



Fatal Injuries at Work

Massachusetts Fatality Update, 2010



Occupational Health Surveillance Program Massachusetts Department of Public Health April 2012

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 2010¹?

- 54

What were the leading causes?

- Falls (16)
- Suicides (7)
- Vehicle crashes (7)
- Homicides (6)
- Hit by vehicles in roadways, work zones, or on industrial premises (3)

Which workers were at highest risk?

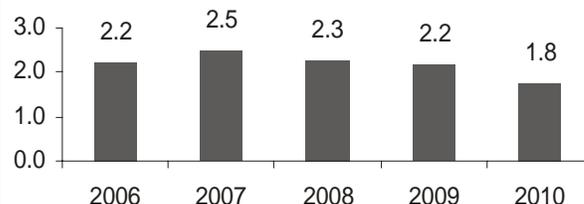
- Construction workers (14)
- Self-employed workers (8)
- Hispanic workers (7)
- Government workers (11)
- Foreign-born workers (15)

Deaths by county²

Suffolk	11	Barnstable	2
Middlesex	8	Hampden	2
Plymouth	8	Norfolk	2
Essex	6	Berkshire	1
Worcester	5	Hampshire	1
Franklin	4	Nantucket	1
Bristol	3		

Rate of Fatal Occupational Injury by Year

Deaths per 100,000 full-time workers



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 2010. These include 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.

¹ Work-related deaths in 2010 identified as of 12/6/2011 by MA CFOI and FACE programs.

² Data provided by the FACE project, MDPH.

Overview of Fatal Injuries at Work in 2010

- ◆ In Massachusetts, 54 individuals were fatally injured at work during 2010 — 52 men and two women. The fatal occupational injury rate was 1.8 deaths per 100,000 full-time workers³ — a rate similar to the fatal occupational injury rates in Massachusetts reported for the previous few years.
- ◆ The victims ranged in age from 18 to 77 years, with an average age of 50. The fatalities resulted in a total of 1,369 potential life years lost, an average of 25 potential life years lost per death. Potential life lost is the difference between the victim's age and 75 years.
- ◆ Forty-four (81%) of the victims were White non-Hispanic, seven were Hispanic (one of whom was foreign born), and two were Black non-Hispanic.² The rate for Hispanic workers (3.9 per 100,000 full-time workers) exceeded the rate for White non-Hispanics (1.8 per 100,000 full-time workers). (Rates were not computed for groups with fewer than three deaths.)
- ◆ Fifteen victims (21%) were born outside of the U.S. Foreign-born victims worked in a range of industries including construction (3), property maintenance (3), education (2), restaurants (2), and other sectors (4).² The rate of fatal injury among foreign-born workers was 2.7 per 100,000 full time workers; the rate among U.S.-born workers was 1.6 per 100,000 full time workers.
- ◆ Eight victims were self-employed, four of whom died while working in construction.^{4,2} The fatal injury rate among self-employed workers was 4.4 per 100,000 workers while the rate among wage/salary earners was 1.6 per 100,000 workers.
- ◆ The largest number of fatal injuries (11) occurred in Suffolk county, followed by Middlesex and Plymouth counties with eight fatal injuries each.²

Immigrant Roofer Electrocuted When an Aluminum Ladder Platform Hoist Contacted Overhead Power Line

A 23-year-old male roofer was electrocuted and two co-workers were severely shocked when an aluminum ladder that was part of a ladder platform hoist came in contact with energized overhead power lines. The workers were in the process of raising the 32-foot ladder from a horizontal position on the ground to a vertical position when they lost their footing. The ladder fell into energized overhead power lines electrocuting the victim and severely shocking the two co-workers. The company did not have a health and safety program and did not provide employees with health and safety training.

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

- ◆ Eliminate the use of conductive tools and equipment, including ladders, in proximity to energized overhead power lines;
- ◆ Conduct job site surveys prior to the start of construction projects to identify potential hazards, such as energized overhead power lines, and implement appropriate control measures for these hazards; and
- ◆ Develop, implement, and enforce a comprehensive safety program, which includes hazard recognition and avoidance of unsafe conditions, such as working around energized overhead power lines.

In addition, manufacturers of ladder platform hoists should:

- ◆ Design the ladder section of the platform hoists to be non-conductive.

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³ 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 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 state and national rates, are based on small numbers of deaths and should be interpreted with caution.

⁴ Self-employed workers include persons who work in unincorporated family businesses.

- ◆ Nationwide, 4,690 workers died as a result of fatal occupational injuries in 2010, and the fatal occupational injury rate for the U.S. was 3.6 per 100,000 full-time workers.⁵ The lower fatality rate in Massachusetts is due partly to the fact that proportionately fewer Massachusetts workers were employed in high risk industries such as agriculture, mining and heavy manufacturing. Massachusetts also had lower overall rates of fatal highway transportation incidents and homicides in 2010, 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, 2010, N=54**

Event/Exposure	Number of Fatalities	Percent
Fall	16	29.6
Fall from height	11	20.0
Fall on same level	5	9.3
Assault or Violent Act	14	26.1
Homicide or other violent act leading to death	7	13.0
Suicide or self-inflicted injury	7	13.0
Transportation Incident	14	26.1
Roadway collision or overturn	4	7.4
Worker struck by vehicle	3	5.6
Aircraft crashes	3	5.6
Exposure to Harmful Substance or Environment	5	9.3
Oxygen deficiency or drowning	3	5.6
Contact with Object or Equipment	4	7.4
Struck by falling materials	2*	3.7
Total	54	100.0

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

*Data provided by the FACE project, MDPH.

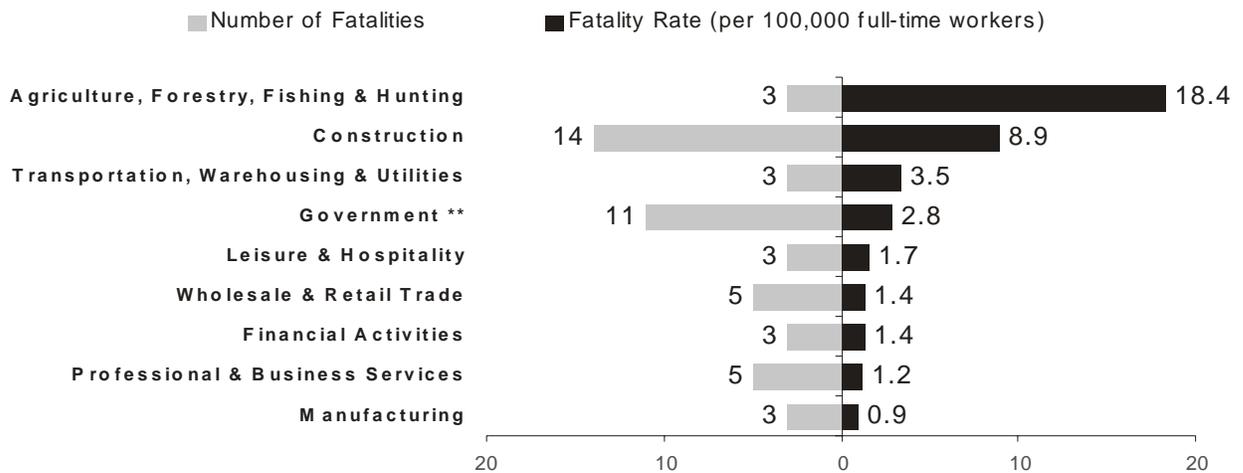
- ◆ Falls to a lower level claimed 11 lives and resulted in more deaths than any other single event. Most of the falls to a lower level (eight of 11) were from heights of 25 feet or less, and three of these were from less than 10 feet (overall range is six to 30 feet).² Eight of the 16 fall victims were construction workers, three of whom fell from ladders and two from roofs.²
- ◆ Seven workers were victims of workplace homicide or died from complications of a violent act. Two of the homicide victims worked in the food or retail trades. Three of the homicides were robberies, including a police officer shot while pursuing a robbery suspect. Workplace homicides accounted for 1.5 percent of all homicides among working age residents of Massachusetts in 2010.⁶
- ◆ Roadway collisions caused the deaths of four workers who were vehicle occupants. Working near moving vehicles continues to put workers in the Commonwealth at risk. Two workers were struck by traffic and one was struck by a backing truck.²

⁵ U.S. Department of Labor, Bureau of Labor Statistics, Census of Fatal Occupational Injuries, 2010 .

⁶ Data compiled and extracted by the Massachusetts Violent Death Reporting System of the Injury Surveillance Program in the Massachusetts Department of Public Health (December 2011, from Preliminary2010fileAugust2011 by DC manner). Caution should be used when interpreting 2010 numbers. Numbers may change as the file is updated.

Fatal Injuries at Work by Industry

Figure 1. Number and Rate of Fatal Injuries at Work by Industry Sector, Massachusetts, 2010, N=54



Note: Data not presented for industry divisions with fewer than three fatalities (N = 4 deaths).

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

Source: Massachusetts Census of Fatal Occupational Injuries, 2010.

- ◆ Two farm operators and a fisherman lost their lives at work in 2010, giving the Agriculture, Forestry, Fishing & Hunting industry the highest occupational fatality rate (18.4 per 100,000 full-time workers).² One cattle farmer was gored and trampled by an escaped bull which was known to be aggressive, and the owner of a cider mill was struck in the face by a valve which failed under pressure.² A fisherman fell overboard from an 80-foot trawler in choppy seas.²
- ◆ Construction continued to be a dangerous industry, with the second highest fatality rate (8.9 per 100,000 workers) and the highest number of deaths (14). Half of these victims (7 of 14) were working on residential construction sites. Three quarters of these workers (11 of 14) were employed by small contractors with 10 or fewer employees or were self-employed and not incorporated. Innovative efforts are needed to reach these employers and workers, as well as the homeowners who employ them.
- ◆ Eleven local, state, and federal Government workers sustained fatal injuries in 2010 (21% of all deaths; a rate of 2.8 deaths per 100,000 workers). This included five municipal workers, three state workers, and three federal workers. Four of these workers died in transportation incidents, including two who were struck by vehicles while working in roadways.²

OSHA Enforcement and Penalties

The Occupational Safety and Health Administration (OSHA) investigated 15 (28%) of the fatal work-related injuries identified by MA CFOI and FACE that occurred in 2010.⁷ Of the remaining 39 fatal incidents, 24 occurred in workforce groups that fall outside of OSHA jurisdiction such as commercial fishers, public sector employees, aviation crashes, sole proprietors, or the self-employed, and eleven were events not routinely addressed by OSHA such as homicides, suicides and overdoses, or roadway motor vehicle-related collisions.

OSHA levied fines for violations of health and safety standards against 14 of 15 employers they investigated in response to these fatal incidents. In Massachusetts in 2010, the agency assessed a total of \$169,940 in initial penalties, with the lowest fine assessed at \$3,600 and the highest at \$24,000.

⁷ OSHA investigated two illness deaths excluded from this report. OSHA investigated one homicide at work which is included in this 15.

Immigrant Roofer Struck by a Bag of Gravel that Fell from a Roof

A 39-year-old male roofer was part of a crew repairing the roof of a building when he was struck by a bag loaded with gravel from the building's roof. The crew was using a portable manual rope pulley system to lower bags of gravel from the roof. The victim's task was to control the bag's descent by using the pulley's rope while standing on the ground. The victim did not realize that a 40 pound bag had begun to be lowered and the bag free-fell three and one half stories, striking him in the head. The company did not have a health and safety program and did not provide adequate safety training.

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

- ◆ Ensure that only rope pulley systems with brakes are used for hoisting and lowering tasks;
- ◆ Develop standard operating procedures (SOPs) for using rope pulley systems that include voice and hand signals to indicate when a task is beginning, and barricading off the pulley's fall zone to prevent employees from being struck by the object attached to the pulley;
- ◆ Develop, implement, and enforce a comprehensive safety and health program and provide training which includes hazard recognition and avoidance of unsafe conditions, such as the hazards associated with using rope pulley systems.

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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. Hazards in this industry should not simply be accepted as part of the job. These hazards can be prevented. For example, in Ontario Canada, which has an extensive construction safety program, the rate of construction fatalities is nearly half the rate for the construction industry in the U.S.⁸

Findings highlight the continued need to focus on fatal falls in construction. Five of the eight construction workers who fell to their deaths were working at residential sites. In Massachusetts, OHSP has recently updated materials on fall prevention in multiple languages with input from residential contractors. In response to the high number of deaths in residential construction nationally, OSHA continues to promote the requirements for use of fall protection on residential construction jobs.⁹ A national campaign to prevent falls in construction will be launched during the week of Workers' Memorial Day 2012. This campaign is a government-labor-management initiative. OSHA, NIOSH, state government, private industry, trade associations, professional and labor organizations are coming together to focus on preventing three major types of falls: falls from roofs, falls from ladders and falls from scaffolds. For more information, see the campaign website: www.stopconstructionfalls.com.

Deaths among state and municipal workers remain a concern as OSHA protections do not extend to public sector workers in Massachusetts. In response to Executive Order 511 issued by Governor Patrick, state agencies are moving forward to establish health and safety committees and address health and safety concerns. Additional efforts are needed to improve health and safety conditions for municipal workers.

High rates of fatalities among Hispanic and foreign-born workers reported here, while based on small numbers, are consistent with previous reports for Massachusetts and the nation.^{10, 11} The high rates

⁸ The Construction Chart Book: The U.S. Construction Industry and its Workforce (4th edition), CPWR – The Center for Construction Research and Training, 2008. Accessed at www.cpw.com.

⁹ <http://www.osha.gov/doc/topics/residentialprotection/index.html>

¹⁰ Fatal Occupational Injuries in Massachusetts, 2000-2007, Occupational Health Surveillance Program, MDPH, 2009.

¹¹ Centers for Disease Control and Prevention (CDC). Work-Related Injury Deaths Among Hispanics – United States, 1992–2006. Morbidity and Mortality Weekly Report (MMWR) 2008; 57:597-600.

are, in part, explained by the fact that these workers are more likely to be employed in high risk jobs. Inexperience, language and cultural barriers at work, inadequate access to health and safety information, and socioeconomic pressures that make workers hesitant to speak up may also contribute. The Massachusetts FACE project is continuing to conduct in depth investigations of immigrant worker deaths and to work with community organizations serving these populations. Since the National Action Summit for Latino Worker Health and Safety in April 2010, OSHA has continued to reach out to this and other vulnerable worker populations with the goal of increasing workers' knowledge of their health and safety rights and ability to exercise those rights. See www.osha.gov/latinosummit/diverseworkforce.html for recent and future events.

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, 6th Floor, Boston, MA 02108-4619. Reports are available online at www.mass.gov/dph/face or by calling 1-800-338-5223.

OTHER HEALTH AND SAFETY RESOURCES IN MASSACHUSETTS

Massachusetts Department of Labor Standards (formerly the Division of Occupational Safety) – Offers free consultation services to help employers improve their safety and health programs and train employees. 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/

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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.