPH policies and practices. However, the extent to which these activities contributed to this decline cannot be determined. Rates continue to be high, highlighting the need for additional intervention efforts to prevent PH-MSDs.

PUBLICATIONS AND WEB RESOURCES

- Needlesticks and Other Sharps Injuries project website
<http://www.mass.gov/eohhs/gov/departments/dph/programs/admin/dmoa/ohsp/sharps/>
- Work-related Musculoskeletal Disorders among Hospital Workers project website
<http://www.mass.gov/eohhs/gov/departments/dph/programs/admin/dmoa/work-related-musculoskeletal-disorders-in-hospital-work.html>
- Sharps Injuries among Hospital Workers in Massachusetts, 2015
<http://www.mass.gov/eohhs/docs/dph/occupational-health/injuries/injuries-hospital-2015.pdf>
- Sharps Injuries among Hospital Workers: Under-reporting survey (available upon request)

Annual Report of Accomplishments and Outcomes, July 2016—June 2017
Occupational Health Surveillance Program (OHSP)
Massachusetts Department of Public Health (MDPH)
Expanded Occupational Health Surveillance in Massachusetts
Work-Related Lung Disease Surveillance and Prevention

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The overarching aim of the project is to reduce the incidence of work-related asthma (WRA) and other work-related lung diseases (WRLD) and in Massachusetts. Specific aims are to:

- Ascertain cases of WRA and other work-related lung diseases using multiple sources,
- Follow-up to confirm, using telephone interview and/or medical records,
- Conduct intervention and prevention activities,
- Analyze and disseminate sentinel and population-based surveillance data,
- Collaborate with government and community partners to promote prevention.

MAJOR OUTPUTS / PRODUCTS

Population-based surveillance and methods.

- *Behavioral Risk Factor Surveillance System (BRFSS)*. We continued to highlight the potential for the BRFSS to elucidate the impact of work on health and wellness.
- We examined asthma prevalence among occupation groups that are potentially at risk of WRA and have been identified as populations of concern by local prevention partners.
 - Findings on elevated asthma prevalence among home care aides were disseminated in our Fall 2016 *Occupational Lung Disease Bulletin*, a Mass Public Health Blog post, NIOSH eNews and two conference presentations (see below).
 - We used a combination of industry and occupation codes in the BRFSS (2011-2015) to look at asthma among Massachusetts workers in elementary and secondary schools for a joint data brief on asthma in schools with the MDPH Asthma Prevention and Control Program (APCP) (anticipated Fall 2017).
- We used the BRFSS Asthma Call-Back Survey to generate the national WRA occupational health indicator (with the OHSP Fundamental Project), as well as WRA measures for the adult asthma section of the MDPH State Health Assessment report. Findings (2012-2014) indicate that WRA is underrecognized and underdiagnosed in Massachusetts. Among ever-employed adults with asthma, 44.5% reported that their asthma was caused or made worse by their work, but only 15.5% had discussed this with their health care provider, and only 8.3% had been diagnosed with WRA.
- *Nationwide silicosis surveillance*. With 30 other states, we piloted collection and reporting of additional information for silicosis mortality and hospitalizations, beyond the occupational health indicators for pneumoconioses. The findings were presented by NIOSH at the 2017 NIOSH/State Occupational Lung Disease Surveillance Meeting and refinements to the

guidance and potential follow-up of cases were discussed. We will continue to participate in this effort.

Case-based surveillance and methods. We continued and enhanced our case ascertainment and confirmation:

- Updated and redesigned the OHSP confidential reporting form and reporting requirements brochure to reflect expanded work-related disease reporting and surveillance activities. Posted on the OHSP website and disseminated to healthcare providers
- Ascertained 179 possible WRA cases from multiple sources, of which 73 were deemed probable and selected for follow-up interview.
- Confirmed 33 cases of WRA with additional cases pending review. After discussion with partners at the 2017 NIOSH/State Occupational Lung Disease Surveillance Meeting, we implemented a new protocol for reviewing medical records to confirm probable WRA cases ascertained from emergency department visit data and not reached for interview. Starting with reporting year 2013, nine cases have been confirmed to date.
- Launched pilot surveillance project for other WRLD. Finalized the pilot questionnaire, with clinical direction provided by two Harvard School of Public Health occupational medicine residents on rotation at OHSP. Identified 226 possible cases from multiple sources and selected 67 for follow-up interview. To date, 21 interviews have been completed.

Worksite Investigations/Interventions. We completed two site evaluations and reports, with recommendations:

- An investigation at a software development company found that absence of outside air, combined with new furnishings, air fresheners and fragrances posed asthma hazards for some employees. The accompanying report provided recommendations to abate indoor air quality hazards and work with the building owner to provide fresh air to this office.
- An investigation at an integrated circuit manufacturer focused on potential chemical exposures in photolithography. A physician from Harvard School of Public Health on rotation at OHSP accompanied and contributed to the report, which summarized the company's health and safety steps and provided recommendations about controlling exposures to resins used in masking, as well as hazards during repair and maintenance.

Presentations.

- "Elevated Asthma Prevalence among Home Care Aides in Massachusetts: Using Industry and Occupation Information from the Behavioral Risk Factor Surveillance System", oral presentation at Council of State and Territorial Epidemiologists Annual Conference, Boise, ID, June 7, 2017.
- "Asthma among Care Workers—an Occupational Health Challenge". Global Carework Summit, Lowell, MA, June 2, 2017.

MAJOR OUTCOMES

Intermediate Outcomes

This period, the MDPH ACP used a 2015 policy statement we developed in collaboration with other MDPH programs and the Department of Early Education and Care (EEC) to create an educational poster promoting safer cleaning and disinfecting in childcare. Specifically, the

poster explains how to prepare and dilute bleach, and recommends safer alternatives. We reviewed drafts of the poster, and the final version was sent to EEC Regional Directors and Licensing Supervisors for distribution and made available in the MDPH Clearinghouse. A magnet version will soon be distributed in the same manner. This educational outreach has the potential to reduce hazardous exposures to bleach and promote use of alternative products and safer practices that will protect early education and childcare staff as well as the children enrolled.

Another collaborative effort with the ACP is the Healthy Schools Policy Toolkit that will help schools prevent and manage asthma, providing guidance with an interactive website. The toolkit enables users to click on icons, including those for cleaning products, idling buses and mold, and find resources to control hazards and create asthma-friendly environments. Once completed, this toolkit will provide valuable resources to school administrators, nurses, educational and facilities staff, students, wellness committees and parents and will be disseminated by community partners.

A referral from OHSP to Department of Labor Standards (DLS) in a previous project period resulted in reduction of exposure to hazardous disinfecting products. DLS inspected a jail after OHSP requested follow-up of an employee's work-related asthma. DLS identified hazardous exposures to quaternary ammonium compounds (quats) and alcohol sprayed onto bathroom surfaces, affecting staff and likely prisoners. Effective September 2016, DLS approved the jail's corrective actions, including use of a safer product and personal protective equipment. In addition, OHSP provided technical assistance to the state's workers' compensation office regarding the asthma risks from the ingredients in the disinfectants.

OHSP continues work on cleaning products with the Toxics Reduction Taskforce of the state procurement agency. This project period the range of products available to state agencies expanded with inclusion of safer disinfecting products listed on EPA's Safer Choice website. This community has also met with the Toxics Use Reduction Institute exploring safer alternatives for use in food preparation.

Potential and End Outcomes

Given under-recognition of WRA and the case-based nature of our surveillance system, it is not possible to document trends in WRA incidence. However, surveillance findings, prevention recommendations and policy changes have the potential to lead to enhanced awareness, improved capture of WRA cases, improved prognosis and real reductions in workplace exposures that cause and exacerbate asthma in a variety of settings. The expansion of surveillance to other WRLD, still in early stages of implementation, will enhance capture of both acute and chronic respiratory conditions that may heighten awareness and ultimately prevention of work-related lung diseases more broadly.

PUBLICATIONS AND WEB RESOURCES

- "Occupational health risks associated with use of environmental surface disinfectants in health care" Letter to the editor, Elise Pechter and Ken Rosenman, Am J Inf Control 44(2016) 1755-6.

- “Work-Related Asthma in the Asthma Call-Back Survey”. Data Figures/Tables (November 2016). <http://www.mass.gov/eohhs/gov/departments/dph/programs/community-health/ohsp/asthma-work/data-reports-and-publications.html>
- “Asthma in Massachusetts Home Care Aides”. Occupational Lung Disease Bulletin (Fall 2016). <http://www.mass.gov/eohhs/gov/departments/dph/programs/community-health/ohsp/asthma-work/educational-materials/sensor-occupational-lung-disease-bulletins.html>
- “Protecting the Health of Home Care Aides”. Mass Public Health Blog (November 28, 2016). <https://blog.mass.gov/publichealth/workplace-health-and-safety/protecting-the-health-of-home-care-aides/>
- “Respiratory Hazards and Asthma Home Care Aides”. NIOSH eNews (Volume 15, Number 1, May 2017). <https://www.cdc.gov/niosh/enews/enewsv15n1.html>
- “Silica-related Lung Disease.” Occupational Lung Disease Bulletin (Spring 2017). <http://www.mass.gov/eohhs/gov/departments/dph/programs/community-health/ohsp/asthma-work/educational-materials/sensor-occupational-lung-disease-bulletins.html>
- “Asbestos: An Old Hazard Still With Us Today.” Mass Public Health Blog (June 20, 2017). (with the FACE project). <https://blog.mass.gov/publichealth/workplace-health-and-safety/asbestos-an-old-health-hazard-still-with-us-today/>
- Occupational Illness and Injury Reporting Brochure (updated December 2016). <http://www.mass.gov/eohhs/docs/dph/occupational-health/occu-injury-reporting-brochure.pdf>
- Occupational Illness and Injury Reporting Guidelines and Confidential Reporting Form (updated December 2016). <http://www.mass.gov/eohhs/docs/dph/occupational-health/confidential-report-form.pdf>