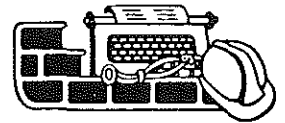


# WOHRC FACT SHEET

WOMEN'S OCCUPATIONAL HEALTH RESOURCE CENTER



## What Causes Workplace Accidents?

Workplace accidents result in the death or disablement of tens of thousands of U.S. workers annually. The National Safety Council reports that in 1980 alone they accounted for 245 million lost work days at a cost of more than \$30 billion. Great as these figures are, however, they cannot measure the pain and suffering caused to workers and their families.

It is only recently that we have come to understand the real reasons for most workplace accidents. Many myths still prevail. Accidents do not "just happen" — nor do they happen to some equally mythical "accident-prone worker." Every single research attempt to identify the

characteristics of such a worker has failed. The most that can be said about accident-proneness is that if there is such a thing, it is a temporary characteristic due to transient external or internal causes.

Accidents really happen, say researchers, because of certain dangerous factors in the workplace. National workplace accident statistics dropped almost 20 percent in 1972-80, the years after which the U.S. Occupational Safety and Health Administration was formed and mandated new safety standards. This would seem to prove that only by recognizing and rectifying the source of accidents can we begin to prevent them.

### Women and accidents

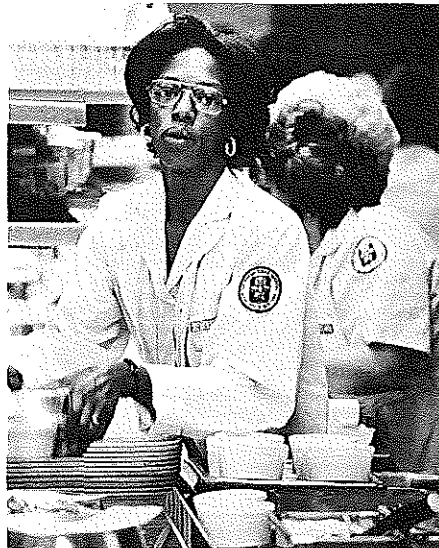
Although women seem to suffer from fewer workplace injuries than men, the difference in accident rates is due to the fact that most women still work in less hazardous industries. In every instance so far examined by experts, men and women employed in the same jobs have comparable rates of injuries.

It has also been noted that younger workers have higher accident rates than older workers. But the decisive factor here turns out to be inexperience. One Bureau of Labor Statistics study found that among men, more than 30 percent of all injuries take place within the first six months of service, regardless of age. Other studies have come up with similar figures.

### Speed, fatigue and safety

Production demands and resultant speed of work has a major influence on work injury. Workers under pressure tend to have a greater number of accidents and have less time to take the precautions necessary to reduce them. The best-known study of the relationship between production demands and accidents involved 5,000 Swedish iron miners who won a fixed salary in place of the piece rate system that previously determined their wages. The resulting drop in both incidence and severity of injuries was dramatic: severe accidents dropped by over 80 percent within two years.

While no study has directly related fatigue to increased accidents, many investigators have noted that accidents vary in frequency depending on time of day, day of week, and time of year. In



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**Hospital kitchen workers tend to have disproportionately high accident rates.**

general, accidents in the morning peak between 10:30 and the lunch break. In the afternoon they tend to peak midway between lunch and the end of the shift. These fluctuations are thought to occur from a combination of fatigue, boredom, hunger and changing work conditions.

### Toxic chemicals, noise and temperature

Toxic substances, such as lead, and excessive heat, cold and noise may also be responsible for higher accident rates. One investigation of workers exposed to lead showed that they had decreased capacity to perform neuro-muscular tasks and suffered a decline in hearing acuity.

Similarly, a group of workers exposed to mercury had frequent arm tremors and fumbling movements in hand coordination when compared to a control group. Their coordination improved when they were removed from the mercury. Exposure to anesthetic gases at levels commonly found in hospital operating rooms has been shown to affect short term memory, visual perception and reaction time when performing a combined audio-visual task.

Worker efficiency decreases markedly with increased heat and cold. One study noted a 25 percent accident increase with every 5 degrees Fahrenheit rise or fall from an optimal temperature, mediated by humidity, airflow and acclimatization.

### Safety campaigns

Posters exhorting workers to "think safety" and other such general safety campaigns conducted by many companies have proved to have little effect in reducing accidents. However, campaigns that point up specific workplace actions that are safe or unsafe, can be effective.

More valuable than either is pre-placement training for new workers or workers assigned to new jobs. Accident statistics show a significant reduction in the period following placement when such training is provided.

### Accidents in the health care industry

The National Safety Council estimates that the injury rate among hospital workers is twice that of employees in other service industries.

One major medical center recently

reported that nurses accounted for 60 percent of reported accidents, although they represented only 33 percent of the workforce. Kitchen workers, who accounted for only 10 percent of the workforce, had 19 percent of the accidents.

Needlestick wounds, one of the most under-reported of hospital accidents, are particularly important to note. Often occurring when a drug is administered, when blood is drawn or when a needle has been carelessly tossed in with bedding or other disposables, they can provide an entry for infections. They are believed to be a prime means of entry of hepatitis-B, a serious, chronic disease prevalent among hospital workers.

All needlestick wounds should be cleaned immediately and the worker's immune status for hepatitis-B and tetanus should be checked. If the wound is incurred in treating a patient, note must also be taken of the patient's condition and health history.

Back injuries are the leading cause of lost work time in hospitals, as they are in other industries. Most seem to be caused by lifting patients without proper aid. Mechanical hoists and team lifting can prevent these injuries. Also useful are frequent and repeated employee training in good lifting techniques and exercises to keep back muscles in shape.

Dangerous chemicals, electrical hazards and violence against staff by both institutionalized patients and intruders are other problems confronting health care workers. Staff training in handling chemicals and electric wiring is needed, as are eye-wash stations, chemical showers, exhaust fume hoods, safety warning signs, non-slip floors and similar equipment.

Safeguarding staff security is particularly difficult, especially when work is done late at night or in high-crime neighborhoods. In addition to security guards, high-intensity lighting in parking lots, tunnels and stairwells is a good measure. In some cases, it may be a wise precaution for night workers to leave the premises in teams rather than singly.

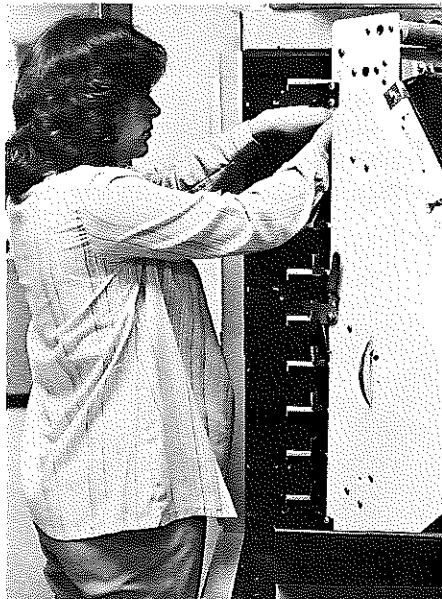
### **Fitting the workplace to the worker**

Poorly designed, uncomfortable or unpleasant equipment and furnishings can be a source of health hazards on the job.

Poor working postures, such as assembling machine parts at a table that is too high, can lead to spinal disorders and muscle fatigue. A posturally stressed worker may develop chronic backache. Other muscles, joints, tendons and nerves

in the arms, pelvis, legs, neck and trunk can also be fatigued or injured by incorrectly designed work environments.

Even an ideal posture can cause muscle and skeletal "loading" if it has to be maintained for too long. The human body is designed to move, and jobs must be designed to provide the opportunity to do so. A machine like a video display terminal (VDT) which requires the operator to constantly look at the screen will unduly tire the neck and eye muscles. Job rotations and breaks are necessary, as is an adjustable VDT screen which permits the operator to change position.



**Workers often are not properly trained in operating or repairing office machines.**

Finding a chair that fits the body properly, leaning how to lift heavy loads and knowing what kind of tools to use and how to use them are all important considerations for preventing a host of aches, pains and more serious, crippling conditions.

### **Safety in the office**

Many hazards are presented by the new open-plan design that has been adopted by half of all North American offices. Unfortunately in many of these, user safety and comfort has been subordinated to style and appearance. Movable partitions are inadequately secured and easily knocked over. When workstations are moved from one part of the floor to the other, extension cords may be employed to reach telephone and electrical outlets. It becomes all too easy to trip over these cords, and if improperly grounded, they may even cause electric shocks.

The open-plan office can easily become overcrowded. As more workers are crammed in, work stations may be set up where there is inadequate ventilation, lighting and space, all of which are invitations to accidents. Additional problems arise when new office machines are bought, but workers are often not properly trained in how to operate or repair them in emergencies. The monotony of many new office jobs due to these machines may also cause drowsiness and lack of attention to surroundings — two factors that have been linked with increased accidents.

Finally, the danger posed by fire becomes more intense in offices constructed without walls or openable windows. This hazard is made still worse by building and furniture materials made of hi-polymer plastics which, when burnt, can emit suffocating fumes.

In short, only when safety is built into workplace and job design, and when workers in all settings are properly trained for their jobs, will accidents be significantly reduced.

*This fact sheet is adapted from the special safety issue of **Occupational Health Nurse**, October 1982, which was edited by WOHRC Director Dr. Jeanne Stelman with contributions by WOHRC staff and Dr. Stephen Zoloth and David Michaels, MPH, of Montefiore Hospital.*

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