

Fatal Injuries at Work

Massachusetts Fatality Update, 2011

Occupational Health Surveillance Program Massachusetts Department of Public Health
November 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 2011¹?

- 63

What were the leading causes?

- Falls (16)
- Suicides (12)
- Vehicle collisions (10)
- Homicides (6)
- Caught in running machinery (3)
- Hit by vehicles in roadways or on industrial premises (3)

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

- Fishermen (4)
- Transportation industry (8)
- Construction industry (13)
- Black non-Hispanic workers (8)
- Hispanic workers (11)

Rate of Fatal Occupational Injury by Year

Deaths per 100,000 full-time workers

2007: 2.5

2008: 2.3

2009: 2.2

2010: 1.8

2011: 2.1

Deaths by county²

Middlesex	14	Hampden	5
Suffolk	9	Worcester	5
Essex	7	Norfolk	3
Bristol	6	Berkshire	2
Plymouth	6	Hampshire	1
Barnstable	5		

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 2011. 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.

Overview of Fatal Injuries at Work in 2011

- ◆ In Massachusetts, 63 individuals were fatally injured at work during 2011 — 60 men and three women. The fatal occupational injury rate was 2.1 deaths per 100,000 full-time workers³ — a rate similar to fatal occupational injury rates in Massachusetts reported for the previous few years.
- ◆ The victims ranged in age from 21 to 82 years, with an average age of 47. The fatalities resulted in a total of 1,773 potential life years lost, an average of 28 potential life years lost per death. Potential life lost is the difference between the victim's age and 75 years.
- ◆ Forty-one (65%) of the victims were White non-Hispanic, 11 were Hispanic (eight of whom were foreign born), and eight were Black non-Hispanic. The rates for Black non-Hispanic workers (5.2 deaths per 100,000 full-time workers) and Hispanic workers (5.1) were significantly higher than the rate for White non-Hispanics (1.7). (Rates were not computed for groups with fewer than three deaths.)
- ◆ Sixteen victims (25%) were born outside of the U.S. Foreign-born victims worked in a range of industries including construction (6), transportation (3), manufacturing (2), trade (2), and other sectors (3).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 2.0.
- ◆ Four victims were self-employed.⁴ The fatal injury rate among self-employed workers was 2.1 per 100,000 workers. The rate among wage/salary earners was 2.1.
- ◆ The largest number of fatal injuries occurred in Middlesex county (14), followed by Suffolk (9) and Essex (7) counties.²
- ◆ Nationwide, 4,609 workers died as a result of fatal occupational injuries in 2011, and the fatal occupational injury rate for the U.S. was 3.5 per 100,000 full-time workers (preliminary data).⁵ 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 in

2011, an event that contributed substantially to the national occupational fatality burden.

Municipal Lead Custodian Dies in Fall from Mobile Scaffolding

A 69-year-old male municipal custodian was fatally injured when he fell from mobile scaffolding landing on the floor below. The victim was working alone on a Sunday to finish painting the school lobby when then incident occurred. The school did provide general safety training, but training was not available on the proper use of ladders and scaffolding. The school also did not have a health and safety program.

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

Ensure scaffolds are erected according to the manufacturer's guidelines and Occupational Safety and Health Administration (OSHA) standards;

Ensure that fall protection is available and used by employees exposed to fall hazards;

Implement a buddy system for custodial staff to limit working alone from heights during off hours;

Conduct a job safety analysis (JSA) for custodial tasks to ensure proper practices and procedures are implemented enabling the task to be performed safely;

Provide all custodial staff with training on scaffolding and ladders that are used to complete tasks;

Ensure that custodial departments develop, implement, and enforce a comprehensive health and safety program; 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 11MA008

Types of Events Causing Worker Deaths

Table 1. Number and Percent of Fatal Injuries at Work by Event/Exposure, Massachusetts, 2011, N=63

Event/Exposure	Number of Fatalities	Percent
Assault or Violent Act	19	30.2
Suicide or self-inflicted injury	12	19.0
Homicide or other violent act leading to death	6	9.5
Transportation Incident	17	27.0
Roadway collision or overturn	10	15.9
Worker struck by vehicle	3	4.8
Fall from water vehicle	3	4.8
Fall	16	25.4
Fall from height	14	22.2
Fall through surface	2	3.2
Contact with Object or Equipment	5	8.0
Caught in running machinery	3	4.8
Exposure to Harmful Substance or Environment	3	4.8
Electrocution	2	3.2
Fire or Explosion	3	4.8
Total	63	100.0

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

- ♦ Falls to a lower level claimed 16 lives and resulted in more deaths than any other event. Most of the falls to a lower level (ten of 16) were from heights of 25 feet or less, and three of these were from 10 feet or less (overall range was eight to 1,170 feet). Nine of the 16 fall victims were construction workers, five of whom fell from ladders. Two workers not in the construction industry also died in falls from ladders.²
- ♦ Roadway collisions contributed to the deaths of ten workers who were vehicle occupants. Working near moving vehicles continues to put workers in the Commonwealth at risk. Four transportation related deaths involved a vehicle striking a parked work vehicle or hitting a person working near the roadway.
- ♦ Six workers were victims of workplace homicide or died from complications of a violent act. Three of the homicide victims worked in social or health services and were killed by a client or patient. Two of the homicides were robberies. Workplace homicides accounted for approximately three percent of all homicides among working age residents of Massachusetts in 2011.⁶
- ♦ Five workers died after being caught in running machinery or were crushed by a falling vehicle or equipment. Two of these victims had their shirts caught in moving parts of the machine. One worker was crushed by a vehicle when a hydraulic jack supporting the vehicle failed.

Fatal Injuries at Work by Industry

Figure 1. Number and Rate of Fatal Injuries at Work by Industry Sector, Massachusetts, 2011, N=63

Industry	Number of Fatalities	Fatality Rate (per 100,000 full-time workers)
Educational and Health Services	3	0.5
Manufacturing	3	1.0
Wholesale & Retail Trade	4	1.1
Professional & Business Services	6	1.4
Government **	7	1.9
Other Services	3	2.1
Leisure & Hospitality	6	2.7
Information	4	6.2
Construction	13	6.5
Transportation, Warehousing & Utilities	8	12.0
Agriculture, Forestry, Fishing & Hunting	4	96.8

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, 2011.

- ♦ Four fishermen lost their lives at work in 2011, giving the Agriculture, Forestry, Fishing & Hunting industry sector the highest occupational fatality rate (96.8 per 100,000 full-time workers). Two fishermen fell from piers while trying to board their vessels, and two drowned at sea.
- ♦ The Transportation, Warehousing & Utilities sector had eight deaths, for the second highest rate of 12.0 deaths per 100,000 full-time workers. All of these deaths involved the vehicle the worker used on a daily basis.

- ◆ Construction continued to be a dangerous industry, with the third highest fatality rate (6.5 per 100,000 workers) and the highest number of deaths (13). Half of these victims (7 of 13) were working at residential sites. The majority of these workers (11 of 13) 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.
- ◆ The Information sector had the fourth highest rate (6.2) with four deaths. Three of these workers performed facility maintenance as their primary job function.

OSHA Enforcement and Penalties

The Occupational Safety and Health Administration (OSHA) investigated 23 (37%) of the fatal work-related injuries identified by MA CFI and FACE that occurred in 2011.⁷ Of the remaining 40 fatal incidents, 13 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 25 were events not routinely addressed by OSHA such as homicides and suicides or roadway motor vehicle collisions.

OSHA levied fines for violations of health and safety standards against 18 of 23 employers they investigated in response to these fatal incidents. In Massachusetts in 2011, the agency assessed a total of \$942,120 in initial penalties, with the lowest fine assessed at \$1,800 and the highest at \$632,300.

Refuse Collector was Fatally Injured when Struck by a Backing Refuse Collection Truck

A 28-year-old male refuse collector was fatally injured when he fell from a backing refuse collection truck and was struck by the truck's rear wheels. The victim stopped traffic on a main roadway to allow the truck to back down a dead-end side street while two co-workers were standing on the truck's rear riding steps. The victim then ran along the driver's side of the backing truck, stepped behind the truck, climbed onto the truck's loading sill and then fell. The company did not have a comprehensive written health and safety program, but did hold two yearly safety meetings. Training was provided to new employees at the time of hire.

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

Ensure that employees never climb onto a refuse collection truck, including the rear loading sill and riding steps, while the truck is backing;

Develop, implement and enforce backing procedures that includes designated spotters to direct backing trucks and prohibits employees from being located behind backing trucks; and

Develop, implement, and enforce a comprehensive safety and health program that addresses hazard recognition and avoidance of unsafe conditions;

In addition, municipalities should:

Consider the feasibility of implementing automated processes for residential refuse collection.

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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: they can be prevented. 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 In an effort to reduce construction deaths in the U.S., OSHA, NIOSH, and other partners continue the Campaign to Prevent Falls in Construction. See the campaign website for more information: www.stopconstructionfalls.com. In Massachusetts, the OSHA office in Andover and the MA Department of Labor Standards On-site Consultation Program piloted an initiative to educate roofers in Essex and Middlesex counties. initiative included visiting roofing contractor's businesses, town building departments, active roofing projects, and lumber/contractor supply stores. The purpose was to explain OSHA's enforcement procedures regarding fall prevention in residential construction, and to invite them to free training to explain the proper use of fall protection. 400 individuals were trained at five sessions as a result of this outreach.

OHSP has recently updated materials on fall prevention in multiple languages with input from residential contractors. These brochures contain information to prevent falls from ladders and scaffolding and to dispel common myths about construction falls. A fourth brochure in production describes personal fall arrest systems (PFAS). The brochures have recently been distributed to the building and inspection services departments across the Commonwealth, an effective channel for reaching construction workers and homeowners with these critical safety messages.

Another recent effort by OHSP aimed to increase awareness of the importance of safety training for temporary workers. Temporary workers are placed in some of the most hazardous jobs in Massachusetts. Often, these workers are not provided enough information and training about their jobs and how to perform the work safely. Our key message to the temporary agencies and the industries which employ them was that the agency and the site employer must work together to ensure that the workers are informed of site-specific job hazards and that they are adequately trained. In August, Governor Patrick signed *An Act Establishing a Temporary Worker's Right to Know*, which requires staffing agencies to tell their workers where they will be working and who they will be working for, as well as wage, overtime, and workers' compensation information, and addresses the training shortfalls as well as a number of other workplace rights.

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 in 2009, state agencies are striving to use health and safety committees to address concerns in executive branch worksites across the Commonwealth. Additional efforts are needed to improve health and safety conditions for municipal workers.

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.

¹ Work-related deaths in 2011 identified by MA CFI and FACE programs.

² Data provided by the FACE project, MDPH.

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.

⁵ U.S. Department of Labor, Bureau of Labor Statistics, Census of Fatal Occupational Injuries, 2011, preliminary.

⁶ Data compiled and extracted by the Massachusetts Violent Death Reporting System of the Injury Surveillance Program in the Massachusetts Department of Public Health (October 2012, from Preliminary2011fileJuly2012 by DC manner). Caution should be used when interpreting 2011 numbers. Numbers may change as the file is updated.

⁷ OSHA investigated one illness death excluded from this report. OSHA investigated two homicides at work which are included in this 23.

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.