

# Fatal Injuries at Work

## Massachusetts Fatality Update, 2013

Occupational Health Surveillance Program, Massachusetts Department of Public Health, April 2015

### Data at a Glance

Fatal injuries at work are all the more tragic because they are largely preventable. Information about where and how they occur is essential to develop effective prevention programs.

#### How many workers died from injuries in 2013<sup>i</sup>?

- 57

#### Deaths by county<sup>ii</sup>

Middlesex, 17

Suffolk, 8

Essex, 7

Hampshire, 5

Hampden, 4

Norfolk, 4

Franklin, 3

Plymouth, 3

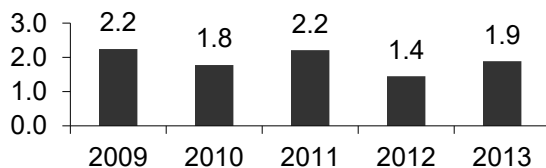
Worcester, 3

Barnstable, 2

Berkshire, 1

#### Rate of Fatal Occupational Injury by Year<sup>ii</sup>

Deaths per 100,000 full-time workers<sup>iii</sup>



#### What were the leading causes?

- Suicides (11)
- Falls to a lower level (10)
- Homicides (6)
- Vehicle collisions (6)
- Workers being struck by a falling object or vehicle (3)

#### Who was at highest risk? (ordered by rate of injury)

- Fishermen and agricultural workers (6)
- Transportation and material moving occupations (8)
- Self-employed workers (14)<sup>iv</sup>
- Construction workers (14)

## Tracking Work-related Deaths

The Occupational Health Surveillance Program (OHSP) in the Massachusetts Department of Public Health collects information on all fatal occupational injuries as part of the national Census of Fatal Occupational Injuries (CFOI), conducted in cooperation with the U.S. Bureau of Labor Statistics. Death certificates, OSHA records, news stories, police reports and other data sources are used to identify these deaths. These source documents are primarily collected by the Fatality Assessment and Control Evaluation (FACE) project, which conducts in-depth investigations of select fatal occupational injuries with support from the National Institute for Occupational Safety and Health (NIOSH). The purpose of the FACE project is to develop a detailed understanding of how fatal injuries occur and to develop recommendations to prevent similar incidents in the future. These recommendations are disseminated to industry, labor, equipment manufacturers and others in positions to take action to prevent work-related deaths.

This update provides an overview of fatal injuries at work that occurred in Massachusetts during 2013 and includes details collected by both the FACE and CFOI projects. Included are deaths traditionally linked to the work environment such as falls, electrocutions, and exposure to toxic chemicals. They also include workplace homicides and suicides as well as motor vehicle-related fatalities that occurred during travel on the job. Deaths from occupational illnesses and heart attacks at work are excluded.

## Overview of Fatal Injuries at Work in 2013

- In Massachusetts, 57 individuals were fatally injured at work during 2013 — 52 men and five women. The fatal occupational injury rate was 1.9 deaths per 100,000 full-time workers<sup>iii</sup> — a rate similar to rates based on comparable data from recent years.
- The victims ranged in age from 19 to 88 years, with an average age of 51.<sup>ii</sup> The fatalities resulted in a total of 1,413 potential life years lost, an average of 25 potential life years lost per victim.<sup>2</sup> Potential life lost is the difference between the victim's age and 75 years.
- Forty-one (72%) of the victims were White non-Hispanic, seven were Asian non-Hispanic, three were Hispanic (one of whom was foreign born), and six were other races.<sup>ii</sup> The fatality rate (deaths per 100,000 full-time workers) for each of these demographics was:  
Asian non-Hispanic: 3.3   White non-Hispanic: 1.7   Hispanic: 1.3<sup>iii</sup>
- Sixteen victims (28%) were born outside of the U.S. Foreign-born victims worked in a range of industries including manufacturing (4), transportation (3), and construction (2).<sup>2</sup> The rate of fatal injury among foreign-born workers was 2.6 per 100,000 full-time workers; the rate among U.S.-born workers was 1.7.<sup>ii</sup>
- Fourteen victims were self-employed.<sup>iv</sup> The fatal injury rate among self-employed workers was 8.1 per 100,000 workers, higher than the rate of 1.5 among wage/salary earners.<sup>iii</sup>
- The largest number of fatal injuries occurred in Middlesex County (17), followed by Suffolk (8) and Essex (7).<sup>ii</sup>
- Nationwide, 4,585 workers died as a result of fatal occupational injuries in 2013, and the fatal occupational injury rate for the U.S. was 3.3 per 100,000 full-time workers.<sup>v</sup> The lower fatality rate in Massachusetts (1.9) is due partly to the fact that proportionately fewer workers in Massachusetts were employed in high-risk industries such as mining, heavy manufacturing, or farming. Massachusetts also had lower overall rates of fatal highway transportation incidents in 2013, an event which contributed substantially to the national occupational fatality burden.

### Municipal Mechanic Fatally Injured When Crushed Between a Skid-steer Loader's Frame and Bucket

A 55-year-old male mechanic for a municipal water department was fatally injured when a raised skid-steer loader's lift arm came down and crushed him between the bucket and frame of the loader. The lift arm support had not been installed and the victim was working underneath the raised lift arm and attached bucket. The operator seat restraint interlock bar was in the down position, while no one was in the loader's operator seat, making the lift arm controls operable. The water department did not have a written safety and health program and did not have lockout/tagout procedures for those working on skid-steer loaders.

To prevent similar incidents, Massachusetts FACE recommended that municipalities should:

- **Ensure that safeguards and interlocks are used, readily accessible, and never bypassed;**

- Ensure that skid-steer loader lift arm support devices are installed prior to beginning troubleshooting and maintenance tasks requiring the lift arm to be in the raised position;
- Ensure that skid-steer loader operator seat restraint interlock bars are only in the lowered position when a worker is in the operator's seat;
- Develop, implement and enforce lockout/tagout procedures for skid-steer loader maintenance tasks that include the use of the loader's lift arm support device; and
- Provide work environments that, at a minimum, meet all relevant OSHA regulations and industry accepted standards of practice per the MA Department of Labor Standards' policy.

- Massachusetts FACE Report 12MA024

## Types of Events Causing Worker Deaths

**Table 1. Number and Percent of Fatal Injuries at Work by Event/Exposure, Massachusetts, 2013, N=57**

| Event/Exposure                                       | Number of Fatalities | Percent     |
|------------------------------------------------------|----------------------|-------------|
| <b>Violence and other injury by person or animal</b> | <b>20</b>            | <b>35</b>   |
| Suicide or self-inflicted injury                     | 11                   | 19          |
| Homicide or other violent act leading to death       | 6                    | 11          |
| <b>Transportation incident</b>                       | <b>13</b>            | <b>23</b>   |
| Roadway collision or noncollision (rollover)         | 6                    | 11          |
| Water vehicle incident                               | 3                    | 5           |
| Worker struck by vehicle                             | 2                    | 4           |
| <b>Fall, slip, or trip</b>                           | <b>12</b>            | <b>21</b>   |
| Fall to lower level                                  | 10                   | 18          |
| Fall on same level                                   | 2                    | 4           |
| <b>Contact with object or equipment</b>              | <b>6</b>             | <b>11</b>   |
| Struck by falling object, equipment, or vehicle      | 3                    | 5           |
| <b>Exposure to harmful substance or environment</b>  | <b>5</b>             | <b>9</b>    |
| Inhalation of harmful substance (carbon monoxide)    | 2                    | 4           |
| <b>Fire or explosion</b>                             | <b>1</b>             | <b>2</b>    |
| <b>Total</b>                                         | <b>57</b>            | <b>100%</b> |

Source: Massachusetts Census of Fatal Occupational Injuries and FACE project. Not all subcategories shown.

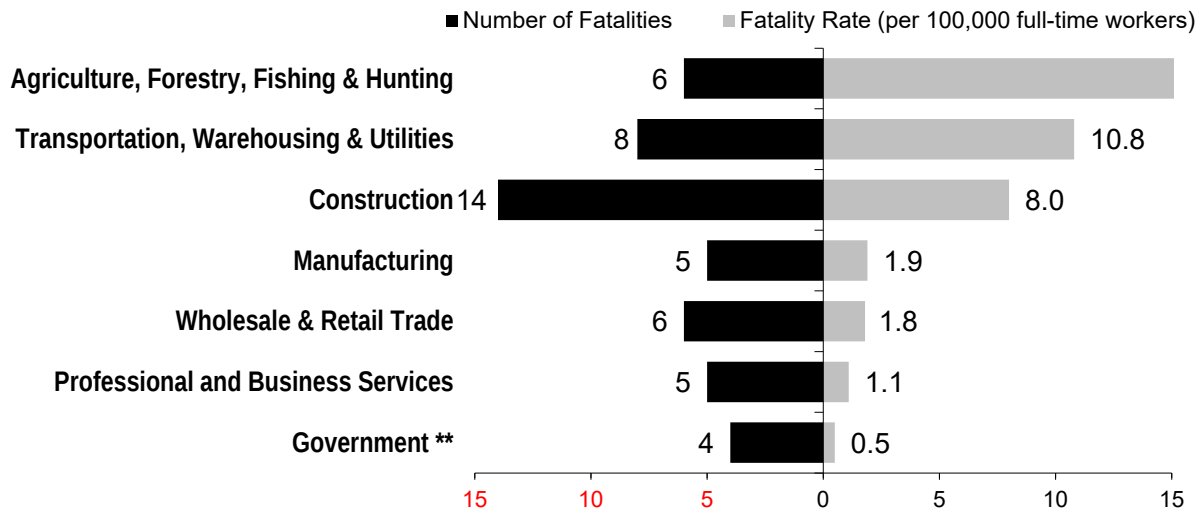
- Suicide at the workplace was the leading single cause of injury death at work in 2013. See page five for more information and prevention resources available in Massachusetts.
- Falls to a lower level claimed 10 lives and resulted in more unintentional injury deaths than any other single event. Six of the falls to a lower level were from heights of 20 feet or less (overall range was 3 to 50 feet).<sup>ii</sup> Seven of these 10 victims worked in construction, five of whom worked for companies with 10 or fewer employees.<sup>ii</sup> Five workers died in falls from ladders.
- Six workers were victims of homicide in 2013. These included a skateboard shop owner, campus police officer, livery driver, landlady, cellphone store clerk, and high school teacher.<sup>ii</sup>
- Roadway collisions contributed to the deaths of six workers, and two additional deaths involved vehicles hitting workers: a mechanic working under a flatbed trailer when it pulled away, and an airport ground crew worker struck by a backing truck.<sup>ii</sup>
- Three workers were struck by falling objects or vehicles, including a heavy equipment mechanic

crushed under a bulldozer which shifted as he was working on the tracks, a construction worker struck by a toppling concrete form, and a painter crushed under a steel bridge arch that his company was repainting at their facility.<sup>ii</sup>

- Two workers died from carbon monoxide poisoning from a generator they were using to power tools at an income property that had no electrical service.<sup>ii</sup>

## Fatal Injuries at Work by Industry

Figure 1. Number and Rate of Fatal Injuries at Work by Industry Sector, Massachusetts, 2013, N=57



Note: Data not presented for industry divisions with fewer than three fatalities (N = 9 deaths).

\*\*The Government category includes fatalities sustained by public sector workers regardless of industry.

Source: Massachusetts Census of Fatal Occupational Injuries and FACE project.

- Three fishermen and three agricultural workers lost their lives at work in 2013, giving the Agriculture, Forestry, Fishing & Hunting industry sector the highest occupational fatality rate (54.7 per 100,000 full-time workers).<sup>ii</sup> These included a vegetable farmer who suffered a fatal reaction to bee stings while working with a hive at a commercial farm.<sup>ii</sup>
- The Transportation and Warehousing sub-sector had eight deaths, for the second highest rate of 10.8 deaths per 100,000 full-time workers; these included four truck drivers killed in highway tractor trailer crashes.<sup>ii,vi</sup>
- Construction continued to be a dangerous industry, with the third highest fatality rate (8.0 per 100,000 workers) and 14 deaths.<sup>ii</sup> Unlike findings for recent years, the majority of these deaths (11 of 14) were on commercial or industrial construction sites rather than residential sites. Six died from a fall to a lower level and a worker for a marine construction firm fell from a docked barge and drowned. Four construction workers died from crushing injuries.

## OSHA Enforcement and Penalties

The Occupational Safety and Health Administration (OSHA) investigated 17 (30%) of the fatal work-related injuries identified by the MA CFI and FACE projects that occurred in 2013, covering all of the deaths under its jurisdiction and events in its scope.<sup>vii</sup> Of the remaining 40 fatal incidents, 17 involved workers who fall outside of OSHA jurisdiction such as public sector employees, sole proprietors or the self-employed, and commercial fishers. Twenty-one additional deaths were events not routinely addressed by OSHA such as suicides, homicides, or roadway motor vehicle collisions.

OSHA levied fines for violations of health and safety standards against 14 of the employers they investigated in response to these fatal incidents. The agency assessed a total of \$281,340 in initial penalties for violations identified in these fatality investigations, with the lowest fine assessed at \$800 and the highest at \$119,350.

## **Landscaper Working from a Raised Portable Work Platform Was Electrocuted When a Pole Saw Contacted Overhead Power Line**

A 26-year-old male foreman for a landscaping company was electrocuted while working from a raised portable work platform when a pole saw he had been using to trim tree branches came in contact with energized overhead power lines. The worksite was a private residence and the victim had been working within 10 feet of the power lines. The landscaping company did not have an Illness and Injury Prevention Program (I2P2) and none of the employees were classified and trained as line-clearance tree trimmers.

To prevent similar incidents, Massachusetts FACE recommended that landscaping companies performing work near energized power lines should:

- **Ensure employees remain at least 10 feet away from any energized power lines located on worksites and provide training about the hazards of power lines and appropriate personal protective equipment;**
- **Ensure that only line-clearance tree trimmers and power companies trim, access and maintain trees that are within 10 feet of energized overhead power lines; and**
- **Develop, implement, and enforce an Injury and Illness Prevention Program (I2P2) that addresses hazard recognition and avoidance of unsafe conditions.**

In addition, home owners and property owners should:

- **Contact power companies and/or “line-clearance tree trimmers” to maintain trees that are within 10 feet of energized power lines.**

- Massachusetts FACE Report 13MA019

## **Comments**

It is important when reporting statistics about fatal occupational injuries to acknowledge the individuals that these numbers represent. Continued efforts are needed to reduce the human as well as economic toll of preventable deaths at work in the Commonwealth. The surveillance findings presented here are intended to guide government, industry, labor, and community organizations in developing and implementing strategies to prevent similar tragedies in the future.

Falls in construction continue to be a priority for prevention in Massachusetts and nationwide. The national Campaign to Prevent Falls in Construction ([www.stopconstructionfalls.com](http://www.stopconstructionfalls.com)) coordinated by OSHA, NIOSH, and other partners is now in its third year. Tools box talks, videos and other educational resources about fall prevention for workers and contractors are available at the Electronic Library of Construction Occupational Safety and Health (eLCOSH) ([www.elcosh.org/index.php](http://www.elcosh.org/index.php)) developed by CPWR (Center for Construction Research and Training). A catalog of fall prevention devices for use in residential construction has recently been developed by the Washington University in St. Louis ([www.ot.wustl.edu/fptech/homepage.htm](http://www.ot.wustl.edu/fptech/homepage.htm)). Also MA FACE has released a new ladder safety fact sheet specifically for painting contractors ([www.mass.gov/eohhs/docs/dph/occupational-health/face-facts/ladder-painters.pdf](http://www.mass.gov/eohhs/docs/dph/occupational-health/face-facts/ladder-painters.pdf)). This was added to the DPH series of brochures on fall prevention in construction which are being disseminated throughout the state.

In 2013, OSHA rescinded a residential construction fall protection policy and resumed enforcement of the existing fall protection standard in the residential construction industry. This standard requires employers engaged in construction to provide conventional fall protection (i.e., personal fall arrest system, guardrails, or safety nets) to workers working six feet or more above a lower level. Slide guards, which have been widely used in residential construction, are not classified as conventional fall protection and, when used alone, will typically not meet the OSHA standard.

Self-employed workers had a fatality rate comparable to that of construction workers, at four times the state average. Half of the self-employed worked in the high-risk agriculture/fishing and construction sectors. Outreach to these workers continues to be a priority as they fall outside of the protections afforded by the Occupational Safety and Health Act.

2013 was the first year since 1987, when DPH began collecting data on fatal injuries at work, that suicides in the workplace were the leading cause of death at work in the state. Understanding the relationship between workplace factors and suicide is complicated. The suicides reported here, while they occurred in the workplace, were not necessarily related to workplace factors such as work overload, harassment, threats to job security, or exposure to neurotoxic chemicals.<sup>viii,ix</sup> In turn, workplace factors may contribute to suicides that take

place in other environments.<sup>ix</sup> In 2012, the Massachusetts Violent Death Reporting System, which tracks all suicides in the state regardless of location, found that in 10% of all suicides that year (63 of 624), a job problem (such as a problem with a supervisor or coworker, poor work performance, or recent job loss) were noted as contributing to the suicide. These findings underscore the importance of educating employers and worker organizations about available suicide prevention resources.

In Massachusetts the DPH Suicide Prevention Program provides:

- 24-Hour Crisis Hotlines:
  - Samaritans: 877-870-HOPE (4673)
  - National Suicide Prevention Lifeline: 800-273-TALK (8255), Veterans press 1
- Screening of behavioral health conditions for employees
- Suicide prevention awareness training for managers and supervisors
- Services to workplaces in the aftermath of a tragic death of any kind

Contact: 617-624-5438 [www.mass.gov/dph/suicideprevention](http://www.mass.gov/dph/suicideprevention)

## **CONTACT / MATERIAL REQUEST INFORMATION**

For detailed tables of fatal occupational injuries and previous fatality update reports as well as educational materials (FACE Facts and Safety Alerts), please contact the Massachusetts Department of Public Health, Occupational Health Surveillance Program, 250 Washington Street, 4<sup>th</sup> Floor, Boston, MA 02108-4619. Reports are available online at [www.mass.gov/dph/face](http://www.mass.gov/dph/face) or by calling 1-800-338-5223.

## **OTHER HEALTH AND SAFETY RESOURCES IN MASSACHUSETTS**

Massachusetts Department of Labor Standards – Offers free consultation services to help private sector employers improve their safety and health programs and train employees. [www.mass.gov/lwd/labor-standards/on-site-consultation-program](http://www.mass.gov/lwd/labor-standards/on-site-consultation-program)

Massachusetts Department of Industrial Accidents – Has grants available for providing workplace health and safety training to employers and/or employees in companies covered by the Massachusetts Workers' Compensation Insurance Law. [www.mass.gov/lwd/workers-compensation/safety](http://www.mass.gov/lwd/workers-compensation/safety)

## **ACKNOWLEDGEMENTS**

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Please report work-related fatalities immediately to the MDPH Toll-Free Occupational Fatality Hotline

**1-800-338-5223**

**Fax 617-624-5696**

**When reporting a fatality, include the following information:**

- Your name, organization, address, and phone number
- Victim's name, occupation, and employer
- Brief description of the incident, including date and time

**The Occupational Health Surveillance Program would like to thank all agencies and people that contribute to our efforts to prevent work-related deaths by reporting fatalities and providing information during our fatality investigations.**

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<sup>i</sup> Work-related deaths in 2013 identified by MA CFOI and FACE projects.

<sup>ii</sup> Data provided by the FACE project, MDPH.

<sup>iii</sup> All rates in this report are computed using full-time equivalent workers (FTE) in the denominator, which take into account the number of hours worked. This employment data comes from the Current Population Survey conducted by the Census Bureau for the U.S. Department of Labor, Bureau of Labor Statistics (BLS). One FTE = 2,000 hours worked annually. All of the rates described in this report, aside from the overall state and national rates, are based on small numbers of deaths and should be interpreted with caution. Rates generated for this report are not directly comparable to rates published by BLS.

<sup>iv</sup> Self-employed workers include persons who own/operate unincorporated businesses and also paid and unpaid family workers.

<sup>v</sup> U.S. Department of Labor, Bureau of Labor Statistics, Census of Fatal Occupational Injuries, 2013. <http://www.bls.gov/iif/oshcfoi1.htm/#2013>

<sup>vi</sup> There were no deaths in utilities, which is grouped with transportation and warehousing for the purposes of calculating the rate in Figure 1.

<sup>vii</sup> OSHA investigated four illness deaths excluded from this report.

<sup>viii</sup> Boxer A, Burnett C, Swanson N. (1995): Suicide and Occupation: A Review of the Literature. *J Occ Env Med.* 37(4):442-452.

<sup>ix</sup> Kraus J, Schaffer K, Chu L, Rice T. (2005): Suicides at Work: Misclassification and Prevention Implications. *Int J Occ Env Hlth.* 11(3):246-253.