



Massachusetts Department of Public Health

Incident Investigations: How can we learn from workplace injuries?

October 31, 2022

**James Laing and Sarah Yiu
State FACE Program**

Today's Objectives

- Describe programs at DPH that look at worker health outcomes
- Describe how we can learn from fatal events
 - Data
 - Explore the NIOSH-FACE Program and resources available to you

MA Occupational Health Surveillance Program (OHSP)

Our unit is in the Bureau of Community Health and Prevention

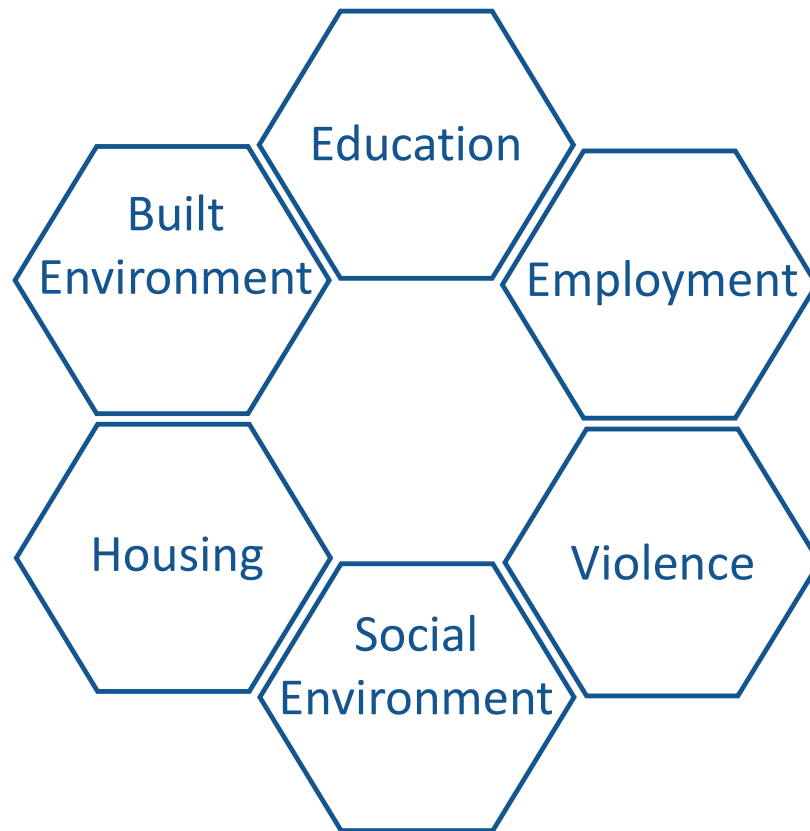
OHSP Goals:

- the link between surveillance and intervention (data to action)
- use of the existing public health infrastructure to address occupational health concerns at the state and local levels (integration)
- special emphasis on addressing the needs of underserved workers, consistent with DPH's mission to reduce health disparities (occupational health equity)

MA Occupational Health Surveillance Program (OHSP)

- If we know what is going wrong, we can work to fix it
- Work is a very important factor in health and life

Social Determinants of Health



Work is a Social Determinant of Health

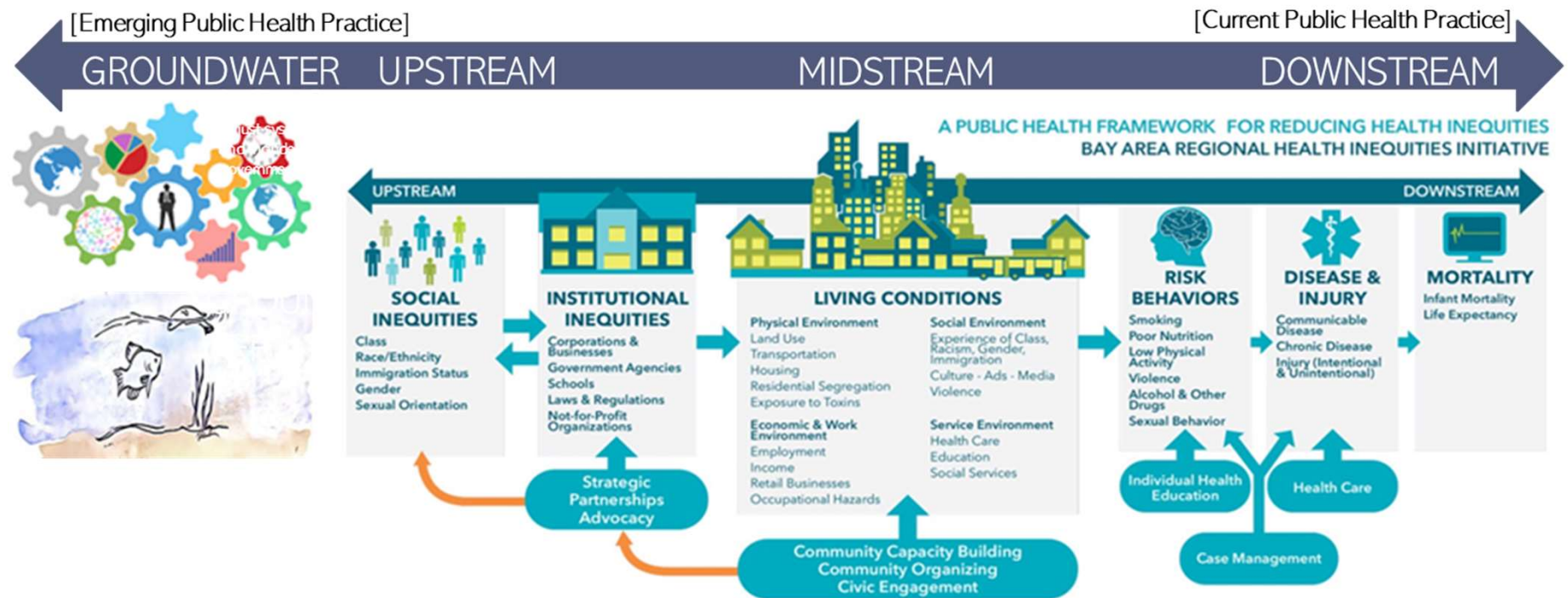
- Broadly defined as paid work that should be safe, accessible, stable, and well compensated
- An employed person is more likely to have better physical and mental health outcomes
 - Poor working conditions can have the opposite effect
- What we do for work impacts our health in countless ways



Work is a Social Determinant of Health

- Work organization factors may also affect health
 - Shift work, long hours, jobs with high demand and low control
 - Work organization can impact individuals' ability to manage chronic health conditions
- Burden of occupational risks is not borne equally
 - Low wage workers, including many immigrant and minority workers, are disproportionately employed in physically demanding, high risk jobs with high psychological stress

The Health Inequity Pathway



Adapted from: Bay Area Health Equity Initiative

Disclosures

Our work is funded through cooperative agreements

- CDC
 - National Institute for Occupational Safety and Health (NIOSH)
 - National Center for Injury Prevention and Control
- U.S. Department of Labor- Bureau of Labor Statistics
- Substance Abuse and Mental Health Services Administration (SAMHSA)

National Institute for Occupational Safety and Health

CDC-NIOSH

- Agency created under the Occupational Safety and Health Act of 1970 (along with OSHA)
- Mission: To develop new knowledge in the field of occupational safety and health and to transfer that knowledge into practice.
 - To understand the health of workers (research, surveillance)
 - To act on findings/data

MA Occupational Health Surveillance Program (OHSP)

MA one of the first states funded by NIOSH to help measure health outcomes

- Current projects
 - Workplace fatalities
 - Work-related respiratory disease
 - Health care workers (sharps/needlestick injuries, safe patient handling, infectious disease)
 - Fundamental/core surveillance: lead, burns, poisonings, occupational health indicators, young workers
 - Overdose and Suicide (how do we help workforces at increased risk)
 - Work-related factors and COVID-19

Workplace Fatality Surveillance in MA

OHSP runs two fatality surveillance programs

- Census of Fatal Occupational Injuries (CFOI)
 - funded by U.S. Department of Labor, Bureau of Labor Statistics
- Fatality Assessment and Control Evaluation Program (FACE)
 - funded by CDC-NIOSH
- Key activities are to identify, document, and describe workplace trauma deaths... and learn from these events

Work-related Fatality Surveillance

Census of Fatal Occupational Injuries: CFOI (since 1991)

- Census is completed for every state, DC, Puerto Rico, Guam, USVI
- Systematic review of many data sources to get a complete count of workplace injury deaths
- More than 35 data elements coded, reviewed and entered into a national data system
- Official data used by policy makers, researchers

Work-related Fatality Surveillance

Data sources

- Death certificates
- Workers' comp records
- OSHA records, and MA Department of Labor Standards
- News
- Medical Examiner reports
- Police reports and fire/ambulance
- Coast Guard, National Transportation Safety Board, and more

CFOI National Data

NEWS RELEASE BUREAU OF LABOR STATISTICS U. S. D E P A R T M E N T O F L A B O R



For release 10:00 a.m. (ET) Thursday, December 16, 2021

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Technical information: (202) 691-6170 • iifstaff@bls.gov • www.bls.gov/iif

Media contact: (202) 691-5902 • PressOffice@bls.gov

NATIONAL CENSUS OF FATAL OCCUPATIONAL INJURIES IN 2020

There were 4,764 fatal work injuries recorded in the United States in 2020, a 10.7-percent decrease from 5,333 in 2019, the U.S. Bureau of Labor Statistics reported today. (See chart 1 and table 1.) The fatal work injury rate was 3.4 fatalities per 100,000 full-time equivalent (FTE) workers, down from 3.5 per 100,000 FTE in 2019. (See chart 2.) These data are from the Census of Fatal Occupational Injuries (CFOI).

CFOI National Data

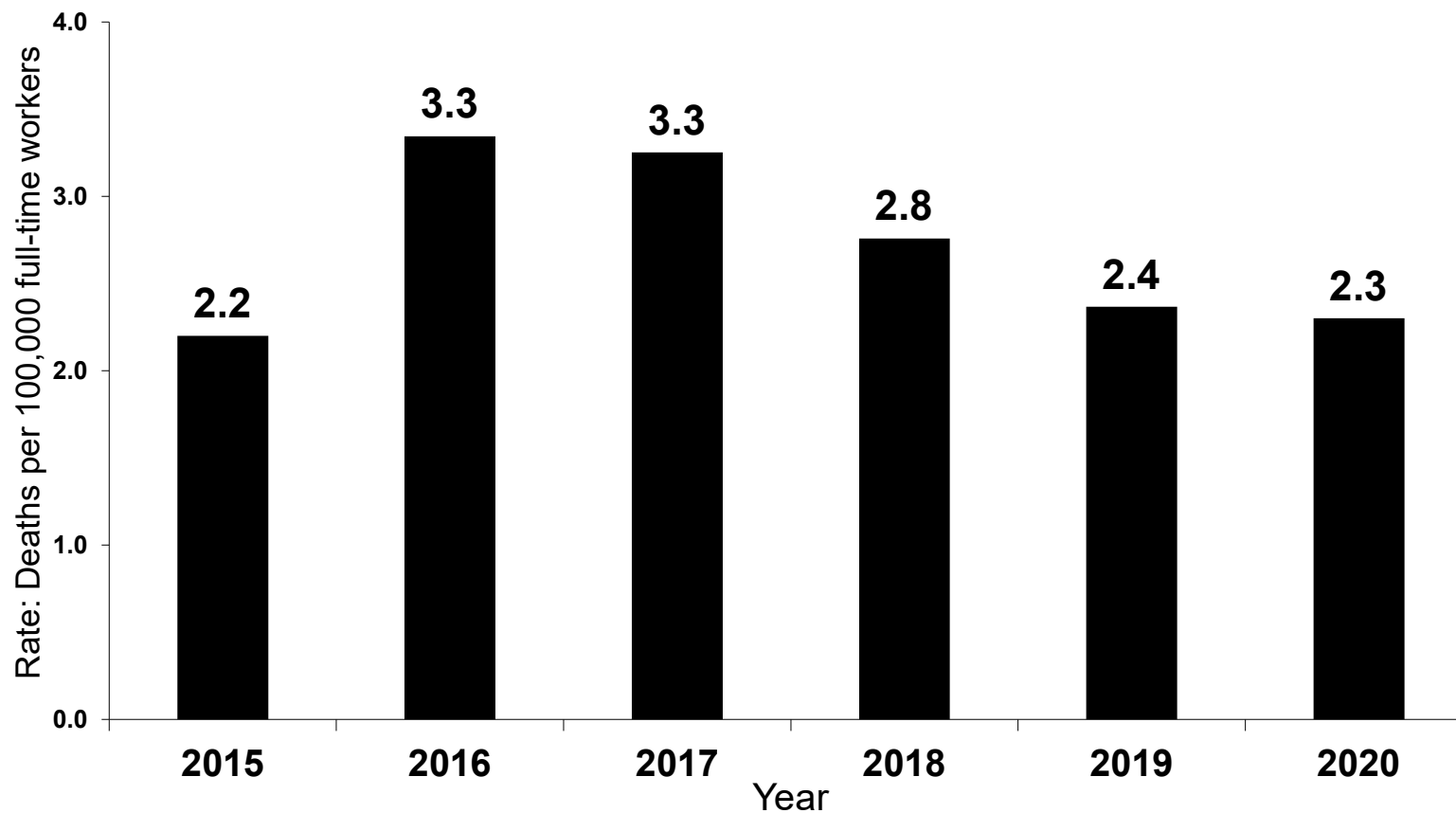
Key findings from the 2020 Census of Fatal Occupational Injuries

- The 4,764 fatal occupational injuries in 2020 represents the lowest annual number since 2013.
- A worker died every 111 minutes from a work-related injury in 2020.
- **Transportation** incidents remained the **most frequent type** of fatal event with 1,778 fatal injuries, accounting for 37.3 percent of all work-related fatalities.
- The share of **Hispanic or Latino** workers fatally injured on the job continued to grow, increasing to 22.5 percent (1,072 fatalities) from 20.4 percent (1,088 fatalities) in 2019.
- **Suicides decreased** 15.6 percent from 307 in 2019 to 259 in 2020, representing the lowest count for occupational suicides since 2015.

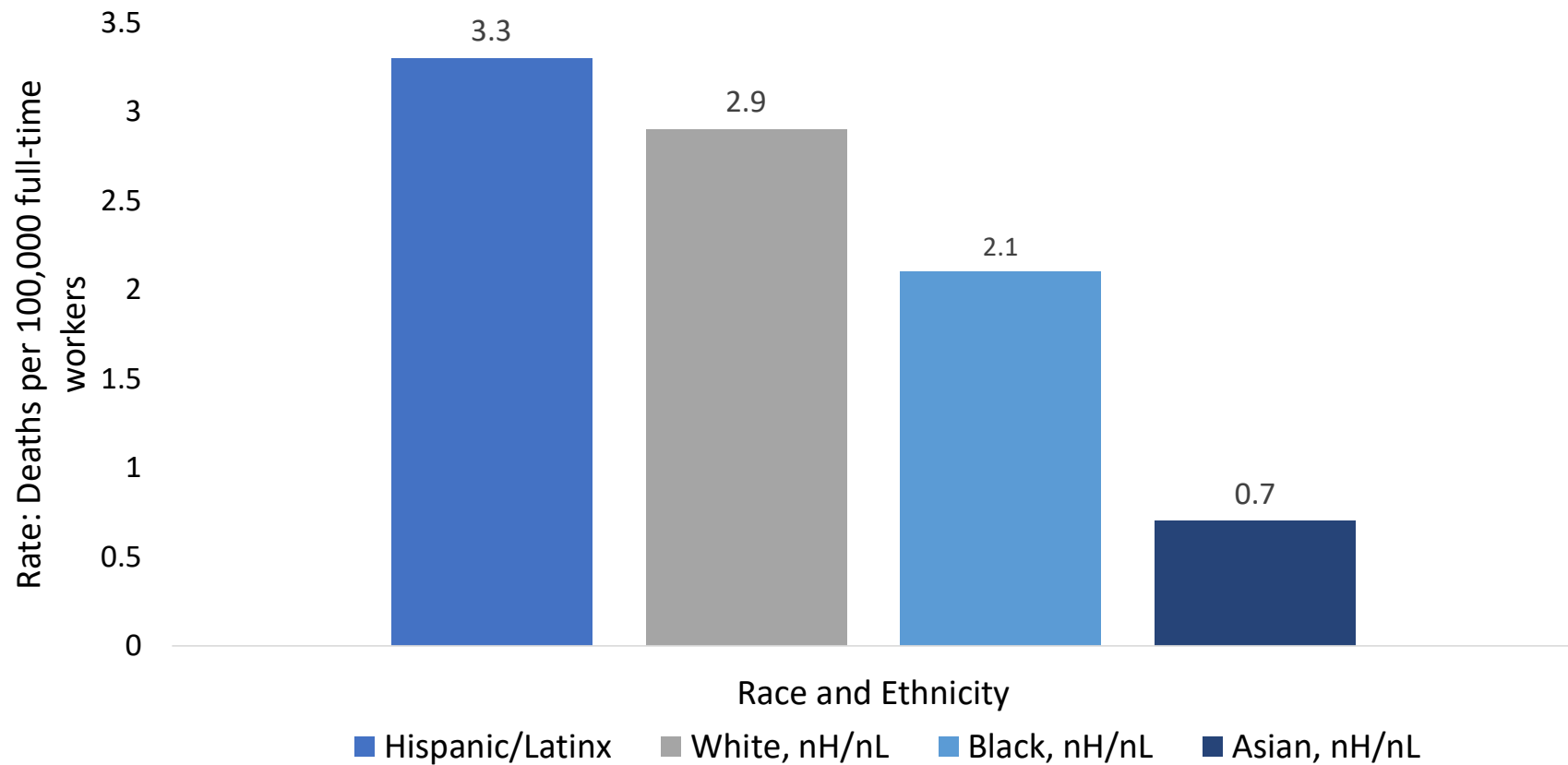
Coronavirus (COVID-19) Pandemic and the Census of Fatal Occupational Injuries

CFOI reports fatal workplace injuries only. These may include fatal workplace injuries complicated by an illness such as COVID-19. Fatal workplace illnesses not precipitated by an injury are not in scope for CFOI. CFOI does not report any illness related information, including COVID-19. Additional information is available at www.bls.gov/covid19/effects-of-covid-19-on-workplace-injuries-and-illnesses-compensation-and-occupational-requirements.htm.

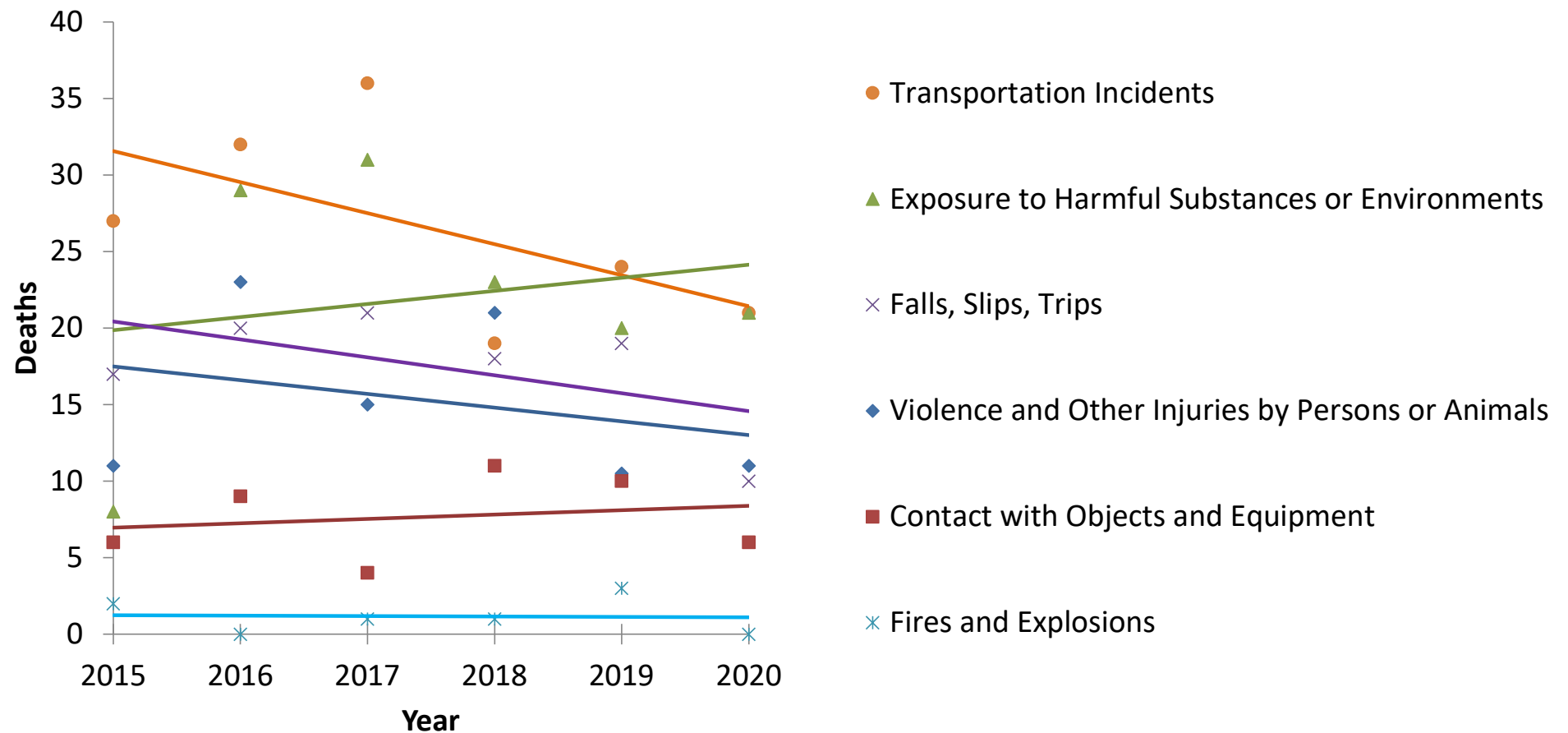
Rate of Fatal Work-Related Injury in MA



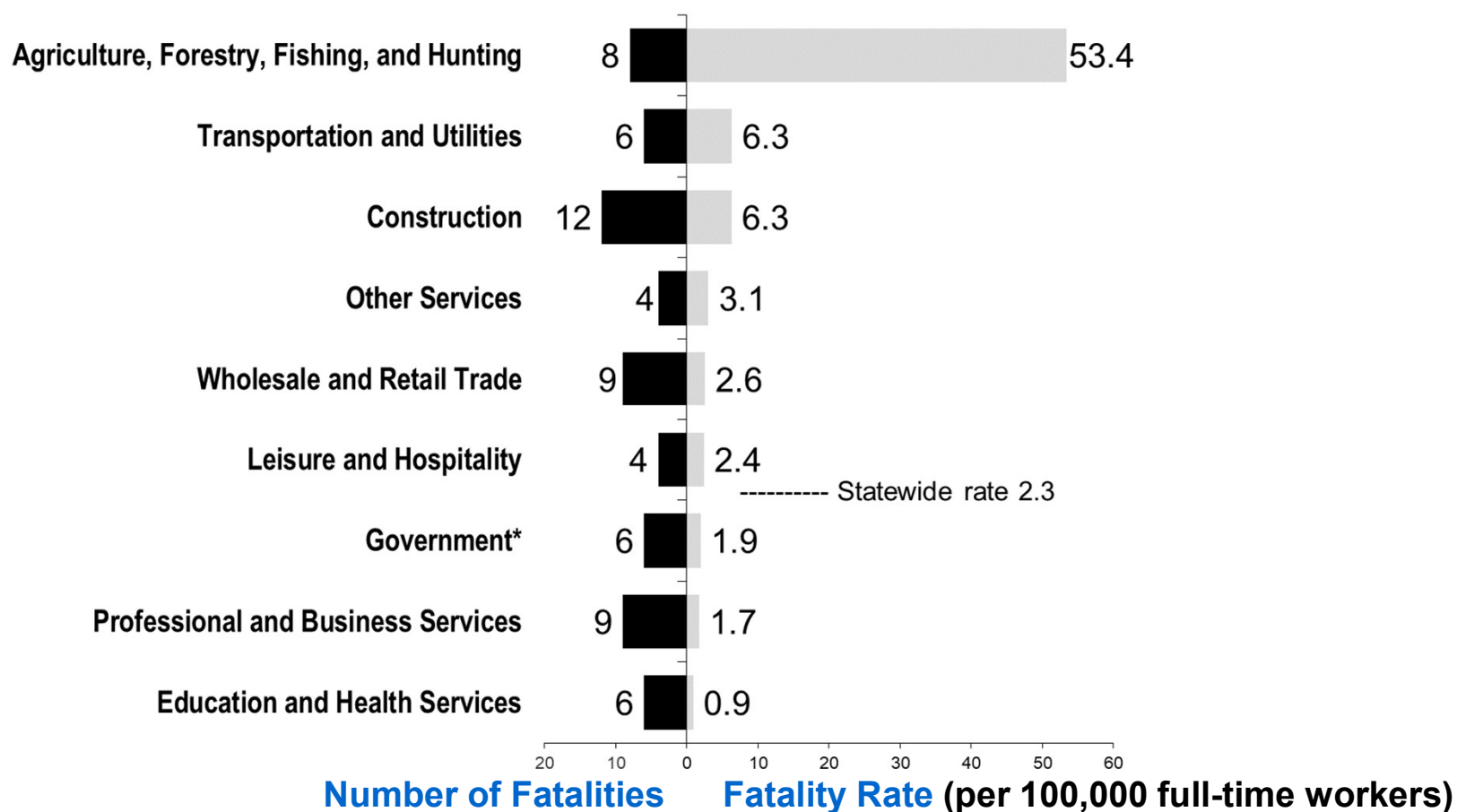
Work-related Fatal Injuries by Race and Ethnicity 2016-2020



Work-related Fatal Injuries by Type of Event



Number and Rate by Industry Group, 2020



Work-related Fatality Surveillance

NIOSH FACE Program: Fatality Assessment and Control Evaluation (since 1989)

- Research-oriented in-depth investigation of priority cases
- Root cause analysis: find out what and why
- Goal is prevention
- Share the results and prevention messaging with industry and stakeholders

Establishing Priorities for Prevention

- Seriousness
- Likelihood of injury: Rates
- Numbers affected
- Amenability to change/partners
- Industries and occupations with high injury/illness rates
- Underserved workers (e.g., people of color and others who have been underserved, marginalized, and affected by persistent systemic racism and inequities)
- Population distribution by region/sector
- Availability of other resources
- Constituencies, politics, funding

NIOSH FACE Priorities

Data drive priorities for investigation and activity

- National priorities
 - Robot related
 - Law enforcement MVA
 - Tree care
 - PIT/warehousing
 - Tow truck
 - Waste collection

NIOSH FACE Priorities



OSHA News Release - Region 1

U.S. Department of Labor

September 14, 2021

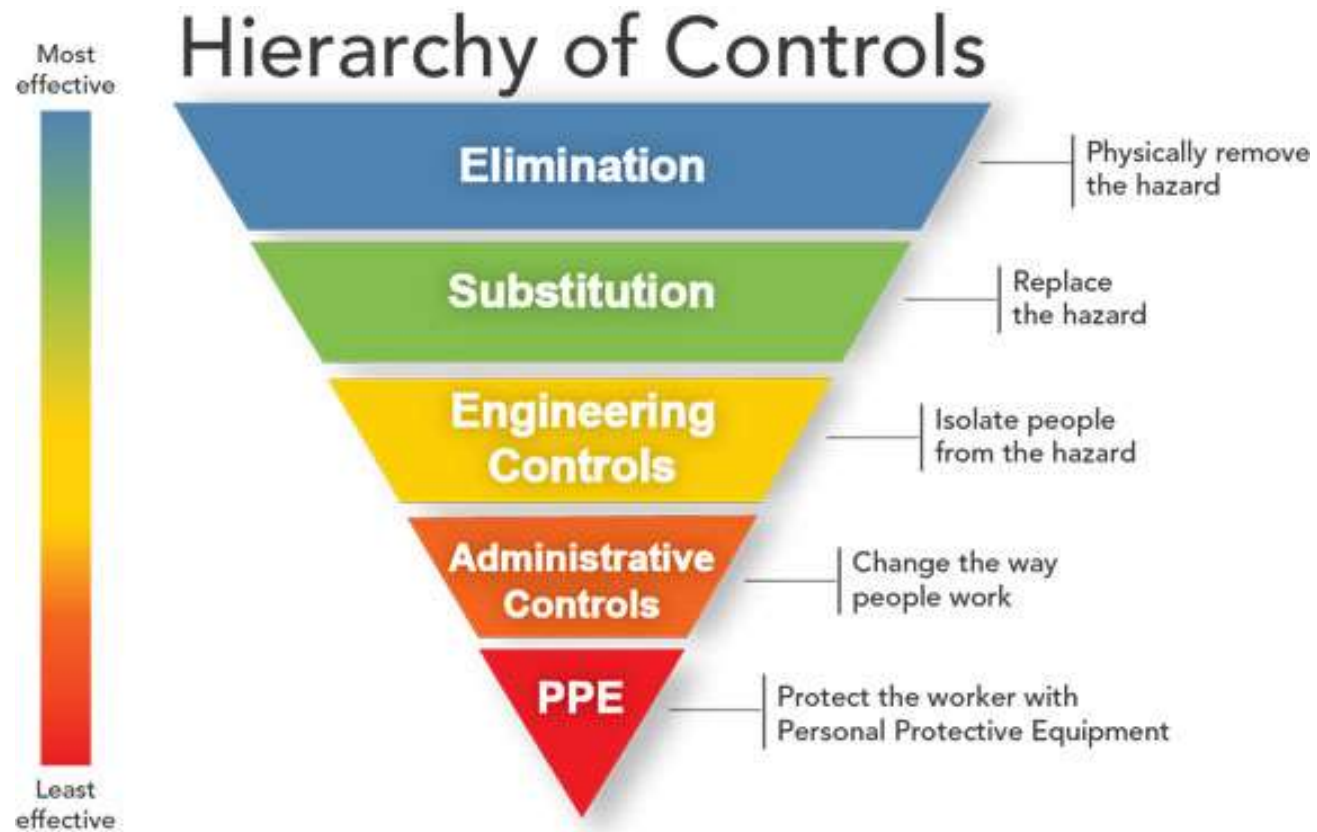
**US Department of Labor initiative seeks to reduce deaths, injuries,
protect workers in New England's tree, landscaping operations**

Thirty-one fatalities in five years 'alarming' and 'unacceptable'

MA State FACE Priorities

- Falls in construction
- Machinery related, robotics
- Roadway work, pedestrians
- Chemical related
- Overdose
- Green energy
- Asthma
- Public sector including police MVA
- Tree care and landscaping
- Fishing
- Immigrant workers
- Young workers <25
- Temporary workers
- Non OSHA/DLS: self-employed, gig, day labor

Prioritizing Controls



Prioritizing Controls

Source: Eliminate the hazard

Path: Institute hazard control e.g. barrier between hazard and person

Person: Change the worker/personal protective equipment


FACE Investigations

Detailed investigation instrument to compile information from documents and interviews, site visit.


- Demographics of the worker
- The worker's job information, experience, training
- Employer/site information, history, safety and training programs
- Incident specifics, event, task, safety procedures, conditions
- Response, treatment, assessment of procedures

Example Investigation

Landscape Construction Laborer Compressed Between Compact Excavator and Steel Beam at Residential Site



MASSACHUSETTS
State **FACE** Program
Fatality Assessment & Control Evaluation
Massachusetts Department of Public Health



FACE
National Institute for
Occupational Safety and Health
NIOSH

REPORT#: 18MA001

REPORT DATE: May 7, 2020

INCIDENT HIGHLIGHTS

DATE:
January 18, 2018

TIME:
8:30 a.m.

VICTIM:
27-year-old landscape construction laborer

INDUSTRY/NAICS CODE:
Construction, Site Preparation

Landscape Construction Laborer Compressed between Compact Excavator and Steel Beam at Residential Site—Massachusetts

SUMMARY

On January 18, 2018, a 27-year-old laborer was killed while operating a compact excavator. He was using the compact backhoe type excavator underneath a home when he became pinned between the excavator and an overhead beam.

[READ THE FULL REPORT> \(p.3\)](#)

<https://www.cdc.gov/niosh/face/stateface/ma/18MA001.html>

The Victim

- 27-year-old male laborer, White non-Hispanic
- Employed by the company for 8 months
- Had previous experience in construction and operating loaders (no state hoisting license)
- Typical workday start time was 8:00 a.m.

The Employer

- Small landscape construction contractor in business for 35 years
- Number of employees varied by season (3-12)
- Installation and maintenance of irrigation systems, hardscape walls, patios and steps, excavation for foundations and septic systems, and snow removal
- Workers did not have union representation

Safety and Health

- No safety and health program
- All new hired employees were provided with some on-the-job training
- Employees were provided with some PPE
- Employees were encouraged to obtain a CDL and the state hoisting license
 - Victim had taken a hoisting safety course, but had not yet taken the state licensing exam

Incident Location & Project Scope

- A seasonal, two-story, wood framed house built in the early 1920's; the house was on granite columns and had a crawlspace
- The project was to add four-foot frost walls under the house; this changed to a poured concrete foundation with a full basement
- Work was overseen by a general contractor and the victim's company was a subcontractor

Incident Location & Project Scope

- The change in scope resulted in additional excavation
- To perform the additional excavation, the home was shored by another subcontractor to prevent it from shifting off of the granite columns
- The home was supported on several steel I-beams that were supported by two steel cross beams and wood cribbing

Incident Location



Equipment

- Compact excavator was rented from an equipment rental company
- The excavator consisted of a compact utility loader base power unit with an excavator attachment (other attachments are available)
- An operator standing platform with controls for driving and operating various attachments was located at the rear of base

Equipment

- Most of the attachments were operated using the main control levers on the base unit
- The attachment was mounted on the front of the base unit and tapped into the hydraulic system
- It had an operator's seat and a separate set of controls for operating the stabilizers and excavation boom, dipperstick, and bucket

Equipment



Equipment

- The excavator attachment had four control levers in front of the operator's seat
- These control levers were partly protected by a guard made of steel tubing
- Warning decals included stability, tipping and pinch points hazards, buried utilities, and overhead electrical hazards
 - Nothing about overhead crushing hazard

Equipment



Day of Incident

- It was a Thursday and about 20°F, clear skies and snow on the ground
- The victim arrived around 8:00 a.m. and the incident occurred about 8:30 a.m.
- He was warming-up the machines and the work area until the company owner arrived
- Company owner was delayed due to a dump truck not starting

Investigation

- Positioned the excavator, partially underneath one of the beams and lowered the stabilizers
- The victim was operating the excavator when his body made contact with the overhead steel beam
- This contact pushed him forward in the operator's seat making it so that he could not move out of the way of the controls and the guard and became trapped

Investigation

- After coming in contact with the beam, the left main control lever was forced in the forward direction
- This caused the boom to extend or move in a downward direction, lifting the front of the unit and the stabilizers off the ground
- This continuous pressure was compressing the victim's back and neck against the beam and the front of the victim against the top of the unit

Investigation



Investigation



Investigation

- Company owner and a co-worker arrived around 9:30 a.m.
 - They could not free the victim
 - Had trouble making a 911 call
- Responders eventually freed the victim and he was pronounced dead at the work site
- Cause of death was asphyxia due to compression of neck and chest

Investigation Findings

Key contributing factors identified in this investigation

- Operating the excavator near overhead obstructions
- Absence of a protective cab on the excavator
- Lack of a comprehensive safety and health program
- Working alone

Investigation Findings

The Massachusetts FACE Program concluded that, to help prevent similar occurrences, employers should

- Ensure that only workers with required training and license are permitted to operate compact excavators and other regulated equipment
- Ensure that ride-on equipment without a protective cab are not operated in the vicinity of overhead obstructions

Investigation Findings

- Develop, implement, and enforce a policy that prevents employees from working alone in certain situations
- Ensure that a job hazard analysis is performed prior to the start of each project and updated if there is a major change in the scope of the project
- Develop and implement a comprehensive safety and health program that addresses hazard recognition, avoidance of unsafe conditions, and proper use of equipment

Investigation Findings

In addition, equipment manufacturers should

- Adopt and implement the concept of Prevention through Design (PtD) to identify potential hazards associated with equipment and then eliminate these hazards through design changes
- Develop a pictograph of the overhead crushing hazard and set a minimum height clearance for operating the excavator

Investigation Findings

Association of Equipment Manufacturers

- Library of decal pictographs



State FACE Resources



Search Mass.gov

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[Home](#) > [Workers' Rights & Safety](#) > [Workplace Injuries & Illnesses](#) > [Fatal Work-related Injuries](#)

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Fatal work-related injury reports and publications

Help us to improve the MA FACE project and our investigation reports by completing an [Evaluation Form \(DOC\)](#).

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- ✓ [Fatality Case Reports](#)
- ✓ [Fatal Occupation Injuries in MA: Multiyear Reports](#)
- ✓ [Massachusetts Fatal Injuries at Work: Annual Updates](#)

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Fatal Work-Related Injury Educational Materials

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NIOSH FACE Resources

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NIOSH ▾

The National Institute for Occupational Safety and Health (NIOSH)

NIOSH > Workplace Safety and Health Topics

🏠 Workplace Safety and Health
Topics

Fatality Assessment and Control
Evaluation(FACE) Program

What's New

About the Program

Investigations

NIOSH FACE Reports

State FACE Reports

Resources



Promoting productive workplaces
through safety and health research



Fatality Assessment and Control Evaluation (FACE) Program

[Español \(Spanish\)](#) | [Print](#)



NIOSH FACE Resources

<https://www.cdc.gov/niosh/face/default.html>

A repository of over 3,000 reports and products

Can search by

- Keyword
- Industry sector or priority industry title
- Cause/event type
- Worker characteristics

Prevention Efforts

- Products developed and disseminated
 - Fatality investigation reports (recommendations)
 - Fact sheets/Short alerts
<https://www.cdc.gov/niosh/face/whatsnew.html>
 - Data reports
 - All posted to NIOSH-FACE site
- Partnering with others
 - Fall prevention campaign / Safety stand-down
 - Massachusetts Coalition for Occupational Safety and Health shares prevention messaging

Safety Alert

SAFETY ALERT – PLEASE POST

Keep employees in motor vehicles safe by preventing distracted driving and ensuring seat belts are worn!

What happened in Massachusetts?

Lots of people drive as a part of their job – some more than others. Motor vehicle crashes continue to be a leading cause of work-related death in Massachusetts and across the country. In the past four years (2013–2016), 36 workers have died in motor vehicle crashes while driving for work in Massachusetts. It's not just

truck drivers who are dying in these crashes. Only 11 of these 36 victims were truck drivers. Many different jobs require employees to drive or be a passenger in a vehicle while at work. Some examples are: home health aides, landscapers, sales representatives, and police officers.



Food delivery crash

In 2016, a 22-year-old employee of a sandwich shop died while driving his own car to make a food delivery. He crashed into the rear of a truck that was making a left turn. Witnesses reported the driver was speeding before the crash. After the crash, police recovered the driver's cell phone from the car and a game was running on the screen. It was unknown if the victim was wearing a seatbelt.



Construction van crash

In 2016, two employees of a construction company, a 20- and a 52-year-old, died while riding in a company van. The van was in the left lane of a highway when a tire lost air and the van overturned. The van had only two front seats, but there were six employees in the vehicle. The employees in the back of the van were sitting on the floor or on supplies. Only the driver was wearing a seat belt. The worker in the front passenger seat, who was not wearing a seatbelt, and one of the workers in the back were ejected from the van when it crashed.

WHAT CAN BE DONE? SEE REVERSE FOR RECOMMENDATIONS →

JULY 2017

SAFETY ALERT – PLEASE POST

How can employers keep workers safe while driving or riding in motor vehicles?

Prevent distracted driving by:

- Banning texting and hand-held phone use while driving for work (both work and personal phones).
- Requiring employees to pull over in a safe location if they must text, look up directions, or make/answer a call. This includes texts or calls from management.
- Preparing employees before implementing these policies by communicating:
 - How distracted driving puts them at risk of a crash;
 - That driving requires their full attention while they are on the road; and
 - What action the company will take if they do not follow the policies.
- Ensuring that employees program navigation devices (e.g., GPS, phones) before they start driving, and that these cannot be operated manually when the vehicle is in motion. Also, make sure a vehicle mount is used to secure the device and eliminate the need to hold it while driving.

Require the use of seat belts at all times by all vehicle occupants.

- Ensure that there are enough seats for each passenger and that each seat has a functioning seat belt.

- Require two trips or an additional vehicle if there are more passengers than seats.

Develop a Motor Vehicle Safety Program that includes policies on:

- Training employees on the importance of being attentive while driving.
- Routinely reminding employees that while behind the wheel, driving is their primary job.
- Schedules that allow employees to obey speed limits, follow applicable hour-of-service regulations, and prevent drowsy driving.
- Zero tolerance for speeding and aggressive driving practices.
- Procedures for reporting and investigating crashes and vehicle breakdowns.
- Routine maintenance procedures for employer provided vehicles.

IN ADDITION, AS A REMINDER:

In Massachusetts and many other states, anyone under 18 years old cannot drive as part of their work duties.

Resources

Preventing work-related motor vehicle crashes, NIOSH
www.cdc.gov/niosh/docs/2015-111/pdfs/2015-111.pdf

Distracted Driving At Work web page, NIOSH
www.cdc.gov/niosh/topics/distracteddriving/

Guidelines for Employers to Reduce Motor Vehicle Crashes, OSHA, NHTSA, NETS
www.osha.gov/Publications/motor_vehicle_guide.pdf

Motor Vehicles, Safe Driving Practices for Employees, OSHA
www.osha.gov/Publications/Safe_Driving_Practices.pdf

Distracted Driving for Employers, National Safety Council
www.nsc.org/learn/NSC-Initiatives/Pages/distracted-driving-for-employers.aspx

Network of Employers for Traffic Safety, Road Safety Resources
<http://trafficsafety.org/road-safety-resources/#open-access>



About FACE Facts | MA FACE: MA FACE (Massachusetts Fatality Assessment and Control Evaluation) seeks to prevent work fatalities by identifying and investigating these incidents and developing prevention strategies for those who can intervene in the workplace. MA FACE is supported by cooperative agreement # U600H008490 from CDC-NIOSH. This document may be copied freely and found online at www.mass.gov/dph/face. If you have comments or questions, call the MA FACE Project at 1-800-338-5223.

03/14/18

Prevention Efforts: Translating Data to Action

- Engineering
- Policy and Enforcement
- Education



Resources

<https://www.cdc.gov/niosh/face/default.html>

<https://www.bls.gov/iif/home.htm>

<https://www.bls.gov/iif/fatal-injuries-tables.htm>

Resources

<https://www.mass.gov/doc/on-site-consultation-program-brochure/download>

**FREE Safety and
Health Consultation**

www.mass.gov/on-site-consultation-program



THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DEPARTMENT OF LABOR STANDARDS

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Massachusetts Department of Public Health



mass.gov/dph

Thank you

James Laing and Sarah Yiu
Occupational Health Surveillance Program
Massachusetts Department of Public Health
250 Washington Street, 4th Floor
Boston, MA 02108

MA.FACE@mass.gov

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