Histograms

Steven S Prevette

Senior Statistician
Savannah River Nuclear Solutions, LLC

SPC Trending Primer/ Two Day Training

**http://www.efcog.org/wg/esh_es/Statistical_Process_Control/index.htm**

Exercise Description

- **Once you have identified a time period of interest on a control chart, you may want to determine characteristics of the data**

- **A Histogram allows you to categorize quantitative data**

- **Can be used to display the data distribution**

http://www.efcog.org/wg/esh_es/Statistical_Process_Control/docs/Histograms.pdf

Example Histogram

Number of Lost and Restricted Workdays per Case for the past Seven Months
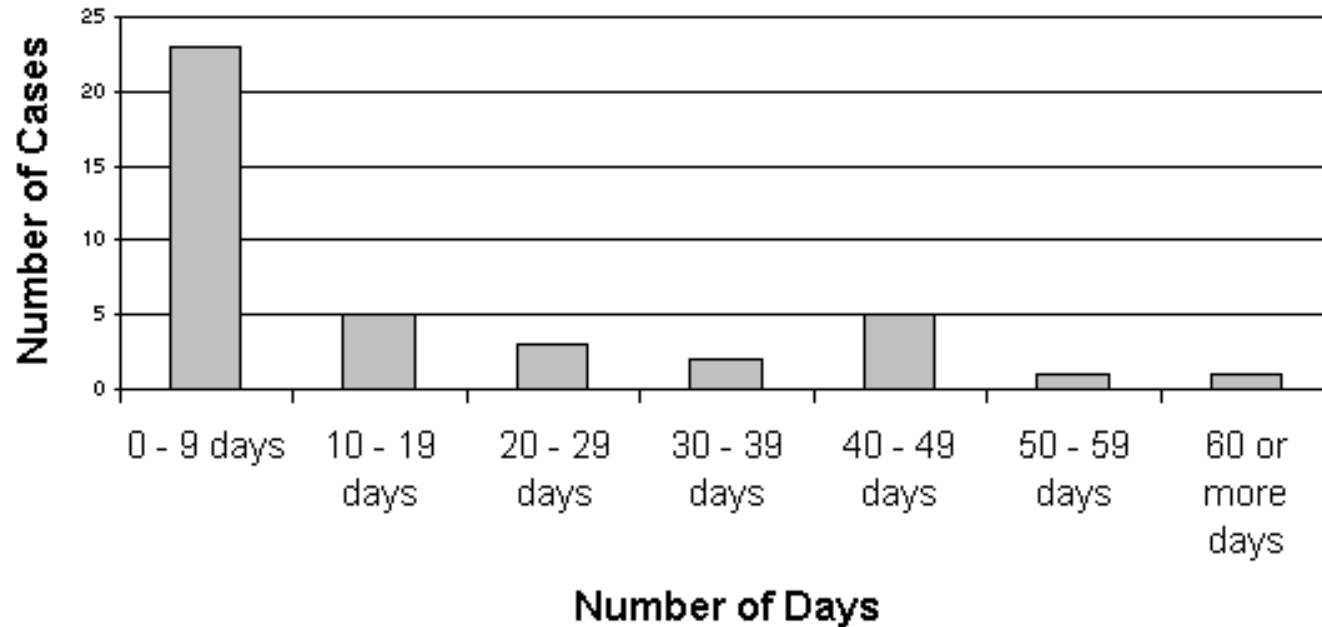
Histogram and SPC Relationship

Trend Exists on Control Chart?	Data Points Used	Purpose
No	**Use all data in the statistically stable time period**	**Find Common Cause(s) to apply to process improvement**
Yes	**Use only the data for the point(s) which have been identified as within the significant trend, such as a point outside the control limits**	**Find Special Cause(s) for basis of corrective actions for declining trends or reinforcing actions for improving trends**

Histogram Exercise

- **Let us make a histogram of the height of people in this room**

- **Open file Histogram Generator.xls**

- **We will go around the room, everyone please state their height in inches, and we will enter the data in column A**

- **Then follow instructions on the Excel spreadsheet**

Warning

- Be sure to understand the control chart's trending versus time before making Histograms or Pareto Charts

- It is Rocket Science – Rocketdyne was perplexed that holes drilled in a rocket part showed a good "Normal" (bell shaped) distribution, but holes were still going out of specification. What the histogram did not show was that the holes were getting smaller with time due to tool wear.