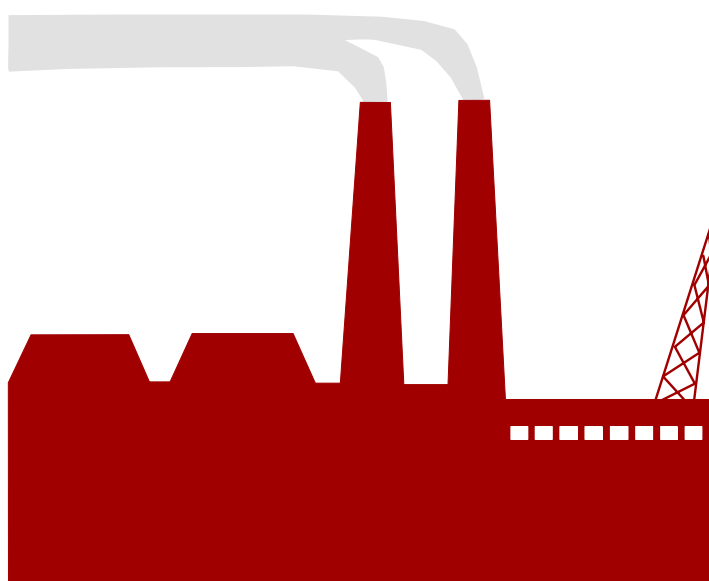


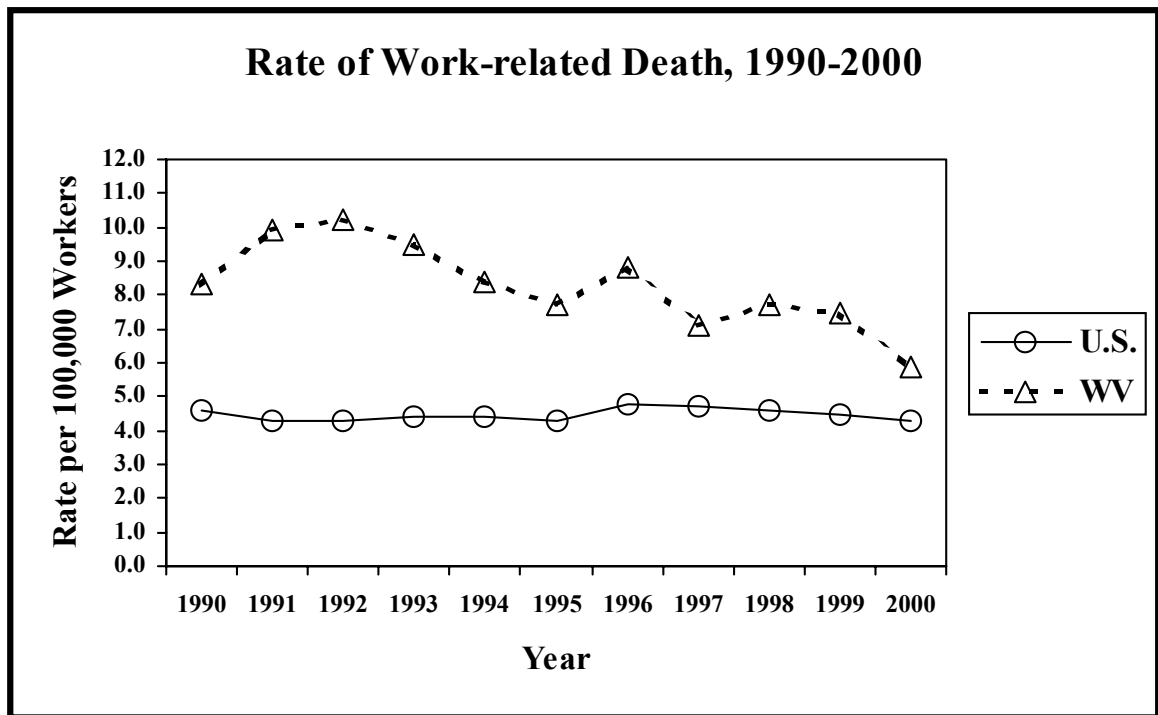
## Work-related Deaths



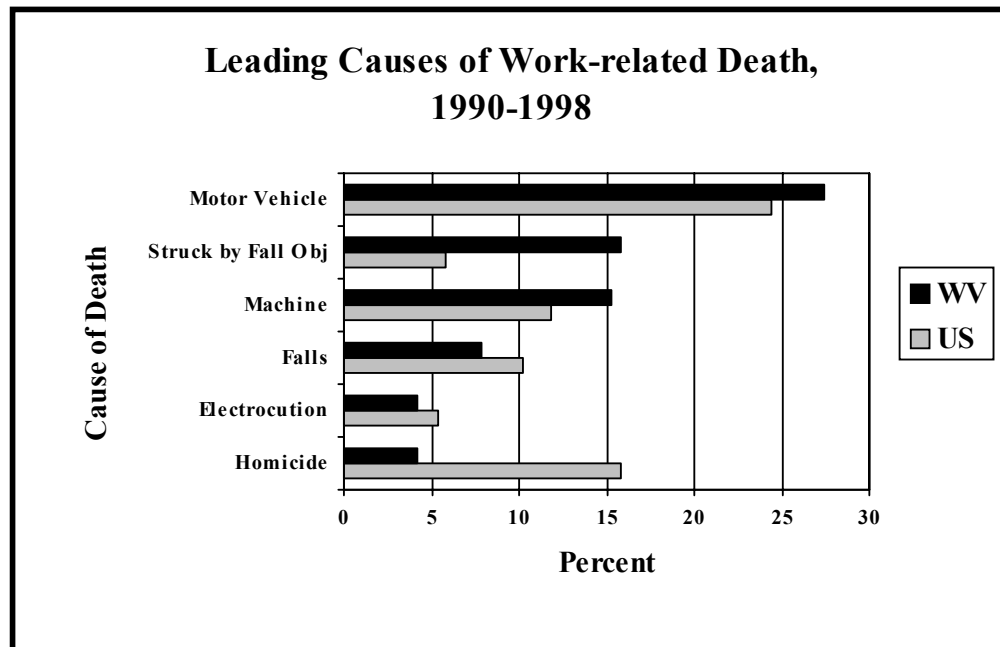
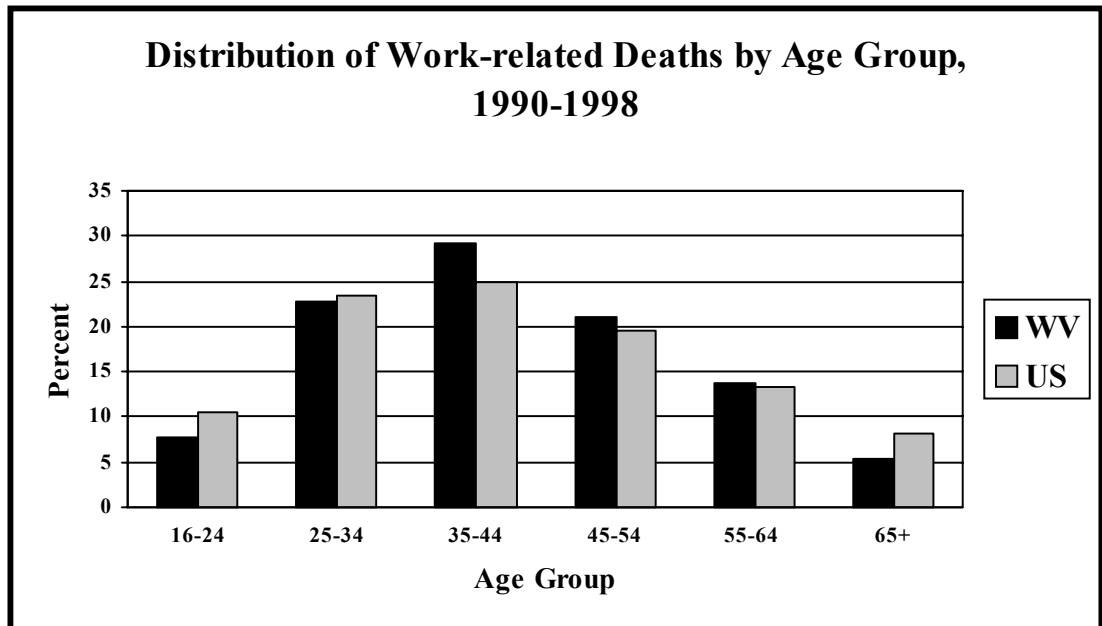
On average, one worker is killed on the job in West Virginia each week. Across most injury divisions, workers in West Virginia are at higher risk for occupational death than are workers in the U.S. as a whole. Construction workers, miners, and loggers are at a significantly high risk.



- The rate of traumatic occupational fatalities among West Virginia workers and all U.S. workers declined about 13% between 1996 and 2000.
- West Virginia's overall occupational fatality rate of 7.4 from 1996-2000 ranked 5<sup>th</sup> among all states and nearly twice the national rate of 4.6.
- Occupational injury deaths comprised about 5% of all injury deaths in West Virginia between 1996 and 2000 (279 of 5,797).
- Ninety-three percent of the victims of fatal traumatic work-related injury were male.
- Fifteen percent of work-related fatalities occurred in October, about 5% more than the next higher months of July, August, and September.
- Over half of the work-related deaths occurred early in the week (Monday - Wednesday) and 60% occurred during the day shift (32% in the morning and 28% in the afternoon).



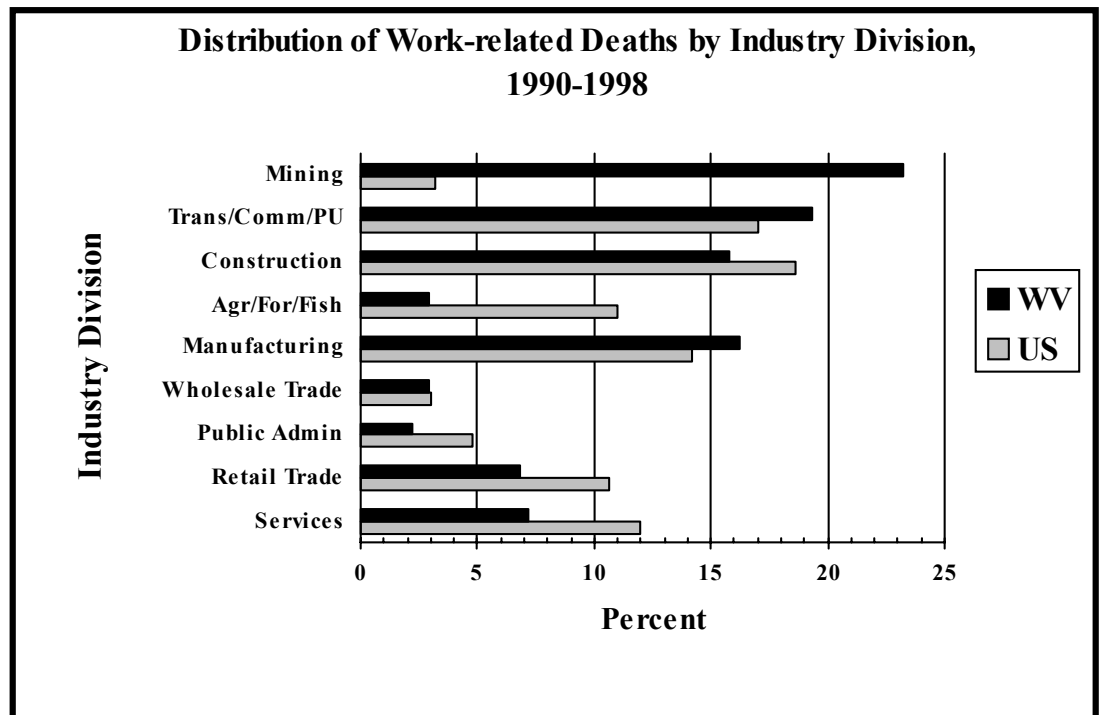
U.S. and WV 1990-1995, NIOSH/National Traumatic Occupational Fatalities Surveillance System.  
1996-2000, DOL/BLS Census for Fatal Occupational Injuries and WV FACE Program



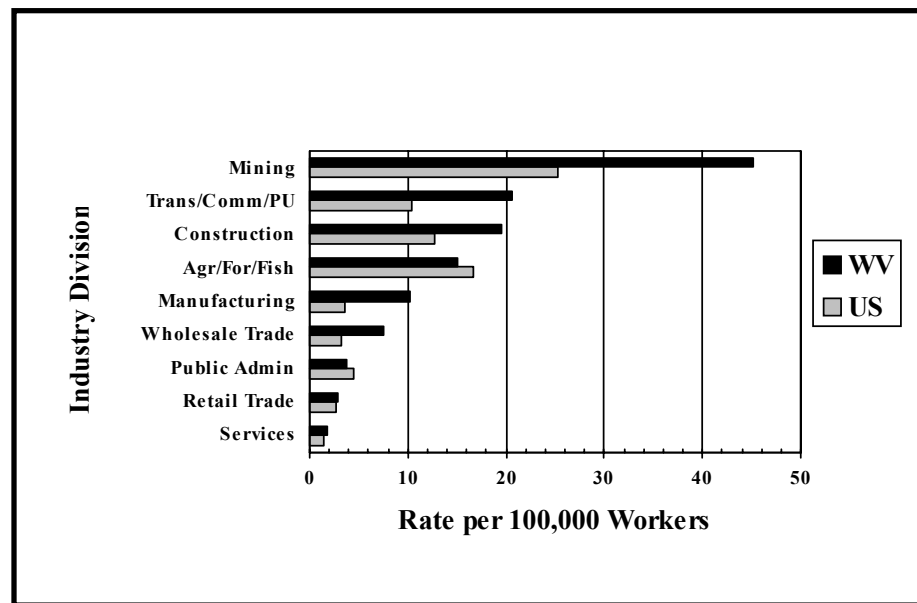
- West Virginia had about 6% more deaths in workers aged 35 to 54 compared to the U.S.
- The leading causes of occupational injury death in West Virginia between 1990 and 1998 were MV-related incidents (27%), being struck by falling objects (16%), and machinery-related incidents (15%). Compared with the United States, West Virginia workers suffered proportionally more occupational fatalities from these causes and fewer due to falls, electrocution, and homicide.



- The largest differences between West Virginia and the U.S. were observed in the struck by falling object and homicide categories.
- Most of the deaths in the struck by object category were in the logging industry and were caused by falling limbs and trees.



- Mining deaths in West Virginia accounted for a significantly higher proportion of all work-related deaths (23%) compared to the U.S. (3%).
- Across most industry divisions, workers in West Virginia were at far higher risk for occupational death than were workers in the United States. West Virginia rates were more than twice the national rates in the mining, transportation/communications/public utilities, and manufacturing sectors.



Death data are from the NIOSH National Traumatic Occupational Fatalities Surveillance System for the period 1990-1998.

Data for 1998 from the US do not include any cases from New York State or New York City. Employment data are from the BLS Current Population Survey microdata files.

### Healthy People 2010 Objectives:

- 20.1 Reduce deaths from work-related injuries to no more than 5.6 per 100,000 workers.
- 20.1a Reduce deaths in the coal mining industry to no more than 33.2 per 100,000 workers.
- 20.1b Reduce deaths in the transportation industry to no more than 23.1 per 100,000 workers.
- 20.1c Reduce deaths in the construction industry to no more than 20.5 per 100,000 workers.
- 20.1d Reduce deaths in the logging industry to no more than 40.9 per 100,000 workers.

### West Virginia Fatality Assessment and Control Evaluation (WV FACE) Program

Through a competitive research cooperative agreement with the National Institute for



Occupational Safety and Health within the CDC, the WV Bureau for Public Health's Office of Epidemiology and Health Promotion (OEHP) exercise overall administrative control of WV FACE. The day-to-day management and operation of FACE is contracted to the WVU Injury Control Training and Demonstration Center. FACE has been in existence since late 1996.

The primary goal of FACE is to significantly strengthen the occupational public health infrastructure within the state by integrating resources of occupational safety and health research and public health prevention programs at the state and local levels. This goal is accomplished by the following specific objectives:

▲ Develop, implement, and maintain a timely, comprehensive, multi-source surveillance system of identifying and recording basic epidemiological data on *all* traumatic occupational fatalities within West Virginia.

The WV Vital Registrar is used as the primary reporting source. Copies of all death certificates with the "at work" box checked are forwarded to the FACE Program Coordinator on a monthly basis. Additionally, other reporting channels such as a newspaper clipping service and key organizations within the state including OSHA, WV Department of Labor OSHA Consultation Program, OEMS, WV State Police, WV Division of Forestry, Bureau for Public Health, WV Division of Workers' Compensation and the WVU Safety and Health Extension are also part of the notification mechanism.

▲ Conduct comprehensive on-site field investigations of NIOSH-targeted categories (e.g., machine-related, highway work zone-related, and youth) and other specific needs identified as high priority by the state (e.g., logging), using the NIOSH FACE investigative model.

Since the inception of FACE in 1996, 35 in-depth investigations have been completed. These investigations identified the causes and circumstances of each fatality and suggest that contributing factors generally fall into three broad categories -- hazardous conditions, unsafe work practices, and management and leadership problems. The most common and noteworthy of these factors was in the last category where safety programs, training, and safety oversight were consistently lacking.

▲ Identify potential risk factors for selected types of traumatic occupational fatalities to be used to develop and prioritize state prevention strategies.

The FACE Program proposes and disseminates the prevention recommendations based on risk factors identified during investigations. Among them are recommendations for written safety programs and training in hazard identification, avoidance and abatement, manufacturer redesign, machine maintenance, and the designation of a competent person to make frequent and regular site safety inspections.

▲ Develop methods to rapidly disseminate prevention recommendations to employers to reduce the risk of similar fatal occupational injuries in WV in the future.

A comprehensive dissemination network is established and includes a variety of federal,



state, and local agencies, state FACE contacts, medical specialists, and academic researchers. Prevention recommendations are disseminated in the form of professional papers, research posters, data slide sets, investigative reports, incident reconstruction slide presentations, worker alerts, videos, worker field guides, and the WV FACE web site.

## Prevention Strategies

It is estimated that about 120 workers are killed on the job each week in the United States and one of these is in West Virginia. The cost to the economy of job-related injuries alone is estimated at more than \$123 billion annually — a figure exceeding the combined profits reported by the top 17 Fortune 500 companies in 1999.

While the OSHA Act of 1970 was enacted “to assure so far as possible every working man and woman in the nation safe and healthful working conditions,” the employer is primarily responsible for ensuring a safe, healthy work environment. Employees should be held accountable for following prescribed safety standards and guidelines.

The chief goal of an occupational health and safety program is to prevent occupational injury and illness by anticipating, recognizing, evaluating, and controlling occupational health and safety hazards. Collectively, these form the principles of loss control – the functions directed to lessen or eliminate the destructive effects of occupational hazards. These hazards generally result from human error and from the situational and environmental aspects of the workplace.

An effective and comprehensive loss control program has six steps or processes:

▲ *Hazard Identification and Evaluation* - information related to the hazards associated with machinery, equipment, tools, operations, materials, and the physical plant may be obtained from a variety of sources including personnel familiar with plant and task-specific operations, inspection and accident reports, and hazard analysis.

▲ *Ranking Hazards by Risk* - ranking takes into account the consequences (severity), the probability, and the exposure index of each identified hazard. This process provides a consistent guide for corrective action, specifying which hazardous conditions warrant immediate action, which have secondary priority, and which can be addressed in the future. Quantitative and qualitative data will assist in determining the overall risk of a particular hazard.

▲ *Management Decision Making* - complete, accurate, and timely information, including but not limited to alternatives, recommendations for training and education, better methods and procedures, equipment repair or replacement, and environmental controls must be provided to management to facilitate intelligent and informed decisions concerning loss control. Normally management can choose to take no action or modify/redesign the workplace or its components.

▲ *Establishing Preventive and Corrective Measures* - control measures selected by management are of three kinds: 1) administrative (personnel, management, monitoring, limiting worker exposure, measuring performance, training and education, housekeeping and



maintenance, purchasing); 2) engineering (isolation of source, lockout procedures, design, process or procedural changes, monitoring and warning equipment, chemical or material substitution); and 3) personal protective equipment (body protection, fall protection, gloves, safety glasses and boots, etc.); PPE is generally selected to control a hazard when no more effective way is immediately available or when it is employed as a temporary measure while a more effective solution is being installed. Hazardous conditions can be either eliminated or controlled at their source, along their path of transmission, or at the worker level.

▲ *Monitoring* - this process is necessary to 1) provide assurance that existing hazard controls are effective and working properly; 2) ensure that workplace modifications have not altered the environment to an extent that current hazard controls can no longer function adequately; and 3) discover or identify new or previously undetected hazards. Monitoring includes inspection, industrial hygiene testing, and medical surveillance.

▲ *Evaluating Program Effectiveness* - evaluation involves answering the following questions: 1) what is being done to locate and control the hazards? 2) what benefits are being received (reduction of injuries, fewer workers' compensation cases and damage losses? and 3) what impact are the benefits having on improving operational efficiency and effectiveness?

## References

Williams-Steiger Occupational Safety and Health Act of 1970, PL 91-596.

Helmkamp JC and Lundstrom WJ. Work-related Deaths in West Virginia from July 1996 Through June 1999: Surveillance, Investigation, and Prevention. *Journal of Occupational and Environmental Medicine* 2000; 42(2):156-162.

Williams JM, Higgins DN, Furbee PM, Prescott JE. Work-related Injuries in a Rural Emergency Department Population. *Academic Emergency Medicine* 1997;4(4):277-281.

Helmkamp JC, Lundstrom WJ. Bridge Construction-related Deaths in West Virginia, 1990-1999: Recognition of a Problem and Resulting Corrective Action. *Professional Safety* 2001;46(12):18-22.

Higgins DN, Helmkamp JC, Williams JM, King ME. The Investigation of Work-related Deaths in West Virginia Targeting Research and Prevention Efforts. *American Association of Occupational Health Nursing Journal* 2000;48(7):331-334.

Krieger GR, Montgomery JF (eds.) Engineering and Technology and Administration and Programs. In: Accident Prevention Manual - for Business and Industry, 11<sup>th</sup> Edition. National Safety Council: Itasca IL, 1997.

Asfahl CR. Industrial Safety and Health Management. Prentice-Hall Inc: Englewood Cliffs, NJ, 1984.

Bureau of Labor Statistics. Census for Fatal Occupational Injuries, 1999. USDL 00-236, August 17, 2000.



---

National Safety Council. Injury Facts, 2000.