Accident Data Analysis:
Safety in the Numbers
Goals and Objectives

• Identify and locate principal sources of accidents and potential accidents
• Determine nature of accident problem by department or job
• Disclose inefficiencies in operating processes or procedures
• Uncover unsafe practices
• Make safety efforts more effective
How will loss analysis help me and my agency?

Why examine your agency’s loss data?
- Work-related loss events (injuries, illnesses, property damage, liability claims, etc.) negatively affect:
  - Person(s) directly involved
  - Co-workers and supervisors
  - Clients
  - Family
  - Organizational goals and objectives
- Work-related loss events represent a significant drain on already limited economic and human resources.

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When and how often should I analyze our loss data?

• Up to you!
  – At least once each year
  – Quarterly
  – As needed
Sources of Information

• Agency-specific accident report

• OSHA 300 and 200 logs

• G2 WebLink loss data

• Internal accident data base

• Near-miss incident reports
Sources of Information

- G2 WebLink Loss Data
  - EO 52 (99) Master
  - Industrial Claims Report
Sources of Information

- G2 WebLink Loss Data
  - Top Five Job Classifications Report
  - Policy Cost Summary
Now What?

Unsafe Condition

Source

Cost

Lost Time

Target

Unsafe Act

Result

Location
Where do I begin?

• Take a realistic look at your situation
  – If you were to examine your loss experience for each of the past three years, what would you see?
    • 1) relatively low levels of loss
    • 2) moderate levels of loss
    • 3) relatively high levels of loss
Where do I begin?

• If your answer was either 2) or 3), you would then probably observe:
  – Same categories of loss repeating each year
  – Same accident types
  – Same injuries
  – Same loss causes
Where do I begin?

• Are your loss levels going up, down, or remaining the same?
  – Recommend you maintain a log book or spreadsheet of yearly loss statistics
    • Frequency of losses
      » 1) by type and level of severity
      » 2) by organizational unit
      » 3) by major job classification
      » 4) number of employee hours worked
  – Recommend you plot these data on trend line
Recordable Accidents

Year

Frequency

B&G

Faculty

Students

Admin

Police

Athletics

Make a realistic appraisal

• The patterns of loss in your facility or institution will not change unless “changes” are made in the context and conditions that produce and sustain them.

• This will require:
  – Management commitment
  – An understanding of the multiple causes that create and sustain your accident/loss problems
  – Targeted interventions that will alter and shape your organization’s safety culture
  – Motivation, enforcement, and reinforcement
What is Multiple Causation?

• Losses don’t just happen, they are caused
  – People (workers, co-workers, supervisors, patients, inmates, clients) contribute to causation
  – Tools, machinery, equipment contribute to causation
  – Conditions in and around the immediate work environment contribute to causation
  – Organizational Culture (not your formal policy, but the informal way “things are really done around here”) contributes to causation
  – Management (policies & procedures, training, supervision, communications, etc.) contribute to causation.

• So, look for and expect “multiple causes”
General principles of loss data analysis

• Increase the power of your loss-reduction efforts
  – Dig deeper and develop a “multiple cause” understanding of your repeating yearly patterns of loss
  – Build and package your loss-reduction (or cost containment) efforts so they target the identified multiple causes;
    • people
    • materials, equipment
    • work or job environment
    • management (supervisory policies, training, communications, discipline, procedures, etc.)
  – Invest sufficient management commitment (time, resources, and follow-through) so that your loss-reduction efforts reach critical mass (i.e., they have the power and potential to produce real change)
Organizing the Data

- Weekly
- Monthly
- Quarterly
- Semi-annually
- Annually
- Calendar year
- Fiscal year
Step 1: Break it Down!

Do not collapse or summarize your data too soon! Break it down! Keep it specific!

(Rule: specific to general)

- Log/tally your loss events so they may be sorted and evaluated using the following **key attributes:**
  - Job Classification (Occupation)
  - Organizational Unit
  - Actual *Physical Location* (use a spot map to see if/where losses cluster)
  - Facility/Institution
  - Other:

- You can always add your key attribute reports together to create a summary, but it’s impossible to use a summary sheet to isolate key attribute specific data.
Breakdown Information

• Analyze information
  – Frequency
  – Severity
  – Near misses
  – Categories
Important Information

- Description of accidents
- Total number of injuries
- Total number of lost work days
- Total dollars incurred
Step 2: Prioritize your loss events

Rank your loss events by *key attribute* (i.e., org. unit, job classification, etc.)

- A variety of rankings are possible to evaluate each *key attribute* grouping:
  
  - **Frequency** (use raw numbers to rank)
    - number of incidents
    - number of lost workdays
    - number of restricted workdays
  
  - **Exposure** (use rates to control for differences in numbers of workers exposed; see Appendix A for a helpful handout on calculating various types of rates)
    - accident/injury incident rate (per 100 FTE workers)
  
  - **Severity** (use $, number of lost work days, etc. to rank)
    - Total Medical + Total Indemnity
    - Lost Workday Case Rate (per 100 FTE workers)
    - Lost Workday Rate (per 100 FTE workers)
Step 3: Examine the patterns

Focus in on the patterns of loss that appear most meaningful and accessible to control.

- Examine your ranked listing(s) of losses grouped by the key attribute(s) that make the most sense to you;
  - Job Classification (Occupation)
  - Organizational Unit
  - Actual physical location (use spot map to see if/where losses are clustering)

- For each job classification (or organizational unit -- or high accident location) prepare the following:
  - a ranked listing by accident type
  - a ranked listing by loss cause
  - a ranked listing by injury
  - a ranked listing by body part
Remember

- Look at the big picture
- Rank losses
Step 4: Ask Important Questions

**Q1:** Where are our accidents/losses occurring? What organizational units, employee classifications, and/or physical locations are at greatest risk?

- analyze by organizational unit
- analyze by job classification
- analyze by physical location
- other

**Q2:** What are the most frequent types of accidents/losses associated with each unit, job, or location? What are the financial (and other) costs?

**Q3:** Are these losses growing, declining, or remaining about the same over time?
Step 4: Ask Important Questions

Q4: What are the causes and outcomes of our most serious loss patterns? (For your top ranked organizational units, job classifications, and/or physical locations, dig deeper to discern underlying patterns of):

- accident type
- loss cause
- injury
- body part
- others (e.g., time of incident, sex, age, etc., if relevant)

Q5: Clarify and list the factors and conditions that create and sustain these loss patterns. Look for problems with:

- individual and group behaviors
- materials and equipment
- facilities design/maintenance
- management oversight and supervision
- training/development
- other:
Determining Importance

Knowing 40% of on the job accidents involve ladders

VS.

Knowing that 80% of the ladder accidents involve broken rungs
Step 4: Ask Important Questions

Q6: Examine how your organization’s “culture” supports and maintains observed patterns of loss.

Q7: Develop cost-containment and loss-reduction program strategies targeting identified loss patterns.

• fix obvious and immediate short-term problems
• develop strategies and internal agency commitment to resolve larger “culture” issues
!!Caution!!

- The category with the largest number of injuries is not always your greatest area of concern.
Example:

1000 paper cuts 4 Back injuries
Cost - $300.00 Cost - $500,000
Lost Time - 0 days Lost Time - 595 days

*Remember, look at the big picture to determine the greatest risk.
Summary

1) Analyze the loss patterns occurring within your agency, institution, or facility -- at least once annually; quarterly if possible

2) Make sure the data you collect are accurate (i.e., first report of accident, etc.)

   Rule: GIGO (Garbage In-Garbage Out)

3) Keep Data Specific (to organization units, job classifications, physical locations)

   Rule: Specific to General

4) Focus on Multiple Causes

5) Ask Important Questions

6) Target Your Loss Reduction Efforts:
   - Short-Term Fixes to Fix Immediate Problems
   - Long-Term Strategies to Create a Safe Work Culture
Questions????