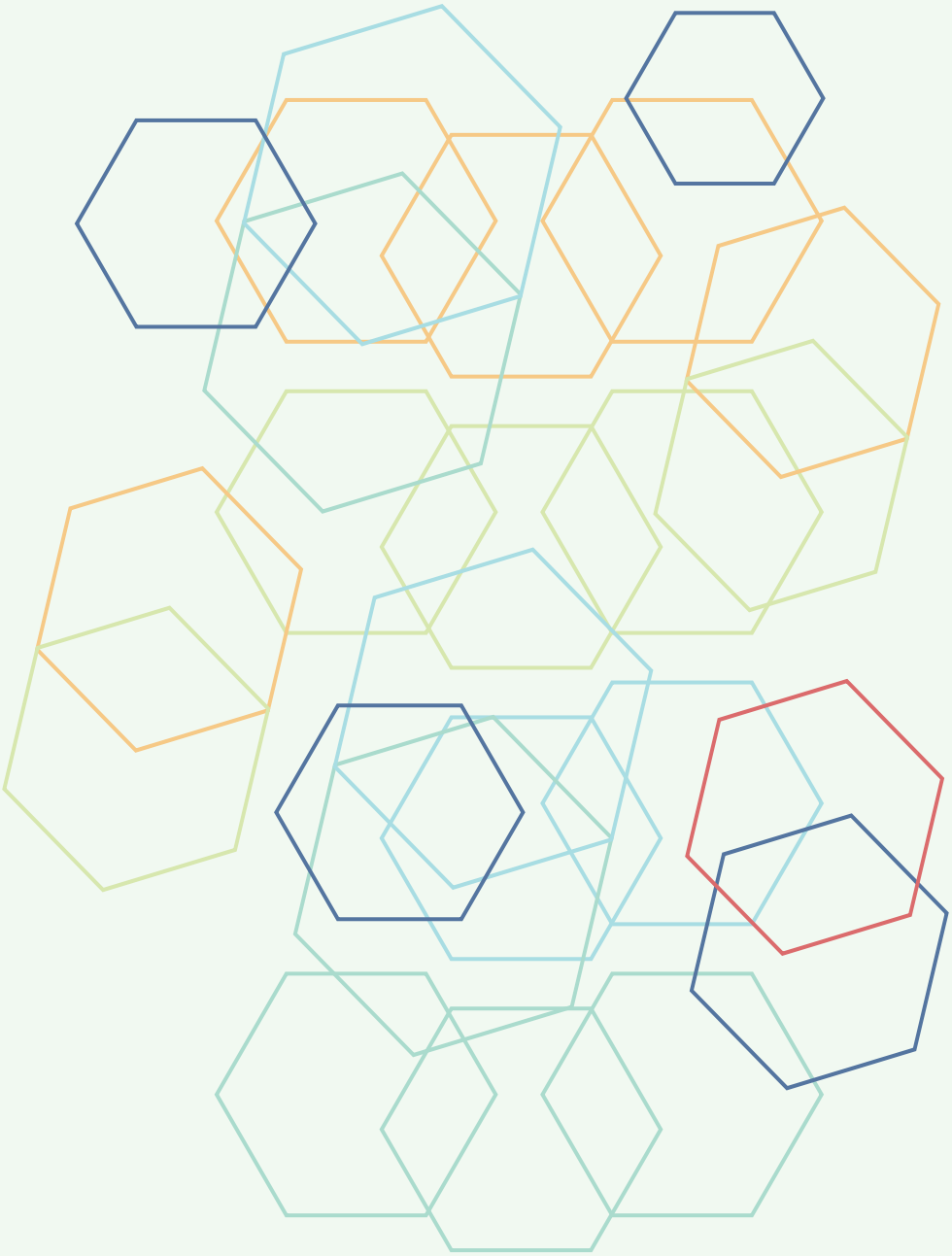
CAMPBELL INSTITUTE™

Designing Strategy for Serious Injury and Fatality Prevention



NATIONAL SAFETY COUNCIL®

Introduction

In the previous Campbell Institute white paper on serious injury and fatality (SIF) prevention, Institute members explained why their efforts have increasingly focused on SIF prevention above and beyond the traditional attention paid to all workplace incidents and injuries. Looking at workplace safety statistics over the last twenty years, we find that the total recordable incident rate in the U.S. has been on a steady decline to less than 3.0 recordable incidents per 200,000 working hours in 2016[1]. It is a significantly different story with the number of fatalities, which has been on a much slower decline and in fact has even started to increase in the last few years. Institute members have recognized SIF prevention as the next step in their journey to safety excellence. Instead of focusing on the entire safety triangle with its layers of near misses, recordable injuries and lost time injuries, they are honing in on that slice of the triangle that has the potential for causing SIF – and making concerted efforts to prevent and eliminate those precursors so SIF does not occur.

[1]Bureau of Labor Statistics (2017). Employer-reported workplace injuries and illness – 2016. For release Thursday, November 9, 2017. United States Department of Labor.

Previous research on SIF prevention provided background and table setting on the topic. Most Institute members have adopted the definition of a serious injury as a permanent impairment or life-altering state, or an injury that if not immediately addressed will lead to death or permanent or long-term impairment. Many Institute members classify a near miss incident as having "SIF potential" if it could have resulted in a serious injury or fatality if not for certain barriers or countermeasures. While there is no official definition of a SIF precursor, most organizations tend to use the DEKRA definition, which is a high-risk situation in which control measures are absent, ineffective or not complied with, and would potentially result in a fatality or serious injury if allowed to continue.

These definitions of SIF terms were presented along with Institute member practices about organizational communication about SIF prevention, setting organizational targets for SIF metrics and gaining leadership support for SIF prevention efforts. The next logical step for the SIF Prevention Workgroup was to create an implementation guide for SIF prevention, with real-life case study examples of their approaches to and lessons learned from SIF prevention. During the summer of 2019, the Campbell Institute collected interviews with eleven Institute members about developing their strategies and long-term goals for SIF prevention, use and evaluation of SIF metrics, tools and technologies for SIF prevention, communication about SIF prevention program goals, and perhaps most importantly, their organizational safety performance since implementation of SIF prevention strategies. What follows are their perspectives.

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Member Perspectives on SIF Prevention

Motivation and support for SIF prevention

Overall, the motivation to pursue a SIF prevention strategy seems based on the maturity of an organization. Members have reached a level where they are leaders of safety and desire to be on the leading edge when it comes to the protection of workers. They desire to be proactive rather than reactive, and pursue innovative ideas and strategies with the objective that every worker returns home unharmed at the end of their work day. One fatality is too many.

A low recordable injury rate is an unlikely motivator for pursuing a SIF prevention strategy. A low injury rate is often tied to reputation and brand because members pride themselves on their overall safety performance as a reflection of their commitment to and care for their workers. A serious injury and fatality can affect worker morale and cause leaders to drive their organizations to fully understand what they missed and what more could have been done to prevent the incident. Knowing that the organization still has exposure to potentially life-altering risk is what motivates members to be proactive in identifying and eliminating these risks.

A formal SIF prevention program is a logical next step and needs executive support for success.

Unsurprisingly, members do not have issues with gaining executive buy-in to pursue a SIF prevention strategy. Members repeatedly said their executives were actually the drivers of the strategy, so there was no need to convince them. Leaders recognized their organizations had achieved a level of maturity where they needed to think beyond the near misses and non-fatal injuries and focus on the most severe risks. Executives viewed the SIF prevention strategy as the logical next step in their safety journeys. They saw it as their responsibility to communicate the issue of SIF prevention to all levels of the organization.

Developing a roadmap and long-term goals for SIF prevention strategy

There has not been one consistent roadmap for developing a SIF prevention strategy, namely because the issue is relatively new and many organizations approach it differently with an ad-hoc collection of activities. In general, it seems that most organizations spend time initially in understanding what SIF is, and placing definitions around “SIF potential” and “SIF precursors.” This knowledge needs to be communicated in various ways throughout the organization so that everyone can be aware of SIF risk and what they can do to mitigate it.

Members consistently mentioned the gathering and analysis of quality data as a crucial step in developing a SIF prevention strategy. Many members have global systems and archives of data from past years, so it’s relatively easy to look at prior incidents and near misses to determine if those events had SIF potential. Analysis of those past events can shed light on the areas of risk the organization currently faces and where they can take proactive measures to mitigate the risk.

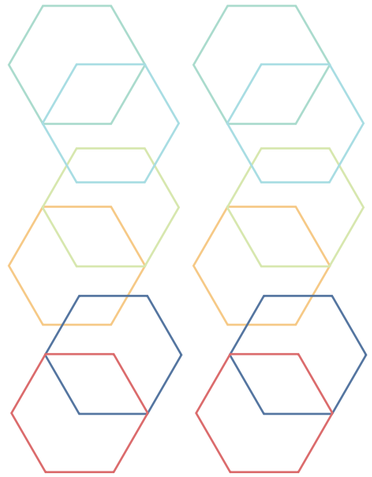
Data analysis goes beyond mining past data for potential insights. It also includes collecting good data in the present, and this means training people in creating thorough and detailed incident reports, going into the field to collect observational data and talking to people about their experiences on the job. The better the quality of data entering the system, the better the analysis, and the better agility the organization can have in predicting and preventing the next event.

Last is the governance and oversight step of the SIF prevention strategy development. Members have a process to monitor the results of their efforts and make course corrections as necessary. Processes are evolving to gain real-time insights into the health of critical safeguards. DEKRA recommends checking on corrective actions to make sure they’re being followed and that they actually mitigated the hazard. These actions close the loop on the process and provide checks of the system in place.

To create a long-term outlook for risk and safety maturity, members are looking for methods that improve their abilities to collect and analyze the data that give them predictive power over SIFs. For AECOM, this includes a long-term goal of incorporating artificial intelligence and machine learning to find the common denominators in incidents and flag projects with a similar set of conditions and factors.

For organizations like NASA and FirstGroup America, the focus is more on culture and behavior. NASA has taken steps to measure maturity in five areas of safety culture (reporting culture, just culture, flexible culture, learning culture and engaged culture) to encourage the knowledge and behavior that is necessary for creating and submitting good reports and data.

FirstGroup America has used the method from Aubrey Daniels International (ADI) to develop rapport among workers and supervisors through positive safety interactions. The ADI method does not condone sanctioning workers when an incident occurs, rather looking at the system that may have encouraged certain behaviors and making system corrections. FirstGroup America has realized positive results of the ADI method with more proactive reports of SIF near misses from workers and drivers.



Organizational risk profile and definitions of SIF

All members describe their operations as high risk, although this is for a few different reasons. For United Rentals, work is high risk because it is so non-routine. Many times the risk to employee safety is based on the jobsite. UR also has one of the largest fleets in the country, so road and transportation presents a large risk. The variety of industries they serve – industrial, petrochemical, non-residential construction – means that risks are numerous and also ever-changing.

Diversity of activity also plays a role in the risk profile for NASA, which conducts exploration activities from the ocean floor to the solar system. What is consistent in planning for NASA missions is that there is a zero tolerance for added risk to the public as a result of NASA activity. In the workplace, NASA has developed formal, mature sets of controls to prevent human exposure to high-energy and toxic sources over decades of research, testing and operations. The concern for public safety is what drives much of the SIF prevention strategy for FirstGroup America, which provides transportation for 5.9 million every day, and is why they characterize their operations as high risk.

For AECOM, there are cases where employees spend most of their time in stable and controlled environments such as office settings and occasionally visit active construction or industrial sites where AECOM is not a controlling entity. AECOM considers these situations high risk due to the infrequency of exposure and lack of site control.

Dow created a guidance document to help the organization get a better understanding of the types of activities that could lead to SIF. While the document was not meant to be comprehensive, it was an attempt to standardize and get consistency on the types of activities to focus on. These include activities like line and equipment openings, hot work, hydro blasting, confined spaces, electrical work and elevated work.

You must understand your organization's SIF risk profile.

Sources of data for SIF metrics

Members use the data from near misses, injuries and incident reports to help them understand where SIF risk is present and to predict when and where future events with SIF potential may occur. If the business involves fleet operations or transportation, vehicle accident reports will also be used as a source of data, but this is also a source for those organizations that do not have primary operations using vehicles. Depending on the geographic reach of an organization, workers compensation data may or may not be mined, just because workers compensation laws differ by country and also by state.

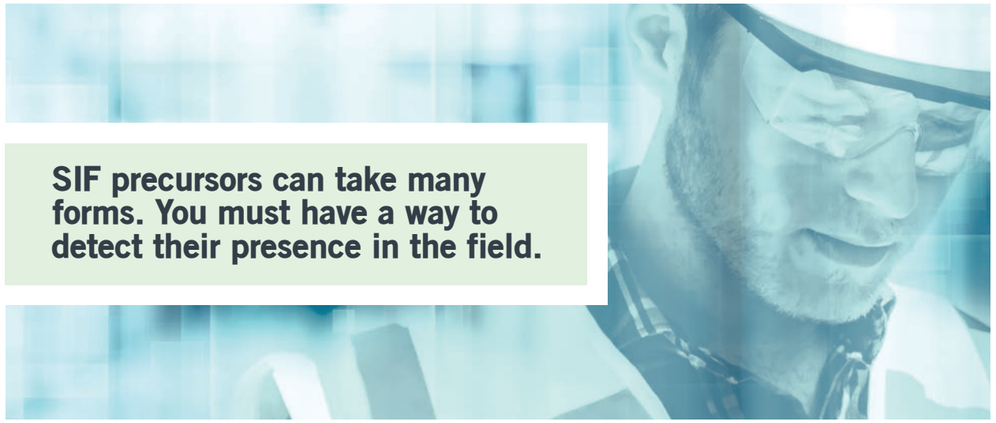
Dow looks to recordable and reportable injuries (first aid cases and precautionary medical visits) to look for SIF potential. The data for all these types of events are entered into their Incident Management System and can be accessed easily by safety personnel to generate statistics and analyze trends. Owens Corning also feeds corrective actions into their global incident data system.

At AECOM, the groups responsible for safety, workers compensation, fleet management, legal and occupational health are all significantly integrated to share data. This can lead to the identification of trends or patterns that may be indicators of a future SIF incident, like if a group has had an increase in vehicle damage claims coupled with a decrease in drivers training participation during a given time period.

Most organizations do analyses of near miss events that had SIF potential, in addition to analyzing the actual SIF events. For ExxonMobil, doing so has led them to sharpen focus on certain areas like confirmation of energy isolation and hand safety in specific work tasks, which did not have any actual SIF events associated with them, but did have SIF potential. If it had not been for the analysis of SIF potential, these exposures may not have been recognized.

DEKRA and Krause Bell recommend looking at data that comes from observations and both formal and informal walkarounds, which can be especially enlightening and reveal potential hazards or precursors that otherwise would not be captured in other sources of data. Through conversations, workers can provide insight into their daily tasks and hazards they may face. Informal discussions about recent events can reveal precursors that nobody had previously noted in an incident report. Observations and conversations should also be considered important sources of data for analyzing for SIF potential.

Identification of SIF precursors



SIF precursors can take many forms. You must have a way to detect their presence in the field.

To preface the section on SIF precursors, it's prudent to revisit the semi-official definition of a precursor: it is a high-risk situation where controls are broken, absent or not complied with. This two-part definition of a precursor is what is tricky for organizations to understand, even for Institute members. Most organizations are excellent at knowing and identifying their high-risk activities within their operations. These include your usual suspects: machine guarding, lockout/tagout, working at height, confined space entry, forklift operation, working around mobile powered equipment, line of fire, etc. And while these activities are high risk, that does not inherently make them precursors. There is the additional element of management controls that are absent or not being followed. Working at height is not in and of itself a precursor, but working at height without fall protection is. Accurately identifying precursors is an issue that members are still grappling with.

Regardless of how they understand precursors, some members have become quite adept at identifying leading indicators for SIF. For AECOM, an indicator of SIF could be related to project management and performance. For instance, AECOM may look for issues within one of their sixteen pre-identified high-risk work activities to identify potential issues which could lead to a reduced focus on safety, which could produce or create a high likelihood for SIF incidents.

For United Rentals, acquisitions and growth in the business can raise red flags for SIF, particularly if the newly acquired businesses perform work that is materially different from the work currently done at United Rentals. Taking proactive measures at the beginning of such new acquisitions can go far to mitigating SIF events. Dow has seen some commonalities among recent SIF potential incidents, namely injuries that occur during night and weekend shifts and injuries among experienced workers with over twenty years in the company. This has prompted Dow to take a closer look at shifts that are outside of traditional working hours, and to think about the training of more experienced workers about brain-centric hazards, including the hazards associated with habit formation and running on autopilot.

Exelon Utilities has started to pay closer attention to worker fatigue as a contributing factor to events and something that could turn a SIF potential event into a SIF actual event. With the help of researchers and academics, some sites have been analyzing the outcomes of SIF events and non-SIF events to narrow down what is and is not a precursor. If a factor is equally present in SIF events and non-SIF events, then it's doubtful that it can be considered a precursor.

In sum, SIF precursors can be complicated. Many organizations use the following approach to simplify how they understand precursors: When a worker or crew is performing a task with SIF risk, and if not all the critical controls are in place or not functioning as intended, and if this situation is not mitigated, then a SIF precursor exists. If the situation remains "as-is," this work may be performed hundreds of times before something adverse happens. The SIF precursors were present all along, but they were not recognized or acted upon.

Tools and technologies to enable a SIF prevention program

DEKRA emphasized the importance of having oversight and a process in place for each requirement of the SIF prevention program. For instance, if an organization requires that every incident and near miss gets reported and assessed for SIF potential, then there must be a process to address that. The same applies if an organization requires that incident, near miss and corrective action data be entered into a global system; there must be a process and appropriate oversight to ensure these actions are done well.

Processes, procedures, assessments, checklists and training – these are the tools that members have in place to ensure the goals of the SIF prevention program are being met. United Rentals, AECOM and Exelon Utilities specifically mentioned the education they offer their workforces to understand what SIF potential events are and how they can prevent them. AECOM makes sure to tailor their messages about SIF to different employee audiences, like architects versus field technicians, so they know what they can do in their roles to prevent SIF. Exelon Utilities has performed culture assessments to make sure they're communicating on employee empowerment, specifically stop work authority. United Rentals also utilizes stop work authority, which can prevent SIF from occurring.

Sometimes as businesses change, they realize they need additional plans and procedures to protect their workforces. Dow has traditionally been a chemical processing company, but over the years has acquired discrete manufacturing businesses with machinery and machine hazards. They implemented a machine risk assessment (MRA) tool in 2015 as part of their SIF prevention program. The MRA lets them know if the safeguards in place are adequate or if additional action is needed.

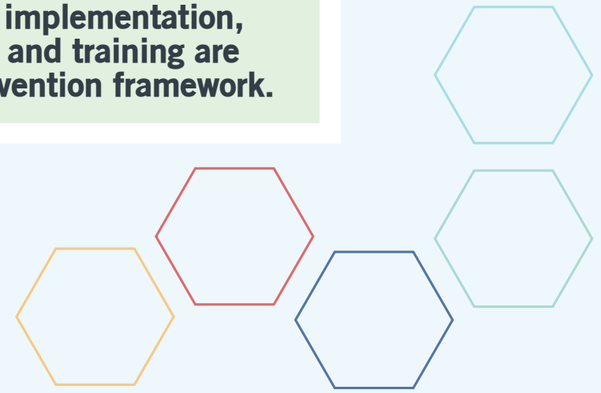
Owens Corning has introduced a conditions-based risk assessment, which includes a checklist that helps a worker conduct a cursory review of an area to check for SIF exposures. If exposure is determined to be present, the assessment can measure the effectiveness of controls. The output of the conditions-based risk assessment is a heat map that indicates where there is risk and exposure that needs to be addressed.

There are several technologies in place or under consideration by members to either measure or mitigate SIF exposure in their operations. Many have ventured into predictive analytics or machine learning with their incident reporting portals to analyze data and make predictions about the next potential event.

FirstGroup America and United Rentals have used camera technology to prevent SIF events. FirstGroup transit operators have Mobile Eye technology in their vehicles that provide alerts if there is a pedestrian or bicyclist along the roadway, or if their speed is too high or their following distance is too short. United Rentals is experimenting with video vision at job sites that combine with artificial intelligence to detect unsafe behavior and provide alerts.

Several members like Dow, Owens Corning and ExxonMobil use proximity detectors to alert operators of mobile equipment if there are other workers nearby. Owens Corning and Dow have used robotics and drones to perform confined space work so that humans don't have to.

Processes and tools for implementation, governance, monitoring and training are essential to the SIF prevention framework.



Design your organizational and personal communication strategies to put a spotlight on SIF exposure.

Communication for SIF program and SIF events

The communication methods for SIF stories and case studies mirror the methods that members use for safety in general. Common among these methods are brief articles and one-page documents with lessons learned, teleconference briefings for organizational leaders and videos featuring employee stories.

DEKRA mentioned that changing the conversation during safety meetings or leader walkarounds can get both workers and leaders to start thinking about safety and SIF differently. For instance, instead of starting a safety meeting by talking about OSHA recordables, lead off with questions about SIF exposure and risk: "In the last one to two weeks, have we had any near misses reported that had SIF exposure potential?" "Have we had any injuries that had SIF exposure potential?" "Did we have any situations where workers exercised stop work authority because they saw SIF exposure that wasn't controlled?" Beginning a safety meeting in this way shifts the focus to SIF prevention.

Leaders can also hear stories firsthand from workers by asking meaningful questions. Instead of a simple hello or "How's work?" leaders can ask, "How are you protecting yourself, and how are you protecting others from this SIF exposure?" "Do you have everything you need to do this job without having a SIF event?" Questions like these, plus others like, "Have you ever exercised stop work authority?" and "Have you ever felt like the job didn't provide you enough protection?" can help elicit the kind of personal stories that leaders need to hear from workers, and encourage all to focus on SIF prevention.

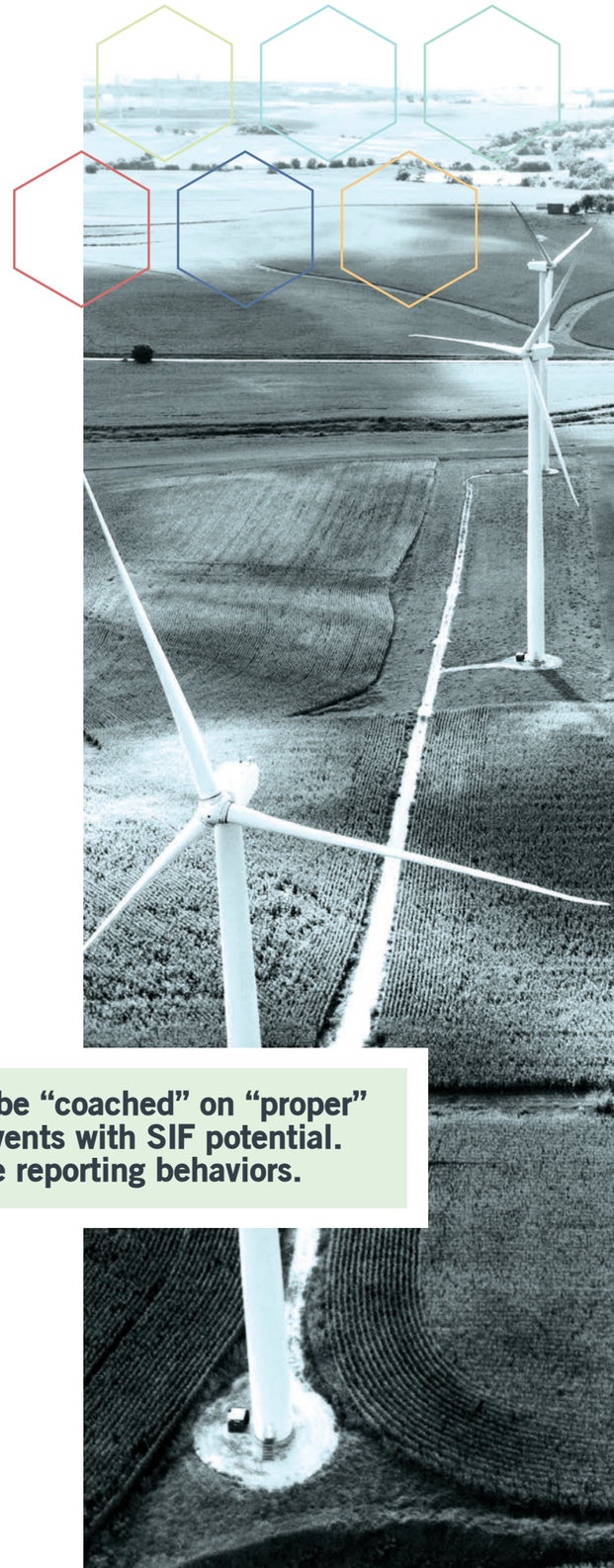
All members have mechanisms to inform the workforce of SIF and SIF potential events. Many times, these are the same methods that would be used for general safety communication, but given special emphasis because of the connection to SIF. AECOM has weekly newsletters, a lessons learned library, executive review processes and other forms of communication, which inform employees of SIF-level events. FirstGroup America locations are required to have in-service safety training. Recently the focus has shifted away from the small incidents to those that are more serious in nature. This has hopefully encouraged more employees to start thinking about SIF and the actions they can take to prevent them.

At United Rentals, a communications manager scripts the next week's daily safety huddles based on current events in the organization. This enables supervisors and work teams to discuss relevant safety content while at the same time getting informed of any recent events that could have a connection to their daily tasks.

Not every SIF potential event gets communicated to the workforce at ExxonMobil, but those that are worth broad sharing get communicated through one-page documents that have been tailored for the frontline audience. In addition, providing examples of SIF potential events across a range of higher risk activities (e.g. work at height, lifting and rigging, opening process equipment, etc.) have been developed to assist leaders and supervisors in calibrating the evaluation of potential severity and risk to aid in reporting. They have also developed a sharing and learning app that includes these one-page documents to provide easy access to information that can assist with real-time learning.

Challenges in implementing a SIF prevention program

Members did not have many regrets when it came to the way they launched or developed their SIF prevention programs. A couple members mentioned things that had to be periodically monitored and they were mainly related to safety culture and reporting. ExxonMobil found that SIF actual and potential incidents had to be monitored to ensure leaders were establishing the right environment to support a culture of proactive SIF reporting. Because all severe or potentially severe cases are reported to the senior leadership level, leaders need to more frequently reinforce messaging that SIF reporting is encouraged in order to learn and take corrective action before a significant incident occurs. The other part of the process is to help senior leaders understand their response matters when an incident occurs, and they need to respond in a manner that supports trust and open discussion of how and why the event occurred in order to identify appropriate sustainable solutions.



Executives and managers must be "coached" on "proper" reactions when hearing about events with SIF potential. This will help reinforce desirable reporting behaviors.

A cultural assessment conducted at Exelon Utilities validated that transparency of reporting can be an issue. They are taking action to continue building trust and transparency into the organization, and make sure that workers have advocates to listen to their stories and not feel undue pressure from managers or supervisors.

Cardinal rules for discipline around SIF

For the most part, it seems like the feelings of members are mixed when thinking about the use of cardinal rules for discipline. Most find it too heavy-handed to terminate a worker due to behavior related to a SIF or SIF potential event, and also find that doing so creates a culture of fear and non-reporting. Also of concern is that members do not have workforces that are easily interchangeable or replaceable, which means they would rather hold on to their workforce and close behavioral and system gaps than terminate workers and hire new ones.

NASA and United Rentals have procedures in place to deal with non-compliance, and it's not as simple as terminating an employee for failure to follow procedure. At United Rentals, incidents are reviewed according to a matrix to determine the level of progressive discipline.

Instead of establishing cardinal rules for discipline, several members like Dow, Owens Corning and ExxonMobil have established a set of life-saving actions for higher-risk activities in which employees perform work. This has shifted the focus from discipline to protection – instead of being focused on rules and if they're being followed, members are placing emphasis on understanding risk and instituting good prevention measures.

Use and evaluation of SIF metrics

The most common SIF metrics members measure are the number of SIF actual events and the number of SIF potential events. Members may also measure the percentage of OSHA recordables that have SIF exposure. In general, members are looking to categorize near misses to determine if there was SIF potential and use the lessons from those close calls to put in safeguards to prevent a similar event.

Members like Dow and FirstGroup America also look at the number of reports of non-injury SIF potential events. Not all of these reports may get formally classified as having SIF potential, but of importance is encouraging workers to keep their eyes open for such events and submit reports. Dow believes the more reports of non-injury SIF potential events, the better. To them, this is a leading indicator of safety awareness and hazard recognition among the workforce.

DEKRA has seen some other SIF metrics in place at organizations that members could consider. One is the percent of SIF events reported to the executive level for review. The closer that number is to 100 percent, the more executives are aware of the risk exposure that exists within the organization. Another metric is the number of extensions of corrective action deadlines. When corrective actions are not assigned after a deadline and the deadline has to be extended, this should be a yellow caution flag to an organization. Lastly, there are metrics around field verifications and critical controls. Organizations can measure how many field verifications are being completed compared to how many they expected to get done, and what percentage of the controls are in place.

Seeing results of SIF prevention programs and performance of SIF metrics

All members said that since they've implemented SIF prevention plans and measures, they have seen a reduction in risk and severity. This is in keeping with what DEKRA has seen with clients, namely that within a few months, organizations can see data-driven evidence that there are fewer SIF exposures that are not controlled. It takes many months, perhaps a couple years, of data collection to say with certainty that there is a reduction in SIF events, and many members are still in this phase of their journey.

The example from Owens Corning regarding reporting volume is most likely similar to the experience of other members. They have seen the number of SIF near miss reports increase significantly, which is most likely due to workers seeing more hazards than they did previously. This has created a lot more work for their incident review team, but it has also translated into fewer actual SIF events at Owens Corning over the last year.

reductions in SIF events, with no fatalities in more than five years. It is currently focusing attention on lifting and rigging, and work around mobile equipment to address recent trends in those activities.

While AECOM has seen stabilization in SIF metrics and FirstGroup America has experienced reductions in its SIF metrics and other lagging rates, both organizations are much more focused on fostering a good safety culture and encouraging safe behavior through engagement. Even when they see good movement on lagging rates, they still ask themselves about the behaviors and culture efforts that drive the performance of the lagging metrics. Following AECOM's initial education campaign, its next steps include validating critical risks, defining specific SIF controls, ensuring consistency, and enabling critical thinking, innovation and process improvement within the business. This is how it seeks continuous improvement in safety and in SIF prevention.

The right metrics will drive and reinforce desirable SIF control behaviors at every level. What gets measured gets done.

All members have seen positive results stemming from their SIF prevention efforts, although all will acknowledge this is cautious optimism, as there is more work to be done and always room to improve. NASA's SIF metrics have remained level in performance over the last five years and other traditional lagging metrics are at all-time lows even compared to other agencies that have much lower exposures of risk. Over the past three years, Dow has seen a decline in SIF and SIF potential recordable events, which are encouraging numbers for their SIF prevention efforts.

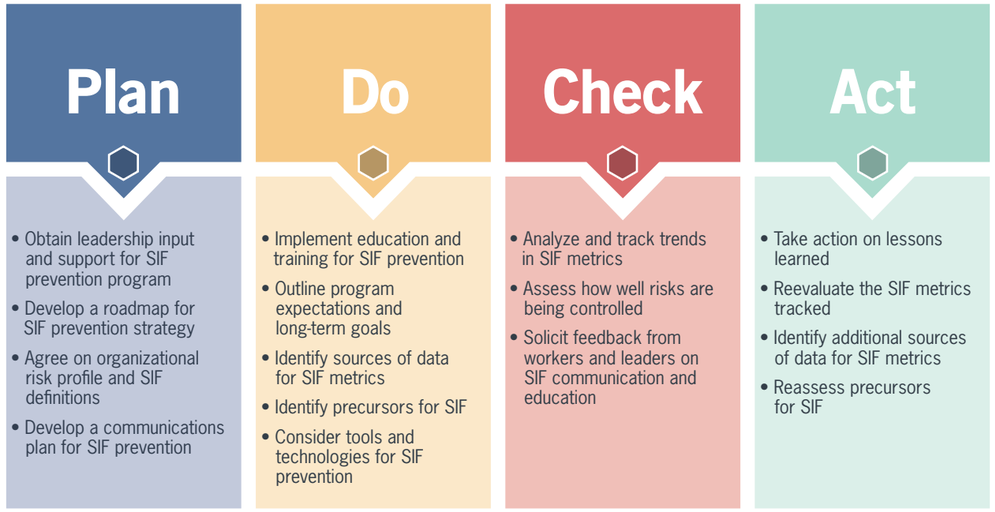
ExxonMobil has seen improvement in its SIF metrics among its workforce, but is not yet fatality-free within its contracted workforce, so this is an area into which it is putting more effort. Some activities such as work at height, excavation and confined space entry have seen significant

Krause Bell can point to many examples of clients that have seen a significant reduction in fatalities since beginning its SIF prevention efforts. In some activities, organizations have nearly eliminated SIF in recent years. And while not every organization has been fatality-free, they find themselves going longer periods without having a fatality or serious injury.

Perhaps even more importantly for clients of Krause Bell, and no doubt Institute members as well, is that as fatalities drop, production and quality of work increase. This seems to indicate that improvement in business outcomes can be led with SIF prevention, which can be a convincing way to gain the support of executives and stakeholders to pursue a SIF prevention strategy.

Plan Do Check Act Model for SIF Prevention

To help organizations and safety leaders clearly see the steps and advice for designing a SIF prevention strategy, Institute members suggested placing the crucial steps into the classic Plan Do Check Act model.



In the Plan stage, Institute members highly recommend obtaining the input and support of leadership for the SIF prevention program, as this is crucial for propelling forward any organizational strategy. They also recommend developing a roadmap for the SIF prevention strategy, which typically begins with an assessment of the organizational risk profile and agreement of SIF definitions and terms, such as those for "serious injury" and "potential." Also crucial in this stage is developing a plan to communicate throughout the organization the importance of SIF prevention and how every person can potentially play a role in prevention.

For the Do stage, organizations should implement education and training for SIF prevention that is accessible for workers and leaders alike. Safety leaders should also outline the expectations and long-term goals of the program as this will help determine the type of SIF metrics they want to measure. In this stage, it's recommended that organizations identify the sources of data for SIF metrics and the precursors for SIF they see in their operations. Consideration and adoption of different tools and technologies for SIF prevention are also actions to take at this stage.

Analysis and the tracking of trends in SIF metrics takes place in the Check stage. Organizations at this stage can assess how lagging metrics are performing with a SIF prevention program in place and the effectiveness of controls for risks in their operations. This is also a good time to solicit feedback from workers and leaders about the communication, education and training for SIF prevention so these can be improved.

Finally in the Act stage, Institute members recommend taking action on the lessons learned from the previous stage, using feedback to make changes and improvements to the program. Organizations may want to reevaluate the SIF metrics they are tracking, perhaps adding more and also identifying additional sources of data for SIF metrics. And because they may have changed since the launch of the program, organizations may want to consider reassessing the precursors for SIF that are present within their operations.

Discussion and Future Directions

Although this is the second white paper to be released on the topic of SIF prevention, there is still much to be explored, particularly in benchmarking and collecting examples of terms like, “SIF potential,” “SIF precursors,” and “serious injury.” The conversations among members of the SIF Prevention Workgroup, and the various industries they represent, will likely lead to the kind of knowledge and work safety professionals can use to advance organizational understanding of the actions, strategies and tools that can be implemented to eliminate SIF from the workplace.

Other next steps for this research and the workgroup can focus on the intervention efforts for SIF prevention. That is, once an organization has the basic understanding of what SIF is and has developed strategies to identify and predict when they may happen, what are the actions and technology needed to intervene and prevent SIF from occurring? This is an area that has potential for collaboration with the Work to Zero initiative at the National Safety Council, which aims to eliminate workplace deaths by identifying the most promising technology innovations.

Another way the SIF Prevention Workgroup can continue its work is by gradually shifting the attention of regulatory agencies toward a focus on serious injury and fatality prevention. Regulators are often narrowly focused on obtaining organizational data to remain in compliance with established standards, but perhaps the Institute and the Workgroup in particular can begin to influence larger policy and procedures to convince regulators to adopt an orientation toward SIF prevention.

As always, the Institute plans on continuing its work on this important topic as its members and other organizations progress on their journeys towards zero. Institute members are committed to this goal as they all acknowledge that even one life-changing or life-ending event is too many. Preventing the most serious and tragic of incidents from occurring is the true path forward for EHS.

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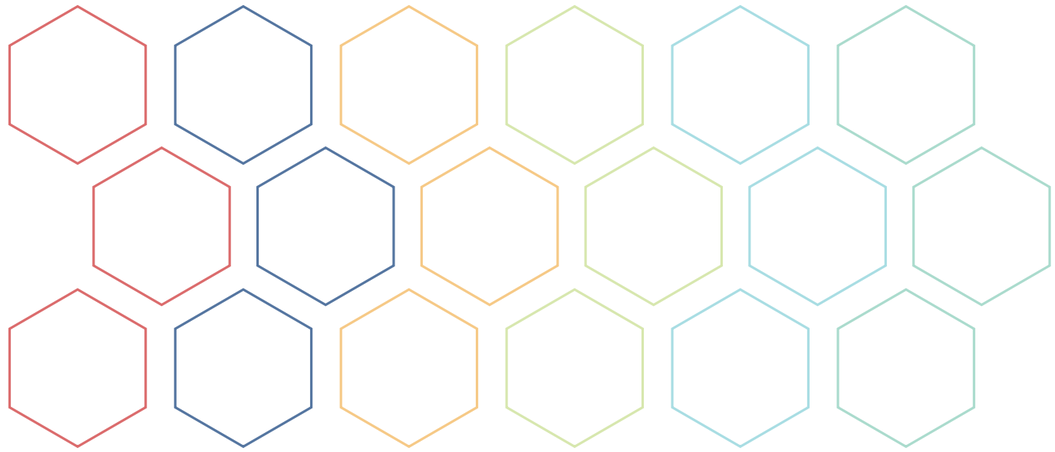

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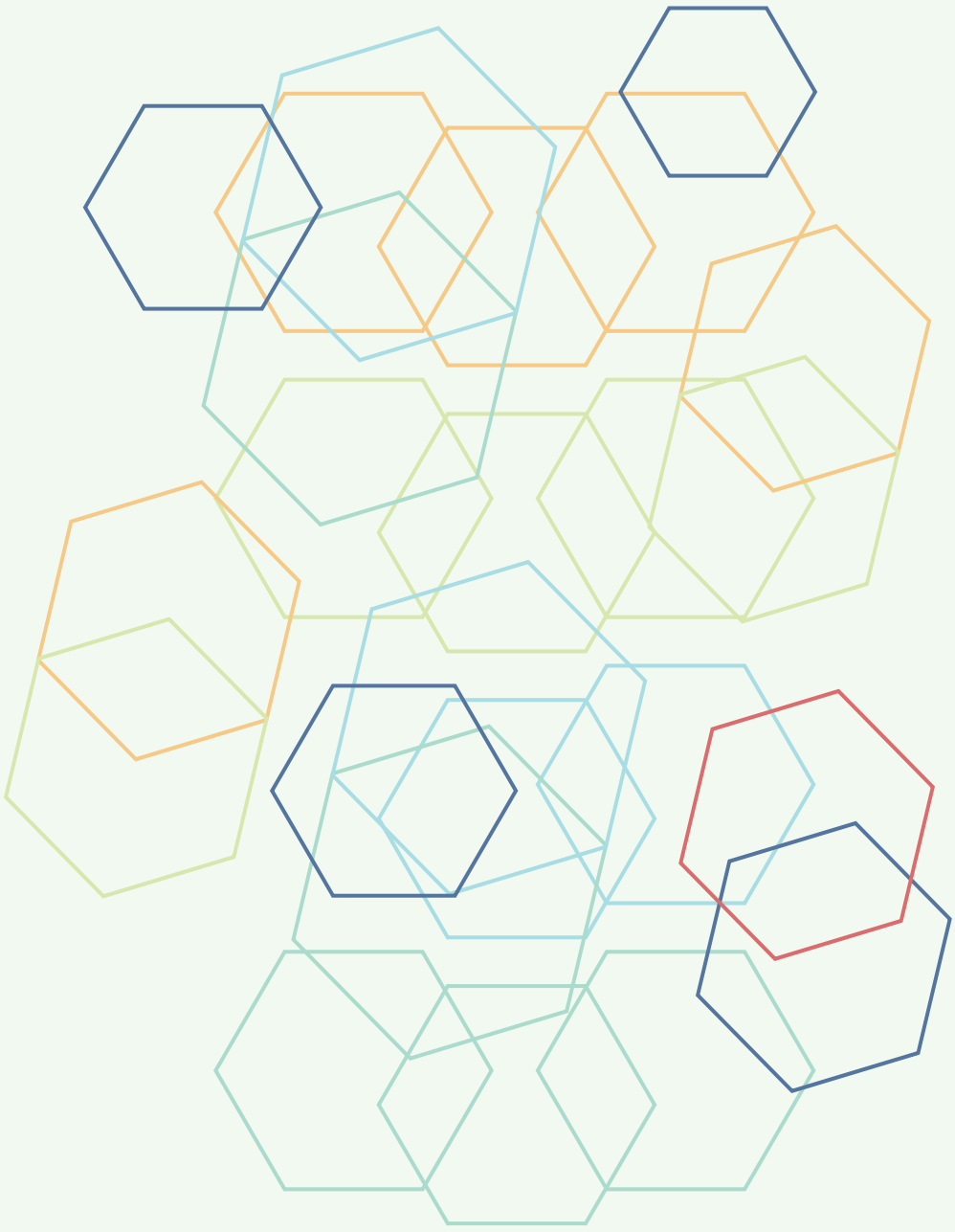

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