Near-Miss Reporting

A Missing Link in Safety Culture

By Mike Williamsen

Near-miss reporting, or the lack of it, is a controversial indicator of an organization's safety culture. Over the years, SH&E professionals have heard concerns about the statistical validity of the many ratios published in the literature. The term itself has been widely debated—should these incidents be called *near-misses, close calls, near-hits* or something else? This article uses the term *near-miss* because the author has found that a near universal understanding occurs when it is so termed. When applying the concepts presented, SH&E professionals can certainly insert their organizations' preferred term. This article presents a practical process that should help overcome resistance to near-miss reports becoming a useful tool to help an organization reduce injuries. Limited research is referenced, not to statistically substantiate near-miss-to-injury ratios, but rather to show a long-standing interest in using this concept as another tool to focus on eliminating workplace incidents.

IN BRIEF

- **Identifying and investigating near-misses are key elements to finding and controlling risks before workers are injured or property is damaged.**
- **Why do some organizations struggle to make near-miss reporting part of their culture? The answer comes from a closer look at barriers that affect near-miss initiatives.**
- **This article presents a practical process to help overcome resistance to near-miss reports as a useful tool to help an organization reduce injuries.**

Let's begin with this question: Does your organization receive about 50 near-miss reports for every minor injury suffered by workers? If not, several significant barriers within the organization's culture may be preventing the organization from learning the lessons available from incidents that did not result in loss—at least not this time.

While building a power plant in Louisiana, a major construction company used an effective near-miss reporting program to trigger safety success. Eighteen months into the project, the site had worked 3.1 million hours without a lost-time injury, had an OSHA recordable rate of 0.68 and achieved Voluntary Protection Programs status. Additionally, the site worked the first 1 million project hours without a single OSHA recordable.

At the start of the near-miss reporting improvement project, the number of near misses reported averaged one or two per month (or about 0.005 per employee). Three months after initiation of the project, that number increased nearly 40 fold (to about 0.2 near-misses reported per employee). This level has continued to climb to a current level of about 230 near-misses per week (or about 0.6 per employee), which is more than 100 times the rate when the program was launched. This initiative has built trust, encouraged employee involvement, enabled the identification and control of previously unknown or unrecognized risks, and enhanced management credibility through visible, positive action.

While four main leading indicators (near-miss reports, near-misses resolved, supervisor audits, manager audits) were utilized to support this accomplishment, this article focuses on the near-miss indicators and the methods employed to overcome cultural barriers that typically inhibit near-miss reporting success.

Is Your Current Approach Working?

The management team knew that identifying and investigating near-misses were key elements to finding and controlling risks before workers were injured or property was damaged. The group also knew that near-miss reports were few and far between.

To cement organizational dissatisfaction, as well as determine the amount of improvement needed, the safety department turned to varying studies regarding incident ratios. Numerous studies can provide insight as to whether a near-miss reporting program is working. The statistical validity of the three references cited here has been widely debated. With that in mind, this organization's team used the references not for statistical validation, but rather to show an ongoing interest in the concept of near-miss reporting being a tool that could help reduce injuries in the industrial workplace.

Heinrich's (1931) accident triangle offers an early theory on incident probabilities. Heinrich proposed

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that for every major injury, there were 29 minor injuries and 300 no-injury incidents (near-misses). His ratios have been widely debated and refuted, but the concept that near-misses could be used to reduce injuries was the team's focus. Bird and Germain (1969) completed a study to determine accident ratios as they occur in various industries. Their analysis of 1.75 million incident reports within 297 organizations and 21 different industries revealed that for every serious or major accident, there were 10 minor injuries, 30 property damage events and 600 no-loss incidents. Health and Safety Executive (1993) researchers concluded that for every lost-time injury (more than 3 days in length), there were seven minor injuries (first-aid only in this study) and 189 noninjury cases.

The statistical validity of such estimates aside, the message is that many opportunities to improve organizational safety performance are being missed. Why do many organizations struggle to make near-miss reporting a successful part of their culture? The answer comes from a closer look at barriers that affect near-miss initiatives.

In this case study, several methods were utilized to involve employees and capture their suggestions for improving the near-miss reporting process. One unique approach was to include near-miss training during new-employee orientation while the project was being ramped up. During this training, a full section was devoted to discussing near-miss reporting barriers. After in-depth discussions, the safety team decided on some broad categories of flaws.

The Five Fatal Flaws

In dealing with construction (and other industry) safety programs, the team believed these five fatal flaws bury near-miss programs:

1) Upper management believes in the program and provides financial support, but managers are not engaged and do not know how to be.

2) Safety professionals, who have the technology to be successful, struggle to effectively teach the organization that which is intuitive to them.

3) Supervisors, who do not want workers to get injured, are overburdened and do not want more nonvalue-added (questionable worth) work forced on them.

4) Hourly employees, who want to be safe, wonder "what's in it for me" for reporting a near-miss.

5) Data management can be red herring. When no or few reports are received, there are no data to analyze and problems remain unknown.

As these cultural flaws linger, they manifest themselves in several barriers that were evident to the safety team.

Barriers to Near-Miss Reporting

The Status Quo Factor

Kotter (1996) discusses eight barriers that prevent organizational change. These barriers ring true for building or changing organizational safety culture. One barrier is organizational status quo and how organizations grow comfortable with the way things are. This is often true for near-misses. They are easily overlooked and avoiding the extra work can be viewed as a benefit to everyone.

By definition, near-misses leave no injuries, and no property or equipment damage. They also leave little (or no) evidence that they even occurred (skid marks are overlooked as are comments from employees involved in a close call). As such, it is easy (and often desirable) to ignore them. As a result, workers have no reason to believe these reports will be viewed positively and acted on. They need evidence such as that provided in the early stage of the orientation training when one employee asked why he had heard nothing about a significant near-miss he had reported several weeks earlier. A high-level site manager attending the session immediately stopped the class to gather pertinent data needed to investigate the situation and provide an answer to this employee. This demonstrated management's commitment to safety.

The message is that many opportunities to improve organizational safety performance are being missed.

Definitions

What is a *near-miss*? Training sessions and continuous improvement focus teams revealed a surprising barrier regarding how personnel defined a near-miss. More importantly, they revealed how these misunderstandings can reduce reporting. Choosing a broad, all-inclusive definition makes things easier. Employees should be encouraged to report any condition they believe to be unsafe as a near-miss. When reported, employees should be thanked, not embarrassed. The message should be that proactive effort is rewarded.

Forms: The Five Ls

When creating report forms, consider the five Ls:

- Literacy. Are forms easy to read and understand?
- Language. Does the company provide forms in multiple languages if necessary?
- Length. Are the forms short and to the point?
- Location. Are they easily accessible to workers?
- Logistics. Do they enable solutions?

Figure 1 (p. 48) shows an example of a simple near-miss form developed by the safety team.

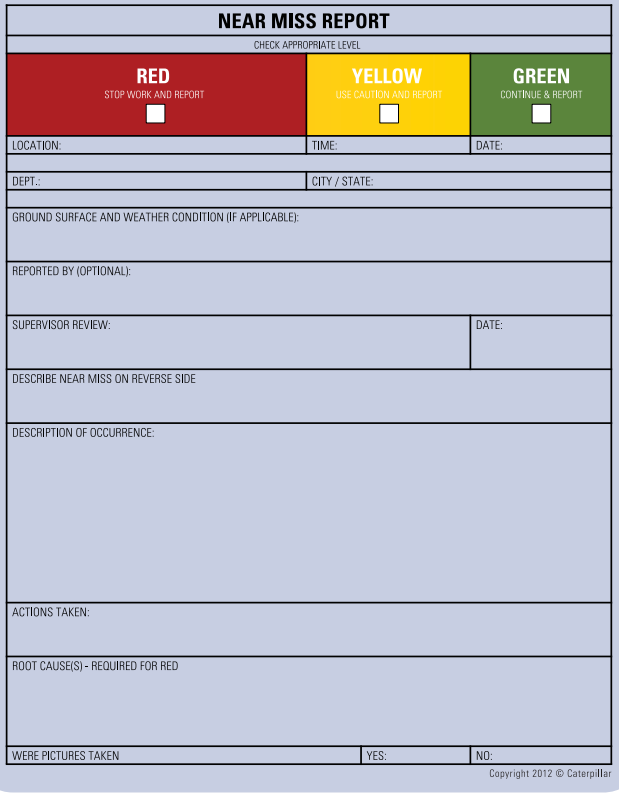
It is important to determine whether literacy is an issue. Additional considerations are the subcultures on multilingual sites. For example, in this case, additional training was delivered by a Spanish-speaking instructor. This process revealed another barrier—the prevailing culture to "keep your head down and don't make waves." Overcoming this barrier was critical. Ensuring that Spanish-speaking personnel were included in developing the near-miss process as well as providing native language opportunities to understand the process proved valuable. Strongly recognizing this group of workers for reporting incidents was also critical.

Fear of Punishment & Retaliation

Training also revealed a genuine fear of punishment and retaliation. Site managers and supervisors wondered how more near-misses would make them look. Employees wondered whether supervisors think the reports make supervisors and

When creating report forms, key considerations include literacy, language, length, location and logistics.

Figure 1
Near-Miss Report Form



NEAR MISS REPORT

CHECK APPROPRIATE LEVEL

RED	YELLOW	GREEN
STOP WORK AND REPORT ☐	USE CAUTION AND REPORT ☐	CONTINUE & REPORT ☐

LOCATION:	TIME:	DATE:
DEPT.:	CITY / STATE:	
GROUND SURFACE AND WEATHER CONDITION (IF APPLICABLE):		
REPORTED BY (OPTIONAL):		
SUPERVISOR REVIEW:		DATE:
DESCRIBE NEAR MISS ON REVERSE SIDE		
DESCRIPTION OF OCCURRENCE:		
ACTIONS TAKEN:		
ROOT CAUSE(S) - REQUIRED FOR RED		
WERE PICTURES TAKEN	YES:	NO:

employees look bad and what response might be expected.

The overwhelming commonality is subtlety. Workers told stories about previous employers giving the most undesirable jobs to "troublemakers who made waves by reporting problems." Management had failed to create a culture that expected supervisor safety performance, including capturing, resolving and rewarding near-miss reports. Like employees, supervisors believed that such reports were viewed as signs of poor supervision. Why report something no one knows about and risk trouble? Why report issues that result in more short-term work when no one measures or recognizes this effort? Measuring near-miss reporting performance forces supervisors to create a more cooperative environment and enables early intervention.

Lack of Recognition/Feedback

When participating in any event, it is human nature to ask: By taking this action, what happens to me that is good and what happens to me that is bad? Will this action result in a positive or a negative outcome? Is this action worth the effort? Management must take purposeful, intentional and visible actions that demonstrate and prove that good outcomes happen when near-misses are reported. Nothing is more frustrating than to be told something is important, only to learn that no one gets a response or feedback for their efforts.

Peer Pressure

How do coworkers perceive a reported near-miss? Is the reportee a hero or a villian? Negative peer pressure may be even worse than lack of recognition. An example is peer pressure that develops within crews, and how *influence* (Maxwell, 1998) can be used to make this peer pressure positive or negative. Following is an example presented during training to describe what employee peer pressure might look like:

> Today, each person in the training is hearing about near-misses, about what they are and why reporting them is important. You are learning about how this program makes it less likely for you to be hurt while working on this site. Some of you might even be starting to believe and are anxious to participate. Some of you, however, think this is bull and cannot wait to get out of here today.
>
> Now, suppose tomorrow you report a near-miss. You complete the report form, maybe even in front of your peers. When you do, you will get a reaction, and that reaction will go a long way in determining whether you (or anyone else present) will ever report a near-miss again.
>
> So, the question is what will that reaction be? Will coworkers encourage the report? Will they help find potential solutions? Or, will your peers discourage the report and call you management's best friend?

Concern About Record & Reputation

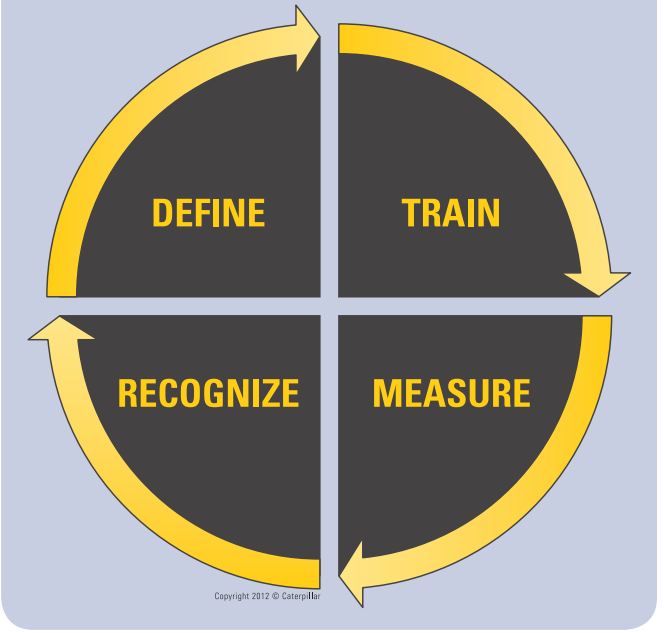
As noted, supervisors and managers often (correctly) perceive that near-misses are negative events that will be used against them (e.g., in performance reviews) as an indication of their management inadequacy. Hourly employees often fear supervisor retaliation and other negative consequences for reporting near-misses. Site leaders often wonder whether corporate truly means it wants an increase in near-miss reporting and what will really happen when this increase occurs. Additionally, and particularly in nomadic-type trades such as construction, one's perceived desirability by future employers is essential. Employees will do what the boss wants and what peer pressure dictates.

Desire to Avoid Work Interruption

On a construction site, workers have tight deadlines. As a result, sometimes, when observing an unsafe condition, they must decide quickly whether the perceived risk can wait or whether immediate attention is warranted. But consider this story of a supervisor who noted a piece of rebar sticking up from the ground. He was busy and made a mental note to take care of it later that day. Later was too late. When he came back, he found a coworker severely injured.

People constantly make value and priority decisions. The challenge is to encourage action. Empower work groups to place near-miss reporting

Figure 2
Accountability: Four Steps



Accountability entails defining expectations, providing training, defining metrics and recognizing outcomes.

forms wherever they feel it is most convenient. For example, some equipment operators started carrying forms with them to ensure that the forms were close at hand. While correcting the unsafe situation is obviously more important than completing the form, employees learned how trend tracking could affect hazards. For example, replacing the guard on a power tool is a positive action, even if not reported. That said, what if an employee is one of 10 people to do that and not report it? Not reporting such issues could result in failure to uncover root causes of missing tool guards, such as purchasing low-quality tools or poor tool maintenance processes.

Desire to Avoid Red Tape

It is natural to ask, "What red tape will entangle me if I turn in this near-miss report? Will the form take 4 days to complete or can I do it in just a few minutes? Will I be grilled and questioned, or will my team be able to take steps to reduce risk and will management ask whether it can provide further support? Will unreasonable solutions be forced on me or will I have a significant say in my safety? Helping employees understand "what is in it for me" is a critical component of eliminating red tape.

Fault-Finding Mind-Set

Whose fault was it? That question is often asked when someone gets injured. When incidents occur, does the organizational investigation system uncover and remove root causes in the management system, or does it let the employee take the heat, while nothing else changes? Is disciplinary action an overwhelming outcome of investigations? Are leaders disciplined as well? If so, employees have little reason to openly participate in the process.

In such an environment, the truth is likely hidden—even for the incidents that cannot be buried due to their severity, so getting the truth about near-misses is unlikely. While coaching and discipline are necessary, ask why these are occurring after the fact. This same scenario has probably occurred multiple times and was deemed okay as long as production needs were met. To change this mind-set, management must steer employees toward desired actions by clearly defining what is expected, then intentionally looking to catch them doing what is correct.

Overcoming the Barriers

To overcome these barriers, one good starting point is Petersen's (1993) six criteria of safety excellence. These can be used as a filter to determine the appropriateness of action. They must be in place to achieve safety success:

1) Top management is visibly committed to the process.
2) Middle management is actively involved in the program.
3) Supervisor performance is focused.
4) Hourly employees are actively participating.
5) System is flexible to accommodate site culture.
6) System is perceived as positive by the hourly workforce.

Next, consider concepts of the safety accountability cycle (Figure 2). Specifically:

1) Define expectations. What must be done at every level of the organization to ensure satisfactory near-miss reporting?
2) Provide training. What training is necessary to enable performance of these expectations?
3) Define metrics. How will performance be measured? How does the organization know, by affected individual and/or crew, whether expectations are being met?
4) Recognize outcomes. How is successful performance rewarded? Is it meaningful to those whose actions the organization is trying to motivate?

Expectations Defined

An expectation might be that all employees report unsafe conditions or other situations regardless of perceived risk. As noted, the site in this case started slowly and improved by more than 100 times. A key to success is to go beyond step one of the accountability cycle (define) and move toward steps two (training), three (measurement) and four (recognition). The closer this process gets to work groups and individuals, the better.

Training

All new employees coming on a site received a 4-hour safety orientation that addressed the importance of and method to report near-misses. An executive opened the session with a message reinforcing the importance of near-miss reporting for work at the site. The trainer then showed a video and discussed each aspect of the process. Employees learned what near-misses were, where forms were located, the effect of peer pressure and group norms, as well as other barriers that commonly inhibit near-miss reporting. They were then asked to

help identify any perceived barriers and suggest solutions. This helped create buy-in to the program.

Employees also practiced reporting near-misses and were encouraged to take class time to complete actual reports from incidents they had witnessed. This allowed employees to see how management would react. Completing reports for actual events reinforced how many near-misses occur and tied the training to real-world situations, which increased employee confidence in their ability to participate in the process.

Additionally, employees completed a 4-hour course on how to speak up when they observed unsafe behavior. During this training, volunteers shared powerful stories about personal consequences, both at work and at home, where failing to speak up resulted in injury and even death. In addition, employees completed a self-assessment test to identify personal strengths as listeners. This assessment allowed employees to experience how failing to listen, or reacting negatively to another person's feedback attempt, can affect how they may respond to feedback in the future.

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Measurement

The axiom that what gets measured gets done was proven true at this site. People will do what management wants, not what the safety professional wants. As one of the site's leading safety indicators, management decided to track the number of near-misses reported by crew. As a result, each crew, as well as everyone else on site, knew who was and was not completing assigned safety actions. The indicator report was posted on bulletin boards throughout the project site for all to see.

This measurement system really kicked in when the parallels to good safety performance, as defined by these activities, correlated directly to the performance of safety outcomes as well as to the performance of other key indicators, such as schedule and budget. Poor performance in these leading safety indicators was predicting where first-aid injuries were most likely to occur, as well as where poor adherence to quality, schedule, cost and other factors were most likely to occur—all information management was not accustomed to having.

Recognition

To complete the accountability cycle, site management created a crew-of-the-month program to recognize top crews in safety based on the completion of the most proactive safety actions for the month. This program was so well received, it spread as the site grew, to the point of identifying and rewarding 10 crews (out of 135) per week.

A significant key to the success of this program was the recognition (reward). After the announcement to all employees regarding the details of how the program would work and when it was to begin, employees showed little excitement or acknowledgment of the program. However, once rewards such as leaving early each day, special parking privileges and celebratory lunches starting happening, more crews became interested.

Several ingredients made this reward program work:

1) The rewards were meaningful (e.g., a 5-minute early exit enabled a worker to arrive home 30 minutes earlier).

2) The methods to win were in crew members' control. Completion of expected activities allowed a chance to win. The contradictory element of luck for having no incidents was minimized.

3) The effort was visible. Updated counts and tallies of progress were displayed for all to see.

Ongoing Success

The numbers indicated ongoing success throughout this project. However, stopping there would be a mistake. The real story is how these numbers were achieved. One of the best summaries is in the example of one simple change. At the beginning of this project, the site, like most companies, had its injury results and statistics posted for all to see at the facility entrance.

As a result of everyone's efforts and the focus on safety, not the absence of incidents, employees no longer believed this sign reflected their culture. The old sign was replaced with a new sign reporting the amount of employee safety effort and activity. Crews wanted to know daily how many near-misses were reported and how well they were doing in preventing incidents. They understand this focus will enable an incident-free environment. Upon entering this site and seeing this sign, it is obvious that something is very different here. **PS**

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