



WHILE SIFs ARE REDUCING SLOWLY IN THE WORKPLACE, THEY ARE ACTUALLY INCREASING IN THE GENERAL POPULATION.

SIF ALL-OR-NOTHING THINKING

Not all risks will cause an equal numbers of serious injuries and fatalities.

Heinrich's pyramid has been a model for safety thinking since 1931. It has two primary premises: the frequency of accidents is inversely proportional to the severity, and eliminating the at-risk behaviors at the bottom of the pyramid will proportionately eliminate the near-misses and accidents at the higher levels of the pyramid.

No one has seriously challenged the first premise, but many have challenged the second. Recent research has also failed to find the exact data Heinrich used to make his assumptions, so his exact numbers have also come under scrutiny. Even Heinrich's supporters suggest that the data he used was questionable since it was gathered from investigations done by untrained and often unqualified supervisors. Maybe Heinrich accurately reported inaccurate data, but even if you accept the validity of the study done in the early part of the last century, you must question if the conclusions from then are still valid today.

Fred Manuele and the National Safety Council (NSC), along with James Howe, former director of safety for the United Auto Workers, and others have taken issue with Heinrich's ratios and fault-finding with workers, but the basic premise on accident prevention has been challenged by recent developers of approaches to addressing SIFs (serious injuries and fatalities) and HOP (human and organizational performance).

The HOP folks mainly object to the idea Heinrich proposed that 88% of accidents were caused by human risk-taking. They do not challenge the numbers or percentages as much as the inferred idea that workers simply choose to take risks, which ignores all the other factors that influence decisions in the workplace. They prompt organizations to examine these influences and align them to promote safe decisions and practices rather than simply blaming the worker and trying to change behaviors with nothing but feedback.

The SIF folks challenge the idea that eliminating risks at the bottom of the pyramid actually reduces accidents at all levels of severity. This premise has led safety professionals to think that if they work on minor accidents, major accidents will go away. NSC data indicates that accident-reduction efforts have been more effective in accidents of lesser severity, and less effective in severe accidents and fatalities. However, the fact



that such efforts are less effective on SIFs does not necessarily mean they are totally ineffective.

While SIFs are reducing slowly in the workplace, they are actually increasing in the general population. Preventable injury-related deaths overall increased 5.3% yearly and have risen by 96% over the past 25 years. While work-related deaths have not decreased as much as lesser-severity injuries, they have decreased. This should indicate that our workplace safety efforts are not totally ineffective at addressing SIFs.

The current research in SIFs is taking two directions:

One group seems to be stuck in both parts of the Heinrich thinking, and in the premise that all accidents are preventable. Zero accidents slogans abound in many workplaces and leaders are pushing the idea that more and better prevention methods and efforts can address SIFs. There are several models of Heinrich's pyramid with smaller pyramids inside suggesting that it is possible to better assess which risks have SIF potential.

The problem with this model is that all risks have some level of SIF potential. Some risks may have more or less, but all have some. One organization had two fatalities in a single year. An office worker fell down two stairs in an office building and died. That same month a maintenance worker fell down a 50-foot contained

ladder and only sustained a broken wrist. Such cases may be exceptions to the general rule, but occur regularly. Assuming that all SIFs come from a smaller group of risks, and that by eliminating that pool of risks you can eliminate SIFs, is only a small improvement over Heinrich thinking in general.

The second group researching and addressing SIFs begins with the assumption that SIFs are anomalies or outliers. How else can a system that usually produces basically good safety results occasionally produce a SIF? If you accept SIFs to be anomalies or outliers, you must admit that your ability to predict them is somewhere between limited and futile.

Those trying to modify Heinrich's pyramid tend to focus on the most dangerous tasks. The anomalies group points out that many dangerous tasks can be performed safely with the right precautions. They tend to focus on the tasks that are most difficult to control.

Interestingly, the second group does not completely disagree with the first group. Rather, they propose to add on to prevention activities with measures that allow for failure while controlling severity. In other words, assume that workers will occasionally fail to prevent an accident, but put measures in place that ensure the worker can still survive. These countermeasures are very similar to those used in highway safety and PPE (personal protective equipment) in that they don't address preventing the event but rather address controlling the severity. Just as we use airbags, seatbelts and fall protection not just if, but when they

are needed, countermeasures in other instances can allow workers to fail and survive.

It is not a matter of all-or-nothing. Just as every risk at the bottom does not cause equal numbers of minor injuries, not all risks will cause equal numbers of SIFs. The fact that we are reducing SIFs in the workplace while they are growing outside work is an indicator that our efforts are partially successful. Better prediction and prevention may be possible with more research, and preventing SIF potential events is an elegant potential solution.

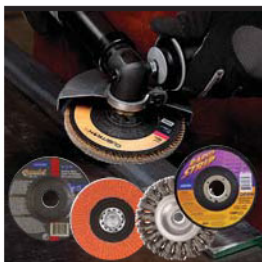
However, if all or some of the SIFs are anomalies and, therefore, not accurately predictable, it will not be possible or practical to prevent all of them. Thus, countermeasures may be a critical part of the solution. If we cannot prevent the event, can we better control the outcome? But rather than debate either one solution or the other, why not pursue both? **EHS**

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