

Innovation

Improved Safety Through Data

Analysis of EPRI's Occupational Health and Safety Database Aims to Improve Employee Well-Being

By Chris Warren

The best way to prevent accidents and injuries is to understand their causes and take appropriate actions. That was a key insight that led EPRI in 1999 to establish the Occupational Health and Safety Database (OHSD), which tracks annual injury and illness trends among 390,000 employees in the U.S. electric power industry. Today the voluntary reporting system contains 2 million records—such as injury reports and claims—submitted by 18 utilities and dating back to 1995.

EPRI designed the unique database to help utilities evaluate and act on the information to improve employee health and safety. “EPRI developed coding systems for occupations, types of injuries, severity, and causes to support industry-wide analyses,” said Ximena Vergara, an EPRI project manager focused on health and safety. With the database, EPRI develops injury rates, and companies can compare their rates with those of other companies.

Examining Injury Severity

Using the database, EPRI's [Occupational Health and Safety research program](#) publishes annual health and safety reports and in-depth analyses on specific topics.

A recent [study](#) examined relationships among various occupations, types of injuries, and injury severity. The authors found a relatively stable average rate of 0.52 severe injuries per 100 employee-years between 1995 and 2013, with 77% of injuries considered minor (less than one workday missed). Line workers, meter readers, and mechanics had among the highest rates for severe injuries (five or more missed workdays). For example, line workers:

- Had a severe injury rate of 1.99 per 100 employee-years
- Experienced the most flash burns (31%), electric shocks (29%), hernias and ruptures (27%), fractures and dislocations (20%), and concussions (15%)
- Had the highest fatality rate, with about 18 deaths per 100,000 employee-years—most often a result of vehicle accidents, contact with electric current, and being struck by an object

At Risk of Falls

Another recent EPRI [study](#) examined two types of falls—from an elevation and on the same level—and the resulting injuries. It found that line workers had an increased risk of fall from elevation relative to other utility occupations, such as office workers. Prior EPRI research demonstrated risk factors for line workers, including strenuous work and handling heavy equipment.

The report found that security officers also were at an increased risk of falling from elevation. The authors hypothesize that this results from patrolling at facilities with grades, obstacles, and changes in elevation—often in areas without handrails and under adverse weather conditions. They also may work at night in areas with inadequate lighting.

Applying the Results

Utilities can use EPRI's database and these analyses as a guide for internal health and safety assessments, leading to actions that address the specific risks to their employees. "Companies can look at our analyses and assess whether our observations apply to their own workforce," said Vergara. "Do they see the same risks and injuries, and are there ways to prevent the majority of those injuries? For instance, they can examine work practices in high-risk groups such as line workers or security guards by conducting fall assessments."

Findings about causes of injuries can guide prevention efforts and industry-wide interventions for specific occupations, such as improved lighting and slip mats in areas that security officers inspect.

"As our workplace incorporates new technologies and innovations, we must be aware of potential new hazards to protect the welfare of our employees," said Ben Colgrove, senior manager of EPRI Safety and Labs. "A culture of continuous improvement is a must since there is no status quo in the quest to improve worker safety."

Key EPRI Technical Experts

Ximena Vergara