Serious incident and fatality prevention

Model and guidebook

WorkSafe SASKATCHEWAN
Safety • Health • Well-being

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WorkSafe Saskatchewan is an injury prevention and workplace safety partnership between the Saskatchewan Workers' Compensation Board (WCB) and the Ministry of Labour Relations and Workplace Safety. Through the partnership, both agencies offer programs and support that help employers and workers develop workplace safety and health programs.

The National Safety Council, SaskPower and subject matter experts from across industries supported the development of WorkSafe Saskatchewan's serious incident and fatality prevention model.

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Introduction

With support from the National Safety Council, SaskPower and subject matter experts from across industries, WorkSafe Saskatchewan has prepared this serious incident and fatality prevention model.

The purpose of this model is to help organizations of all sizes better prevent serious incidents and fatalities in the workplace. While many safety programs focus on reducing the total number of injuries, this model places deliberate emphasis on the severity, working to eliminate risks and exposures that have the potential to cause life-altering harm or death.

The prevention model is a practical, systems-based framework designed to help organizations understand how serious incidents and fatalities occur, why controls fail and where improvement efforts will have the greatest impact. It recognizes that these events are rarely the result of a single action or decision. Instead, they emerge from the interaction of work processes, equipment, environments, organizational systems and human behaviour over time.

This model is not a checklist and it does not offer a one-size-fits-all solution. It supports learning, reflection and informed decision-making. Organizations should apply the model in a way that reflects their size, industry, risk profile and level of safety maturity.

When used effectively, the serious incident and fatality prevention model helps organizations shift to a proactive focus on preventing high-severity outcomes from reactive safety measures.

What is the serious incident and fatality prevention model?

The serious incident and fatality prevention model offers a structured way to identify, understand and manage the risks that can lead to life-altering injuries or fatalities at work.

Instead of focusing only on injury counts or compliance tasks, the model helps organizations also see how people really do their work and how systems, processes and controls interact in real-world conditions. It focuses on high-severity hazards and how well the controls prevent exposure or reduce harm.

The model follows a continuous improvement cycle that helps organizations plan, do, check and act on results and adjust based on what they learn. At each stage, the focus is on preventing serious incidents and fatalities by strengthening controls, reducing risk and addressing the root causes of severe events.

This approach recognizes that serious incidents and fatalities rarely result from a single unsafe act. These outcomes often happen when several factors overlap, such as gaps in hazard identification, weakened controls, production pressures, inadequate resources or limited visibility into how work is done.

Using the model helps organizations understand the factors behind serious risks and take action to reduce the number of serious injuries and fatalities.

Why do we need a serious incident and fatality prevention model?

Many organizations have made meaningful progress in reducing overall injury rates. However, serious incidents and fatalities still occur, often with severe impacts on workers, families and communities.

One reason behind these occurrences is that traditional safety programs often focus on common, less severe injuries instead of the hazards and conditions that can cause life-altering harm or death. As a result, organizations may believe they have controlled the risk even when high-severity exposures remain.

Serious injuries account for approximately 11 to 15 per cent of all claims in Saskatchewan, but they represent more than 80 per cent of the compensation system's costs.

Since 2010, around 30 Saskatchewan workers lose their lives every year to work-related incidents or illnesses, and as many as 2,400 workers suffer serious injuries every year. Behind each of those numbers are families, workplaces and communities forever changed.

The consequences of serious injuries and fatalities are the most severe. They can occur in workplaces with strong safety records, established management systems and experienced workers. When they happen, investigations often find long-standing weaknesses in controls, decision-making, communication or oversight.

The serious incident and fatality prevention model helps organizations address this gap. It shifts attention to what causes the greatest harm from what happens most often. It encourages organizations to look at how they identify hazards, choose and maintain controls, and how their systems and priorities shape the way work is done.

This model helps organizations spot early warning signs, strengthen key controls and take action to prevent serious incidents before someone is seriously hurt or killed.

Costs of WCB-covered injuries in Saskatchewan (2024)

Total claim costs	$255,000,000
Per covered worker	$575
Per accepted Time Loss injury	$33,513
Per fatally injured worker	$373,026

Who should use the serious incident and fatality prevention model?

The model helps organizations identify and control risks that could cause serious injury or death.

Serious incidents and fatalities can happen in any industry and in organizations of any size. They can occur in any workplace where hazardous energy, complex tasks, non-routine work or changing conditions are present. As a result, organizations of all sizes and sectors can benefit from applying this model.

This model is particularly useful for:

- Organizations with established safety management systems that want to strengthen their focus on high-severity risks.
- Organizations that have experienced a serious incident, near miss or close call and want to prevent a more severe outcome.
- Leaders and safety professionals seeking a structured way to prioritize risks beyond injury frequency.
- Organizations introducing new equipment, processes or work environments that increase risk.

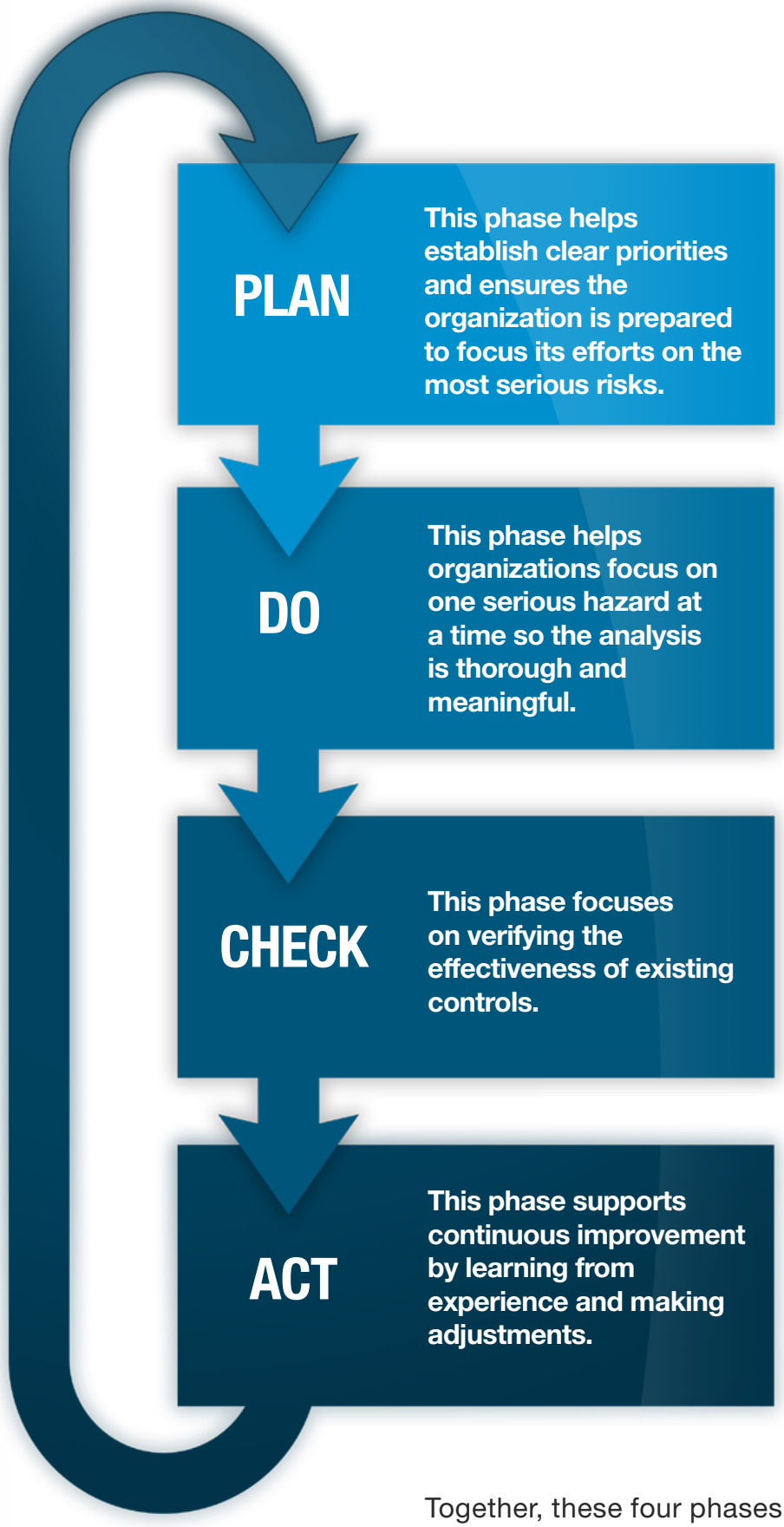
The model supports collaboration across roles and levels. Senior leaders can use it to set expectations and allocate resources. Safety professionals can use it to guide analysis and improvement efforts. Supervisors and workers can use it to understand serious hazards and strengthen controls where the work happens. Organizations with a strong safety management system may already have elements of a serious incident and fatality model in place and working well. This model helps organizations review and improve their safety management systems and serious incident and fatality prevention strategies.

Using this model consistently helps organizations bring leaders, systems and front-line workers together to prevent serious harm.

How the serious incident and fatality prevention model works

The model guides organizations through a continuous improvement cycle – PLAN, DO, CHECK and ACT. This structure helps organizations identify serious risks, take action, check results and make ongoing improvements.

Each phase of the model builds on the one before it. Together, they provide a clear, step-by-step way to prevent serious incidents and fatalities.



The PLAN phase focuses on leadership commitment, organizational readiness and understanding where serious incident and fatality risks exist. Organizations review existing information, involve workers and leaders and identify hazards that could cause serious harm or death.

The DO phase involves assessing and understanding identified hazards in greater detail. Organizations examine how workers perform tasks, where risks occur and which controls are in place. The goal is to better understand the conditions that could lead to serious incidents or fatalities and to identify gaps in existing controls.

The CHECK phase has organizations review whether controls are working as intended, whether they remain in place over time and whether they introduce new or unintended risks. By checking controls regularly, organizations can find problems early and fix them before a serious incident occurs.

The ACT phase is where organizations use lessons learned to improve systems, close gaps and manage serious risks. They may update procedures, improve training, strength accountability or refine how they measure performance.

Together, these four phases help organizations focus on preventing serious incidents rather than just reacting.

Human and organizational performance

Preventing serious incidents and fatalities requires more than rules, procedures and training. It also requires an understanding of how people, systems and work environments interact in real-world conditions.

Human and organizational performance is an approach that recognizes that people usually want to work safely and correctly. Workers make decisions that make sense in the moment, based on the information, pressures and conditions they face. When serious incidents occur, they are rarely the result of a single poor decision. More often, they show weaknesses in systems, processes, design or organizational priorities that affect how people work.

This approach shifts the focus to learning from assigning blame. It encourages organizations to ask why a task made sense to workers at the time, what conditions influenced them and how the organization can improve systems to reduce risk.

Within the serious incident and fatality prevention model, human and organizational performance principles help organizations:

- Better understand how workers actually perform their jobs, not just how procedures describe them.
- Identify conditions that increase risk, such as time pressure, fatigue, unclear expectations or inadequate resources.
- Strengthen systems and controls so they better support safe work.

By applying these principles, organizations can improve their ability to identify serious risks, design more effective controls and learn from successes and failures. This supports a more resilient approach to safety and helps prevent serious incidents and fatalities before they occur.

Five principles that guide human and organizational performance

These principles shape how organizations think about work, respond to failure and improve safety and performance.

People make mistakes

Human error is inevitable. People forget things, become distracted or adapt to changing conditions. Human and organizational performance accepts this reality and focuses on designing systems that anticipate error and prevent it from leading to serious harm.

Blame fixes nothing

Blame discourages reporting and limits learning. Human and organizational performance promotes a just and fair approach that examines system weaknesses rather than assigning fault. When workers feel safe to speak up, organizations gain better insight into risk and can act sooner to prevent harm.

Context matters

Environment shapes workers' decisions. This includes workload, time pressure, tools, training, supervision and organizational priorities. Human and organizational performance seeks to understand why decisions made sense at the time and how conditions can be improved to create safer outcomes in the future.

Learning is vital

Organizations learn more effectively when they study failures and normal work. Incidents and everyday work often look very similar with the only difference the outcome. By learning from how work is routinely done, organizations can improve systems before a serious incident occurs.

Response matters

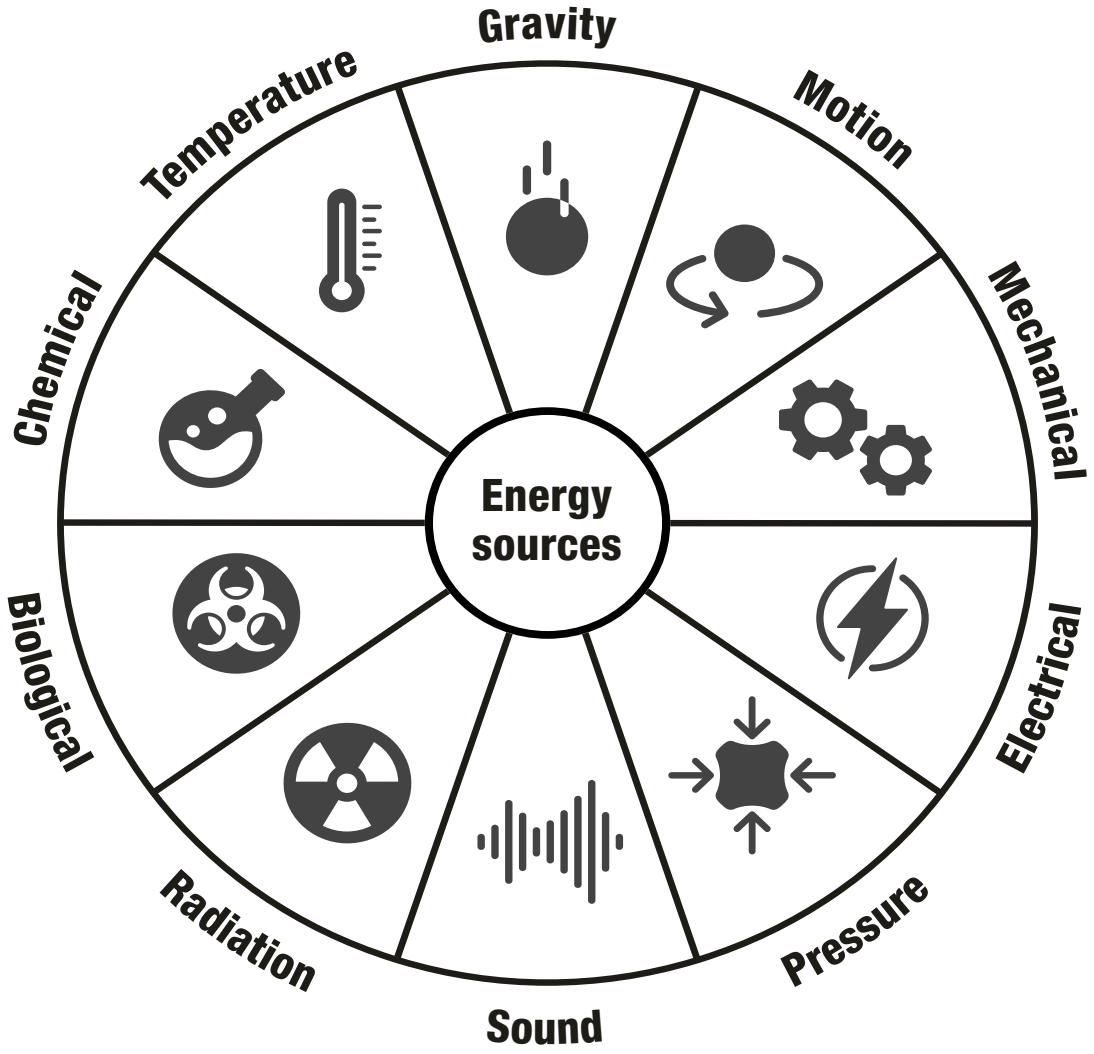
How leaders respond to errors, near misses and incidents shapes culture. Human and organizational perofrmance emphasizes thoughtful, constructive responses that reinforce learning, strength controls and recognize what went right, not just what went wrong.

Using the energy wheel to identify serious risks

One effective way to identify the potential for serious incidents and fatalities is to examine the sources of hazardous energy in the workplace. The energy wheel helps organizations identify energy sources that could lead to serious harm.

Hazardous energy exists in many forms. When energy is uncontrolled or released unexpectedly, the consequences can be severe, even in workplaces with strong safety programs.

The energy wheel is a visual reminder of the 10 common types of energy that can cause harm at work such as mechanical, electrical, chemical, thermal, pressure and gravitational energy. It helps teams identify tasks, equipment and processes where energy is present and assess how that energy is currently controlled. Use the wheel to scan your work area and identify hidden high-energy hazards.



Organizations can use the energy wheel when:

- identifying hazards with the potential for serious or fatal outcomes,
- planning work involving non-routine or high-risk tasks, or
- reviewing incidents, near misses or changes to processes or equipment.

When used consistently, the energy wheel helps shift attention to serious risks from minor injuries. It supports more informed decision-making and helps organizations focus their prevention efforts where the consequences are greatest.

Definition and examples of the 10 hazardous energy sources in the energy wheel

Energy category	Definition	Examples
Gravity	Force caused by the attraction of mass to the earth	Uneven work surface, work at heights, unsecured materials, overhead support structures
Motion	Change in the physical position or location of objects or substances	Traffic, mobile equipment, projectiles, dust particles
Mechanical	Working parts of a machine or assembly, including rotation, vibration, tension or compression	Auger, cable, chain fall, angle grinder, gears, pullies
Electrical	Presence of electrical charge or current	Wires, power lines, power tools, extension cords, transformer, relay
Pressure	Liquid or gas compressed or under vacuum	Pneumatic tire, piping system, tank, hydraulic lines
Sound	Audible vibration caused by the contact or two or more objects	Heavy machinery, pile driving, power tools, nail gun
Radiation	Objects or substances that emit electromagnetic waves or subatomic particles	Welding, sun exposure, X-ray testing, radioactive waste
Biological	Living organisms or viruses	Bees, snakes, rodents, poison ivy, restrooms, blood
Chemical	Toxic objects or substances that pose health risks	Solvents, engine exhaust, silica, wood dust, liquid concrete
Temperature	Intensity of heat or cold in an object or substance	Friction, engines, sudden pressure change, steam, weather temperatures

Investigating incidents to prevent serious harm

Incident investigation plays a critical role in preventing serious incidents and fatalities. Effective investigations help organizations see what happened, why it happened and how to prevent similar events in the future.

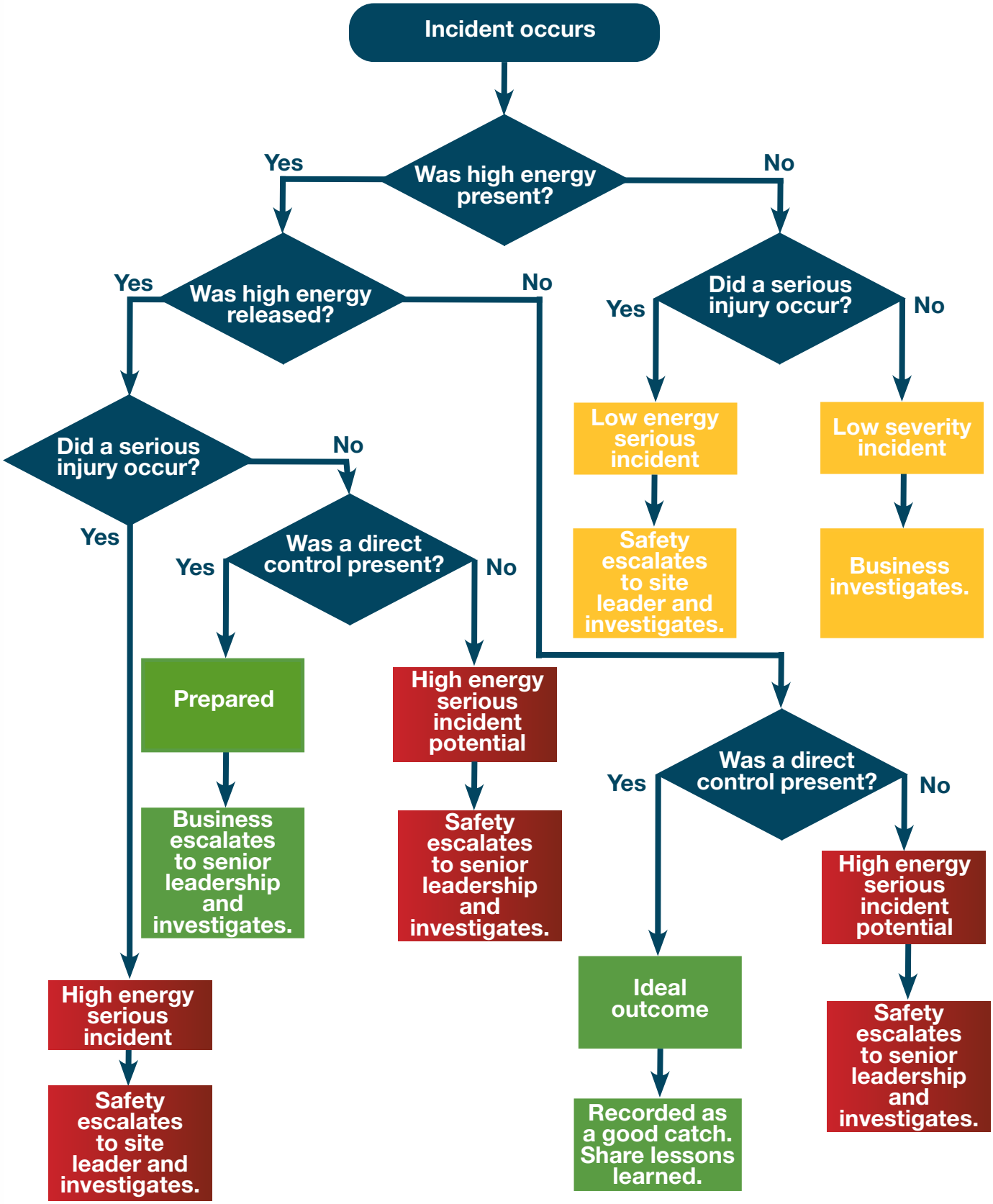
This model encourages organizations to use an energy-based approach when investigating incidents, near misses and high-risk events. By examining whether hazardous energy was present, released or inadequately controlled, organizations can better assess the potential severity of an event—even if the outcome was minor.

The investigation process escalates issues based on risk, not outcome. Incidents with high-energy hazards or weak controls need more leadership attention and thorough analysis, even if no serious injury occurs. This helps ensure organizations learn lessons before a more severe event happens.

The purpose of investigation under this model is learning and improvement. Investigations should focus on:

- identifying gaps or failures in controls,
- understanding how work conditions and decisions contributed to the event, and
- tracking corrective and preventive actions to completion.

Using this approach helps organizations strengthen systems, improve controls and lower the risk of serious incidents and fatalities.


Incident occurs
Was high energy present?
Yes
No
Was high energy released?
Yes
No
Did a serious injury occur?
Yes
No
Low energy serious incident
Low severity incident
Safety escalates to site leader and investigates.
Business investigates.
Did a serious injury occur?
Yes
No
Was a direct control present?
Yes
No
Prepared
High energy serious incident potential
Business escalates to senior leadership and investigates.
Safety escalates to senior leadership and investigates.
High energy serious incident
Safety escalates to site leader and investigates.
Was a direct control present?
Yes
No
Ideal outcome
High energy serious incident potential
Recorded as a good catch. Share lessons learned.
Safety escalates to senior leadership and investigates.

The role of safety culture

Safety culture shows how an organization decides on risks, especially when work is complex, time is tight or pressures are high. It shows up in everyday actions—what leaders prioritize, how they support workers and how they address concerns.

A strong safety culture helps prevent serious incidents and fatalities by emphasizing worker protection at all levels of the organization. It encourages people to speak up about hazards, stop work when conditions are unsafe and learn from mistakes and near misses without fear of blame.

In the serious incident and fatality prevention model, safety culture shapes how organizations identify hazards, apply controls and follow through on corrective actions.

When a culture supports learning and accountability, organizations can spot early warning signs and address risks before serious harm occurs.

This model supports safety culture by:

- encouraging visible leadership commitment to safety and health,
- promoting meaningful worker involvement in identifying and managing risk, and
- reinforcing learning-focused investigations and continuous improvement.

By strengthening safety culture in these ways, organizations can improve how they manage serious risks and reduce the likelihood of serious incidents and fatalities.

Guidance for use

The serious incident and fatality prevention model works best when organizations actively use it to plan, perform and review work. Organizations should not follow the model mechanically or try to implement it all at once. Instead, the model provides a structured approach that organizations can adapt to their specific risks, operations and level of safety maturity.

Organizations should start with one serious hazard or high-risk activity and apply the model step by step. Focusing on a single area allows teams to build understanding, test controls and learn from the process before expanding the approach more broadly.

The model includes tools that help organizations learn and make informed decisions. Organizations should use them in ways that align with their existing safety management systems, regulatory requirements and workplace culture. Customization is useful when it improves clarity, relevance or effectiveness.

Most importantly, organizations should use the model to drive action. Identifying risks and controls has little value unless the organization addresses gaps and tracks improvements to completion. Regular reviews and leadership and worker involvement are key to sustaining progress and preventing serious incidents and fatalities over time.

PLAN

Ensure leadership commitment and organizational readiness

Preventing serious incidents and fatalities starts with leadership commitment and a clear understanding of organizational readiness. The PLAN phase sets the foundation for managing serious risks by aligning leaders, systems and people.

In this phase, organizations review existing safety information, involve leaders and workers and check if systems prevent serious harm. The goal is not to identify every possible hazard, but to confirm that the organization is prepared to recognize, prioritize and manage risks that could result in life-altering injury or death.

The PLAN phase helps organizations:

- confirm visible leadership commitment to safety and health,
- assess whether roles, responsibilities and resources support serious risk prevention,
- identify gaps in systems, processes or understanding that could weaken controls, and
- establish priorities for further analysis and action.

Organizations should approach this phase honestly and deliberately. Identifying gaps at this stage allows teams to address weaknesses early, before they contribute to a serious incident or fatality.

PLAN phase tools help review documents, assess the organization and involve everyone. Used together, they help organizations build a strong foundation for the remaining phases of the prevention model.

Download the PLAN tools at

worksafesask.ca/serious-incident-and-fatality-prevention-model-plan

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Organizational gap analysis ..... **Page 10**

Serious incident and fatality-related worker perception data ..... **Page 17**

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Setting expectations for leadership ..... **Page 35**

Assess and understand serious incident and fatality risk

DO

The DO phase of the serious incident and fatality prevention model focuses on assessing and understanding risks that have the potential to cause serious incidents or fatalities. Building on the PLAN phase, organizations examine work processes and identify high-severity hazards.

During this phase, organizations identify specific hazards, analyze worker exposures and review existing controls. The emphasis is on understanding risk in real working conditions, including routine and non-routine tasks, rather than relying solely on written procedures or historical data.

To support effective analysis, organizations should focus on one serious hazard or high-risk activity at a time. This allows for deeper understanding and more meaningful identification of control gaps and contributing factors.

The DO phase helps organizations:

- identify hazards with the potential for serious or fatal outcomes,
- understand how exposure occurs and how controls function in practice,
- assess risk based on both severity and the strength of existing controls, and
- identify conditions that may amplify risk, such as production pressures, fatigue or system weaknesses.

The tools in this phase help organizations identify hazards, analyze risks and set priorities. When organizations use them effectively, the tools move teams to a clear focus on where prevention efforts should be focused from general risk awareness.

Download the DO tools at

worksafesask.ca/serious-incident-and-fatality-prevention-model-do

Identify potential serious incident and fatality hazards ..... Page 4

Baseline on-site assessment..... Page 6

Severity and controls risk matrix ..... Page 8

Human and organizational performance-related analysis..... Page 10

Hazard prioritization and rationale table..... Page 12

CHECK

Analyze and verify control effectiveness

The CHECK phase of the serious incident and fatality prevention model focuses on confirming that controls are in place and working as intended. Identifying controls is not enough. Organizations must also verify that those controls are effective, reliable and appropriate for the risks they are meant to manage.

During this phase, organizations review how controls perform in real working conditions. This includes examining whether controls remain in place over time, whether workers understand and use them as intended and whether changes in work processes or conditions have reduced their effectiveness.

The CHECK phase helps organizations:

- confirm that controls align with the level of risk and potential severity,
- identify weaknesses, degradation or unintended consequences,
- verify that critical controls receive appropriate attention and oversight, and
- detect early warning signs before a serious incident or fatality occurs.

Verification should be ongoing, not a one-time exercise. Regular review allows organizations to identify gaps early and take corrective action before controls fail under pressure or changing conditions.

CHECK phase tools help organizations analyze and document how well controls work. Used consistently, they help organizations strengthen their defences against serious incidents and fatalities.

Download the CHECK tools at

worksafesask.ca/serious-incident-and-fatality-prevention-model-check

Controls analysis and verification table ..... **Page 4**

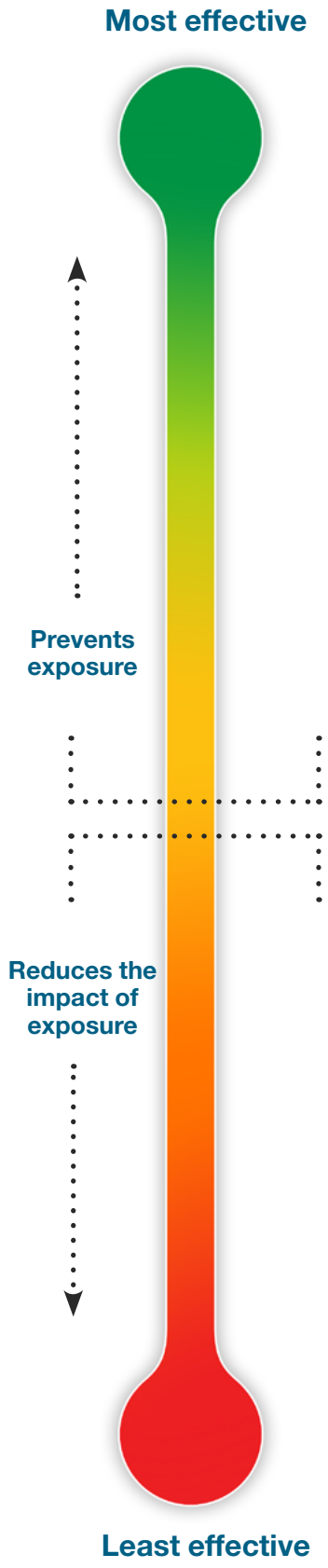
Critical controls for serious incident and fatality matrix ..... **Page 5**

Action planning template for adding or enhancing controls ..... **Page 8**

Using the hierarchy of controls to strengthen defences

When reviewing controls, it's important to consider not just whether a control exists, but how effective it is at preventing serious harm. The hierarchy of controls provides a structured way to assess the strength and reliability of safeguards used to manage serious incident and fatality risk.

Controls can serves one of two purposes: they either prevent exposure to a hazard or reduce the impact if exposure occurs. In general, controls that remove the hazard or isolate workers from it are more reliable than those that depend on consistent human behaviour.



Elimination

Elimination removes the hazard entirely from the task, process or operation. Since the hazard is removed, workers cannot bypass this control, giving the highest level of protection.

Substitution

Substitution replaces the hazard, or a hazardous component, with a less dangerous alternative. While generally effective, substitution can fail if workers do not use the new process or material as intended.

Engineering controls

Engineering controls use physical, mechanical or electrical means to isolate workers from the hazard. Examples include guarding, barriers, interlocks or ventilation systems. These controls are effective, but may still rely on proper use and maintenance.

Administrative controls

Administrative controls direct how workers perform tasks through policies, procedures, training, scheduling or warnings. These controls are more vulnerable to failure because they depend heavily on worker decision-making and conditions such as time pressure or fatigue.

Personal protective equipment

Personal protective equipment protects the worker rather than controlling the hazard. Because it depends on proper selection, fit and use, personal protective equipment is the least reliable form of control and should not be the primary defence against high-severity hazards.

When verifying controls during the CHECK phase, organizations should prioritize strengthening higher-order controls whenever possible. Administrative controls and personal protective equipment can help, but they work best when supporting stronger controls or hazards that organizations have engineered out or eliminated, rather than replace them.

Ensure continuous improvement

ACT

The ACT phase of the serious incident and fatality prevention model focuses on learning from experience and strengthening systems to reduce risk over time. This phase ensures that insights gained through planning, assessment and verification lead to meaningful and lasting improvement.

During this phase, organizations review findings from investigations, assessments and control verification activities. They prioritize corrective and preventive actions, assign clear accountability and track progress to completion. The emphasis is on addressing root causes and strengthening controls, rather than responding only to individual events.

The ACT phase helps organizations:

- close gaps identified through analysis and verification,
- reinforce effective controls and improve those that are weak or unreliable,
- integrate lessons learned into procedures, training and work planning, and
- monitor progress and adjust strategies as conditions change.

Continuous improvement works only if organizations carry out actions consistently. Without action, even the best analysis will fail to reduce risk. Leadership involvement and worker engagement are essential to implementing and sustaining improvements.

The tools associated with the ACT phase support auditing, performance measurement and ongoing review. Used effectively, they help organizations adapt, learn and continually improve their ability to prevent serious incidents and fatalities.

Download the ACT tools at

worksafesask.ca/serious-incident-and-fatality-prevention-model-act

Audit protocol for continuous improvement ..... Page 4

Consider a variety of metrics and key performance indicators ..... Page 5

Conclusion

Organizations should evaluate, use and refine this serious incident and fatality model to meet their needs, regardless of size or industry. They should apply these concepts and use the related tools in ways that best fits their needs and culture.

For more information about the serious incident and fatality prevention model and related tools or to inquire about serious incident and fatality prevention consulting and support with implementing these resources, please contact the WCB's prevention department at worksafeinquiry@wcbsask.com or visit worksafesask.ca/serious-incident-and-fatality-prevention-model.

Notes

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