Discussion Point 1

Do you believe leading indicators or lagging indicators are more effective in controlling employee injuries?
Some Current Definitions

• Measurable factors of performance that change before a given cycle starts to follow a particular direction or trend (leading)
• A measure that tends to predict patterns or trends of events that follow it (leading)
• A measure that tends to describe patterns or trends of events that precede it (lagging)

www.investopedia.com, Vanderbilt University School of Medicine
Another Definition

...proactive, preventative, and predictive measures that monitor and provide current information about the effective performance, activities, and processes of an EHS management system that drive the identification and elimination or control of risks in the workplace that can cause incidents and injuries...

Campbell Institute White Paper
Risk and Failure

Risk \[\rightarrow\] 1,000 \[\rightarrow\] Failure

**EXAMPLE METRICS**
- Recordable Incidence Rate
- Lost Time Case Rate
- First Aid Cases
- DART Cases
- Mean Time Between Failures (MTBF)
- Severity Rate

**EXAMPLE METRICS**
- Risk Assessment Score
- Safe Behavior Observations (i.e., % safe)
- Near Misses
- Safety Related Corrective Action Closure Rate
- Audit Findings Closure Rate
Discussion Point 2

What do lagging indicators follow?
What do leading indicators precede?
Leading and Lagging Indicators

• What is my definition of leading and lagging indicators?

  – Lagging indicators measure the duration, scope, magnitude, or frequency of uncontrolled human exposure to hazards
  – Leading indicators measure the presence, effectiveness, scope, or reliability of established barriers that control human exposure to hazards
Discussion Point 3

Are behavior-based safety scores leading or lagging?
Lagging Indicator Examples

• Injury Frequency Counts or Rates
• Injury Severity Metrics
• Most Safe Behavior Observations and Associated Metrics
• Most Audit Findings and Metrics
• Incident Reviews, Corrective Action Closure Metrics
• Hazard Alerts, “Lessons Learned”
• Mean Time Between Failures (very useful, but still lagging)

And many, many more....
Leading Indicator Examples

- Safety improvements acceptance rate 6 months post-deployment
- Risk profiles completed, Risk reduction %, etc.
- Compliance/acceptance of Work Instructions, Standards, JSAs, or Training
- Safety training – completed on time, exceptions tracked, pass rate, % led by primary
- Targeted Safety meetings, safety huddles, etc
- Pre-shift meetings, pre-task reviews
- Mean Time to Closure
- Critical-to-Safety Controls PM completion %
- Process Upset Metrics
- Table-top Exercises, Drills Completed, etc

And many, many more...
Wrap-Up

QUESTIONS?
Reference Links

Leading and Lagging Metrics - Center for Chemical Process Safety