Work-related Fatal Injuries in 1998

Available toxicology reports from 1998 revealed that alcohol was the controlled substance most often found in workers suffering fatal injuries in the workplace. Reports detected as many as four controlled substances in individual decedents for that year.

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Drug and alcohol abuse by workers may have serious consequences for both employers and employees. It can impair job performance, create added expenses for the employer, or, even worse, result in a fatal work injury. It is widely acknowledged that both employers and workers benefit from substance free workplaces. To provide better information about the contribution of substance abuse to workplace fatalities, the Bureau of Labor Statistics (BLS) analyzed all work-related fatal injuries in 1998 for which toxicology studies on the fatally injured workers were available.

Census of Fatal Occupational Injuries

The Census of Fatal Occupational Injuries is a Federal-State cooperative program, conducted in all 50 States and the District of Columbia, to compile a complete roster of all fatal work-related injuries—including those suffered by farm workers, government workers, and the self-employed—along with details of the fatal events. BLS and participating States have conducted the fatality census annually since 1992. Although the scope of the fatality census is limited to work-related injuries, States may submit data on work-related fatal illnesses, such as heart attacks that occur at work, when information is available.

For a fatality to be included in the census, the decedent must have been employed at the time of the event—that is, working for pay, compensation, or profit, performing a legal work activity, or present at the site of the incident as a requirement of his or her job. Fatalities that occur during a person's commute to or from work are excluded from census counts. To ensure an accurate count of fatal occupational injuries, the program requires that the work relationship for each case be substantiated by two or more independent source documents.

The fatality data are compiled from various State and Federal administrative records, such as death certificates, workers' compensation reports, medical examiner reports, and reports to State, local, and Federal government agencies with jurisdiction over job-related fatalities. These reports contain information about the industry and occupation of the deceased worker; the event or manner in which the injury occurred; the equipment involved in the work activity; demographic characteristics of the worker; and details about the fatal incident. BLS also gathered reports of toxicology studies performed on workers fatally injured in 1998.

Toxicology reports

Toxicology tests are performed as part of the death investigation. Patholo-

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gists test the blood, urine, or other body fluids of the fatally injured worker for the presence of drugs, alcohol, and other toxic substances. For a toxicology report to be considered positive for alcohol or drugs, one or more of the following substances must be found: Ethanol, benzodiazepines, opiates, cocaine or its metabolites, amphetamines, barbiturates, or tetrahydrocannabinol.

Toxicology studies are not required on all work-related fatalities. Generally, a toxicology study is performed when: State legislation requires analysis based on the nature of the incident; law enforcement personnel request analysis as part of an investigation of the incident; or medical examiners or coroners request analysis due to circumstances surrounding the death.

Data limitations

These toxicology data have several limitations. The most important limitation is that toxicology reports are not available for all fatal work-related injuries. In addition, toxicology reports are not available for persons who were not fatally injured but who may have contributed to events leading to the death of a worker.

Further limitations include the lack of uniformity of toxicology testing procedures between States and even between local jurisdictions, as well as errors sometimes occurring in classifying substances.

Toxicology testing procedures. Federal law does not require toxicology analysis on fatally injured workers. Requirements vary under State laws. Thus, the test procedures vary from State to State and can vary between jurisdictions within a State. For example, some States test for drug or alcohol presence in the urine only, while others test blood only. Several States use both urine and blood samples to identify traces of drugs or alcohol, and still others base their reports on other body fluids. Not only do the procedures for toxicological analyses differ among States, but the reasons for the use of particular tests differ as well. For example, some States use toxicology tests to check for the presence of alcohol but not drugs, or vice versa. On the other hand, several States test for both alcohol and drugs.

Improper classification. In some cases, decedents are classified incorrectly as positive for alcohol or drug use when, in fact, substance abuse did not play a role in their fatal mishap. This situation may occur when a victim of a fatal injury survives long enough to receive therapeutic treatment at a hospital, then dies at a later time. Under these circumstances, drugs found in the decedent's body during toxicological analysis likely result from medication received at the hospital and not from the decedent having been a substance abuser. This information seldom appears in toxicology reports.

Likewise, some cases may be classified incorrectly as negative for alcohol or drug use. This situation also can happen when a worker dies some time after the injury. If a seriously injured worker survives for several days, a toxicology analysis performed after death may not detect substances present when the incident occurred.

Findings

Thirty-nine States[1] submitted 3,055 toxicology reports for the study. There were 6,026 work-related fatalities nationwide in 1998, and 5,370 in the 39 States that provided reports. Thus, toxicology reports were available for about one-half of all job-related fatal injuries nationwide for the year, and for about 57 percent of the fatalities in the 39 States that provided reports. Some toxicology reports are protected by county or State confidentiality policies and, therefore, were not available for study. Others were not available because of pending litigation related to the incident. In addition, a small number of toxicology reports submitted were for workers with fatal illnesses; they are included in the following data.

Although toxicology reports were available for only about one-half of fatally injured workers, BLS reviewed the data for nine of the 39 States (Arkansas, Connecticut, Hawaii, Illinois, Maryland, New Jersey, North Carolina, Virginia, and Washington) that provided toxicology reports for at least 3 out of 4 fatalities. Toxicology information from these States gives a somewhat more complete picture of the contribution of substance abuse to workplace fatalities. Together, these States submitted toxicology reports for 81 percent of the fatal work injuries in their jurisdictions. The frequency of positive findings and the relative frequencies of substances identified were virtually the same for reports from this group of nine States as for reports from the full set of 39 States.

Although we cannot say what the data for the missing cases or States would show, one assumption might be that the cases for which we have no reports are similar to those for which reports were provided. This assumption, if correct, would imply that alcohol or drugs were present in approximately 19 percent of all fatally injured workers. The similarity between the reports with positive toxicology findings from the group of nine States (which provided reports for 75 percent or more cases) and reports from the full set of 39 participating States (which provided a lower overall percent of cases) gives some basis for this assumption, which in essence treats cases with available reports as representative of the universe of cases. To the extent, however, that testing for controlled substances was not ordered because local authorities had reason to believe drug or alcohol use was not a factor, this assumption may provide an upper bound on the share of fatalities involving drug or alcohol use by affected workers.

An alternative assumption might be that no fatally injured worker for whom a report was unavailable had used drugs or alcohol prior to his or her death. In this case, the data would imply that drugs or alcohol were present in approximately 10 percent of fatally injured workers (593 positive findings out of 6,026 total fatalities nationwide). This assumption is clearly somewhat extreme. Eleven States provided us

Table 1. **Substances identified in positive toxicology reports for work-related fatalities, 1998**

Substances identified	Number
Positive toxicology reports	593
Alcohol	284
Delta-9-tetrahydrocannabinol	119
Opiates	107
Cocaine	93
Benzodiazepines	48
Amphetamine/methamphetamine	28
Barbiturates	23
Two substances	87
Three substances	20
Four substances	2

NOTE: Due to the presence of more than one substance in some of the decedents, components do not equal totals.

with no toxicology reports and, even in the 39 States from which we received reports, it is unlikely that all cases of drug or alcohol use were identified. For these reasons, this alternative assumption almost certainly provides a lower bound on the share of fatalities that involved drug or alcohol use by fatally injured workers.

Whichever of the alternative assumptions just described is closer to the truth, there is no basis for believing that the types of substances used by fatally injured workers or their relative frequency of use should differ greatly from those reported below.

Of the 3,055 toxicology reports available for study, 593 (19 percent) showed the presence of alcohol or drugs in deceased workers.

Alcohol was the substance found most often in decedents with positive toxicology reports (284 cases, or 48 percent of positive test reports available). Alcohol is a depressant that decreases the response of the central nervous system. As little as two alcoholic beverages can impair coordination and thinking. Excessive use of alcohol can cause liver damage and psychotic behavior.

Tetrahydrocannabinol is the primary psychoactive agent in marijuana. Of the positive toxicology cases, 119 (20 percent of positive test reports available) revealed the presence of tetrahydrocannabinol. Some possible effects from the use of this substance are euphoria followed by relaxation; loss of appetite; impaired memory, concentration, and knowledge retention; and loss of coordination. Stronger doses of tetrahydrocannabinol can cause fluctuating emotions, fragmentary thoughts, disoriented behavior, and psychosis. Because tetrahydrocannabinol is a drug that is consumed by smoking, abuse of this substance can lead to irritation of the lungs and respiratory system, and may even cause cancer.

Tests revealed the use of opiates in 107 positive toxicology reports (18 percent of positive test reports available). Opiates are used medicinally to relieve pain. Although often prescribed by physicians, opiates have a high potential for abuse. Common side effects of this drug are euphoria, drowsiness, respiratory depression, and constricted pupils. Abuse of opiates can result in slow and shallow breathing, clammy skin, convulsions, coma, and possibly death.

Cocaine, which is both a narcotic and a stimulant, causes relaxation with an immediate "rush," or it may counteract a "down" feeling with an euphoric effect. The use of cocaine increases blood pressure and heart rate. Overindulgence of cocaine may cause a rapid or irregular heartbeat, loss of coordination, blurred vision, dizziness, restlessness, anxiety, and delusions. Ninety-three positive toxicology cases (16 percent of positive test reports available) revealed the use of cocaine.

Benzodiazepines and barbiturates, depressants used to relieve anxiety, irritability, or tension, were identified in 71 positive toxicology reports (12 percent of positive test reports available). Abuse of these substances results in sensory alteration, anxiety reduction, and intoxication. Large doses of benzodiazepines and barbiturates can cause slurred speech, impaired judgement, and loss of motor coordination.

Twenty-eight positive toxicology reports (5 percent of positive test reports available) revealed amphetamine and methamphetamine use. These drugs are stimulants used to increase alertness, relieve fatigue, and to make the user feel stronger and more decisive. When these substances are habitually used, abusers may experience agitation, an increase in body temperature, hallucinations, convulsions, and possibly death.

Two controlled substances (for example alcohol and a drug, or two drugs) were present in 87 individual cases (15 percent of positive test reports available). Three substances were found in each of 20 fatally injured workers. Toxicology reports showed the presence of four substances in each of two workers.

Conclusion

The Census of Fatal Occupational Injuries collects data for all fatal work injuries, including those sustained by farm workers, government employees, and the self-employed. Data from this study revealed the presence of drugs or alcohol, or both, in 19 percent of all available toxicology reports of workers fatally injured in 1998. Such data not only reinforce popular views concerning the harm caused by alcohol and drug abuse, but also stress the value to employers and employees alike of maintaining a substance free workplace.

[1] The States that submitted toxicology reports are: Alabama, Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Florida, Georgia, Hawaii, Idaho, Illinois, Indiana, Kansas, Kentucky, Louisiana, Maine, Maryland, Michigan, Minnesota, Mississippi, Missouri, Montana, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, Ohio, Oklahoma, Oregon, South Carolina, Tennessee, Texas, Virginia, Washington, and Wisconsin.