Leading and Lagging Indicators: Measuring Safety

BILL OWEN
BCMA, RCA, CTSP, QCL
### M&M Experiment

<table>
<thead>
<tr>
<th>Bag A</th>
<th>Bag B</th>
<th>Bag C</th>
<th>Bag D</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>8</td>
<td>12</td>
<td>16</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>15</td>
<td>18</td>
</tr>
<tr>
<td>85</td>
<td>10</td>
<td>53</td>
<td>30</td>
</tr>
</tbody>
</table>

- **Black** = Fatality
- **Red** = Serious injury
- **Orange** = Minor injury
- **Yellow** = Near miss
- **Green** = At risk behavior
- **Blue** = Safe behavior

Which bag would you choose?
Heinrich’s Pyramid of Accident Causation

At Risk Behavior: 300,000
Near Miss: 3,000
Minor Injury: 300
Serious Injury: 30
Fatality: 1
Which would you be more concerned about:
Lagging and Leading Indicators

**Lagging**
- Hindsight
- Looking back on past events
- Reactive
- Results-based

**Leading**
- Foresight
- Looking forward/anticipating future events
- Proactive
- Process-based
Why track leading indicators?
Why is this important?
Why is this important?

Those who do not remember the past are condemned to repeat it.
Lagging Indicators: 2 categories

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**Frequency**

- How often do incidents occur?
- Standard IR formula:
  \[
  \text{IR} = \frac{(\text{# of incidents} \times 200,000)}{\text{# of employee hours worked}}
  \]
- How does your IR compare to the industry in general?
  - 2015 Tree care industry IR=4.78

**Severity**

- How bad were the incidents that occurred?
- What is the cost? (physical, financial)
- Injury classification
- EMR-expected vs. actual losses
- Losses/Cost (INS) as a % of revenue
“It’s better to do the right thing the first time than have to remediate.”

- Chesley “Sully” Sullenberger
Leading Indicators

- At risk vs. safe behaviors
- Learning
- Risk assessment
- Hazard Identification
- Preventative/corrective action
- Communication of safety
# How to Track Indicators

Using a dashboard to track your progress towards safety goals can keep you organized, and shows you the status of each metric at a glance.

### Safety Indicator Dashboard

<table>
<thead>
<tr>
<th>Indicator Type</th>
<th>Metric</th>
<th>Goal</th>
<th>Actual</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lagging Indicators</td>
<td>Incident Rate</td>
<td>&lt;10</td>
<td>8.8</td>
<td>Green</td>
</tr>
<tr>
<td></td>
<td># of lost work days</td>
<td>&lt;50</td>
<td>80</td>
<td>Red</td>
</tr>
<tr>
<td></td>
<td>Close calls</td>
<td>&lt;20</td>
<td>30</td>
<td>Red</td>
</tr>
<tr>
<td></td>
<td>$ Losses</td>
<td>&lt;$5,000</td>
<td>$5,100</td>
<td>Yellow</td>
</tr>
<tr>
<td></td>
<td>Mod Rate</td>
<td>&lt;1.0</td>
<td>1.2</td>
<td>Green</td>
</tr>
<tr>
<td>Leading Indicators</td>
<td>Safety meeting attendance</td>
<td>98%</td>
<td>96%</td>
<td>Green</td>
</tr>
<tr>
<td></td>
<td># of Employees trained</td>
<td>50</td>
<td>51</td>
<td>Yellow</td>
</tr>
<tr>
<td></td>
<td># of Employees certified by ISA or TCIA</td>
<td>7</td>
<td>7</td>
<td>Green</td>
</tr>
<tr>
<td></td>
<td>% of completed JHAs</td>
<td>100%</td>
<td>98%</td>
<td>Yellow</td>
</tr>
<tr>
<td></td>
<td>Safety audit average score</td>
<td>90%</td>
<td>78%</td>
<td>Red</td>
</tr>
</tbody>
</table>
# Leading Indicators: Techniques

<table>
<thead>
<tr>
<th>Smaller Company (1-12 employees)</th>
<th>Larger Company (Multiple locations/crews)</th>
</tr>
</thead>
<tbody>
<tr>
<td>At risk and safe behaviors observed</td>
<td>Risk assessment with formal JHAs</td>
</tr>
<tr>
<td>Communication of safety</td>
<td>Hazard identification and correction</td>
</tr>
<tr>
<td>Hours spent on formal industry training</td>
<td># of CTSPs and QCLs on staff</td>
</tr>
</tbody>
</table>
Conclusion

- Tracking lagging indicators is a great way to get a baseline for how your company has performed historically in key areas of safety management.
  - Tracking these also helps you to see the progress you are making towards improving safety.
- Leading indicators help you to manage safety proactively before incidents occur.
Thank you

Questions?

Leading and lagging indicators help you find where your organization is complacent

What's your top issue right now?