

Using statistics to manage a State safety and health program

Occupational injuries and illnesses statistics are important to Ohio's accident prevention program; the data identify companies most in need of services and are the basis of safety seminars and training sessions, which can lead to significant savings in insurance costs

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In 1977, the Ohio Industrial Commission's Division of Safety and Hygiene began a program to improve and upgrade the delivery of industrial accident prevention services to the employers and employees in the State. The use of statistics was of major importance in the 4-year program. The division sought to improve accident prevention services through more cost-effective management, through the development of new programs, and through the use of statistics to identify those companies most in need of assistance.

First, the division modernized its data processing equipment. Then it developed a systematic approach to allocate its resources in a more effective manner. The specific challenge was to determine a method that would provide direction to its safety consultants.

Identifying 'needy' companies

In the past, most of the effort to allocate resources occurred on a random basis. This method was ineffective, as companies which did not need services were contacted while those that did were overlooked. The solution, then, would be to identify those companies most in need of services and to provide the consultant with some background information about that company. The consultant would then have a reason for calling on a

specific company and would be better informed about the type of accidents that had occurred at that job site.

Traditionally, employers needing assistance were identified through the use of "penalty-rating" criteria. Employers were grouped, according to their industrial operation, into 233 manual classifications. The expected losses resulting from occupational illnesses or injuries were determined for all employers in a particular grouping. The loss expectancies established base rates for each classification. A merit-rating provision allowed employers premiums to be adjusted according to their loss experience. If a company's loss experience was greater than average, the company could be assessed additional premiums of up to 95 percent of the base rate established for that classification. The firm then became "penalty-rated." Companies with good safety records were allowed to reduce the premiums they pay.

There were several shortcomings with the use of the penalty-rating criteria to identify employers. The first was that penalty-rating was based on outdated accident information. For example, the rating period for current rates (established July 1, 1980) is based on the accident experience of employers from 1975 through 1978.

Another shortcoming was that penalty-rating criteria were oversensitive to small employers who had experienced a single severe and costly accident.

Perhaps the most significant shortcoming was that merit-rated employers represented only 20 percent of

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the total number of employers who pay into the State insurance fund. Merit-rated employers, on the whole, represent larger companies; we needed to identify companies not in the merit-rating system which needed our assistance.

The formula adopted used information derived from lost-work time claims and from payroll data that were available from the employers. (Because of confidentiality restrictions, Ohio's employment security agency cannot share employment figures for individual employers with other State agencies.) The occupational injuries and illnesses were coded according to specifications of the Bureau of Labor Statistics' Supplementary Data System. From this information the Service Direction System was formed. This computerized system produces a list of companies most likely to benefit from the services of the division. The heart of the Service Direction System is the Service Direction Indicator, which consists of a level indicator and a trend indicator.

The level indicator attempts to identify companies with an accident rate higher than the rate for the entire industry. It is developed by dividing the number of accidents for a company by its payroll. This ratio gives an approximation of the company's accident rate. The level indicator, then, is the percentage deviation from the industry standard which shows whether a company has a better or worse than average accident rate.

The trend indicator is a year-to-year safety comparison for an individual company. It has a frequency and a severity component which shows whether a company's accident frequency or accident severity is getting better or worse. The frequency component is the difference of the ratio of injuries to payroll between two successive years. The severity component is the year-to-year difference of the ratio of workdays lost to payroll.

The Service Direction System is developed by combining the level and trend factors with different weights. This is done for every company in Ohio, and the priority list of companies in need of services is based on this indicator.

Profiling accidents

When safety consultants receive the names of companies to be visited, they also get a computer report profiling the accidents of those companies, with special emphasis on problem areas. The consultant reviews the accident profile with company officials and recommends possible solutions.

One of the recommendations may be the presentation of a "cost and statistical report", a computer-produced report showing how accidents have affected a company. These reports, available to merit-rated employers only, are confidential and are prepared only at the request of a company's management. They show how the company's premiums are affected by its industrial accidents.

There are three parts to the report. The first part summarizes the types of accidents charged against that company, along with the causes. The second part summarizes the current accidents filed against that company that have not yet been adjudicated through the workers' compensation system. And the third part is an analysis of how those accidents have affected that company's premium.

The way in which one company's premium was affected by its accident experience demonstrates the usefulness of the "cost and statistical" report. The company had a fiscal year payroll of slightly more than \$4 million. At the base rate, it would have paid \$62,700 in premiums in the most recent year and approximately \$185,600 over the entire rating period, 1972-77. However, the company had a worse than average loss experience in FY 1977, and paid \$80,800 in premiums. Because of a long history of accidents, it paid more than \$288,000 in premiums during the rating period. This represents penalties of \$102,671. In contrast, if this company had maintained an excellent safety record, it could have paid as little as \$71,000 in total premiums for the entire 5-year period.

As illustrated, the cost and statistical report summarizes the cost information for the top management of a company. Additional data in the report allow companies to compare themselves to a range of possible premiums. The report has proven to be an extremely effective tool.

Other uses

The accident statistics are used in a number of other areas.

- Once a year, an article summarizing the lost work-time resulting from injuries is published in the *Monitor*, a division-produced safety magazine. The article highlights significant aspects of industrial accidents and diseases relating to the current year.
- Detailed statistical reports containing cross-tabulations of accidents and their causes are prepared for 41 industries, 233 manual classifications, and 88 counties. These reports are used to respond to requests for general statistical information.
- Statistics based on lost-time injuries and illnesses have been used for topics within other division programs. Quick reading pamphlets, based on these "lost work-time" statistics have been prepared for various trade meetings and training sessions.
- The statistics are also used at the All-Ohio Safety Congress and Exhibit. Data for industrial classifications, manual classifications, and counties are programmed into a mini-computer for instant retrieval by participants.
- Statistics are used to set priorities for the develop-

ment of specific safety training programs. For example, a training module on lifting techniques was based on the statistics that showed approximately 20 percent of all injuries involve the back.

Accident prevention services

The final thrust of the division's program is to improve and upgrade the delivery of industrial accident prevention services at the local level through decentralization. Decentralization is the relocation of the point at which work assignments are made and the workflow is monitored. The purpose of decentralization is to improve the timeliness of providing services at the local level by eliminating the channeling of service requests through the central office.

All of Ohio's employers are eligible to receive free accident prevention services. If a company is penalty-rated and does not have a safety professional who can zero in on safety problems, the division sponsors a safety director to establish a safety program for that company.

In addition, the division conducts workplace surveys to ascertain that working conditions meet the minimum safety requirement set by the Industrial Commission of

Ohio. These surveys are free and are consultative in nature.

Engineering services are provided to evaluate the safety of machines, structures and systems. Consultation is available on the design aspects for the safe operation of machines and tools, ventilation, and noise control.

Industrial hygienists survey workplaces for air contaminants and other health hazards, such as dusts, fumes, mists, vapors, gases, and noise levels.

The division schedules basic education courses to help workers identify and correct job hazards. The safety training course covers 15 subjects in 12 2-hour sessions, and includes topics such as safety responsibility, accident investigation techniques, and job safety analysis.

"Hazard Recognition" is a series of slide and tape presentations covering 18 subjects in 25 2-hour sessions. Topics include flammable liquids, electricity, noise, trenching, ventilation, and tools.

Employers of handicapped workers can request from the division safety mobility and accommodation studies to ensure a safe working environment for handicapped workers.