

OSHA Questions on the Use and Development of Leading Indicators



INTRODUCTION

This notice announces OSHA's intent and interest in developing a **Leading Indicators Resource** that can be used by employers to help develop or improve their safety and health management system (SHMS). OSHA asks for stakeholder input on leading indicators that they currently use and the effectiveness of those indicators in managing their SHMS. Many employers solely use the "OSHA rates" such as the Days Away, Restricted or Transferred (DART) and Total Case Incident Rate (TCIR) as their only tools to evaluate the success of their safety program. If their rates are low, senior management may determine their program is working, and if their rates are too high, they may determine there is a problem in their safety and health program. However, both DART and TCIR are examples of lagging indicators that reflect events that have already taken place and are not predictive in identifying and establishing corrective actions before an event occurs. While lagging indicators can alert an employer to a failure in their SHMS program, leading indicators can enable preventative action to address that failure or hazard before it becomes an incident. A good program uses leading indicators to drive change and lagging indicators to measure its effectiveness.

LEADING INDICATORS

What is a leading indicator? In OSHA's [Using Leading Indicators to Improve Safety and Health Outcomes](#) guidance document, OSHA discusses that leading indicators are proactive, preventive, and predictive measures that provide information about the effective performance of safety and health-related activities. Some examples of leading indicators include tracking the number of workers who attend monthly safety meetings or keeping data on the routine maintenance of work vehicles (such as on time oil or brake pad replacements). Lagging indicators include the traditional safety metrics (OSHA rates) that indicate, for example, compliance with OSHA standards and regulations. These are the bottom-line numbers that can evaluate the overall effectiveness of safety at your facility. The drawback with exclusively using lagging indicators is that they only provide information on events that have already occurred. This is where leading indicators come into play. A leading indicator is a measure that ideally precedes a future event, helping to prevent injury and illness. By promoting actions to correct potential weaknesses in employee protections, leading indicators help prevent or control potentially harmful events or exposures before they occur. In other words, leading indicators look forward as opposed to lagging indicators or trailing measures that look back. In the world of worker safety and health, leading indicators help companies achieve safer and healthful workplaces.

Many safety and health professionals have focused heavily on lagging indicators. OSHA recognizes that in part this may have been an unintended consequence of the Agency's use of lagging or trailing measures to target inspection activities, such as in its Site-Specific Targeting Program (SST) and to qualify companies for programs like the Voluntary Protection Program (VPP). OSHA is interested in developing and promoting the use of leading indicators to help employers incorporate them into their SHMS and not rely too heavily on lagging indicators. By developing a Leading Indicators Resource, the Agency hopes to assist employers in providing better protections for their workers. Promoting the use of leading indicators does not mean that the use of lagging indicators should be abandoned. Lagging

indicators still have an important role to play in workplace safety. They measure the impact of actions taken or not taken; what happened over time; and whether goals have been achieved. In short, leading indicators must be tied to some measure of results if they are to play an effective role in assessing and driving performance.

WHAT ARE SOME EXAMPLES OF LEADING INDICATORS?

What constitutes a leading indicator? Any measure or piece of data that allows you to impact the future while working in the present can be a leading indicator. You can use observations, inspections, and surveys as leading indicators. For more insight, one can turn to OSHA's guidance document, [Using Leading Indicators to Improve Safety and Health Outcomes](#).

Leading indicator categories/factors include:

- Safety and health culture
- Management systems (e.g., hazard ID, learning system, safety perception system, EHS system component evaluation, etc.)
- Operations-based leading indicators (e.g., compliance, risk assessment, prevention through design, etc.)
- Process conditions (e.g., safe fitness for duty, training, etc.).

PURPOSE OF THESE QUESTIONS

The purpose of this document is to determine what leading indicators are currently in use, and how they are being used in conjunction with other safety and health metrics to expand and improve safety and health management systems. From these questions, and from other related efforts, OSHA plans to create a Leading Indicators Resource for employers. OSHA believes that promoting the use of leading indicators will assist employers in becoming more proactive in their worker protection efforts by improving their SHMS.

Also, by building a Leading Indicators Resource, OSHA hopes to further promote its vision of making safety and health a core value in American workplaces. OSHA's experience in the use of leading indicators suggests their increased use will improve established SHMS and strengthen business operations while helping reduce the impact of injuries and illness on workers and their families. Some of the benefits of using leading indicators include helping employers:

- Reduce serious injuries, illnesses, and fatalities.
- Reduce the cost and financial impacts of workplace injuries and illnesses.
- Attract and retain the most talented and qualified workers.
- Earn a more favorable reputation among customers, the community, and investors.
- Modernize management programs to align more closely with recent Occupational Safety and Health (OSH) management practices and management system standards.
- Better demonstrate the effectiveness of safety and health management systems and how they support worker safety and health as a Core Value.

To reach these goals, OSHA is asking the public to comment on a series of questions to gather input on key issues. OSHA requests commenters provide as much detail as needed to ensure the Agency fully understands their suggestions and perspectives.

HOW TO SUBMIT WRITTEN COMMENTS

You may submit comments and attachments, identified by Docket No. OSHA-2023-0006, electronically at www.regulations.gov, which is the Federal e-Rulemaking Portal. Please submit all comments by July 17th, 2023. Follow the online instructions for making electronic submissions.

Instructions: All submissions must include the agency's name and the docket number for this public comment process (Docket No. OSHA-2023-0006). All comments, including any personal information you provide, are placed in the public docket without change and may be made available online at www.regulations.gov. Therefore, OSHA cautions commenters about submitting information they do not want made available to the public or submitting materials that contain personal information (either about themselves or others), such as Social Security Numbers and birthdates.

Docket: To read or download comments or other material in the docket, go to Docket No. OSHA-2023-0006 at www.regulations.gov. All comments and submissions are listed in the www.regulations.gov index; however, some information (e.g., copyrighted material) is not publicly available to read or download through that website. All comments and submissions, including copyrighted material, are available for inspection through the OSHA Docket Office. Contact the OSHA Docket Office at 202-693-2350 (TTY number: 877-889-5627) for assistance in locating docket submissions.

QUESTIONS FOR THE PUBLIC

These questions are intended to assess the use of safety and health metrics in operations such as yours, with special emphasis on the acceptance and use of leading indicators. For more information one can refer to OSHA's [Using Leading Indicators to Improve Safety and Health Outcomes](#).

Definitions - For the purpose of these questions, the following definitions apply:

- **Leading Indicator:** For purposes of this document, leading indicators are proactive, preventive, and predictive measures that provide information about the effective performance of your safety and health activities. They measure events leading up to injuries, illnesses, and other incidents and reveal potential problems in your safety and health program. Leading indicators allow you to take preventive action to address a failure or hazard before it turns into an incident.

Examples of leading indicators can include:

- Near miss tracking
 - Safety training attendance
 - Maintenance frequency (or frequency of overdue maintenance)
 - Risk assessments
 - Job safety observations
 - Inspections
 - Environmental Health and Safety training
 - Leadership safety engagement
 - Corrective actions completed
 - Employee safety perception surveys
- **Lagging or Trailing Indicator:** Lagging indicators on the other hand alert you to a failure in an area of your safety and health program or to the existence of a hazard. Lagging indicators measure the occurrence and frequency of events that occurred in the past, such as the number or rate of injuries,

illnesses, and fatalities. A good program uses leading indicators to drive change and lagging indicators to measure effectiveness.

Examples of lagging indicators can include:

- OSHA TRIR
 - OSHA DART rates
 - Property damage
 - Workers' compensation costs
 - Liability/litigation costs
- **Business Impact Measures:** Trailing or outcome measures that focus on the business impacts of safety and health programs and initiatives. Business impact measures do not always focus on safety and health benefits, but they may provide insight into the effectiveness of a company's safety and health program. While these measures may not be familiarly referred to as 'leading' or 'lagging' indicators, they still provide valuable information.

Examples of business impact measures can include:

- Productivity
- Reputational risk
- Business continuity
- Workforce morale
- Financial health
- Workers' compensation costs
- Turnover rates

General Questions - As appropriate for each of the questions in this survey, please address if your response is site-based or if it reflects on the entire company.

1. How many employees do you have (annual average employment)?
2. What industry does your establishment operate in (i.e., construction, manufacturing, health care, and so forth; or NAICS code if known)?
3. What does your work operation consist of (i.e., are you a saw/planer mill, an oil drilling company, a chemical manufacturer, and so forth)?

Leading and Lagging Indicator Questions

4. What lagging indicators do you use (OSHA rates, for example)?
5. What leading indicators do you use?
6. What leading indicators are, or could be, commonly used in your industry?
7. Do you use any business impact measures to improve safety and health performance and/or encourage financial investment into fixing workplace hazards? If so:
 - What business impact measures were used?
 - How were these measures used to improve safety and health performance and/or encourage financial investment into fixing workplace hazards?
8. What metrics do you share with top management?

9. How do you determine the effectiveness of your leading indicators?
10. Do you link your leading indicators to outcome data such as OSHA rates to evaluate results?
11. Interaction of the metrics -- How could employers be encouraged to use leading indicators in addition to lagging indicators to improve safety management systems?
 - What are the enabling factors for using leading indicators in your company?
 - What barriers and challenges, if any, have you encountered to using leading indicators?
12. Do you have any additional comments regarding the use of leading indicators?

REFERENCES:

1. Hopkins (2007) *Thinking about process safety indicators*. National Research Centre for OHS Regulation, Australian National University.
2. Leading Indicators of Assessing Reduction in Risk of Long Latency Diseases. Health and Safety Executing (HSE) – Prepared by Greenstreet Berman Limited for the Health and Safety Executing – 2009. Alex Rogers, Rachel Evans & Michael Wright - Greenstreet Berman Limited Fulcrum House 5 Southern Court - South Street Reading Berkshire RG1 4QS.
3. Proactive Safety: How to Use Leading Indicators to Prevent Incidents. By Team Safe Site November 30, 2020; <https://safesitehq.com/leading-indicators/>