



# Leading Indicators for Workplace Health and Safety:

a user guide



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## Note to the reader

The information provided in this user guide is solely for the user's information and convenience and, while thought to be accurate and functional, it is provided without warranty of any kind. If in doubt, please refer to the current edition of the *Occupational Health and Safety Act*, Regulations and Code. The Crown, its agents, employees or contractors will not be liable to you for any damages, direct or indirect, arising out of your use of the information contained in this user guide.

This user guide is current to March 2015. The law is constantly changing with new legislation, amendments to existing legislation, and decisions from the courts. It is important that you keep up with these changes and keep yourself informed of the current law.

This user guide is for general information only and may be applicable to assist in establishing a compliant health and safety system at your work site. However, it is critical that you evaluate your own unique circumstances to ensure that an appropriate program is established for your work site. It is strongly recommended that you consult relevant professionals (e.g. lawyers, health and safety professionals and specialists) to assist in the development of your own program.

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# Introduction

As an Alberta worker or employer, you likely understand the need to promote a culture of health and safety in the work environment. Occupational health and safety (OHS) is an ongoing responsibility that requires time and effort. That's true whether your workplace has a few workers, or a few thousand.

Maybe you're involved in developing an occupational health and safety management program from the ground up. Or perhaps you're involved in working to strengthen or grow an existing OHS management program for your workplace. In any case, there are good reasons to include leading indicators as tools for your overall approach to measuring and managing your organization's OHS performance, and we'd like you to consider them.

Leading indicators are aspects of workplace activities that can be used to improve OHS outcomes prior to an unwanted outcome occurring. A familiar example might be the legislated hazard assessment and control process: a preventative approach to reducing the risk of workplace injury and illness. If changed, leading indicators are expected to change related outcomes. That makes them an important tool for managing health and safety at work.

This user guide provides an overview of what leading indicators are, and how and why they might be applied to strengthen your organization's health and safety culture and performance. Some leading indicators may be more effective than others, depending on an organization's current level of OHS performance. For that reason, the user guide considers three categories of OHS performance: those that are focused on maintaining *compliance* with Alberta legislation, those looking for *improvement* (beyond compliance), and those in pursuit of *continuous learning* for the highest levels of performance. A tool is provided to help establish which category best describes your organization's current OHS performance level, as well as sample leading indicators for each performance category — for your consideration.

The information contained herein is intended for organizations that are looking for ways to improve their OHS outcomes. Whenever we reference “organizations” in this user guide, we mean employers and workers that make up those organizations.

Although the use of leading indicators is not a legislated requirement in Alberta, adopting leading indicators may help organizations achieve their health and safety goals to improve performance.

Not everything in this guide will be applicable to every audience. This user guide has been compiled to provide a broad knowledge base on leading indicators, and to offer guidance on how they may be applied to your organization regardless of current OHS performance. The user guide is designed to have something for everyone, whether you have never heard of leading indicators, or need to get a fresh perspective or some additional depth to what you might already be thinking or doing. We believe that the information you take away on leading indicators has the potential to make a powerful impact on health and safety performance. Realizing this potential will make some additional work and effort necessary, but the ultimate benefits are worth it: improving and ensuring the health and safety of workers.

Content is based on a review of related science and expert opinion. Please sample and take away what you think might be of benefit to you and/or your organization. Most importantly, spend some time thinking and talking about leading indicators and their potential to improve health and safety in your workplace.

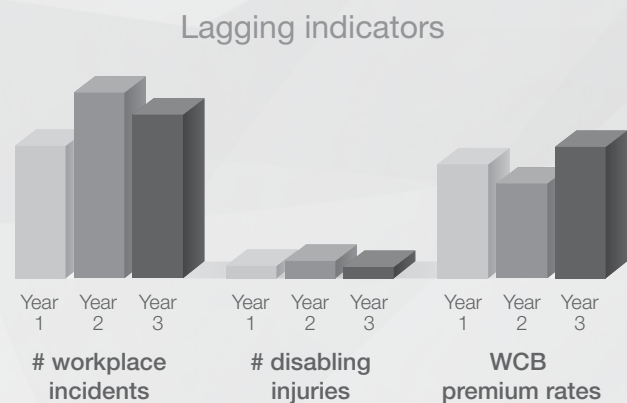
# Background

Many employers have been collecting information about their health and safety performance for decades. Traditionally, OHS management programs measure how well an employer is doing based on performance outcomes, like the number of employee hours lost to work-related injury or illness (commonly referred to as “lost-time claim” (LTC) or “disabling injury” (DI) rates), the number of incident reports filled out, and/or the financial cost of Workers’ Compensation Board (WCB) claims.

These summary performance results, or lagging indicators, present numbers that are easy to count, collect and compare from one year, or one organization to the next. However, employers react to these lagging indicator numbers after the fact, and when it comes to keeping their workers healthy and safe, that may not be ideal.

## Definition:

**Lagging indicators** measure the end result of OHS processes, policies and procedures. They’re a record of things that have already happened. Since they record things after the fact, they inform a reactive health and safety culture.



Lagging indicators can be useful when identifying trends in past performance. Their long history of use has made for an accepted benchmark standard both within and across industries. Lagging indicators are well understood, are widely used in Canada, and provide a good sense of how well an organization’s existing OHS system is working, or how poorly.

As the numbers go up, down, or stay the same from one year to the next, the bottom line of an organization’s health and safety performance may become clear.

But the bottom line is never the whole story. It’s typically the end result of many factors.

## Lagging indicators have their limitations

Lagging indicators don't pinpoint where an OHS program might need improvement; only that it does (if it does), and how badly. Since lagging indicators don't explain the "why" behind the bottom line, organizations may tend to respond with broad, generalized corrective actions. Resources can be spread thin and progress can be bogged down in a pattern of stops and starts.



**Lagging indicators don't provide the full picture. When managers see a low injury rate, they may become complacent and put safety on the bottom of their to-do list, when in fact, there are numerous risk factors present in the workplace that could contribute to future injuries, illnesses or deaths.**

The information gap between bottom line OHS outcomes and the factors leading up to them is painfully obvious in cases of occupational illness and disease. Outcomes (e.g. occupational cancers, noise-induced hearing loss) can take many years to appear or be diagnosed. Lagging indicators fail to flag or measure gradual impairment.

Lagging indicators measure negative, or unwanted outcomes such as injuries, illnesses or deaths. It's an approach that can impair an organization's efforts at building a positive safety culture. Waiting for the damage to be done before addressing the risks may send a message that worker health and safety isn't a priority. As well, focusing solely on negative outcomes may erode worker morale and slow the drive for continuous improvement. A positive, proactive approach to health and safety can have significant and measureable benefits.

Since lagging indicators record unwanted outcomes, people are naturally reluctant to be counted in. The

information that is reported for lagging indicator outcomes may be tainted by personal bias, or diluted through fear of punishment. Incentives to report can also skew the results in the opposite direction. The more weight an organization places on health and safety outcomes (i.e. performance bonuses), the less reliable the data behind lagging indicators can be.

In an ideal world, lagging indicators are a measure of diminishing returns. As an organization works toward the ultimate goals of zero loss – zero harm, the number of lagging indicator measures will drop (e.g. lost-time claims, disabling injury rates). This means the closer the organization gets to this health and safety goal, the fewer lagging indicator measures (e.g. numbers, rates, statistics) it has available to propel ongoing improvement.

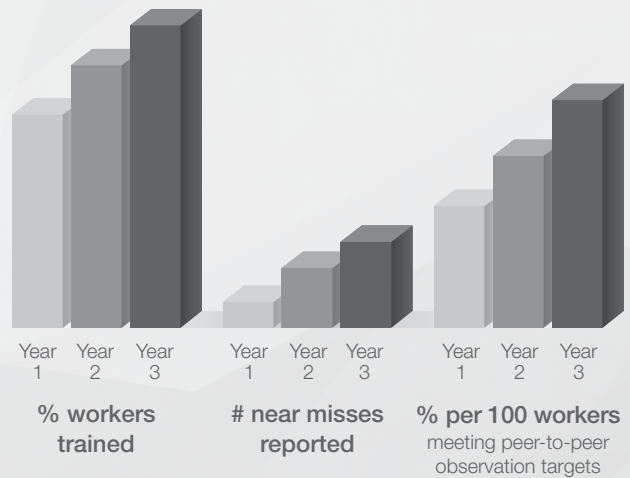
Lagging indicators are an indisputable record of past performance and that is of considerable value. But as organizations work to improve their OHS management practices and performance, they may want to consider supplementing the information lagging indicators provide with data from the other end of the spectrum. They may want to introduce leading indicators to help chart the road ahead.

# Background

## Definition:

**Leading indicators** focus on future health and safety performance with the intent of continuous improvement. They are a signal and monitor of what is being done on an ongoing basis to prevent worker illness and injury.

## Leading indicators



Leading indicators represent a different, but complementary way of addressing occupational health and safety — from the front end (a signal), with an eye to preventing harm before it happens.

The organization's specific health and safety activities and overall goals are the focus here.

When used effectively, leading indicators target select areas of an organization's OHS management program to determine if specific goals are being met and expected benefits are being realized. To be effective, the link between what leading indicators measure and the desired outcome should be clear. It's a cause and effect relationship so you'll want to think about how what you measure impacts your outcome.

How many of the hazards flagged during hazard assessments have been controlled? We would expect to see a link between addressing this leading indicator (i.e. more controls in place — cause) and the desired outcome (i.e. fewer incidents — effect).

What per cent of workers have received OHS training for a new piece of equipment (cause)? A low number here could help to explain undesirable outcomes such as equipment malfunction or poor adoption of the equipment (effect). Addressing this leading indicator could drive positive change of the outcome.

How many people in the office know the organization's specific health and safety policy (cause)? Just about everyone? Simply talking about your expectations around health and safety at work is unlikely to improve performance outcomes (effect). Discussion is always important, but it needs to be paired with action.

# Purpose of leading indicators

OHS management programs are in place to ensure workers go home healthy and safe at the end of the day, every day. But it's not enough to introduce health and safety processes into the workplace and hope they do the trick. What's needed is to measure their effectiveness on an ongoing basis, include them in OHS performance discussions, and make adjustments as appropriate.

Leading indicators can be a useful tool to help organizations track, measure and adjust their OHS-related activities so they can effectively direct their health and safety performance and avoid incidents/harm.

Because they are able to target specific aspects of the organization's health and safety management program, leading indicators can provide equally specific insight into the strengths and weaknesses of that program.

In the example on the right, the point of observation (the leading indicator) is basic: are workers following safe work procedures or not? But if that measure were to include recording the nature of the task at hand (i.e. extensive morning prep or single cutting event), the results may reveal that non-compliance has more

to do with a perceived need for speed than a lack of safety training. A strong health and safety culture will not put productivity ahead of worker health and safety, so addressing that worker perception (leading indicators) should improve compliance — and avoid potential incidents (lagging indicators).



A restaurant requires kitchen workers to wear protective gloves when cutting with sharp knives. It's a standard safe work practice the employer has put in place and the assumption is everyone follows it, but how often are they actually doing so? A leading indicator can be of use here. Regular observations can capture and record this information (i.e. number of observations with/without gloves), and corrective actions (e.g. additional safety training, reminders of safety expectations) can be introduced before someone gets injured.



# Strengths of leading indicators

Leading indicators that are connected to specific OHS program goals introduce a real level of accountability for those goals. But beyond tracking progress toward achieving specific goals, leading indicators can also measure and monitor their relative importance. They can gauge the connection between policies, procedures, practices and activities in achieving desired OHS outcomes.

Leading indicators can be introduced at any point in an organization's efforts to manage its OHS performance. This flexibility means they can evolve right along with the workplace, keeping step with an organization's level of OHS maturity/performance and keeping focused on relevant areas to generate specific information/possible solutions/corrective actions.

Unlike lagging indicators, which focus on outcomes from the past, leading indicators reflect positive opportunities for changing OHS performance. In the process of helping to reduce injuries, illnesses and/or incidents, they can help provide assurance and build confidence where corrective actions are shown to be in place.

Leading indicators measure the inputs that people are making to the OHS management process. They measure the presence of safety as opposed to the absence of injury. They acknowledge individual efforts and, in so doing, can inspire a positive culture towards improving health and safety performance.

Leading indicators work to complement the more traditional outcome-based measures of lagging indicators, and can be used to balance out some of the limitations there.

Together, leading and lagging indicators provide a solid, bigger-picture perspective on what is and is not working in your OHS management program.





# Challenges

Organizations have been working to manage occupational health and safety for many years, but leading indicators are a relatively new addition to the OHS toolbox. Even organizations with designated OHS personnel may lack familiarity with and knowledge around how to identify, implement and ultimately benefit from leading indicators. The problem isn't localized. A general lack of standard practices associated with the use of leading indicators complicates things for everyone. As yet, there is limited scientific evidence available to determine which leading indicators should be used when. That means organizations are often on their own to define the learning curve before even attempting to conquer it.

While leading indicators are proving useful for evaluating the status of specific goals within an OHS management program, it can be difficult to pinpoint the exact relationship between leading indicators and lagging outcomes (e.g. total injuries, illnesses, fatalities). If you know what you want to measure and are clear about how it impacts your outcome, then the relationship is much clearer.

It is possible to tap into the potential from leading indicators with only minimal changes to what organizations are already doing. But for those wishing to maximize that potential, the level of effort and resources required to introduce, track and leverage leading indicators can be substantial. It's a learning process for the very people responsible for educating management about the value and/or potential return on investment. Without clear support from management, as with any other type of employer initiative, introducing leading indicators can be difficult.

An organization's health and safety culture is not defined by what management says it does. It's defined by real-time actions. Workers are quick to distinguish between corporate speak and genuine core values. Management's attitude and demonstrated commitment is the primary influence on the status of health and safety as a core value in the workplace. Simply put, as with any other part of an OHS program, if management does not actively promote the use of leading indicators, it simply will not happen.

# Choosing a leading indicator

An organization's current OHS performance level is an important consideration when selecting leading indicators. Leading indicators are most effective when they are aligned with an organization's specific OHS goals. Accordingly, what is considered suitable for one organization may not be a good fit for another, even within the same industry.

Below, we discuss three workplace environments that might require three different sets of leading indicators.

## Focus on compliance

Organizations that are in the early stages of developing their OHS program, or whose OHS performance level requires improvement, can come up with a few key leading indicators to confirm compliance with legislated requirements. Examples might be confirming whether hazard assessments are actually being completed and ensuring workers are involved in the process. Then employers can build upon their list of key leading indicators later by monitoring how many job tasks, risks and control measures were identified during formal hazard assessments (information), whether or not workers know the results of those assessments as legislation requires (possible solution), and addressing the hazards (corrective actions).

## Focus on improvement

Organizations with more established OHS programs/stronger OHS performance levels (beyond basic compliance), might introduce leading indicators to grow and refine their existing programs for continued improvement. Examples could include asking what per cent of the workforce has OHS training beyond basic legislated compliance, how often health and safety is discussed at meetings, or how often management walks the floor.

## Focus on continuous learning

Organizations with a mature OHS culture/a consistently high level of OHS performance (low incident rates) can select leading indicators to drill down for deeper knowledge, drawing out information about their health and safety culture. They might select leading indicators to track what per cent of their communication budget is dedicated to OHS, or how many different avenues the organization uses to communicate OHS messaging.

Your organization's OHS performance level will influence the nature and goal of your selection and use of leading indicators. Are you struggling to meet the essential legislated requirements? Are you looking to improve your organization's OHS performance beyond those minimum requirements? Or is your organization already demonstrating a consistently high level of OHS performance and wanting to raise the bar even further through ongoing improvement?

To help establish where your organization is at in terms of its OHS performance level, consider answering the Institute for Work & Health Organizational Performance Metric (IWH-OPM) questionnaire on the next page. (It is also available online at [www.iwh.on.ca/iwh-opm-questionnaire](http://www.iwh.on.ca/iwh-opm-questionnaire).) Developed in Canada by a team of health and safety professionals and researchers, this tool is proving effective (i.e. valid and reliable) in predicting injuries and illnesses within an organization based on that organization's current OHS policy and related activities.

## Institute for Work & Health Organizational Performance Metric\*

Please answer the questions in regards to the percentage of time that each practice takes place.

Health and Safety Practices	80 – 100% (4)	60 – 80% (3)	40 – 60% (2)	20 – 40% (1)	0 – 20% (0)
1. Formal safety audits at regular intervals are a normal part of our business.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Everyone at this organization values ongoing safety improvement in this organization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. This organization considers safety at least as important as production and quality in the way work is done.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Workers and supervisors have the information they need to work safely.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Employees are always involved in decisions affecting their health and safety.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Those in charge of safety have the authority to make the changes they have identified as necessary.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Those who act safely receive positive recognition.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Everyone has the tools and/or equipment they need to complete their work safely.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

For the purposes of this survey an audit means a formal process of evaluating and reporting on how the organization manages health and safety in accordance with a recognized standard (ie: CSA Z1000 OHSAS 18001 or a health and safety association audit such as the COR audit). Regular means that an audit is repeated at regular intervals, for example, once every year or once every two years.

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To calculate your organization's current performance level, add your scores from each of the above questions and divide by 8. Scores in each percentage column are indicated in brackets (0 – 4). For example, a score of 4 means your organization is performing the practice 80 – 100% of the time and a score of 0 means your organization is performing the practice 0 – 20% of the time.

# Choosing a leading indicator

Plot your score on the line



With a good sense of where your organization is at in terms of its OHS performance level, you can start thinking about specific activities that drive your organization's desired OHS outcomes. If those activities can be measured, they are leading indicators and can be used as performance metrics for your OHS management system.

## Some examples of leading indicator metrics

### Focus on compliance

- Are action items being completed within defined timelines?
- Are workers assessed for knowledge of hazards specific to their job task?
- What per cent of the workforce has completed organization-specific health and safety training?

### Focus on improvement

- Per cent of leadership that is meeting job observation targets.
- Per cent of job descriptions with specific health and safety accountabilities.
- Number of near misses reported compared with the total number of recorded incidents.
- Number of equipment inspections (including vehicles) completed vs. targeted.

### Focus on continuous learning

- Per cent of action items from health and safety perception surveys (e.g. safety culture or hazard surveys) that are completed.
- Per cent of workers meeting peer-to-peer observation targets per month per 100 workers.
- Number (or per cent) of near miss findings communicated to organization.
- Per cent of health and safety meetings led by management compared to target.
- Per cent of near misses that have been scheduled for follow-up and have had responsibility assigned.

The list of potential leading indicators goes on and on and may depend on the resources and commitment available for an organization's OHS program. (See Appendix on p. 27 for a list of questions that might trigger discussion for developing leading indicators relevant to your organizational needs.)

Understand that, in time, as an organization's OHS management program evolves and OHS performance issues improve, an organization's tried-and-true set of leading indicators may become obsolete. If that happens, new leading indicators may need to be introduced. As in other aspects of operations, continuous improvement necessitates change.

# Choosing a leading indicator

## Consider your goals

Focus on the areas of your organization's operation that could have the greatest impact in terms of improving occupational health and safety. Where available, you'll want to identify industry best practices for addressing those specific areas, and then select leading indicators that relate to the outcome(s) you are trying to achieve.

Some pioneer thinkers in the area recommend limiting the number of leading indicators to no more than two or three to start. It's easy enough to expand your roster later on, as you gain some level of experience in their use. Taking on too many leading indicators too soon, before you're proficient at mining the information they can provide, can dilute the benefits, and may lessen their perceived value within the organization overall. As well, introducing too many leading indicators at once can make it difficult to pinpoint which ones are providing the greatest benefit.



An incident occurs and, through root-cause analysis, it's determined that improper training led to the event. More analysis determines that workers have reported improper training to be a concern, and possibly a contributing factor behind incidents over the past 12 months (since the trainer changed jobs).



To help prevent future incidents we could focus on safety training (a leading indicator), and components of that indicator could be worker satisfaction with training, increased worker knowledge of content, demonstrated knowledge of content, etc. In this example, corrective actions on safety training (making sure workers are properly trained to do their jobs) could lower the likelihood of reoccurring incidents.

## Determine your strategy

Make sure the leading indicators you choose are believed to have direct ties to the outcomes you are trying to achieve. Otherwise you're unlikely to see benefits from your efforts. So, for example, if your focus is on reducing fall-related events at work, you may want to track the housekeeping practices in place to prevent slips, trips and falls (e.g. wet mopping only after work hours when most staff are not around). It wouldn't do you any good to track the number of workers with first aid training here. First aid training cannot prevent the number of slips, trips or falls at your workplace. Think strategically about what processes will lead to what results.

You'll also want to be sure your selected leading indicators align with the organization's existing OHS management program. That link is the only way to ensure accountability for follow-up activities.

Leading indicators are meant to support and grow OHS programs, not to redirect attention or resources away from them.

## Factor in your experience

If your interest is in measuring compliance, you'll want to select leading indicators that provide insight into how well your organization is doing compared to what current legislation requires. If you're already meeting compliance levels and are ready to grow and gauge your OHS management program, or beyond that, to pursue continuous learning opportunities, you'll want leading indicator tools to generate deeper, more sophisticated operational insights. The higher your OHS performance level, the greater the range of leading indicators available to you.

Applying **SMART** principles can be an effective approach to judging the merit and guiding the adoption of potential leading indicators. Does your choice of leading indicators point to specific operational inputs and desired outputs? Are these inputs measurable? Is there a clear connection to your OHS management program to hold people accountable? Are the logistics of collecting the related data going to be reasonable and timely? If so, they're probably a good fit for your needs.

**S**pecific

**M**easurable

**A**ccountable

**R**easonable

**T**imely

## Example scenario:



In the past year or so, several of your workers have been involved in motor vehicle collisions on the job. You want to improve safety for driving (outcome). To do that, you might consider how often workers are receiving mandatory driver training/refreshers training. This is something that can be easily measured by tracking worker participation in training opportunities. Since the training is a documented employer requirement for the job (i.e. mandatory), it's natural to hold people accountable. And the information (attendance records for training programs) is likely already available. If attendance is not already being formally documented, it is easy enough to start tracking that information.

## Conclusion:



How often drivers are receiving driver training/refreshers training may be a good leading indicator for predicting and promoting driver safety in your workplace.

# Choosing a leading indicator

## Focus on compliance

How often are drivers receiving driver training?

## Focus on improvement

How is knowledge demonstrated by workers following training/refreshers? Is training improving knowledge and skills?

## Focus on continuous learning

How often do workers engage in peer-to-peer training with new employees? How often do workers seek to become trainers?

Choose leading indicators that reflect a mix of activity-related and quality measures. The temptation may be to focus on counting activities, but in the end, it's not the numbers themselves that matter: it's the quality of the information collected, and what you've done in response to what you've learned. Continuing with the earlier example, you can track how often workers receive driver training (to confirm compliance with an employer's policy), or you can conduct an awareness or perception survey to find out what workers think they're getting out of that training (and then, if appropriate, adjust the training to improve it). Target your approach for results that will have the greatest potential impact on your desired outcomes.

Likewise, you'll want to look for leading indicators that serve to identify trends instead of providing instantaneous, one-off measures. If mandatory driver training happens only once, as part of a new worker orientation, for example, and all new workers participate, there's little to be learned from attendance records moving forward. Again, the value of leading indicators is in their ability to influence future actions. There's no real point to knowing where an organization stands in the absence of any intent to reposition it.



## Consider your audience

Involve others in the process of developing leading indicators. The selection should be informed by people working in different jobs and at all levels within the organization. Talk to the people whose performance might somehow be measured by the leading indicator selected, and to the people who could be called upon to take, direct, or finance corrective actions.

### Goal of improving vehicle safety:



Driver may focus on distance travelled.



Finance may focus on age of vehicles/maintenance.



Supervisor might focus on work schedule/speed.

Just as there is no one-size-fits-all set of leading indicators for use across various organizations, there's usually enough of a difference between work groups to warrant a more tailored approach to selection. In other words, different work groups may warrant different indicators due to their work, due to their experience, or due to their health and safety culture. Alternatively you may have the same indicators but different work groups would carry them out on different schedules (i.e. one may have one safety meeting per year while another may have one per month).

**Remember:** the more embedded a leading indicator is in the organization's OHS management program, the more likely it is to receive buy-in and support at the corporate level.

Choose carefully to avoid introducing irrelevant or obsolete measures. These can erode the corporate health and safety culture by effectively disengaging the workforce. If your meter-reading operations are moving away from door-to-door service in favour of remote access, for example, there's little value in asking what per cent of workers have been trained to deal with aggressive dogs. Operational changes may prompt a shift in what it is you measure.

## Understand the limitations

If leading indicators are a new addition to your OHS toolbox, focus on a few key measures related to your OHS goal that reflect the performance of a variety of work parties or work areas. If you introduce too many leading indicator tools you will detract from the focus, or value. As mentioned earlier, two to three leading indicators is a good place to start.

Remain mindful of the logistics involved in collecting the information. If it costs too much to collect and/or implement, or if it's too time-consuming, it's less likely to happen.

But don't select leading indicators just because the information is easy to collect. They must be meaningful/relevant, or there's no point. Measure what should be measured to improve performance rather than what can easily be measured.

# How to implement

So you've considered your organization's current OHS performance level and have landed on a few key leading indicators to add to your occupational health and safety toolkit. Now you'll want to put them to work.

Leading indicators are an evolving science. As you introduce the use of leading indicators within your organization, know that there's going to be a learning curve involved for everyone, and that, on occasion, you're likely going to be in the position of learning by teaching others.

## Training and maintenance

For years, many workers and employers have focused entirely on recordable incidents and their impact on the bottom line. Lagging data is familiar territory, but leading indicators may not be as familiar. Lack of knowledge or understanding may explain why some leaders tend to have a lower level of appreciation for leading indicators. If the organization's senior leadership gets it, you're well on your way to success.

In your OHS role, it's going to be your job to help engage and educate all levels of management on what leading indicators are, and how tracking them can contribute to improving the organization's OHS performance.

You'll need their support as you move forward.

Think about making information about leading and lagging indicators a standard element of manager/supervisor training.

[work.alberta.ca/  
documents/ohs-best-  
practices-BP020.pdf](http://work.alberta.ca/documents/ohs-best-practices-BP020.pdf)



As you introduce leading indicators into your OHS management program, there may be a fairly substantial level of investment/commitment involved in getting staff trained up and comfortable with their use. If the value is not understood at the top of the organization, the resources won't be made available.

Likewise, if those supervising workers do not understand the value of leading indicators, there's little chance workers on the ground level/front line will take them seriously. Front line staff engagement is essential for many types of leading indicators, particularly when you are looking to build capacity in your OHS performance/maturity. Those whose performance is being monitored and measured by leading indicators should be told about the specific indicators and the rationale behind using them. There's no mystery here. Knowledge is power and when people understand the why behind the what, they're more inclined to embrace rather than rebel.

Leading indicators are not a one-time line item in the organization's operating budget. They face significant challenges if approached as a pilot project, or just one more health and safety initiative. Leading indicators should be introduced and understood as integral to the OHS management program.

These leading indicator performance measures are intended to drive continuous monitoring and health and safety improvement. They evolve with the organization's performance level. As a result, OHS personnel themselves will require ongoing training to competently, confidently and effectively inspire continued commitment at all organizational levels.

Patience can be noted as another expectation. The benefits of leading indicators don't appear overnight.

The results take time, as does the work itself. That's true whether an organization is starting from square one, or building upon an established foundation. Organizations with well-developed OHS management programs probably already collect large amounts of health and safety performance data that they can mine for potential leading indicators. The challenge is finding the time to commit to doing so, understanding what kinds of outcomes they are after and how to link indicators to those outcomes, and then finding the time to act on what they discover.

## Criteria for success

We've said this before, but it can't be said often enough: securing buy-in from senior management is probably the single most important factor behind ensuring success. Management gives the nod for the resources you need to do the work, and clearly that's important. But beyond resources, there's the commitment of authentic leadership. Managers promote health and safety as a core value by making it a priority — no matter what. Failing this, individual measures to manage OHS performance often fail.

Managers demonstrate the standard for the health and safety culture that workers are going to adopt. It's not about what is said here. It's about what is seen.

A conscious and proactive health and safety culture goes beyond encouraging workers to report unhealthy or unsafe conditions. It rewards them for doing so, and for putting health and safety first.

And that's why it's so important that the selection of specific leading indicators and their purpose be understood and owned by those whose performance is being measured. To secure meaningful data from your selected leading indicators, you will require worker support and participation. These are, after all, the same people who may be responsible for adopting any preventative actions that come out of the process.

Workers may be inclined to see dictated measures, like mandatory personal protective equipment (PPE) for example, as something that impairs their personal comfort or mobility on the job. But if they are helped to understand the required PPE is there for their own protection, they're more likely to appreciate the benefits, and comply willingly with the requirements.



# How to implement

You'll want to structure the introduction of leading indicators in a way that will promote ownership by line management, supervisors and workers. If leading indicators are perceived as some kind of a pet project for health and safety personnel, the organization will not realize the benefits intended.

For best results, an organization's selection of leading indicators is a calculated process, specific to that organization. But the nature of the information collected is only part of the equation for success here. You'll also want to consider who is involved in the data collection, and how the collection process itself is approached.

Remember our earlier example of observing kitchen workers cutting with or without safety gloves? The leading indicator there was straightforward behaviour observation, but how the observation is performed is important to the integrity of the information gathered. Is the person who is observing the work someone internal to the organization, or is it an outside consultant? Has that individual been trained in what to look for? Is the training or instruction standardized so the approach to observation remains consistent time after time? What do workers know about the observer's purpose (i.e. is their behaviour affected)? These are all important considerations. They can influence the value of the information collected.

For the sake of data consistency and usability, it's important to be perfectly clear about the method everyone is expected to use for recording and tracking leading indicators.



**How is attendance at health and safety orientations recorded? Is someone who arrives at the orientation 30 minutes late receiving credit for attending? Does a worker who missed one day of a four-day training session receive completion credit?**

Develop standard questions, approaches and/or forms to ensure the exact same measure is going to be launched from the various platforms. Test the reading level of perception questions. If the questions are not well understood by each person answering them, the results may be impacted.

The need for consistent delivery is equally important when it comes to communicating what we've learned from leading indicators, and our follow-up actions. Leading indicators measure the performance of an organization's OHS program, and various components within that organization. It's important to keep feedback focused on process improvements.

## Keeping it fresh

Leading indicators are integral to the continuous improvement of OHS management programs.

The standard cycle of **developing, choosing, implementing, measuring, acting on and reporting** leading indicators aligns with that of any typical management process: **plan, do, check, act**. This is not a quick-fix approach to managing occupational health and safety, nor is it static. It is cyclical.

Leading indicators can help to motivate safe behaviour, personal commitment and continuous improvement. They evolve through the life of an organization. Where lagging indicators lose their ability to motivate or influence measurable safety performance improvement, leading indicators can be ramped up, or new, targeted leading indicators can be introduced to advance workplace health and safety.



Thankfully there's no shortage of fresh replacements. In fact, the closer an organization gets to the end goal of zero loss – zero harm, the more targeted their leading indicator performance tools can be.

**Once you've established the organization's compliance in conducting hazard assessments, for example, you can move on and start focusing on areas of advanced investigation. You might start monitoring the percentage of controls that have been introduced, or maybe the number of workers that have been involved in the process.**

Leading indicators provide endless opportunity to keep your OHS management program fresh and moving forward. The challenge is in holding off on introducing too many leading indicators too soon, or prematurely dismissing a leading indicator that's been on the radar for some time, but continues to provide valuable insight into your organization's health and safety performance.

# How to use/ benefit from the information

As we've seen, an organization's OHS performance/maturity level will strongly influence what leading indicators they choose to use, and how they'll apply the information generated. The tools and the messaging around using them are different at different levels of performance. There is no one-size-fits-all answer to how best to leverage the results.

## Trending

The use of leading indicators for evaluating health and safety performance is a relatively new approach. It's an approach that does not align well with traditional (lagging) OHS reporting practices, or standard benchmarks. The broad range of leading indicator tools, and the highly customized nature of what's being measured from one organization to the next makes comparisons between organizations unlikely without significant cooperative efforts. In-house measures are apt to change as performance levels improve, so keep this in mind if you are tracking results internally over several years.

The huge advantage that leading indicators have over lagging outputs alone is their ability to flag potential risks before any harm results. They have the ability to drive corrective action. The link between the leading indicator and the corresponding target outcome may be confirmed if the lagging indicator trends downward. The right corrective actions will prevent incident. Trending with leading indicators is more about establishing thresholds (beyond which corrective actions are recommended), than about setting targets and then tracking those.

Moreover, the use of leading indicators sends the leadership message that safety is important. It tells the worker: "We want you to take time to do this leading activity because your safety is a priority." Even if a potential risk is not found and fixed, it helps to embed and sustain the health and safety culture.



A leading indicator may be the per cent of trained workers. Over time we see evidence (lagging indicators) that more trained workers translates into fewer incidents/less harm. In response, the organization provides more training.



## Benchmarking

As an organization you may want to know how you're performing relative to others in your industry. It's always nice to know if you are a top performer, but it's important to understand the relativity of benchmark results. If others in the industry are performing poorly, even an average performance on your part can profile you as an industry leader.

Through the Ontario Leading Indicators Project, the Institute for Work & Health has developed a comprehensive set of leading indicators (including

the IWH-OPM on p. 9) that allows you to score and benchmark your organization's health and safety performance against firms in your sector. Visit [www.iwh.on.ca/olipsurvey](http://www.iwh.on.ca/olipsurvey) and complete the online survey if you're interested.

Your score could be a great place to start a discussion about leading indicators within your organization.

## Feedback/communication

The success your organization realizes from its use of leading indicators will be determined by how effectively it communicates the results.

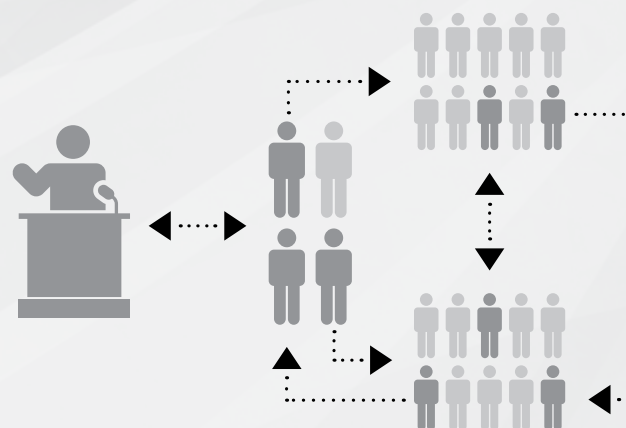
It's important to actively and openly share your findings with all levels of the organization that are invested. This includes everyone from the executives and senior management that make decisions about how resources have been and will be allocated in the future (a more formal reporting process may be in order here), to line management, supervisors and workers who will be responsible for introducing and acting upon any operational change.

This feedback loop serves to inform, confirm and reinforce the value of the organization's investment/commitment. And if managed correctly, it can do even more.

Unlike lagging indicators, which measure the final results, leading indicators measure organizational OHS performance in action, which means what leading indicators really measure is the contribution that people are making to the OHS management process. Communicate the results of those efforts in a way that acknowledges the workers' contributions and you rally worker morale.

Sharing what's been discovered with the people involved in the discovery highlights the real value of their efforts. Everyone can see how their individual performance contributes to the organization's overall health and safety status. Positive reinforcement invites participants to own those results. And that sense of pride — of ownership, can ignite the will to drive continued improvements.

As the organization's health and safety culture gains strength and momentum from within, your organization can look forward to realizing continued improvement in its overall OHS performance.



# In summary

Healthy and safe workplaces are essential to the well-being of workers and their employers. This requires an ongoing understanding that efforts must be grown and sustained. Tools or strategies that can help an organization improve its health and safety performance are worthy of consideration, particularly when they can be customized to suit the unique situations found in any workplace for any type of organization.

Leading indicators represent a means for organizations to improve the performance of their existing OHS management systems on an ongoing basis. Rather than relying on lagging indicators, such as annual tallies of workplace incidents, lost-time claims, or WCB premium rates, organizations can use leading indicators to take proactive, preventative actions — when needed, as needed.

This user guide has provided information on what leading indicators are and how your organization might select, use and benefit from them. We would like you to spend time thinking and talking about leading indicators at places where you work: to consider using leading indicators as one more tool to help you achieve — and evolve — your organization's health and safety goals and performance.



# Thinking points for leading indicators

Here are some points to think about as you consider adding leading indicators to your health and safety management system. These points apply regardless of your level of OHS performance.

Consider who is involved in the collection of data, and how the collection process itself is approached.

Choose leading indicators that reflect a mix of activity-related and quality measures. The quality of the information collected and what you do with what you learn is what matters in the end.

Consider making information about leading and lagging indicators a standard element of manager/supervisor training. You're going to need their support in the process.

Your organization's OHS performance level will influence the nature and goal of your selection and use of leading indicators.

The standard cycle of developing, choosing, implementing, measuring, acting on and reporting leading indicators aligns with that of any typical management process: plan – do – check – act.

Introduce leading indicators in a way that will promote ownership at all levels of the organization: management, supervisors and workers.

Start by thinking about what specific activities drive your organization's desired OHS outcomes.

To be effective, the link between what leading indicators measure and the desired outcome should be clear. Know what you want to measure and be clear about how it impacts your outcome.

Share information about the specific indicators and the rationale for using them with the people whose performance is being monitored and measured.

Think strategically about what processes will lead to what results.

Different work groups may warrant different indicators. Consider the nature of the work, the experience of the workers and the prevalent health and safety culture as part of your selection process.

Apply **SMART** principles when selecting individual leading indicators.  
**Specific Measurable Accountable Reasonable Timely**

Actively and openly share your findings with all levels of the organization that are invested.

If management does not actively promote the use of leading indicators, it will not happen.

Look for leading indicators that serve to identify trends instead of providing instantaneous, one-off measures.

Limit the number of leading indicators to no more than two or three to start.

Avoid introducing irrelevant or obsolete measures. Operational changes may prompt a shift in what it is you measure.

Keep feedback focused on OHS process improvements.

# Resources

## Occupational Health and Safety Legislation

A copy of the *Occupational Health and Safety Act*, Regulations and Code, and OHS Code Explanation Guide, together with this user guide can provide an excellent foundation for building a strong health and safety culture in your workplace.

This user guide is current to March 2015.

The current OHS legislation is available on the website at:

**[work.alberta.ca/ohs-legislation](http://work.alberta.ca/ohs-legislation)**

Official printed versions of the *Occupational Health and Safety Act*, Regulations and Code Handbook and OHS Code Explanation Guide, may be purchased from Alberta Queen's Printer:

**[qp.alberta.ca](http://qp.alberta.ca)**

7th floor Park Plaza Building  
10611 – 98 Avenue NW  
Edmonton, AB T5K 2P7

**Phone: 780-427-4952**

**Fax: 780-452-0668**

**Email: [qp@gov.ab.ca](mailto:qp@gov.ab.ca)**

## Additional resources

Government of Alberta – OHS Legislation

[work.alberta.ca/ohs-legislation](http://work.alberta.ca/ohs-legislation)

Government of Alberta – OHS eLearning Programs

[work.alberta.ca/ohs-elearning](http://work.alberta.ca/ohs-elearning)

Government of Alberta –

Hazard Assessment and Control: a handbook for Alberta employers and workers [BP018]

[work.alberta.ca/documents/ohs-best-practices-BP018.pdf](http://work.alberta.ca/documents/ohs-best-practices-BP018.pdf)

Government of Alberta –

Supervisors Roles and Responsibilities: an occupational health and safety handbook [BP020]

[work.alberta.ca/documents/ohs-best-practices-BP020.pdf](http://work.alberta.ca/documents/ohs-best-practices-BP020.pdf)

Institute for Work & Health – Organizational Performance Metric (IWH-OPM)

[iwh.on.ca/opm](http://iwh.on.ca/opm)

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**In Edmonton**  
**780-427-9999**

**Throughout Alberta**  
**1-800-232-7215**

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Feedback survey

**[work.alberta.ca/ohsresourcesurvey](http://work.alberta.ca/ohsresourcesurvey)**

# Appendix

## Discussion questions to help develop leading indicators that are relevant and specific to your occupational health and safety system

Below are headings that relate to common and useful categories of leading indicators. These may help to focus your organization's attention when looking at ways to implement leading indicators into your occupational health and safety management system.

The questions are intended to stimulate discussion within organizations looking to implement leading indicators into their OHS management systems. The examples provided are just that — examples. The list of questions is not intended to be exhaustive. It's a starting point.

**PLEASE NOTE:** The following questions are to determine options for performance beyond minimum legislated requirements. In case of uncertainty or discrepancy, please refer to Alberta's occupational health and safety legislation and/or the OHS Code Explanation Guide for clarification.

### 1. Hazard identification and assessment

How are analyses of work and associated hazards developed? Who is involved? How are they kept current?

How are hazards identified in hazard analyses? Is management/leadership involved?

How are hazards prioritized after identification?

How is information from hazard assessments made available? Is information readily available in the field?

### 2. Hazard control

How often does preventative equipment maintenance happen? Is this regularly scheduled?

How is responsibility for equipment maintenance made clear? How are maintenance records managed?

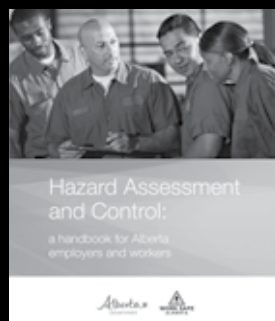
How are controls identified in hazard analyses? Is management/leadership involved in checking proper use of controls?

How does management/leadership evaluate training to ensure workers are properly trained in controls?

How does management/leadership research, understand and implement industry standards? How are workers involved?

How are "lessons learned" shared? Is this information shared broadly within the industry?

[work.alberta.ca/  
documents/ohs-best-  
practices-BP018.pdf](http://work.alberta.ca/documents/ohs-best-practices-BP018.pdf)



BP018

# Appendix

## 3. Worksite inspections of PPE/equipment

How are inspections done on PPE/equipment?  
In accordance with manufacturers' specifications?  
Industry best practice?

What is the process for inspection and maintenance for PPE/equipment? How is that process audited?

How are the results of inspections reviewed?  
By whom?

How often are PPE/equipment inspected for wear and tear, etc.? By whom? Are accountabilities clear?

What is the process for replacing PPE/equipment?  
How are decisions made to upgrade PPE/equipment?

## 4. Training and competency

How is job competency assessed following hiring? Is this repeated? Who determines worker competency?

How is worker health and safety ensured prior to workers being deemed competent?

How is competency checked for those who train workers in the use of PPE?

In what formats is worker training provided?  
How often?

How are worker suggestions for training handled?

How do workers receive additional health and safety training throughout their employment?

## 5. Reporting beyond legislated requirements

How is PPE use and maintenance documented?  
How long are records retained?

How are safe work procedures recorded/  
documented? How is information shared with affected workers? How is management/leadership made aware of the results?

Are staff safety activity expectations documented?

How are workers made aware when the hazards they've reported are mitigated or controlled?

Is information reported in all health and safety areas analyzed for trends?

## 6. Job observations

Are observational assessments performed for all workers (management, front line workers)?

How is PPE use and maintenance documented?  
How are observations done on proper PPE use?  
Are workers involved in this process?

How do recommendations from observations result in corrections? How quickly does this happen?

## 7. Defined safety accountabilities

How do workers demonstrate they understand their health and safety role in the organization?  
Are these roles clearly articulated for each position?  
How is this done?

Does management/leadership attend safety meetings? How do they actively participate in health and safety?

## 8. Management/leadership commitment to OHS

How does management articulate OHS goals and expectations? What methods are used?

How does management set goals and objectives for individuals related to health and safety compliance? How are these reviewed with staff?

What are the consequences for workers who do not follow health and safety procedures?

How does management share health and safety performance results with workers, both positive and negative?

How does the organization make health and safety policy and OHS legislation an integral part of staff orientation at all levels? How prominently does this appear within the orientation?

Does the organization have safety resources? In what formats?

How does senior leadership demonstrate the organization's OHS commitments?

How often does management/leadership walk the work site? Attend safety meetings?

How often are health and safety on the agenda for management/leadership meetings?

What are the accountabilities assigned to management/leadership for health and safety?

How does management/leadership ensure health and safety is mentioned in messaging to workers?

How does management/leadership determine budget allocation for health and safety? Does this adequately meet needs?

## 9. Staff/management engagement in developing safety practices

Does the health and safety culture promote peer reviews and correction?

Does management recognize (reward) workers who consistently follow defined health and safety practices?

How does the organization promote use of worker teams to solve health and safety issues?

How does management/leadership demonstrate concern for workers' health and safety? How is this documented?

Are different media used to communicate health and safety information across the organization?

What is the process for workers to provide feedback on health and safety related items?

## 10. Near misses

Is there a process/written procedure for reporting near misses? What is done with the information?

Who is involved in the near miss investigation? How are workers made aware of the results?

How are recommendations from investigations turned into prevention activities?

## 11. Survey tools

How does management/leadership assess the health and safety culture within the organization?

What is done with the results of health and safety culture surveys?

How does management/leadership ensure high worker engagement/participation in surveys?

# Notes

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