

by John R. Heberger



What's the Cost of an Injury?

A new app from NIOSH, Safety Pays in Mining, estimates costs of common mining injuries.

Do you have any idea how much a lacerated finger or back sprain can cost your company? Safety Pays in Mining – a new, free web app from the National Institute for Occupational Safety and Health (NIOSH) – can help you find out.

Safety Pays in Mining not only gives you the cost of injury claims, but also reports the most common injuries and work activities by commodity, shows how selected injuries can impact profits, and offers suggestions on how that same money might be spent if injury was prevented. The web app is available on the NIOSH Mining webpage at <https://go.usa.gov/xNk8U>.

Injuries on the job cause pain and suffering. They can also

profoundly affect profits and daily operations. In addition to paying direct costs or increased premiums for workers' comp insurance, you might need to pay for overtime for other workers to fill an injured worker's role, cover training costs for a replacement, or divert administrative resources in the wake of an injury. This web app estimates the unknown distribution of these injury costs.

The costs of specific types of occupational injuries in mining are not readily available because mining and insurance companies don't usually share this information. As a consequence, companies only have cost information based on previous experience with their own employees. Therefore, if a mine never experienced a finger amputation for one of its miners, it

Figure 1

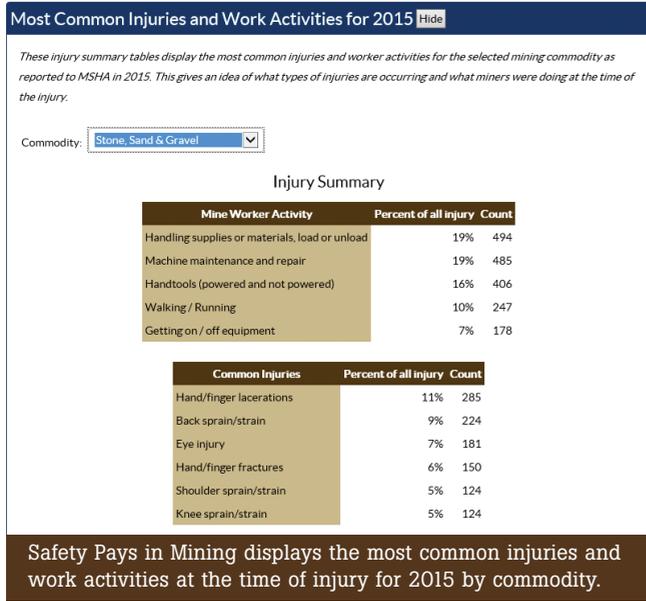
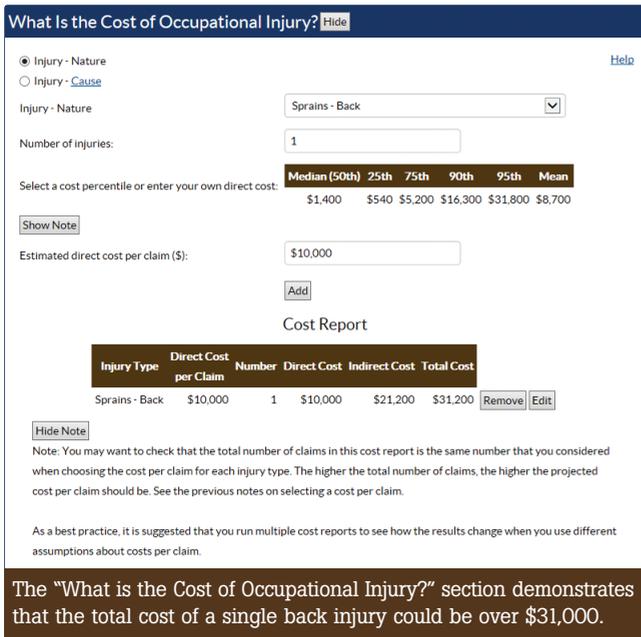


Figure 2



would not be aware of the possible costs. In addition, injury costs are unique in that the cost distribution is so wide – just using an average cost doesn't provide adequate information. Some injuries involve immensely high costs, and even though the risk of these injuries is low, mines need to be aware of their potential impact on their financial health.

With Safety Pays in Mining, you can see what specific injuries, such as burns, fractures, dislocations, and sprains, might cost you – from \$820 for an ankle sprain, to \$22,500 for a fractured hand, to more than \$45,000 for a sprained shoulder. You can enter your own figures, or use the default values based on the mining industry to show impact to profit margins.

Using real cost data

Safety Pays in Mining has accurate cost estimates because it uses real workers' comp costs. The web app uses direct costs, which include medical expenses and indemnity payments that were calculated from cost data for specific mining injuries obtained from the Ohio Bureau of Workers' Compensation. Identifying information was removed from claims data and only injury types with more than 10 claims were included. Workers' compensation claims for miners from 2001 to 2011 were used for the cost estimates.

Companies who self-insure pay direct costs out of pocket. Companies who purchase workers' comp insurance would have these direct costs paid by the insurance company. However, the cost impact for mines with insurance would largely be through increased premiums and eligibility to participate in group policies.

Indirect cost estimates were also calculated in order to provide a realistic injury cost estimate. These are costs to the employer that are generally not covered by insurance. Such costs could include reduced productivity due to disruption of work or replacing damaged equipment, and temporary or permanent replacement of injured workers. The total cost of an injury is the sum of the direct and indirect costs. All costs were adjusted to 2015 dollars. Future versions of Safety Pays in Mining will update costs to the most recent calendar years.

Using the app

To use the app, you select options from drop-down menus in four sections representing (1) common injuries and activities, (2) cost of injury, (3) impact of injury cost on profits, and (4) how the company could spend the cost savings from injury prevention. Default values are automatically included in most fields to allow you to make general estimates, or in case the desired specifics on your company's injuries are not known.

In the "Most Common Injuries and Work Activities for 2015" section (Figure 1), choose the commodity of interest, and an injury summary for that commodity is displayed for 2015. This shows what the most common injuries were and what miners were doing when injured. For example, for the commodities of stone, sand, and gravel, the most common types of injuries reported to MSHA were hand and finger lacerations and back sprains/strains. The most common mine worker activities where miners were injured were handling supplies/materials, machine maintenance and repair, and using hand tools.

The section "What is the Cost of Occupational Injury?" is the app's main feature (see Figure 2). First, select one of two lists of injury types: injury by "nature" (type of damage to the body) or injury by "cause" (manner in which the injury was inflicted). Once selected, the distribution of injury costs for that type is displayed. Then, select the number of injuries of this type that have occurred or may occur. It is important to consider the expected number of injuries, because a higher number of claims results in a higher chance of a very expensive claim. A note in the app suggests percentile cost figures to use based on number of total injury claims. You can select the mean cost or one of the cost percentiles for the specific injury type.

Figure 3



After making these selections, the report then shows a summary of the injury, the number of injuries, the direct cost, the indirect cost, and the total cost. You can repeat this process for each injury type and then generate a summary report for all injuries.

Other features of the app

The section "What is the Impact of the Cost of Occupational Injury on Your Company?" shows how injury costs can affect profits. Enter your company's profit margin and annual sales, or accept the default values based on the commodity selected in the "Most Common Injuries and Work Activities for 2015" section. The resulting impact report shows the total injury cost, the total injury cost as a percentage of annual sales, and the additional sales needed to pay for the injury total cost (Figure 3).

The section "How Could Your Company Spend Its Savings from Preventing Injury?" shows different ways a mine operator could use the money otherwise spent on injuries. You can use the default values or input the average amount that your company pays for an annual hearing loss prevention program, a pair of boots, or a hard hat. Based on these values, the app displays how many of each could be purchased if the injuries were prevented.

Benefits from using the app

This web app educates users on the wide range of occupational injury costs. For specific injuries, mine management will find it useful to see the distribution of workers' compensation costs, as well as the indirect costs, which are often overlooked. The web app demonstrates that even a common injury has the potential to be extremely expensive. This app will help you to prioritize health and safety interventions at your mine. **AM**

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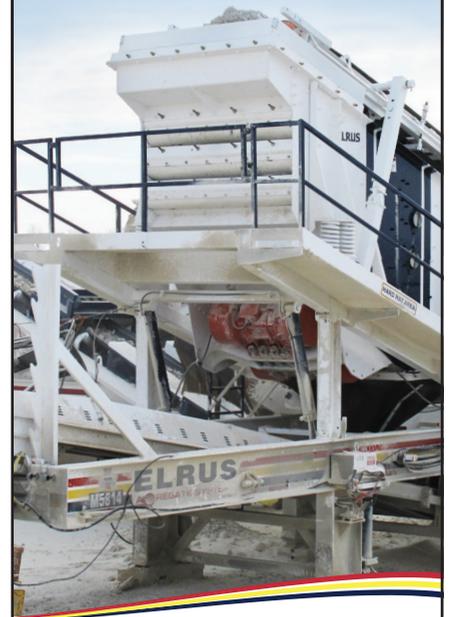
The findings and conclusions in this article are those of the author and do not necessarily represent the views of the National Institute for Occupational Safety and Health.

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Kolberg-Pioneer's filter kits for mobile equipment are designed to improve engine performance in dusty environments.

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New app helps operators estimate the cost of common injuries and better understand the impact of health and safety interventions at their sites.

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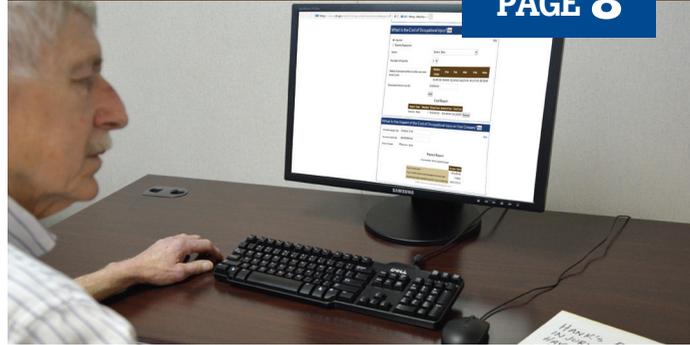


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