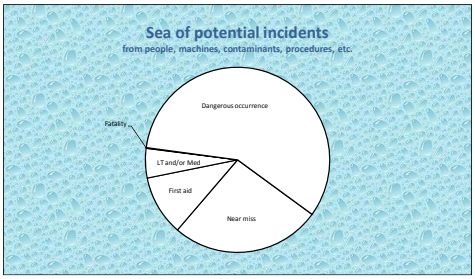
Control Charts and Injury/Illness Analysis

Presentation to the spring 2008 UW System Safety and Loss Prevention meeting, River Falls, WI

Overview

- What are we analyzing? What is missed?
- Control chart review
- Data for monthly employment
- Questions for you
  - What is useful? What is not?
  - What else might be useful?

What are we looking at?



What are we looking at?

- Lagging indicator
  - Retrospective, little predictive value
- Only those events that are reported and recorded
  - Currently have no data to suggest how much is unreported
- Tracking failures, implies loss avoidance
- However, it is one of the baseline measures of outcomes

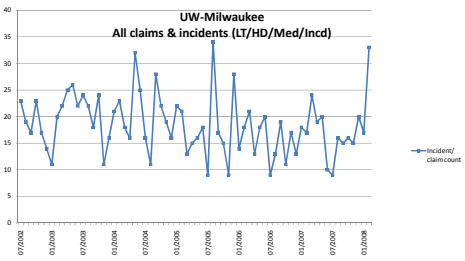
Control Chart Review

Using historic program data

- Monthly data (roughly even sample sizes)
  - Suggested minimum number of months, 25 to 60
  - For most campuses, the monthly count of lost workday cases will be too low to yield meaningful results—use all recordable incidents
- Run chart

Historical data

Graphical record of incidents

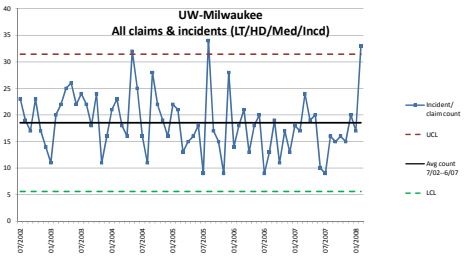


Control limits

- Derived from the average of the baseline data
- Typically set at ± 3 standard deviations
- Data point outside of this is highly unlikely to be result of random variation
  - There should be an assignable cause

Creating the control chart

Add the average and ±3 standard deviation



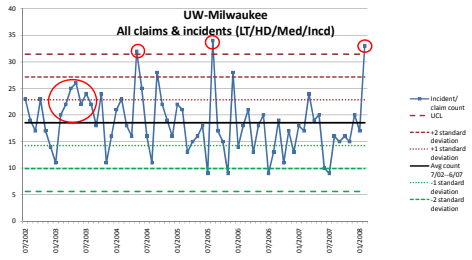
Out of control data

- Data outside of control limits
- Other out of control trends
- Effect on setting the baseline

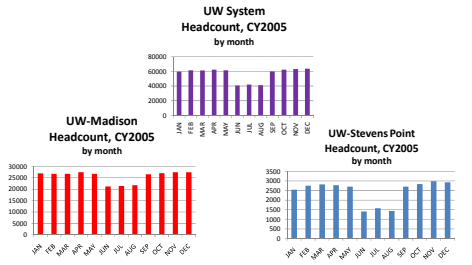
Out of control data

- Definition of a trend for control charts
  - 1 point outside the control limits
  - 2 out of 3 points two standard deviations above/ below average
  - 4 out of 5 points one standard deviation above/below average
  - 7 points in a row all increasing/decreasing
  - 7 points in a row all above/below average
  - 10 out of 11 points in a row all above/below average

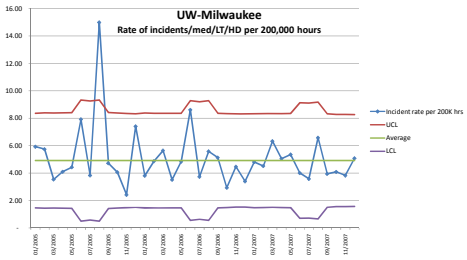
Expected vs. unexpected data



What about seasonal employment variations?



Adjusting for variable sample size



Plan for OSLP action, FY09
Injury/Illness Analysis

- Listen to your ideas for what we should look at
  - At your campus
  - Across UW System campuses
  - Comparison to others
- Prioritize
  - Long-term, on-going metric
  - Short-term, hot topics
- Each month, develop one new data aspect
  - Finalize STARS report format to update system-wide C-chart on quarterly basis.
  - Look at age vs. incident rate.
  - Look at causes for summer vs. academic year.
- Report to campuses every 4 months on findings
  - For up to one year
  - Revisit usefulness May '09

Your Ideas

Resources

- http://www.uwsa.edu/oslp/safety/uwsres/presentations.htm
- http://www.hanford.gov/safety/vpp/vppage.htm
- *Safety Metrics: Tools and Techniques for Measuring Safety Performance*, Christopher Janicak, 2003, Government Institutes
- *Accident Prevention Manual for Business and Industry: Administration and Programs*, Krieger and Montgomery, 1997, National Safety Council
- *Quality Control and Industrial Statistics, 4th Ed.*, Acheson Duncan, 1974, Richard D. Irwin, Inc.