



AMERICAN SOCIETY OF
SAFETY PROFESSIONALS

San Diego Chapter

2026 SAFETY SUMMIT SAN DIEGO

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Stronger Safer Together

BREAKOUT SESSION 4C

October 13, 2026

**What A Review Of
10,000 Incidents Revealed
About Preventing
Serious Injuries**



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Agenda

Objectives

1. Why do we talk about Serious Injuries?
2. Research Summary of 10,000 incidents
3. Align on terminology
4. Foundation of Serious Injury Prevention
5. What can I or we do?

1. *Understand the importance of risk classification on SIF prevention*
2. *Improve risk classification in your organization*
3. *Address how familiarity can hide danger*
4. *Identify practical steps and tools to make impactful changes*

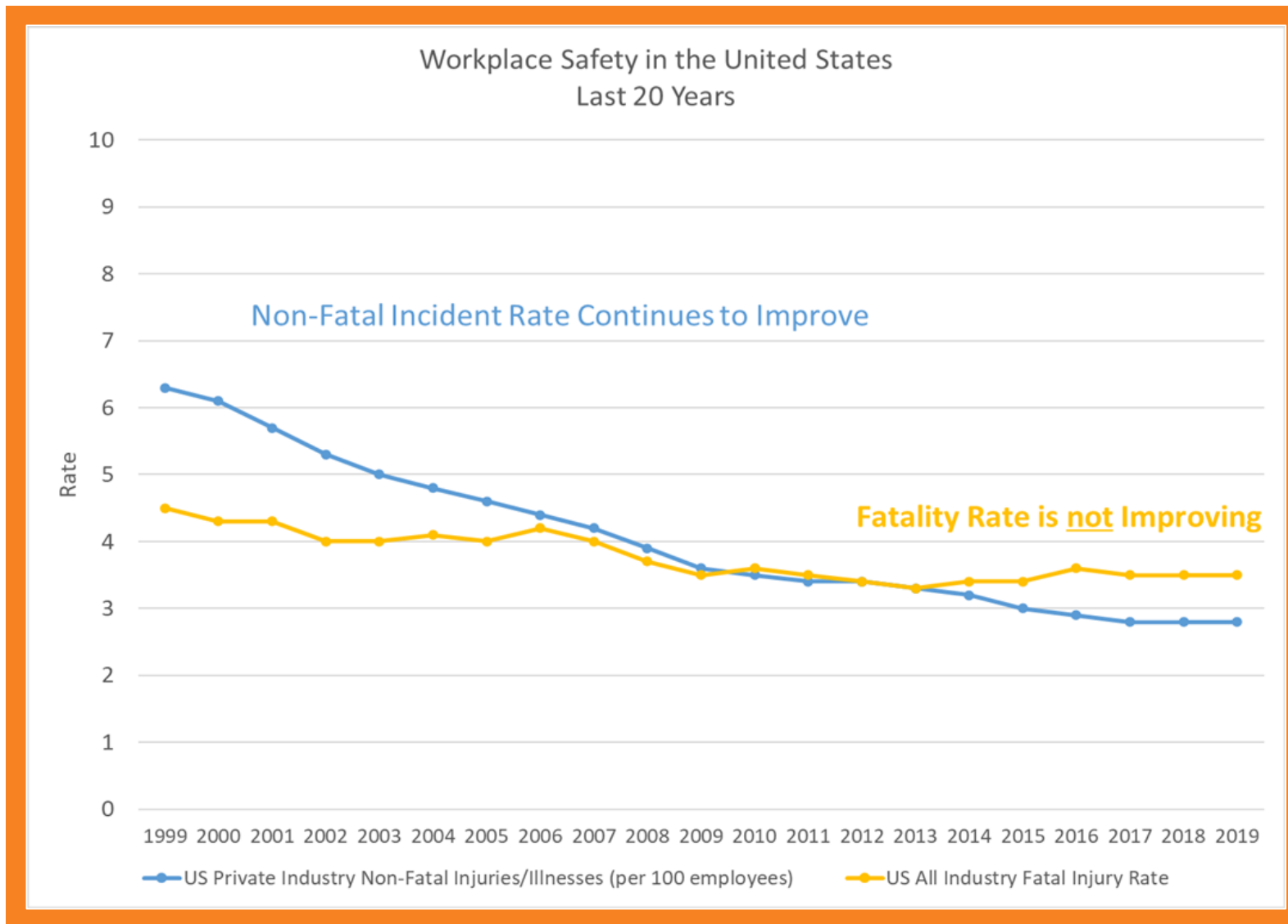
This presentation is designed to be interactive. We welcome your real-time input and questions; please feel free to raise your hand at any point if you'd like to contribute to the discussion.

Why Do We Talk about Serious Injuries or SIF?

Customer Example: An industrial electrical engineering, construction, and automation company that provides solutions for manufacturing and processing facilities worldwide

1. Slips, Trips, and Falls	2. Stored or Potential Energy Contact	3. Struck by Uncontrolled Object Motion
Loss of balance or uncontrolled descent, especially at height, near dangerous equipment, or where head impact is credible.	Sudden or unexpected release/contact with electrical, mechanical, hydraulic, pneumatic, pressure, chemical, thermal, gravity, spring, or tension energy.	A falling, flailing, flying, rolling, swinging, rotating, or otherwise uncontrolled object that could strike a person.

Why Do We Talk about Serious Injuries or SIF?



*OSHA Rates
were Declining*

*But Fatal
Injuries were
Not*

Research Summary – Looking at 10,000 Incidents

Key Findings:

- 1. Under classification of serious incidents.**
- 2. Serious incidents are occurring despite the presence of controls.**
- 3. Human error occurs even in situations with enabled controls.**

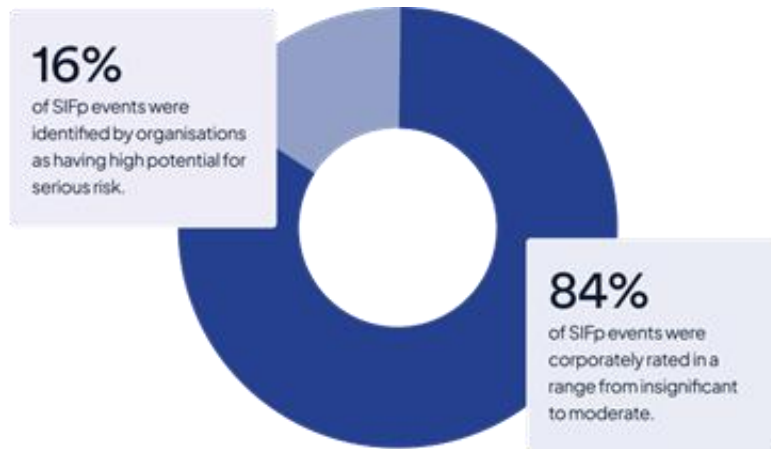
Other:

- Organizational influences have a strong impact on employee behavior.
- The most common categories were motor vehicle risks and gravity related risks (e.g., working from heights).

Misclassification of Events for Serious Injury Potential



- Teams invest heavily in investigation of minor incidents
- Events that could cause serious injury often go unnoticed

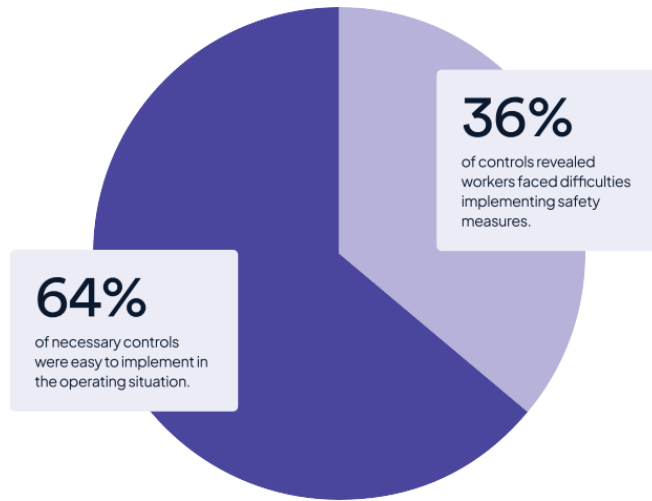


- **Blindspot**
 - Focus on outcome vs. potential
 - Investigations can be expensive, natural tendency to downplay risk

Even the Best Categories had a Lot of Misclassifications



Analysis of 680 Serious Incidents



In more than one-third of serious incidents, workers felt they had no choice but to adapt safety procedures to get the job done.

- Workers struggled to accurately assess risks.
- Decision-making and judgement around controls suffered.

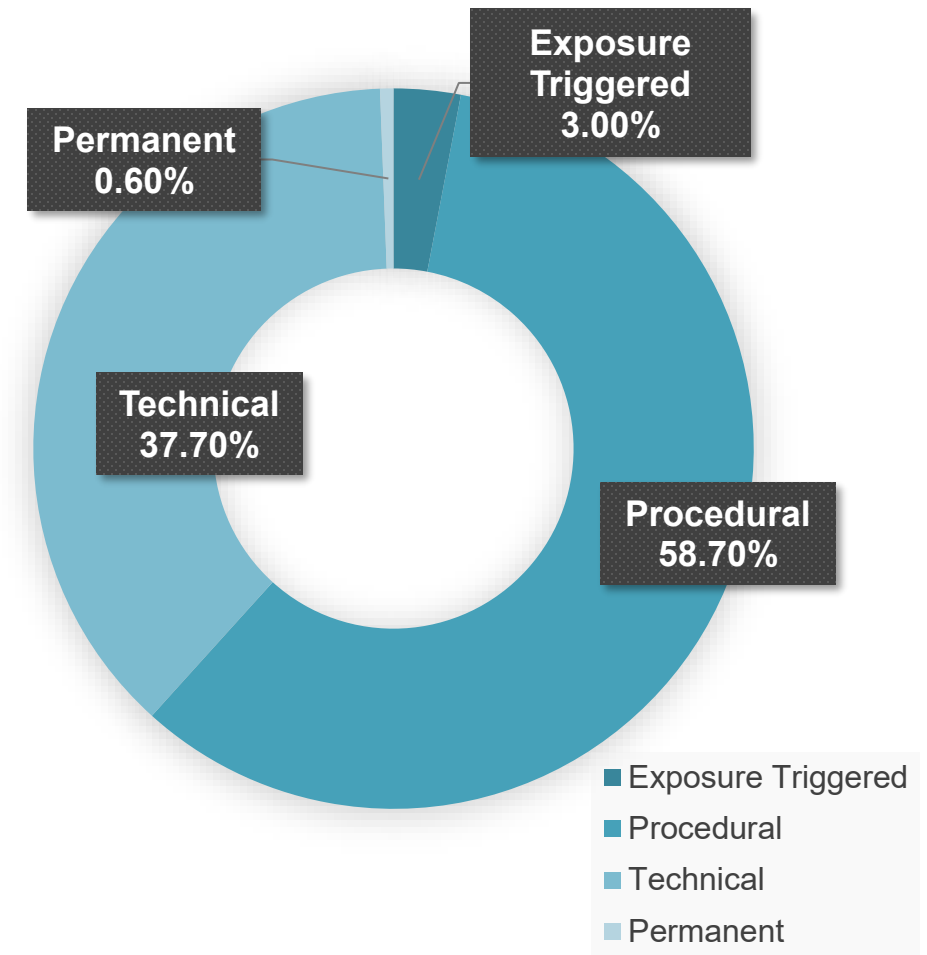


"The gloves we have to use make it hard to grip the tools we use to do our isolations, so a lot of the time we don't use them."

Control Design Impact Serious Injury Potential

Failed controls fall into four categories:

- Only 3.6% of failed controls were physical controls (permanent or exposure-triggered).
- In contrast, a staggering 96% of failed or missing controls were behavioral (technical or procedural) controls.
- 61% of behavioral controls were procedural, where the worker relied on memory, skill, or awareness to stay safe.
- 39% were technical, involving equipment that required the worker to use or monitor it correctly.



Critical Insights

- 84% of potentially serious **events are misclassified** as low-severity, but more than half of those that ARE corporately classified as serious prove to be low-potential events.
- Teams are more likely to accurately assess obvious dangers but often **miss risks in familiar activities**, and those they feel are less easily ‘managed’ such as off-site vehicle operations.
- While vehicle incidents remain the leading cause of serious events, **other risks** can attract less attention and tend to **fly under the radar**.

Get deeper and more practical learning from events with serious injury potential by examining multiple incidents with similar exposure types

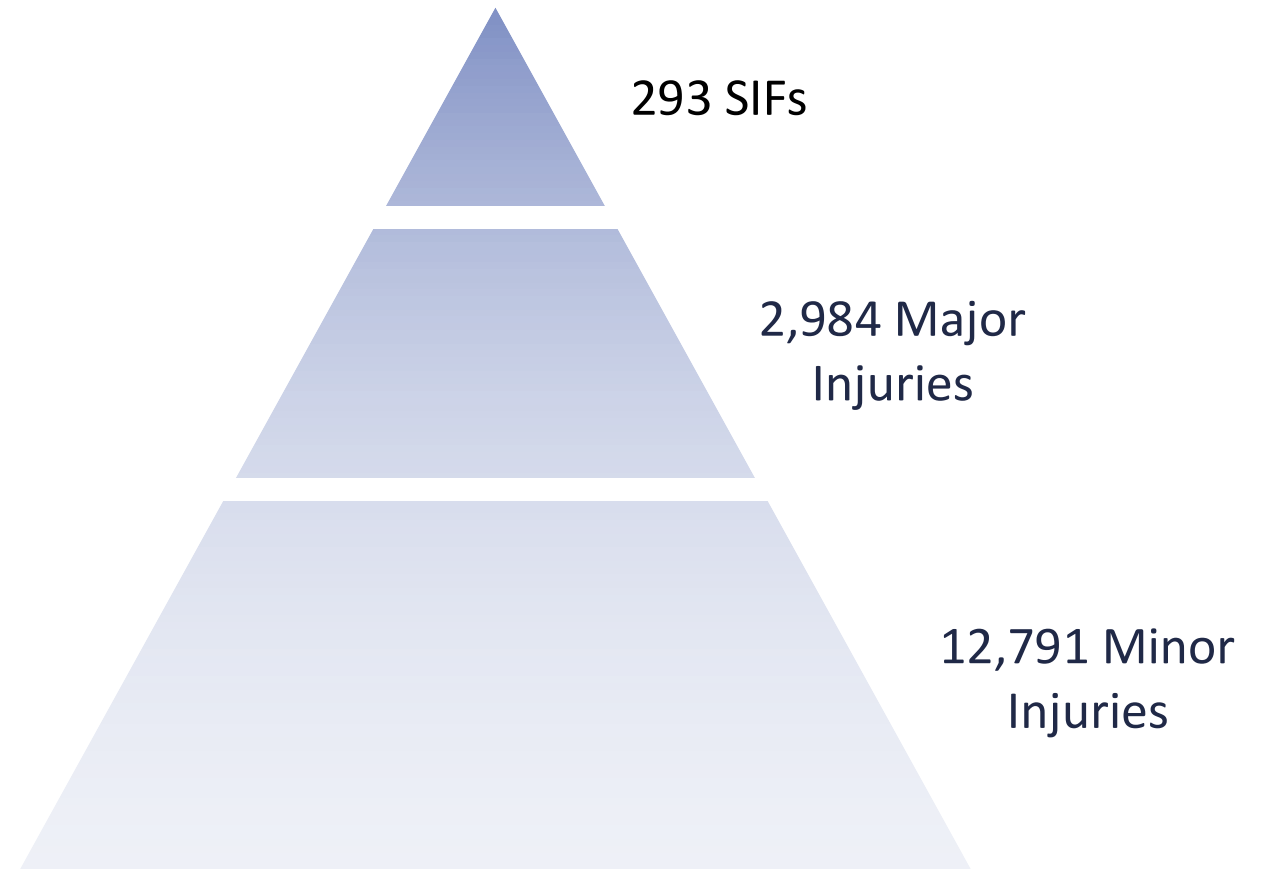
What Do We Know Now that We Didn't Know Then?

Let's look forward based on the data.



What We Confirmed

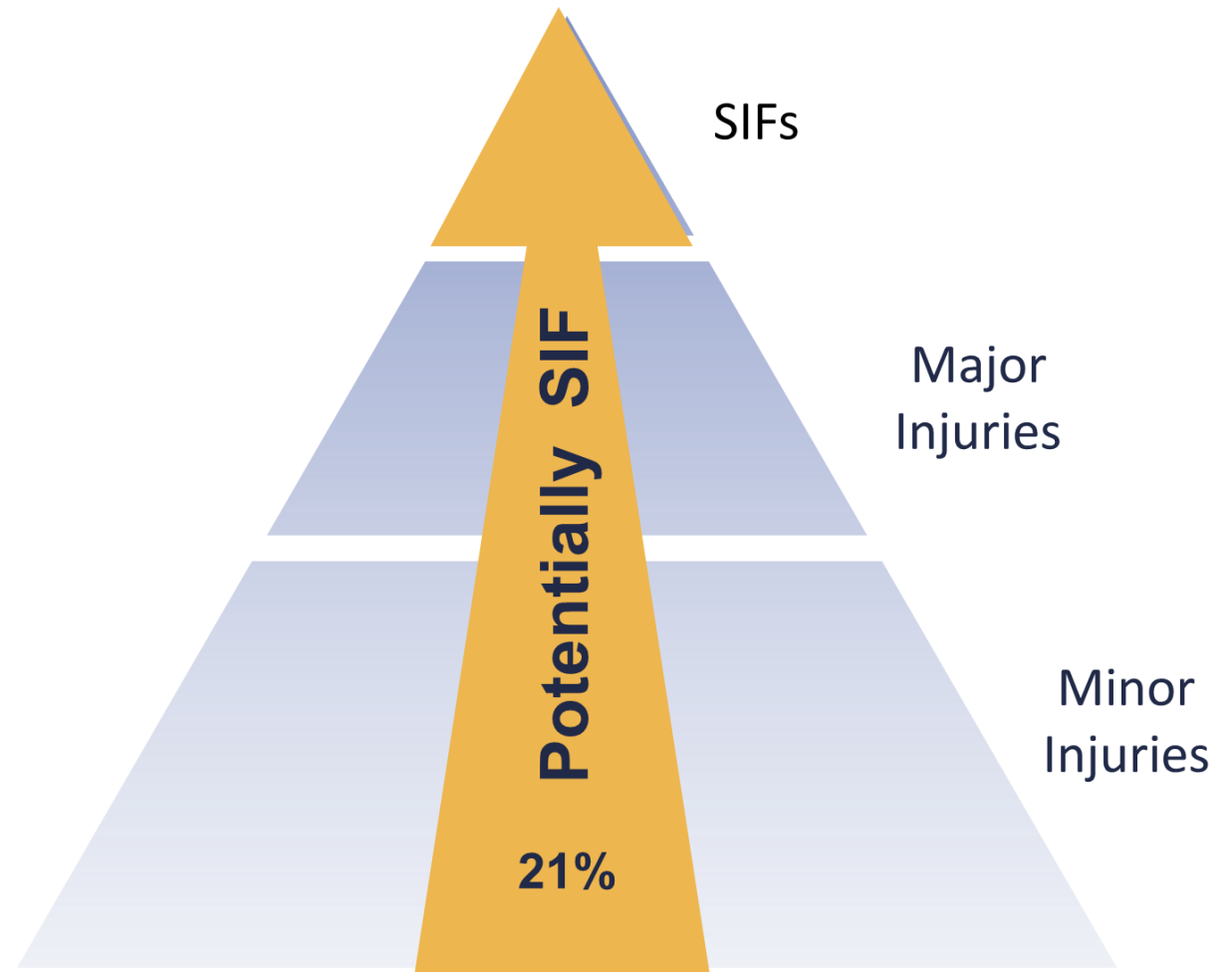
The traditional safety triangle is accurate descriptively.



*We Learned – This is a **BIG DEAL***

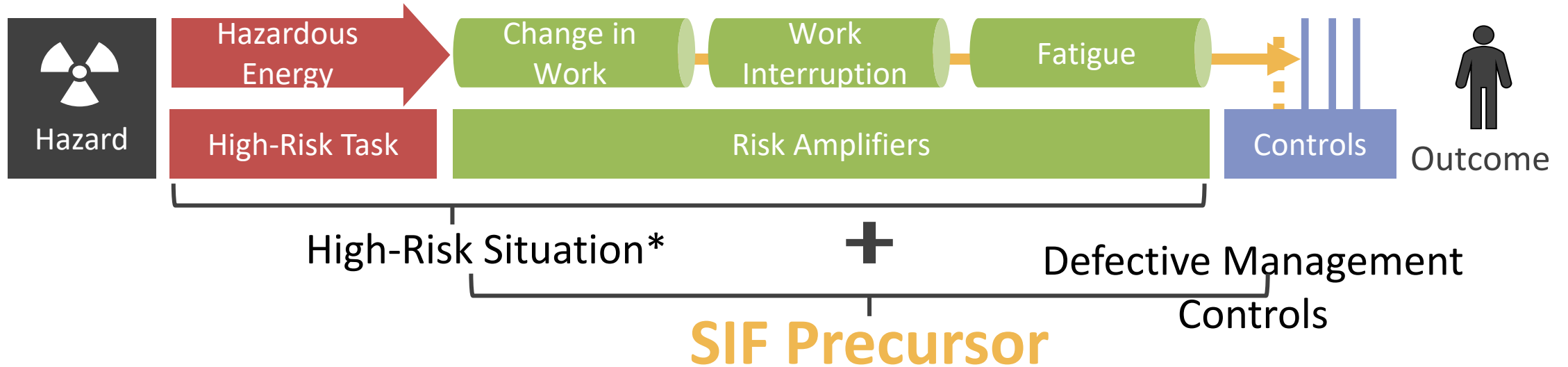
The traditional safety triangle is not accurate predictively.

- Of 300 sampled injuries, 64 had the potential to be SIFs.
- Not all injuries have SIF potential.
- A reduction of injuries at the bottom of the triangle does not correspond to an equivalent reduction of SIF.



SIF Precursor: Introducing Concepts

A SIF Precursor is a high-risk situation in which management controls are compromised, absent, or ineffective.



A high-risk task is sufficient to create a high-risk situation. **Amplifiers simply increase the likelihood of an incident or the severity when it happens.*

SIF Definition:

*We define **SIF Actual** as a Permanently Life-altering, Life-threatening, or Fatal Injury or Illness*

LIFE ALTERING

A **life-altering injury or illness** is one that results in permanent or long-term impairment, or loss of use of an internal organ, body function, or body part.

Examples include, not are not limited to:

- Head injuries
- Spinal cord injuries
- Paralysis
- Amputations

LIFE THREATENING

A **life-threatening injury or illness** is one that if not immediately addressed is likely to lead to death of the affected individual and will usually require intervention and/or external emergency response personnel to provide life-sustaining support.

Examples include, not are not limited to:

- An injury that results in significant blood loss.
- An injury involving damage to the brain or spinal cord.
- An event which requires cardiopulmonary resuscitation or an external defibrillator.
- Abdominal trauma affecting vital organs.
- Severe burns.

SIF Making It Real

*We define **SIF Potential** as an Injury, Illness, or Near-miss event which could have resulted in a SIF Actual*

Look at each word carefully – Do you agree? What does this mean to you?

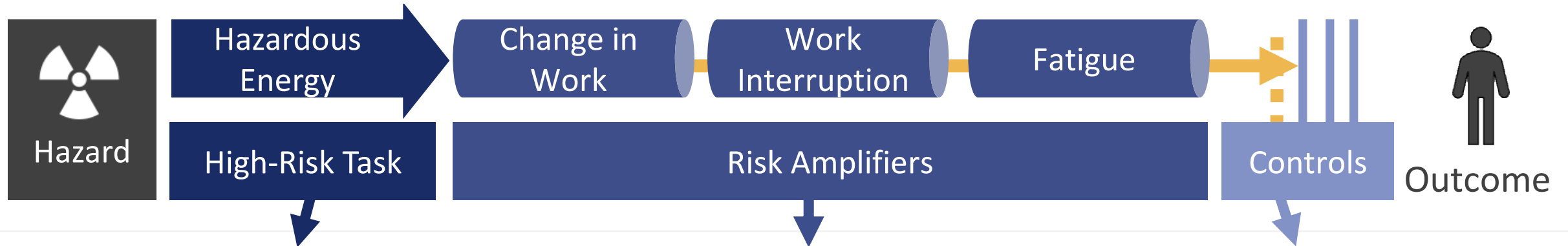
“REASONABLY”

- **Probability Test** = An event which, if it occurred repeatedly, is likely to lead to a SIF.
- **Credibility Test** = A situation which the majority of people would agree, is likely to lead to a SIF if it were to continue long enough.
- **Layers of Protection Test** – A situation in which there is only 1 layer of protection between the person and a fatal energy source.

“OTHER SITUATION”

- A situation in which one of more **SIF precursors** is present.

SIF Precursor Examples



High-Risk Task

A high-risk task is sufficient to create a high-risk situation

- Electrical work
- Working with lasers
- Working in/around mobile equipment
- Working on powered equipment
- Pressurized lines
- Work at height
- Work in confined space
- Driving
- Hot work
- Handling hazardous material

Risk Amplifiers

Anything that would increase the probability of an incident when someone is engaged in that high-risk task

- Extreme temperatures
- Extreme and Inclement weather
- Time and cost pressure
- Inexperienced leader
- Inadequate staff configuration
- Nonstandard or inadequate equipment
- Work interruption (returning from break)
- Working alone
- Impaired communication
- Hazardous work zone
- Change in scope, tasks, conditions, people
- Impaired Visibility
- Personal factors (fatigue, health)
- Work in public/high traffic
- Proximity to holiday/Saturday

Controls

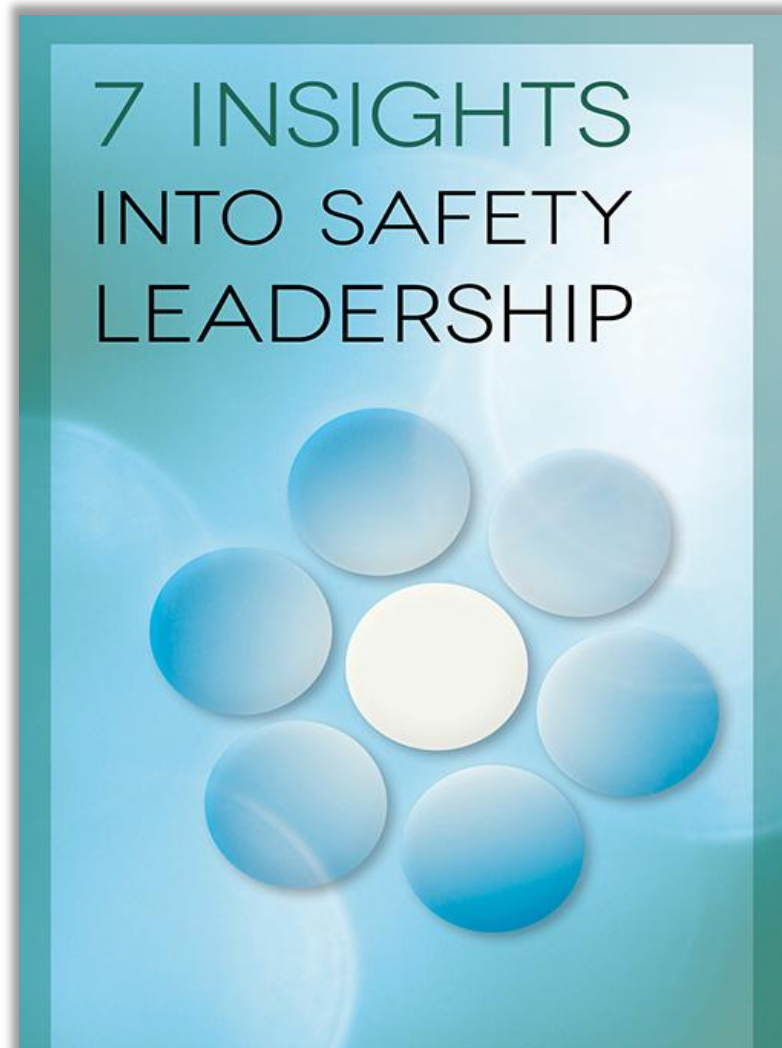
Anything that would reduce the probability of an incident when someone is engaged in that high-risk task

- Lock Out / Tag Out / Try Out processes
- Cardinal Rules
- De-energizing equipment and power sources
- Machine Guarding
- Equipment Inspections
- Work design
- Work planning
- Job Hazard Analysis
- Supervision
- SOP/Work procedures
- Drop zone procedures
- Stop work authority
- PPE
- Ergonomic controls
- Training

SIF Prevention Requires Leveraging the Hierarchy of Controls

Elimination Complete redesign of the system to remove the exposure	Exposure eliminated	Most Effective	Safety Depends LEAST on Employee Behavior
Substitution Switch out a process step with a less hazardous step; Use low voltage system versus high voltage; replace a toxic material with a non-toxic material	Exposure significantly reduced		
Engineering Controls/Isolation Isolate hazards; install guards and/or interlocks; build barriers; use light curtains; develop new tools	Exposure possible during maintenance operations or emergencies		
Administrative Controls Post signs and warning; Write procedures and rules; Train employees	Exposure controlled IF employees rigorously comply and IF culture supports compliance and IF leadership maintains commitment to oversight		
Personal Protective Equipment Provide protective equipment for Employee (e.g., hard hats, respirators)	Used when hazard is unpredictable or pervasive; control is dependent on proper selection and use.		
Gimmicks; incentives; hollow threats	Employee seen as the cause of exposure and requiring motivation, no change in exposure	Least Effective	Safety Depends MOST on Employee Behavior

Levels of Safety Leadership

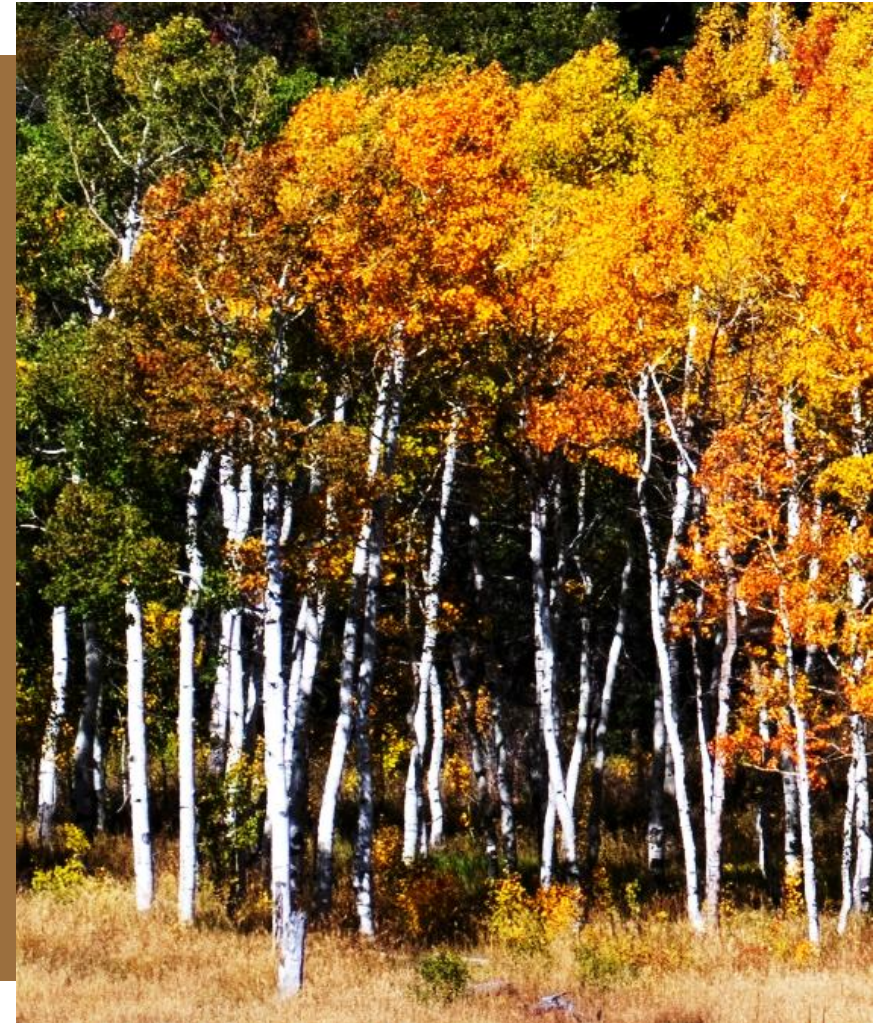


1. Safety performance leads business performance.
2. Safety leadership starts with preventing serious injuries & fatalities.
3. Leadership sets safety improvement in motion.
4. Culture sustains performance – for better or for worse.
5. Safe decision making is built on core safety concepts.
6. Incidents are caused by a network of factors – design, safety systems, leadership, culture and behavior.
7. Cognitive bias affects safety decisions.

2026 Checklist for SIF Elimination

- ☑ ✗ We know our organization's "SIF Triangle Within Triangle". *(Varies from 14-57% across our clients.)*
- ☑ ✗ We know our high-risk tasks with SIF potential.
- ☑ ✗ We know what controls are in place for each high-risk task.
- ☑ ✗ Are layers of protection in place and functioning as designed?
- ☑ ✗ We have a decision tree for SIF potential the drives alignment across the organization.
- ☑ ✗ Our people know the most critical SIF Precursors.
- ☑ ✗ Our people know what action to take around a critical SIF Precursor.
- ☑ ✗ We have a Pareto chart of our most important SIF Precursors.
- ☑ ✗ We have selected which SIF Precursors to focus on and eliminate in 2026 and have a plan to do it.
- ☑ ✗ We have a strategy to guard against "Overconfidence Bias in Self and Others"

Questions?





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Thank You for Your Participation!

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