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# The Safety Barrier

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Technical progress over the last 100 years has delivered many incredible improvements that were unimaginable in 1917. However, any analysis of accident reports shows that major incidents, including fatalities, still happen because people, acting on instinct, often simply do the wrong thing. It is not unreasonable to feel that technology, while addressing so many other improvements, should also have dealt with these reflexive errors, but this appears not to be the case.

There are several reasons why this might be so; the following examples are drawn from industrial refrigeration, but equivalents could be found in any other walk of life. The first reason is that more information does not equal better communication. Whether it is the written instructions for a machine or the safety labeling applied to it, if the key safety information is hidden among a forest of other details added just to cover all possible scenarios, then the hazard has not been adequately addressed. I once worked on a building site in Scotland where the 600-page safety manual included a requirement that anyone working outdoors have a neck protector attached to their hard hat to guard against sunburn. The contractor was aiming to have the best safety record of any construction site in Europe, but the site accident rate was double the national average.

This leads to the second reason; we live in a blame culture where everything is always someone's fault. This is the root cause of excessive labeling and instruction: if I told you (however ineffectually) to beware of a hazard, it can't be my fault when you get hurt.

A third reason for continued accidents is that complacency is always present, or at least just around the corner. This is a tougher challenge than might be apparent because at one level it is necessary for workers to become practiced and skilled at any task undertaken. The more often it is repeated, the less attention needs be paid to the routine aspects, enabling the process to be quicker and smoother.

This becomes more dangerous when the smooth operation is adopted by a second or third team member who

might not share the full experience of the first, but has seen the task repeated countless times without mishap. Small variations to the routine, which seem harmless on their own, can creep in and undermine the effectiveness of the original safety concept. This is what NASA has called "the normalization of deviance."

The cost of working safely is also under constant scrutiny. If a procedure has been followed for years but there has never been a relevant incident, it can be tempting to simplify or streamline the process to achieve cost savings. For example, requiring a system to be pumped out before starting any hot work, or insisting on pressure testing with oxygen-free nitrogen rather than compressed air look a bit sick in the project costs, but I am fairly sure the cost of recovery from an accident, even a fairly minor one, will be greater than the "saving" that caused a subsequent accident in the first place.

So what can be done to beat these barriers and improve safety? One useful technique is to examine every possible report from all relevant sources and treat near-misses as seriously as actual injuries. A common hierarchy of incidents shows that for every fatality there may be 30 major accidents; for every major accident there may be 30 minor accidents, and for every minor accident there may be 30 near misses (many of them unreported). This means there were over 27,000 opportunities for improvement before every fatal accident. If strenuous effort is put into reporting, analyzing and eliminating the near misses, a reduction in the cost of accidents is sure to follow. ■



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