



Fatal Injuries at Work

Massachusetts Fatality Update, 2009



Occupational Health Surveillance Program Massachusetts Department of Public Health April 2011

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 2009¹?

- 62

What were the leading causes?

- Falls (12)
- Vehicle crashes (8)
- Homicides (5)
- Hit by vehicles on roadways, work zones, loading docks (5)
- Crushed by machinery (5)

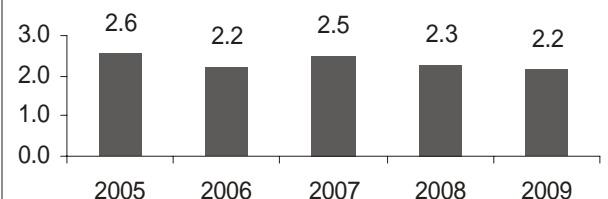
Which workers were at highest risk?

- Fishermen
- Construction workers
- Self-employed workers
- Hispanic workers
- Foreign-born workers

Deaths by county²

Suffolk	12	Worcester	6
Middlesex	9	Barnstable	3
Bristol	9	Berkshire	1
Essex	8	Franklin	1
Norfolk	6	Hampshire	1
Plymouth	6		

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 2009. 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 2009 identified as of 12/1/2010.

² Data provided by the FACE project, MDPH.

Overview of Fatal Injuries at Work in 2009

- ◆ In Massachusetts, 62 individuals were fatally injured at work during 2009 — 57 men and 5 women. The fatal occupational injury rate was 2.2 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 20 to 94 years, with an average age of 47. The fatalities resulted in a total of 1,758 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-eight (77 %) of the victims were White non-Hispanic, five were Hispanic (one of whom was foreign born), four were Black non-Hispanic and three were Asian non-Hispanic. The rate for Hispanic workers (2.8 per 100,000 full-time workers) exceeded the rate for White non-Hispanics (2.0 per 100,000 full-time workers). (Rates were not computed for groups with fewer than five deaths.)
- ◆ Thirteen victims (21%) were born outside of the U.S. Foreign-born victims worked in a range of industries, including fishing (3), construction (2), public service (2), restaurants (2), and retail (2).² The rate of fatal injury among foreign-born workers was 2.8 per 100,000 full time workers; the rate among U.S.-born workers was 2.1 per 100,000 full time workers.
- ◆ Seven victims were self-employed,⁴ two of whom died while working in construction and two while shellfishing.² The fatal injury rate among self-employed workers was 4.1 per 100,000 workers while the rate among wage/salary earners was 2.1 per 100,000 workers.
- ◆ The largest number of fatal injuries (12) occurred in Suffolk county, followed by Middlesex and Bristol counties with nine fatal injuries each.²
- ◆ **Nationwide**, 4,340 workers died as a result of fatal occupational injuries in 2009, and the fatal occupational injury rate was 3.3 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 2009, two events that contributed substantially to the national occupational fatality burden.

Day Laborer Dies in Fall Off an Extension Ladder at a Residential Construction Site

A 27-year-old day laborer was fatally injured when he fell from an aluminum extension ladder on which he was working to reattach a loose section of vinyl siding to a house. A co-worker was holding the base of the ladder while the victim was using both hands to hold on to the piece of vinyl siding and push it upwards towards the house. The victim lost his balance and fell approximately 20 feet to the ground below. The company had two co-owners and no other employees and they often hired day laborers to help with jobs. The company did not have a designated person in charge of health and safety and did not provide health and safety training to employees. In addition, the company did not have workers' compensation insurance.

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

- ◆ **When feasible use other forms of work platforms (not ladders) for work at heights**
- ◆ **Make sure that ladders are equipped with stabilizers and are set up properly**
- ◆ **Provide all employees with training about ladders and work platforms used to complete tasks.**

Employers should also carry workers' compensation insurance, as required by Massachusetts law, covering their employees and themselves if they are an employee of their company (G.L. c. 152, Sec. 25A).

Massachusetts FACE Report 08MA042

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. One FTE = 2,000 hours. In fatality updates for previous years, rates were based on the number of workers employed.

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, 2009 (preliminary national results released 8/19/2010).

Types of Events Causing Worker Deaths

Event/Exposure	Number of Fatalities	Percent
Transportation Incident	21	33.9
Roadway collision	8	12.9
Worker struck by vehicle	5	8.1
Fishing vessel	4	6.5
Contact with Object or Equipment	12	19.4
Crushed or asphyxiated while repairing	5	8.1
Struck by falling materials	3	4.8
Struck by unoccupied vehicle or equipment	2*	3.2
Fall	12	19.4
Fall from height	10	16.1
Fall on same level	2*	3.2
Assault or Violent Act	10	16.1
Homicide	6	9.7
Suicide or self-inflicted injury	4	6.5
Exposure to Harmful Substance or Environment	7	11.3
Overdose or Complication of Chronic Drug Use	4	6.5
Total	62	100.0

Source: Massachusetts Census of Fatal Occupational Injuries, 2009.

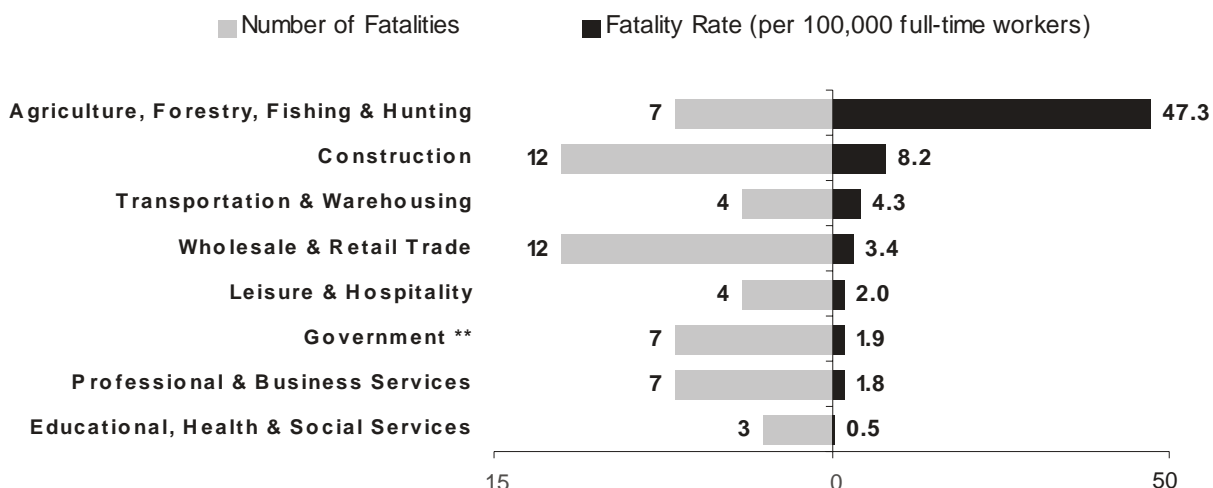
*Data provided by the FACE project, MDPH.

- ◆ Falls to a lower level claimed 10 lives and resulted in more deaths than any other single event. Most of the falls to a lower level (8 of 10) were from heights of 25 feet or less, and two of these were from less than 10 feet (overall range is 3 to 30 feet).^{2,6} Seven of the fall victims were construction workers, three of whom fell from scaffolding and three from roofs.
- ◆ Roadway collisions were the second most common fatal event – causing the deaths of 8 workers who were vehicle occupants. Three were public employees.
- ◆ Of six homicide victims, four worked in the food or retail trades; these four victims were foreign-born workers. Four of the six homicides were robberies. Workplace homicides accounted for 3.0 percent of all homicides among working age residents of Massachusetts in 2009.⁷
- ◆ Working near moving vehicles continues to put workers in the Commonwealth at risk. Four workers were struck by traffic and one was struck by a backing truck.² Another two workers were struck by unoccupied vehicles which were not properly parked.²
- ◆ Five workers were crushed while working on machinery or vehicles, including two mechanics who were working on skid steer loaders.²

⁶ Height information was not available for two fatal falls to a lower level; one of these was known to be less than 25 feet.

⁷ Massachusetts Violent Death Reporting System (MAVDRS), Preliminary 2009 File10_10, Injury Surveillance Program, MDPH.

Fatal Injuries at Work by Industry



Note: Data not presented for industry divisions with fewer than three fatalities (N = 6 deaths).

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

Source: Massachusetts Census of Fatal Occupational Injuries, 2009.

- ◆ Seven fishermen lost their lives at work in 2009, giving the Agriculture, Forestry, Fishing & Hunting industry the highest occupational fatality rate (47.3 per 100,000 full-time workers). Four of these fishermen drowned.
- ◆ Construction continued to be a dangerous industry, with the second highest fatality rate (8.2 per 100,000 workers). Two thirds of these workers (8 of 12) 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 Wholesale & Retail Trade industry had 12 deaths, with a fatality rate of 3.4 deaths per 100,000 workers. Nine were employed in wholesale trade and three worked in retail. These workers were killed by a wide range of hazards: machinery entrapments, vehicle and equipment crashes, falling materials, and falls. Three were victims of homicide.
- ◆ Seven local and state Government workers sustained fatal injuries in 2009 (11% of all deaths; a rate of 1.9 deaths per 100,000 workers). Six 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 24 (40%) of the fatal work-related injuries identified by MA CFI and FACE that occurred in 2009.⁸ Of the remaining 36 fatal incidents, 18 occurred in workforce groups that fall outside of OSHA jurisdiction such as commercial fishers, public sector employees, sole proprietors, or the self-employed, and the remainder 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 20 of the 25 employer establishments they investigated in response to these fatalities.⁹ In Massachusetts in 2009, the agency assessed a total of \$344,400 in initial penalties, with the lowest fine assessed at \$4,000 and the highest at \$66,800.

⁸ OSHA investigated two illness deaths excluded from this report: one of these investigations resulted in citations for lack of fall protection and training.

⁹ One investigation of a single fatality resulted in fines levied against two employers.

Municipal Laborer Dies after being Struck by a Motor Vehicle while Closing a Water Gate Valve

A 35-year-old male municipal laborer was fatally injured while closing a water gate valve located in a roadway after a water main break. His work truck was parked beyond the water valve facing the same direction as the flow of traffic and there were no temporary traffic control devices set up to create a work zone. The victim was standing in the roadway closing the water valve when he was struck by a minivan that also struck the work truck. The municipality provided employees with on-the-job training and an excavation safety course, and required employees to wear green American National Standards Institute (ANSI) Class II vests when working in roadways. In addition, work trucks were equipped with yellow rotating beacons and orange traffic cones.

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

- ◆ Set up work zones in accordance with the *Manual on Uniform Traffic Control Devices*
- ◆ Direct workers to park work vehicles so that the vehicles help prevent traffic from entering the work area
- ◆ Develop a health and safety program that includes training on work zone safety and hazard recognition.

Public sector employers should also provide work environments that meet all relevant Occupational Safety and Health Administration (OSHA) regulations and industry accepted standards of practice.

Massachusetts FACE Report 09MA031

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.

Fishing and construction continue to stand out as priorities for prevention in Massachusetts. Hazards in these industries should not simply be accepted as part of the job. Massachusetts can learn from Alaska where efforts to expand safety training programs and increase adherence to safety standards have reduced the fishing fatality rate by nearly 50%.¹⁰ We can also look to Ontario Canada, which has an extensive construction safety program, and the rate of construction fatalities is nearly half the rate for the construction industry in the U.S.¹¹

Findings underscore the continued need to focus on fatal falls in construction. In Massachusetts, OHSP is working to update materials on fall prevention in multiple languages with input from residential contractors. Also, in Lawrence, Massachusetts, U Mass Lowell is working with community partners to develop programs for construction contractors to reduce fall hazards on their job sites. In response to the high number of deaths in residential construction nationally, OSHA has placed new emphasis on the requirements for use of fall prevention in residential construction jobs.¹²

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.^{13, 14} The high rates 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

¹⁰ NIOSH Testimony on Commercial Fishing Vessel Safety before the Committee on Transportation and Infrastructure, Subcommittee on Coast Guard and Maritime Transportation, U.S. House of Representatives, April 2007. Accessed at <http://www.hhs.gov/asl/testify/2007/04/t20070425e.html>.

¹¹ 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.cpwr.com.

¹² http://www.osha.gov/doc/residential_fall_protection.html

¹³ Fatal Occupational Injuries in Massachusetts 1991–1999, Occupational Health Surveillance Program, MDPH, Sept. 2002.

¹⁴ 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.

immigrant worker deaths and to work with community organizations serving these populations. In April 2010, federal OSHA held a national summit on Latino worker health and safety with the goal of increasing Latino workers' knowledge of their health and safety rights and ability to exercise those rights. Since then, OSHA has conducted intensive outreach to community- and faith-based organizations, unions, employers, and others conducting educational programs and regional summits, providing compliance assistance to vulnerable worker populations and expanding their Spanish language materials and website (see www.osha.gov).

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/dos/consult

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/dia/safety

ACKNOWLEDGEMENTS

This project is a joint effort of several state and federal agencies. For their assistance in providing data and advice, we thank: Marthe Kent, Regional Administrator, OSHA Region I and her staff; as well as Stanley Nyberg, Registrar of Vital Records and Statistics, Massachusetts Department of Public Health and his staff. We also appreciate the contributions of the Department of Labor Standards and the Department of Industrial Accidents in the Executive Office of Labor and Workforce Development, the Office of the Chief Medical Examiner (CME), the U.S. Coast Guard, the National Transportation Safety Board (NTSB), the Boston Regional Office of the U.S. Bureau of Labor Statistics, the National Institute for Occupational Safety and Health (NIOSH), local and state police departments, health departments, and clerks of cities and towns.

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 in preventing work-related deaths by reporting fatalities and providing information during our fatality investigations.
