



# Fatal Injuries at Work

## Massachusetts Fatality Update, 2012



Occupational Health Surveillance Program Massachusetts Department of Public Health February 2014

### 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 2012<sup>1</sup>?

- 33

#### What were the leading causes?

- Falls (7)
- Suicides (6)
- Capsized or sinking water vessels (4)
- Vehicle collisions (3)
- On foot and hit by vehicles in roadways or on industrial premises (3)

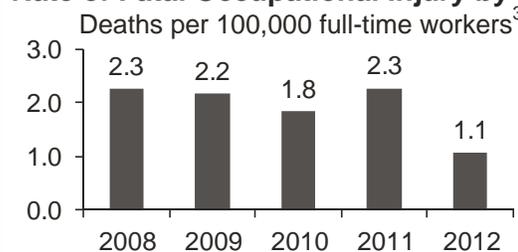
#### Who was at highest risk? (ordered by rate of injury)

- Fishermen and agricultural workers (5)
- Transportation and material moving occupations (8)
- Construction workers (7)

#### Deaths by county<sup>2</sup>

Worcester	8	Suffolk	3
Barnstable	5	Essex	2
Hampden	5	Norfolk	2
Middlesex	4	Plymouth	1
Bristol	3		

#### Rate of Fatal Occupational Injury by Year<sup>2</sup>



### 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.

OHSP also conducts in-depth investigations of select fatal occupational injuries as part of the Fatality Assessment and Control Evaluation (FACE) project, supported by 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 2012 and includes details collected by both the FACE and CFOI programs. 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.

<sup>1</sup> Work-related deaths in 2012 identified by MA CFOI and FACE programs. These data are preliminary and include deaths identified as of 7/2013.

<sup>2</sup> Data provided by the FACE project, MDPH.

## Overview of Fatal Injuries at Work in 2012

- ◆ In Massachusetts, 33 individuals were fatally injured at work during 2012 — 31 men and two women. The fatal occupational injury rate was 1.1 deaths per 100,000 full-time workers<sup>2,3</sup> — a rate significantly lower than the rates based on comparable preliminary data from recent years.
- ◆ The victims ranged in age from 19 to 73 years, with an average age of 47.<sup>2</sup> The fatalities resulted in a total of 916 potential life years lost, an average of 28 potential life years lost per death.<sup>2</sup> Potential life lost is the difference between the victim's age and 75 years.
- ◆ Twenty-eight (85%) of the victims were White non-Hispanic, three were Black non-Hispanic, and two were Hispanic (one of whom was foreign born).<sup>2</sup> The rate for Black non-Hispanic workers was 1.9 deaths per 100,000 full-time workers while the rate for White non-Hispanic workers was 1.2.<sup>2</sup> (Rates were not computed for groups with fewer than three deaths.)
- ◆ Five victims (15%) were born outside of the U.S. Foreign-born victims worked in a range of industries including construction (2), utilities(1), public safety (1) and cleaning services (1).<sup>2</sup> The rate of fatal injury among foreign-born workers was 0.9 per 100,000 full time workers; the rate among U.S.-born workers was 1.1.<sup>2</sup>
- ◆ Six victims were self-employed.<sup>4</sup> The fatal injury rate among self-employed workers was 2.9 per 100,000 workers while the rate among wage/salary earners was 0.9.<sup>2</sup>
- ◆ The largest number of fatal injuries occurred in Worcester County (8), followed by Barnstable and Hampden counties with five deaths each.<sup>2</sup>

### Municipal Crossing Guard Fatally Injured When Struck by a Motor Vehicle

A 71-year-old female municipal crossing guard, employed by a local police department, was fatally injured when she was struck by a pickup truck while assisting school children in crossing a roadway at a pedestrian crosswalk. The department usually provided a 10-minute annual training for the crossing guards but this year the training had not been offered. The department also did not have a written safety and health program. The department did provide crossing guards with high visibility vests, rain jackets and stop paddles, but it was reported by the victim's co-workers that the paddles were too heavy to use and it was unknown if the vests were American National Standard Institute (ANSI) compliant.

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

- ◆ Develop a school route plan that meets the standards set forth in the national Manual on Uniform Traffic Control Devices (MUTCD);
- ◆ Consider installing signs and flashing lights to ensure crosswalks are clearly visible to motorists;
- ◆ Ensure that the design of equipment supplied to workers, such as stop paddles, does not prevent employees from using the equipment;
- ◆ Provide and ensure that crossing guards are wearing the appropriate personal protective equipment, including ANSI compliant high-visibility safety apparel, when working along roadways;
- ◆ Ensure that crossing guards are provided with initial training and annual refresher trainings; and
- ◆ Provide work environments for employees that, at a minimum, meet all relevant Occupational Safety and Health Administration (OSHA) regulations and industry accepted standards of practice per the MA Department of Labor Standards' policy.

Massachusetts FACE Report 12MA010

<sup>3</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. 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. Because this report is based on deaths identified as of 7/2013, we anticipate some rates will increase as more deaths are identified. Rates generated for this report are not directly comparable to rates published by BLS.

<sup>4</sup> Self-employed workers include persons who work in unincorporated family businesses.

- ◆ Nationwide, 4,383 workers died as a result of fatal occupational injuries in 2012, and the fatal occupational injury rate for the U.S. was 3.2 per 100,000 full-time workers (preliminary data).<sup>5</sup> The lower fatality rate in Massachusetts 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 and homicides in 2012, two events that contributed substantially to the national occupational fatality burden.

## Types of Events Causing Worker Deaths

**Table 1. Number and Percent of Fatal Injuries at Work by Event/Exposure  
Massachusetts, 2012, N=33**

Event/Exposure	Number of Fatalities	Percent
<b>Transportation Incident</b>	<b>13</b>	<b>39</b>
Capsized or sinking water vessel	4	12
Roadway collision	3	9
Worker struck by vehicle	3	9
Aircraft crash	2	7
<b>Violence and other injury by person or animal</b>	<b>7</b>	<b>21</b>
Suicide or self-inflicted injury	6	18
Homicide or other violent act leading to death	1	3
<b>Fall, slip, or trip</b>	<b>7</b>	<b>21</b>
Fall from height	6	18
Jump to lower level	1	3
<b>Contact with Object or Equipment</b>	<b>5</b>	<b>15</b>
Struck by falling object or equipment	2	7
<b>Exposure to Harmful Substance or Environment</b>	<b>1</b>	<b>3</b>
<b>Total</b>	<b>33</b>	<b>100%</b>

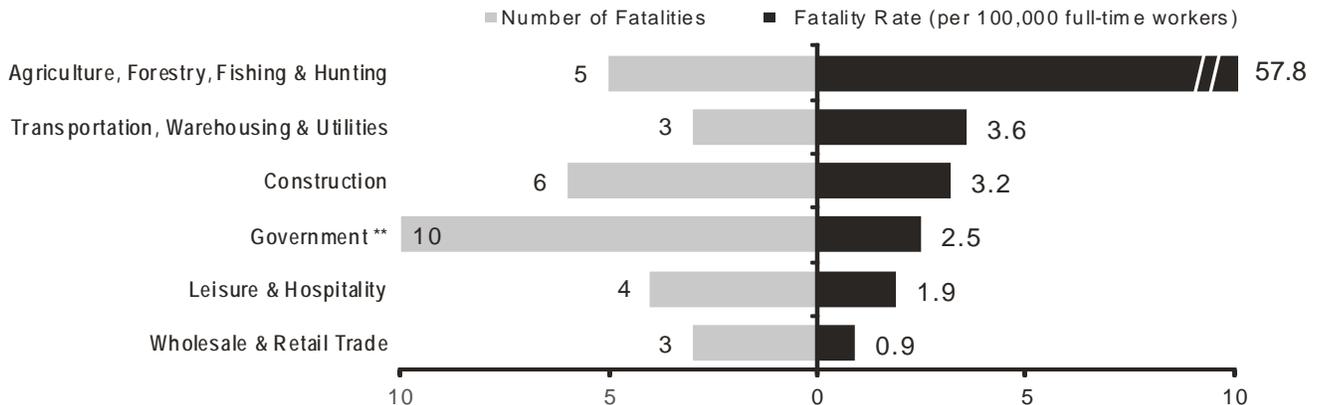
Source: Massachusetts Census of Fatal Occupational Injuries and FACE project.

- ◆ Falls and jumps to a lower level claimed seven lives and resulted in more deaths than any other single event. Three of the falls to a lower level were from heights of 20 feet or less (overall range was 15 to 60 feet).<sup>2</sup> Five of these seven victims were construction workers, four of whom worked for companies with ten or fewer employees.<sup>2</sup> Four workers died in falls from ladders.
- ◆ Four workers lost their lives at sea in a sinking or capsizing vessel. Three of these were fishermen who drowned when two scallop dredges capsized. A towboat captain also drowned when his boat sank at night.
- ◆ Roadway collisions contributed to the deaths of three workers, and three additional deaths involved vehicles hitting individuals on foot: one directing traffic in a roadway, a second in a work zone, and a third in a school crosswalk.<sup>2</sup> Another worker was killed when struck by a rolling fuel delivery truck on an access drive.<sup>2</sup>
- ◆ Two workers were struck by trees they were cutting down when they were unable to move out of way of the falling tree because of branches on the ground.<sup>2</sup>

<sup>5</sup> U.S. Department of Labor, Bureau of Labor Statistics, Census of Fatal Occupational Injuries, 2012, preliminary.

## Fatal Injuries at Work by Industry

Figure 1. Number and Rate of Fatal Injuries at Work by Industry Sector, Massachusetts, 2012, N=33



Note: Data not presented for industry divisions with fewer than three fatalities (N = 2 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 two agricultural workers lost their lives at work in 2012, giving the Agriculture, Forestry, Fishing & Hunting industry sector the highest occupational fatality rate (57.8 per 100,000 full-time workers).<sup>2</sup> A Christmas tree farmer was struck by a falling tree while clearing land on his farm; a farmhand was struck by a cart of hay bales which started rolling after being unhitched from a truck.<sup>2</sup>
- ◆ The Transportation, Warehousing & Utilities sector had three deaths, for the second highest rate of 3.6 deaths per 100,000 full-time workers; this included a flight instructor killed in a plane crash and a boat towing service operator who drowned.<sup>2</sup>
- ◆ Construction continued to be a dangerous industry, with the third highest fatality rate (3.2 per 100,000 workers) and six deaths.<sup>2</sup> Half of these victims (3 of 6) were working at residential sites. Five died from falling, including one worker who fell 60 feet through a gap in an elevated highway after he hopped over a median barrier while collecting traffic markers.<sup>2</sup> The majority of these workers (5 of 6) were employed by small contractors with 10 or fewer employees or were self-employed.<sup>2</sup> MDPH continues to work with stakeholders to find innovative ways to reach these employers and workers, as well as the homeowners who employ them.
- ◆ Ten government employees lost their lives at work in 2012. This included nine municipal and county workers, seven of whom worked for police departments or in correctional institutions. Transportation incidents were the leading cause of fatal injury in government workers (6 of 10).

## OSHA Enforcement and Penalties

The Occupational Safety and Health Administration (OSHA) investigated seven (21%) of the fatal work-related injuries identified by MA CFOI and FACE that occurred in 2012, covering all of the deaths under its jurisdiction and events in its scope.<sup>6</sup> Of the remaining 26 fatal incidents, 21 involved workers that fall outside of OSHA jurisdiction such as public sector employees, sole proprietors or the self-employed, commercial fishers, and aviation. Five additional deaths were events not routinely addressed by OSHA such as suicides or roadway motor vehicle collisions.

OSHA levied fines for violations of health and safety standards against five of seven employers they investigated in response to these fatal incidents. In Massachusetts in 2012, the agency assessed a total of \$66,800 in initial penalties, with the lowest fine assessed at \$8,400 and the highest at \$18,200.

<sup>6</sup> OSHA investigated four illness deaths excluded from this report.

## Electrician Electrocuted while Troubleshooting Envelope Manufacturing Machine

A 53-year-old male electrician was electrocuted while troubleshooting an envelope manufacturing machine. The machine's blower was not working properly and when the victim reached into the machine to access wiring for the blower, he was electrocuted. The wiring was in a junction box behind the framework of the machine and was both physically and visually inaccessible. The victim had been working extra hours to help the company move to a new location. The company did not have a comprehensive safety and health program, but new hires were provided training on multiple health and safety topics during orientation.

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

- ◆ Ensure that electrical circuits and equipment are de-energized and that lockout/tagout standard operating procedures are implemented and enforced prior to beginning work;
- ◆ Provide and ensure that employees use appropriate personal protective equipment (PPE) and tools for troubleshooting live circuits;
- ◆ Develop, implement, and enforce a comprehensive safety and health program that addresses hazard recognition and avoidance of unsafe conditions; and
- ◆ Ensure that work is scheduled to allow for sufficient rest periods between work shifts.

In addition, machine manufacturers should:

- ◆ Implement the concept of Prevention through Design (PtD) to ensure the safety and health of machine users, including machine operators and maintenance workers. ([www.cdc.gov/niosh/topics/ptd](http://www.cdc.gov/niosh/topics/ptd))

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## 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.

Construction continues to stand out as a priority for prevention in Massachusetts and nationwide. Hazards in this industry should not simply be accepted as part of the job: they can be prevented. In an effort to reduce construction deaths in the U.S., OSHA, NIOSH, and other partners launched the Campaign to Prevent Falls in Construction in 2012 ([www.stopconstructionfalls.com](http://www.stopconstructionfalls.com)). Following a successful series of trainings held in 2012 in support of this campaign, the Massachusetts On-site Consultation Program under the Massachusetts Department of Labor Standards (MA DLS) offered seven additional free sessions of fall prevention training for roofing contractors in 2013 (six sessions presented in English, one in Spanish). Over 350 roofing contractors were trained as a result of this initiative, covering a wider geographic area than the 2012 trainings.

In 2013 OHSP also released a new brochure describing personal fall arrest systems (PFAS), the fourth in a series of brochures for residential construction workers which have been distributed through building and inspectional services departments across the Commonwealth. Just over 20,000 copies of these brochures have been distributed. Also, a new fact sheet on ladder safety for painting contractors has just been completed. Highlights of these and other activities in Massachusetts, including a poster campaign on public transit systems, are featured on the campaign's website <http://stopconstructionfalls.com/wp-content/uploads/2013/10/Massachusetts-SS-2013.pdf>

As temporary workers are placed in some of the most hazardous jobs in Massachusetts and often these workers are not provided enough information and training about their jobs and how to perform the work safely, a new law took effect in January 2013 to address these issues. *An Act Establishing a Temporary Worker's Right to Know* requires staffing agencies to tell their workers where they will be working and who they will be working for, and to provide wage, overtime, and workers' compensation

information. The law also establishes several other workplace rights for temporary workers. MA DLS enforces this law and their web page includes materials for workers, staffing agencies, and host employers, as well as a link to the OHSP fact sheet on training responsibility. [www.mass.gov/lwd/labor-standards/employment-agency/employment-placement-and-staffing-agencies-program/](http://www.mass.gov/lwd/labor-standards/employment-agency/employment-placement-and-staffing-agencies-program/)

In 2012 the rate of fatal injury in public sector workers was double the statewide average. While based on smaller numbers this year and not statistically significant, deaths among state and municipal workers remain a concern as OSHA protections do not extend to public sector workers in Massachusetts. The state continues to implement *Executive Order 511* issued by Governor Patrick in 2009 through a centralized health and safety infrastructure and joint labor / management committees in state agencies. In addition, MA DLS has enhanced efforts to improve health and safety conditions for municipal workers by increasing incident inspections and voluntary technical assistance for municipalities.

#### 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, 6<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**

or

**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.