Paint By Numbers: Using Metrics to Tell Your Story

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Metrics and what’s in it for you?

- Paint a picture of your program
  - Quantify what IH has accomplished with current resources
  - Quantify work to be completed

- Paint a picture of how the organization supports IH
  - Document the status of IH recommendations
  - Demonstrate systemic problems with implementing them
  - Use metrics to advocate for systemic solutions (e.g., funding for engineering controls)
Agenda

- Definitions
- Step-wise method for developing metrics
- Demonstrating how organization support for IH influences performance
What’s a metric?

- Measures some aspect of performance
  - Three types of metrics
    - Process
    - Output
    - Outcome
What’s a metric? (cont’d)

☐ **Process Metrics**
  - Assess effectiveness of program implementation or business process performance
  - Useful for monitoring how well the business process is producing the product/service
    - Median number of days between request for IH services & provision of services
    - Median number of days between Exposure Assessments for Similar Exposure Groups (SEGs)
      - If your organization is small, track metric for specific employees
    - Average number of hours between report of near-miss & safety investigation
What’s a metric? (cont’d)

- **Output Metrics**
  - Tabulations or records of activity
  - Measure amount of products/services delivered by the program
    - Number of exposure assessments requested by customers
    - Number of exposure assessments completed
    - Total number of employees potentially exposed to occupational hazards
    - Number of employees assigned to SEG
      - If your organization is small, track the number of employees receiving exposure assessments rather than the number of employees assigned to SEGs
What’s a metric? (cont’d)

NOTE!

The terms “process metric” & “output metric” are often used *interchangeably*
What’s a metric? (cont’d)

- **Outcome Metric**
  - Assesses the results of the program with respect to its intended purpose
  - Answers the question: “Did the program have the desired effect?”
    - Were injuries & illnesses rates reduced—how much?
    - Was lost work time due to injury reduced—how much?
    - Did productivity increase—how much?
Fact of Life

- Injury & illness rates are the responsibility of a multidisciplinary team:
  - IH & Safety—Worksite Evaluations & Recommendations
  - Management—Funding for Controls that reduce exposures
  - OH Providers—OH Services & Case Tracking
  - Facilities—Coordination with IH to ensure installed controls meet specifications
Dilemmas

- “No one listens to me.”
- “I don’t have time to measure the performance of my Program.”
- “They keep cutting my budget.”

Decision Makers listen to numbers.

We compete for funding.
You won’t get funding, if you can’t quantify your impact.
Solution!

- Tell your story
  - Quantify what you’ve accomplished with current resources
  - Quantify what still needs to be completed
  - Quantify potential obstacles to continued improvement of occupational environments
  - Quantify program impact
How do you develop IH metrics to quantify performance & impact?

- Make sure metrics have the following characteristics:
  - Concrete
  - Auditable
  - Demonstrate assumption of risk
How do you develop IH metrics to quantify performance & impact? (cont’d)

- Define the work that demonstrates competency
  - Follow documented standard business practice
    - AIHA Exposure Assessment Model or your organization’s Standard Operating Procedure (SOP)
  - Map business practice or SOP using a flow chart to identify potential numerators & denominators for metrics
Define Scope of Work
Step 1

Perform Basic Characterization
Step 2

Establish SEGs
Step 3

Develop Monitoring Plan
Step 4

Characterize Exposures
Step 5

Assess Exposures
Step 6

Report Findings & Recommendations
Step 7

Re-evaluate Exposures
Step 8
Define Scope of Work

Step 1

Perform Basic Characterization

Step 2

Establish SEGs

Step 3

Develop Monitoring Plan

Step 4

Characterize Exposures

Step 5

Potential Denominators & Numerators

- Number of facilities requiring Basic Characterizations
- Number of facilities with completed Basic Characterizations
- Number of employees potentially exposed to occupational hazard
- Number of employees assigned to a SEG
**Potential Denominators & Numerators**

- Number of facilities for requiring Exposure Assessments
- Number of facilities with completed Exposure Assessments
- Number of employees assessed for noise exposures
- Number of employees with noise assessment results > OEL
- Number of employees assessed for inhalation exposures
- Number of employees with inhalation assessment results > OEL
- Number of engineering controls recommended
- Number of engineering controls implemented

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Assess Exposures

*Step 6*

Report Findings & Recommendations

*Step 7*

Re-evaluate Exposures

*Step 8*
Resulting IH Performance Metrics

- % Facilities with complete Basic Characterizations
- % Facilities with complete Exposure Assessments
- % Employees assigned to SEG
- % Employees identified at risk for noise/inhalation exposure $\geq$ OEL
We’re measuring performance but is the information useful?

- Stratified performance metrics may be more useful—they provide greater resolution
  - % Facilities with complete Exposure Assessments
    - % Facilities for which Exposure Assessments complete for all processes
    - % Facilities for which Exposure Assessments complete for more than half of processes (but not all processes)
    - % Facilities for which Exposure Assessments complete for less than half of processes
We’re measuring performance but is the information useful (cont’d)?

- Stratified performance metrics provide more resolution
  - % Employees identified with noise Exposure Assessment results ≥ 85dBA up to 90dBA
  - % Employees identified with noise Exposure Assessment results > 90dBA up to 95dBA
  - % Employees identified with inhalation Exposure Assessment results ≥ one quarter of the OEL
  - % Employees identified with inhalation Exposure Assessment results ≥ half of the OEL
We’re measuring performance but is the information useful (cont’d)?

- We’ve identified lots of IH output metrics

- What about IH **process** metrics?
  - Recall that process metrics assess how well the process is producing the product or service
    - Examples of IH process metrics
      - Median # days between request for IH services & provision of services
      - Median # days between Exposure Assessments for employees on a specific production line / work area
      - Average number of hours between report of near-miss & safety investigation
Solution!

- Now you can tell part of your story
  - Quantify what you’ve accomplished with current resources
  - Quantify what still needs to be completed
  - Quantify how quickly IH is providing services

- Still need to:
  - Quantify potential obstacles to continued improvement of occupational environments
  - Quantify program impact
Quantify potential obstacles to continued improvement of occupational environments

- Earlier we identified potential denominators & numerators that impact improving occupational environments
  - Number of engineering controls recommended
  - Number of engineering control implemented

- Resulting metric is—
  - % Engineering controls implemented
Quantify potential obstacles to continued improvement of occupational environments (cont’d)

- The way the rest of the organization does business greatly influences funding for controls

- How do you deal with this?
  - Measure how the organization responds to IH recommendations
    - These are organization metrics for business processes that influence occupational environments
Quantify potential obstacles to continued improvement of occupational environments (cont’d)

- Organization metrics for business processes that influence occupational environments
  - Median # days between initial recommendation for engineering control & review for funding
  - % Engineering controls approved
  - Median # days between engineering control approval & implementation
  - % Engineering controls implemented
Solution!

- Now you can tell another part of your story
  - Quantify potential obstacles to continued improvement of occupational environments
  - Quantify some aspects of program impact
Outcome Metrics

- Outcome metrics quantify the degree to which the program accomplished its intended purpose
  - Sounds simple…commonly reported outcome metrics include—
    - Injury & illness rates
    - Lost workday rates
    - Workers’ Compensation costs
  - What’s not so simple is quantifying all the factors that contribute to whether or not the above metrics improve
    - Available resources to provide IH services
    - Funding for IH recommendations
    - Timeframe for implementing recommended controls
  - So it’s important to track metrics that characterize all the factors that influence IH outcome metrics
Other Outcome Metrics

- Less common outcome metrics focus on productivity improvements
  - Increase in available man-hours
  - Labor costs avoided to produce product or service as a result of improved efficiency (e.g., resulting from replacing PPE with engineering controls, improving human factors)
Summary

- Use a step-wise process to develop metrics
- Select metrics that are concrete, auditable & demonstrate assumption of risk
- Quantify what IH has accomplished with current resources
- Quantify work to be completed
- Quantify how quickly IH provides services
- Demonstrate the degree to which the organization supports IH
  - Document the status of IH recommendations
  - Demonstrate systemic problems with implementing them
- Use metrics to advocate for systemic solutions (e.g., improving approval process for IH recommendations, funding for engineering controls)
Acknowledgements


Questions