

ANSI/ASSP Z16.1-2022

Safety and Health Metrics and Performance Measures



AMERICAN SOCIETY OF
SAFETY PROFESSIONALS



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ANSI/ASSP Z16.1 – 2022

American National Standard

**Safety and Health Metrics
and Performance Measures**

Secretariat

American Society of Safety Professionals
520 N. Northwest Highway
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Foreword (This Foreword is not a part of American National Standard Z16.1 – 2022.)

The Z16.1 standard provides a broadened scope of metrics to help organizations better understand and improve safety and health performance and its impact on operations and business success. Measuring safety and health performance extends beyond employee injury and illness prevention, and includes areas such as fleet, property, third party, reputation, and resilience.

The Z16.1 standard provides the means to comprehensively measure an organization's safety and health management system, with special emphasis on understanding and managing risk. The standard incorporates a set of leading metrics (inputs and outputs), that can influence and predict outcomes and results (lagging and business impact metrics). A balanced approach to measurement is provided for improving risk management and management system elements and attributes that support overall risk reduction. A balanced approach uses metrics in a systematic and multi-dimensional way to validate and influence organizational strategic objectives. The standard also reviews techniques for normalizing the data, promotes tying metrics to business impact and value, and encourages the engagement of key stakeholders (including management and workers) in the selection of the appropriate metrics for their organization.

This standard was developed by the standards committee on Safety and Health Metrics and Performance Measures, Z16. The Z16 committee was re-established in 2017 in recognition of the need for standard guidance around safety and health metrics. The earlier Z16 committee developed five standards, which were withdrawn after the Occupational Safety and Health Administration (OSHA) and the Bureau of Labor Statistics (BLS) assumed leadership of occupational safety and health recordkeeping activity in the early 1970s.

Introduction: Organizations, as well as current ANSI and ISO management systems standards recognize the need for metrics to effectively manage and improve safety and health performance. Metrics serve many purposes, including:

- Measuring safety and health impact on organizational capacity and resilience
- Identifying potential incident sources or problem areas
- Assessing risk and the effectiveness of hazard controls
- Promoting improvements that address or reduce risk
- Assessing effectiveness of management systems that support continual improvement toward achieving goals and objectives
- Helping establish roles, responsibility and accountability for safety and health performance
- Tracking trends over time
- Benchmarking with other organizations
- Providing organizational feedback and communication
- Tracking incident cost reduction and other business impacts

Metrics are essential for evaluating, measuring, and improving safety and health performance. Metrics can be leading, lagging, or impact measures, or a combination thereof. Lagging metrics measure outcomes and results. Leading metrics measure key factors that contribute to results. These factors can be action oriented and track what is being done or can monitor the status of system attributes. Impact metrics capture the business benefit generated by safety and health-related actions.

To improve safety and health performance, organizations should identify and reduce risks, improve management systems, and develop metrics that target specific risk management and

improvement opportunities that are relevant to operations. The data used for these purposes should be clearly defined, accurate, verifiable, and available. No single leading, lagging or impact metric can represent the wide range of factors associated with safety and health management and performance. A balanced set of metrics is a more effective tool for measuring and monitoring safety and health continual improvement, and its impact on the organization.

Normative Requirements: This standard uses the single column format common to many international standards. To meet the requirements of this standard, users must conform to these normative requirements. These requirements typically use the verb “shall”.

Note: The informative or explanatory notes in this standard appear indented, in italics, in a reduced font size, which is an effort to provide a visual signal to the reader that this is an informative note, not normative text, and is not to be considered part of the requirements of this standard; this text is advisory in nature only. The suppliers and users are not required to conform to the informative note. The informative note is presented in this manner to enhance readability and to provide explanation or guidance to the sections they follow.

Revisions: The Z16 Committee welcomes proposals for revisions to this standard. Revisions are made to the standard periodically (usually five years from the date of the standard) to incorporate changes that appear necessary or desirable, as demonstrated by experience gained from the application of the standard. Proposals should be as specific as possible, citing the relevant section number(s), the proposed wording, and the reason for the proposal. Pertinent documentation would enable the Z16 Committee to process the changes in a more-timely manner.

Interpretations: Upon a request in writing to the Secretariat, the Z16 Committee will render an interpretation of any requirement of the standard. The request for interpretation should be clear, citing the relevant section number(s) and phrased as a request for a clarification of a specific requirement. Oral interpretations are not provided.

Only the Z16 Committee (through the Z16 Secretariat) is authorized to provide any interpretation of this standard.

Approval: Neither the Z16 Committee nor American National Standards Institute (ANSI) approves, certifies, rates, or endorses any item, construction, proprietary device, or activity.

Appendices: Appendices are included in most standards to provide the user with additional information related to the subject of the standard. Appendices are not part of the approved standard.

Committee Meetings: Persons wishing to attend a meeting or join the Committee should contact the Secretariat for information.

Standard Approval: This standard was processed and approved for submittal to ANSI by the Z16 Committee. Approval of the standard does not necessarily imply (nor is it required) that all Committee members voted for its approval. At the time ANSI approved this standard, the Z16 Committee had the following members:

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AMERICAN NATIONAL STANDARD Z16.1 SAFETY AND HEALTH METRICS AND PERFORMANCE MEASURES

1. Scope, Purpose and Application

1.1 Scope

This standard defines requirements and expectations for organizations to establish effective measurement systems that assess safety and health performance, reduce risks, identify gaps in safety and health management systems, and drive needed improvements. It applies to all organizations and provides flexibility based on their size, type of management system and level of organizational risk. The standard can supplement requirements from government agencies, non-government organizations and other groups such as rating agencies that may have their own private or public reporting requirements.

This standard broadens the scope of metrics beyond incident rates and other failure metrics. It promotes the use of leading metrics, metrics related to success, and business impact. Business impacts include effects on productivity, quality, worker well-being, recruitment, retention, morale and engagement, absenteeism, company reputation, financial health, and shareholder value.

1.2 Purpose

This standard helps organizations establish or improve safety and health program measurement, with special emphasis on risk management as a key means to reduce the likelihood of incidents. The standard also provides the means to track and demonstrate the impact that safety and health efforts have on the organization's business. It utilizes a balanced approach to understand and assess safety and health efforts using leading, lagging, and impact metrics. Establishing an effective measurement system supports organizational safety and health governance, accountability, management, operational effectiveness, and continual improvement. This new view of safety acknowledges that only measuring incident rates is not an effective measure of safety and health stability, performance, and resilience.

The approach in this standard helps achieve goals, with checks and balances utilizing leading, lagging, and impact metrics. Without this balance, continual improvement can be challenging. Metrics must be meaningful, informative, and drive change.

The Z16.1 standard outlines a process that encourages integration with organizational management systems using a model to facilitate continual improvement (see Figure 1).