

MASSACHUSETTS

FATAL INJURIES AT WORK

1999 UPDATE

Occupational Health Surveillance Program • Massachusetts Department of Public Health

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Every year, men and women in a wide variety of jobs and industries throughout Massachusetts die as a result of injuries suffered at work. These deaths are all the more tragic because they are largely preventable. Information about when and how they occur is essential in order to target effective prevention programs. In Massachusetts, the Occupational Health Surveillance Program (OHSP) in the Massachusetts Department of Public Health (MDPH) collects information on all fatal occupational injuries in the Commonwealth as part of the national Census of Fatal Occupational Injuries (CFOI), conducted in cooperation with the Bureau of Labor Statistics (BLS), U.S. Department of Labor.

OHSP also conducts in-depth work site investigations of targeted fatal occupational injuries as part of the national Fatality Assessment Control and Evaluation project (FACE), sponsored 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 identify effective countermeasures to prevent similar incidents in the future. Excerpts from selected FACE investigations are highlighted within this report.

This update provides an overview of fatal injuries at work that occurred in Massachusetts during 1999. These include fatalities traditionally linked with factors in the work environment such as falls, electrocutions, and exposure to toxic substances. They also include homicides and suicides at work, as well as motor vehicle-related fatalities that occurred during travel on the job. Deaths caused by occupational illnesses and most fatal heart attacks at work are not included in this fatality census.

OVERVIEW OF FATAL INJURIES AT WORK IN 1999

- In 1999, 77 men and 6 women in Massachusetts suffered fatal injuries at work, the highest number of fatalities since 1993. This translates into an average of 1.6 deaths per week and an annual occupational fatality rate of 2.6 per 100,000 workers.
- There were 8 deaths of workers from racial groups other than white and 6 workers were of Hispanic origin.*
- The average age at death was 44 years. Forty-eight victims were 44 years of age or younger and 8 were 65 years old or older. The 83 fatalities resulted in an average of 31 years of potential life lost for each death (number of years before the victim reached age 75), for a total of 2,573 years of potential life lost.
- Of the 83 workers fatally injured, 70 were wage and salary workers and 12 were self-employed. One worker died while volunteering.

A 49-year-old male inventory control clerk died when he fell approximately 12 feet from a high lift order picker truck while applying barcode labels in a warehouse freezer. The order picker truck was not positioned next to the desired location due to boxes in the aisle. He fell as he stepped from the raised order picker truck onto a stacked box of product in an attempt to reach the next higher shelf. He was wearing a body harness and lanyard that was not secured to an anchor point on the order picker truck. The victim had been employed by the company for 21 years.

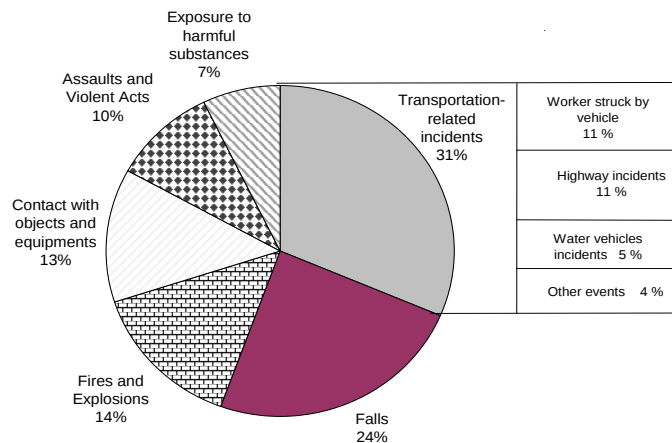
In order to prevent similar incidents, Massachusetts FACE recommended that employers should: 1) adopt a mandatory tie-off/no unhook policy for employees using order picker trucks; 2) ensure that aisle ways are maintained free from obstructions that would interfere with lift truck access to storage shelves; 3) strictly enforce the safety precautions outlined in comprehensive safety programs, and; 4) regularly review and update the programs and training. In addition, high lift order picker truck manufacturers should consider equipping trucks with devices that will activate audible or visible alarms if the operator unhooks fall protection while the lift is raised. (Massachusetts FACE Report, 99MA058)

*Race/ethnicity information is obtained from death certificates. Fatality victims of Hispanic origin may be in any racial group.

EVENTS RESULTING IN FATAL INJURIES

- Twenty-six Massachusetts workers (31%) died in transportation-related incidents distributed among several categories (as shown below). Nine workers (11 %) were vehicle occupants killed as a result of highway incidents. Nine others were pedestrians struck by vehicles or mobile equipment on roadways, parking lots, and on sides of road. Three workers died as a result of capsized water vehicles. Ten out of the 26 workers who died in transportation-related incidents were employed in the transportation industry.

Fatal Injuries at Work by Event *
Massachusetts, 1999



Total Number of deaths =83

*Based on the 1992 Bureau of Labor Statistics (BLS) Occupational Injury & Illness Classification Structures.

- Falls to lower levels (18 deaths, 22%) was the leading fatal event at work in Massachusetts in 1999 for a fifth consecutive year. Two-thirds (12) of these fatalities occurred in the construction industry. Seven of these fatalities were among plumbers, carpenters, electricians, painters, and roofers. Four of the fatal falls were from scaffolds and three were from ladders. Of the falls for which height information is available (16), 10 falls were from less than 20 feet.
- Twelve workers died from fires and explosions and 11 of these fatalities were due to fire incidents. The number of workers who died as a result of fires and explosions in 1999 is almost equal to the number of workers who lost their lives to similar events in the previous eight years combined.
- Contact with objects and equipment led to the death of 11 Massachusetts workers in 1999. Six workers were caught in running equipment or machinery. More than half (6) of these fatalities occurred in the manufacturing and construction industries. Three more occurred in the agriculture, forestry and fishing industry.
- Exposure to harmful substances and environments led to the death of six workers in Massachusetts during the year. Three workers died from inhalation of substances in enclosed spaces and two died of electrocution.
- There were five homicides at work in Massachusetts in 1999 and robbery was a motive for three of these fatal assaults. There were also three self-inflicted fatal injuries.

A 39-year-old male self-employed residential contractor died when he stepped backwards into an unguarded floor opening. He was using a level to true up the gable end wall of the second floor of a single family home under construction when he stepped backwards into the floor opening intended for a chimney and fell 10 feet striking his head on the concrete chimney footing below.

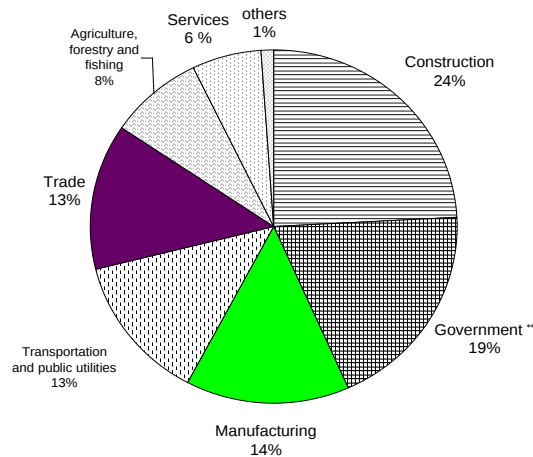
In order to prevent similar incidents, Massachusetts FACE recommended that residential contractors, including self-employed contractors should: 1) keep all holes in walking/working surfaces covered or otherwise protected throughout all phases of construction; and 2) develop a safety program that includes, but is not limited to, evaluating and preventing hazards before beginning tasks. (Massachusetts FACE Report, 99MA022)

FINDINGS BY INDUSTRY

- The highest number of fatal injuries at work occurred in the **construction** industry (20 deaths, 24% of total). Falls to lower levels was the leading event in the industry, accounting for 12 of the 20 deaths. Seventeen of the 20 victims were employed in establishments with 10 or fewer employees. Three workers were self-employed. The number of fatalities in construction was higher in 1999 than in any of the eight previous years.

Fatal Injuries at Work by Industry*

Massachusetts, 1999



Total Number of Deaths=83

* Standard Industrial Classification Manual, 1987

*** Includes fatalities to workers employed by government organizations regardless of industry.

- **Government** had the second highest number of occupational fatalities in 1999 (16 deaths, 19%). More government workers died in 1999 than in any single previous year. Six of these government employees were fire fighters fatally injured by fire in a single incident. Five were killed in transportation-related incidents.
- **Manufacturing** workers suffered 12 fatalities. Out of these twelve fatalities, four were caused by fires, three by contact with objects, and three by falls on-the-job. Three workers died from a single fire incident that was caused by a dust explosion.
- The **Transportation and Public Utilities** Industry had 11 occupational fatalities. The leading fatal event in the industry was transportation related incidents (9). Five of the workers were employed in the freight transport industry while three others were working in the passenger transportation sector. Eight of the 11 workers were employed as motor vehicle operators.
- The **Trade** industry had 11 occupational fatalities during the year. There were three transportation incidents, three homicides, and three falls in this sector.
- Seven workers died of occupational injuries in the **Agriculture, Forestry and Fishing** industry during the year. Five of these workers were employed in the commercial fishing sector, and three of these five died due to capsized water vehicles.

A 36-year-old male second shift foundry manager was killed while cleaning the die of a cold chamber die cast machine. The company had purchased the machine used and recently modified it requiring the installation of an additional safety device. The victim had been notified that the die cast machine was producing castings with a blemish. He subsequently leaned in between the two sections of the die to clean them and the machine cycled closing the die and crushing him. The investigation revealed that the lockout/tag-out procedure had not been followed and the new safety device had been bypassed.

In order to prevent similar incidents, Massachusetts FACE recommended that employers should: 1) enforce a comprehensive lockout/tag out program; 2) regularly review and update the program and training; 3) ensure that new safety devices are installed properly and are effective before implementing them; and 4) obtain information from the machine manufacturers on the proper way to controlling hazardous energy when purchasing used or remanufactured equipment. (Massachusetts FACE Report, 99MA070)

OSHA COVERAGE, INVESTIGATIONS AND PENALTIES

Of the 83 fatal injuries at work in 1999, 51 deaths occurred in industries or circumstances that are outside Occupational Safety and Health Administration (OSHA) jurisdiction. These included 28 fatalities that occurred among commercial fishers, public sector employees including fire fighters, and self-employed individuals for whom there is no employer/employee relationship. The remaining 23 fatalities involved circumstances not routinely addressed by OSHA, such as homicides, suicides, airplane crashes and motor vehicle-related deaths.

OSHA investigated 32 occupational fatalities that occurred during the year. Fines for violations of OSHA standards related to these fatalities were issued against 25 employers in separate incidents. The agency assessed a total of \$594,825 in penalties as a result of its fatality investigations, with the lowest fine assessed at \$1,000 and the highest at \$189,500. Employers are required to report work related fatalities to OSHA within 8 hours of any fatality that occurs within 30 days of an incident. OSHA fined one employer a total of \$2,500 for failure to report such fatalities within this required time frame.

COMMENTS

It is important in reporting summary information about fatal occupational injuries to acknowledge the victims that these numbers represent. These deaths were tragic incidents which were in large part preventable. Surveillance findings are intended to guide government, industry, and labor organizations in developing strategies to prevent similar tragedies in the future.

Nationally, 6,053 workers died as a result of work-related injuries in 1999¹ and the fatality rate was 4.5 fatalities per 100,000 workers. Massachusetts had 83 work related fatal injuries during the same year. This translates to a fatality rate of 2.6 per 100,000 workers, while substantially lower than the national rate, the highest rate in Massachusetts since 1994.

Industry specific findings for Massachusetts highlight those industries where injury prevention efforts are most needed. The construction industry continues to stand out as having the highest number of workers killed on the job. In Massachusetts as well as the nation, falls were the leading cause of fatal injuries among construction workers. OSHA continues to publicize and emphasize enforcement of the new fall protection standard in the construction industry (OSHA 3146). The standard identifies areas where fall protection is needed and clarifies what employers must do to provide fall protection for employees (such as identifying and evaluating fall hazards and providing specific training and equipment). In Massachusetts, the FACE Project is continuing educational outreach to residential contractors by disseminating fall prevention brochures. These brochures are available on our web site at www.state.ma.us/dph/ohsp/scaffold.htm.

Government, which is outside OSHA's jurisdiction in Massachusetts, also stands out with 16 deaths, more this year than in any single year since 1991. Six of these victims were Massachusetts fire fighters who died in a single incident. In 1998, the National Institute for Occupational Safety and Health (NIOSH) started conducting the Fire Fighter Fatality Investigation and Prevention Program to investigate on-duty fire fighter fatalities throughout the country. These investigations are intended to determine factors causing or contributing to fire fighter deaths in the line of duty and to develop strategies for prevention of future similar incidents. Copies of these investigation reports are available on NIOSH's web site at <http://www.cdc.gov/niosh/firehome.html>.

For more detailed tables of fatal occupational injuries in 1999 and copies of full-length FACE fatality reports, in Massachusetts, please contact Massachusetts Department of Public Health, Occupational Health Surveillance Program, 250 Washington Street, 6th Floor, Boston, MA 02108. (617) 624-5627 e-mail: Tsegaye.Bekele@state.ma.us

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¹ Bureau of Labor Statistics, National Census of Fatal Occupational Injuries, 2000. August 20001