

# Finding the Right Tool for your Purpose

Using Data to Show Improvement and the Need for Improvement

# Data

- Why does it matter?
- Why do we use it?
- Why don't we use it?
- How can we make the most of it?

# What is the story that you want to tell?

- What kind of data do you need to tell that story?
  - Incremental data over time
  - Point-in-time snapshot
  - Exact measures or averages or ranges

# Using data to drive improvement

- What is the problem?
- How do you know that it's a problem?
- Is the problem obvious to everyone?
- Is the problem important and relevant?
- Can you prove that it's a problem?

# Using data to illustrate the problem

- What do you know?
- What do you want others to know?
- What do you want others to decide?

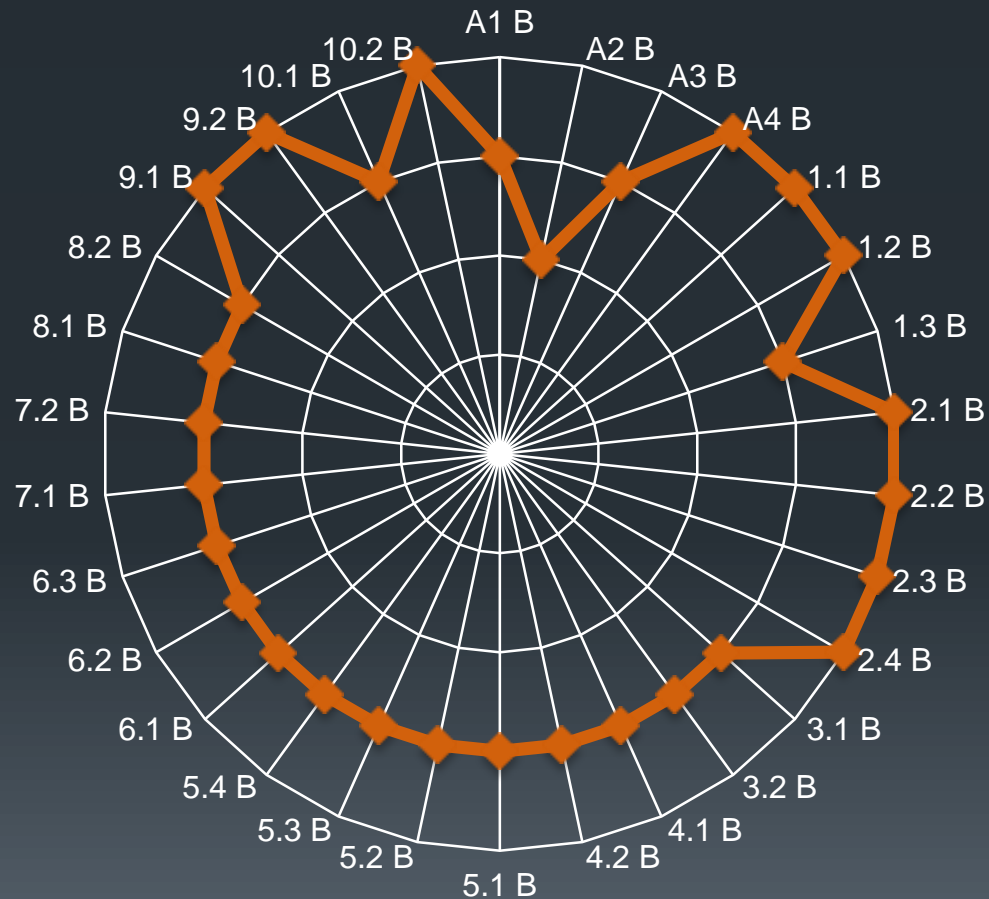


# Selecting the right tool

- Radar Charts
- Pareto Diagrams
- Histograms

# Radar Chart

The Measures Capture the Important Components of the Standards



# What does it do?

- Displays important categories of performance
- Defines full performance for each category
- Shows gaps between current and full performance
- Captures range of perceptions about performance
- Provides data to support priorities for improving performance

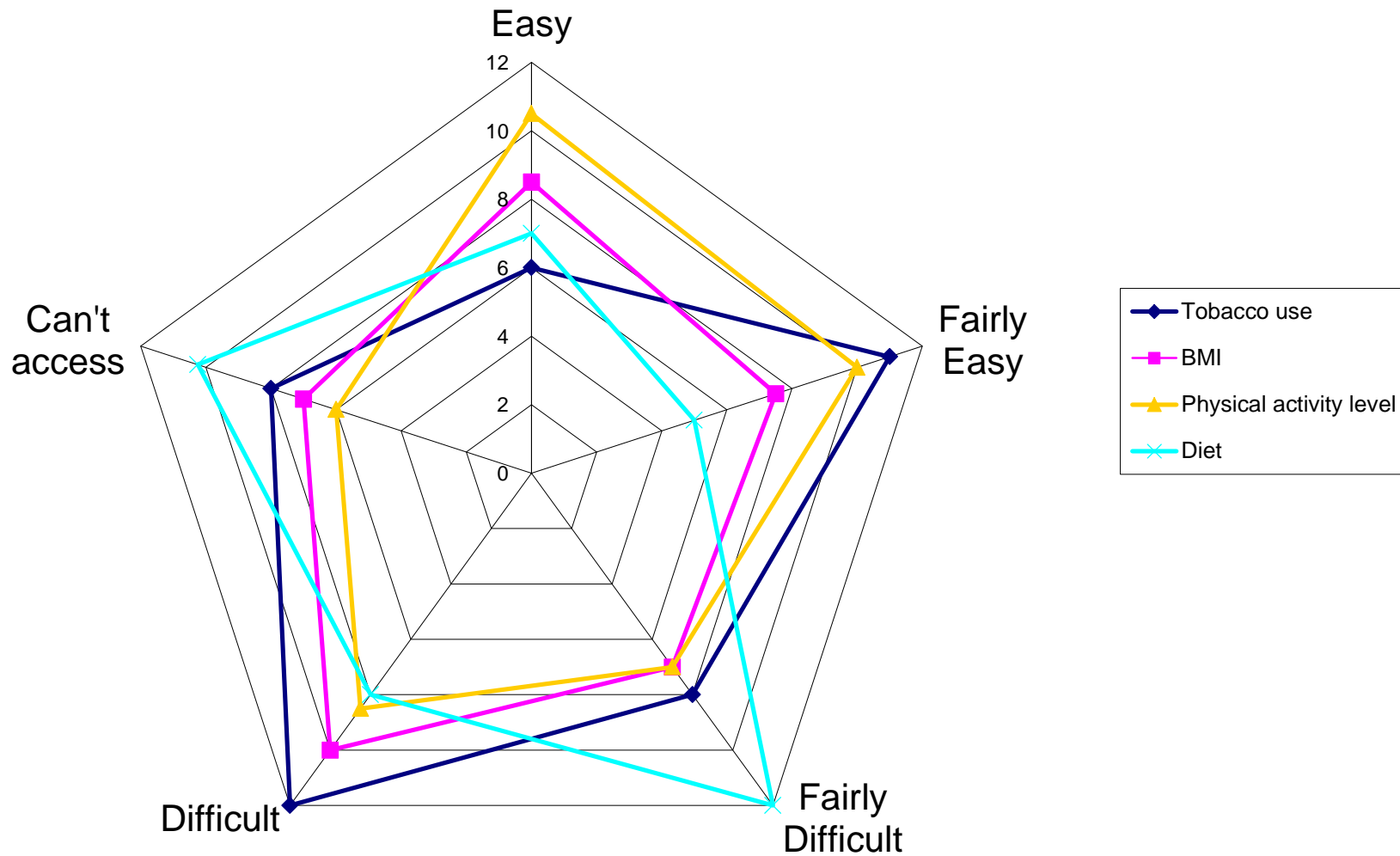


# How to do it?

- Assemble the right team
- Select and define rating categories
- Rate each category
- Connect the team ratings
- Create the Chart (Excel will do it for you)

	Easy	Fairly Easy	Fairly Difficult	Difficult	Can't access
Tobacco use	9.75	11	8.25	7.5	8
BMI	8.5	7.5	10	10	7
Physical activity level	10.5	10	7	8.5	7.5
Diet	7	9.25	11.5	11	10.25

# During routine clinical or home visits, how easy is it to access the following patient information



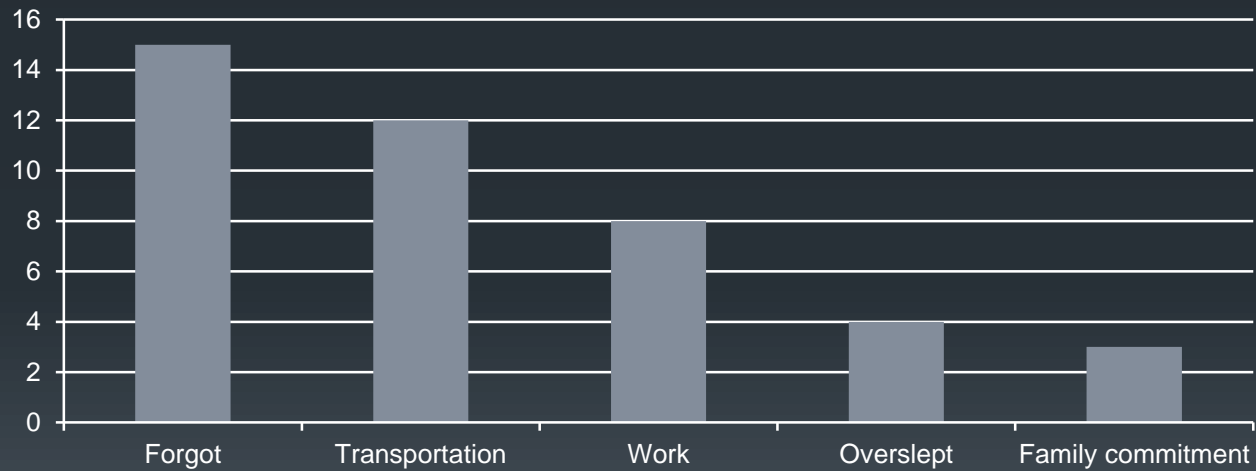
# Interpretation

- Identify the biggest gaps in performance
- Identify the most critical categories of performance
- Focus on the biggest gaps in the most critical categories



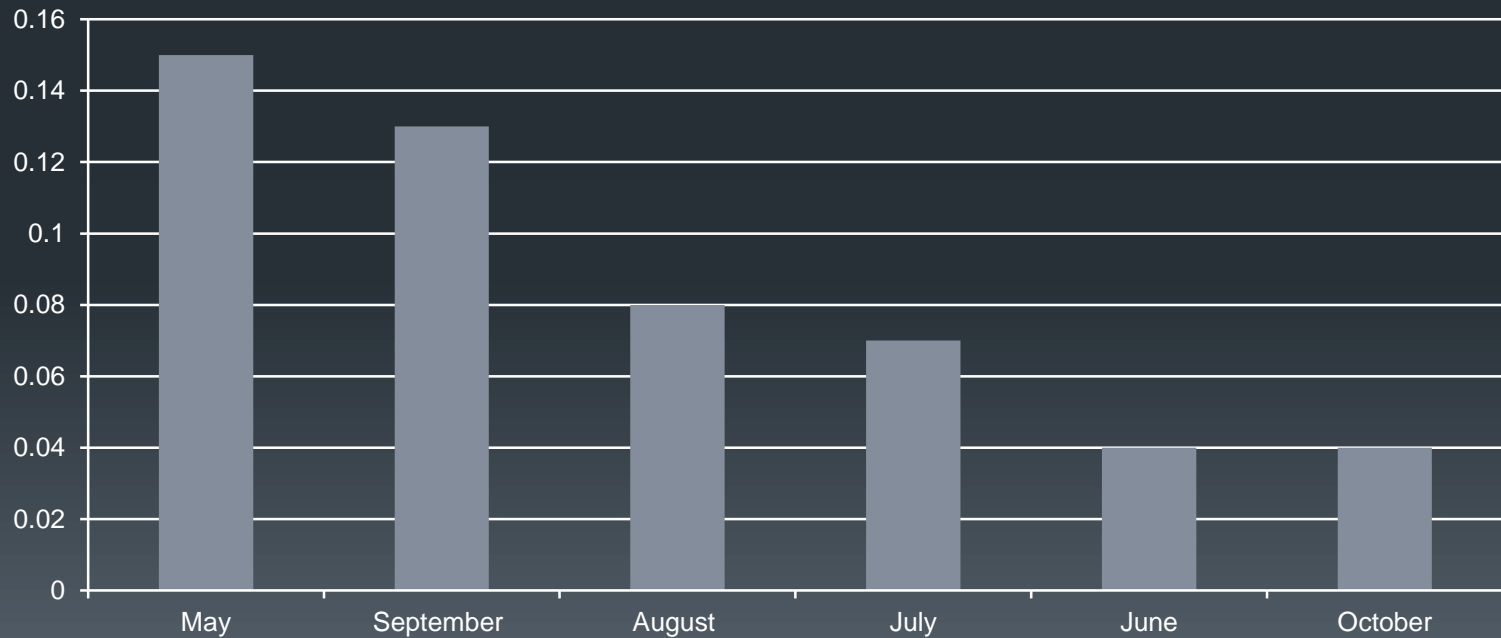
# Pareto Diagrams

Reasons for Appointment No-Shows



# Pareto Diagrams

## Rate of Appointment No-Shows



# What does it do?

- Focuses attention on most significant causes
- Displays relative importance of different causes
- Prevents shifting the problem to other causes
- Allows for ongoing measurement of progress

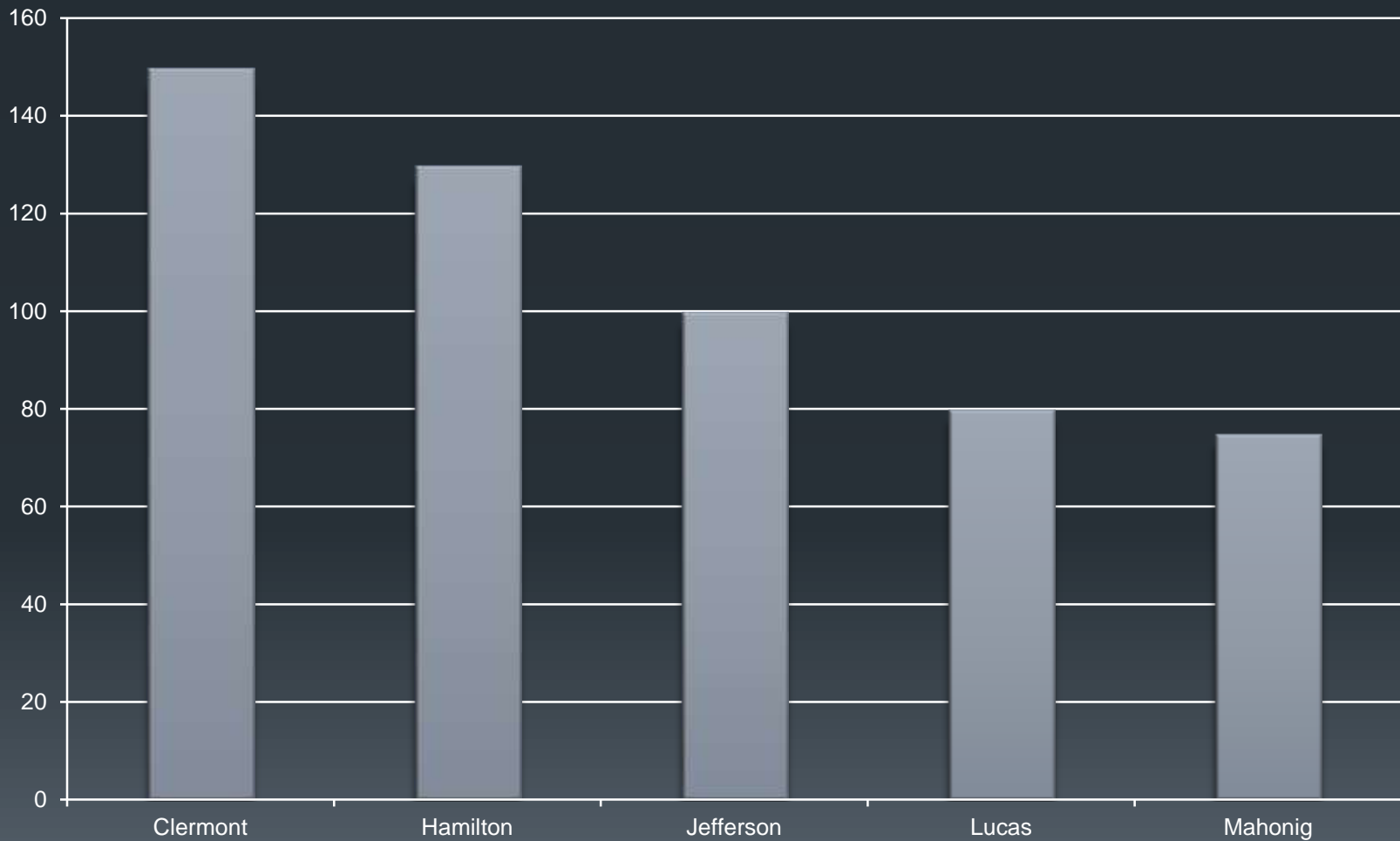
# How to do it?

- Identify the problem
- Select the aspect of the problem that will be reviewed
- Choose the most meaningful unit of measurement
- Decide on the time period for the measurement
- Compile the data
- Create the chart (Excel will do it for you)

## Average Distance (meters) to Stores with Healthy Food

Clermont	150
Hamilton	130
Jefferson	100
Lucas	80
Mahonig	75

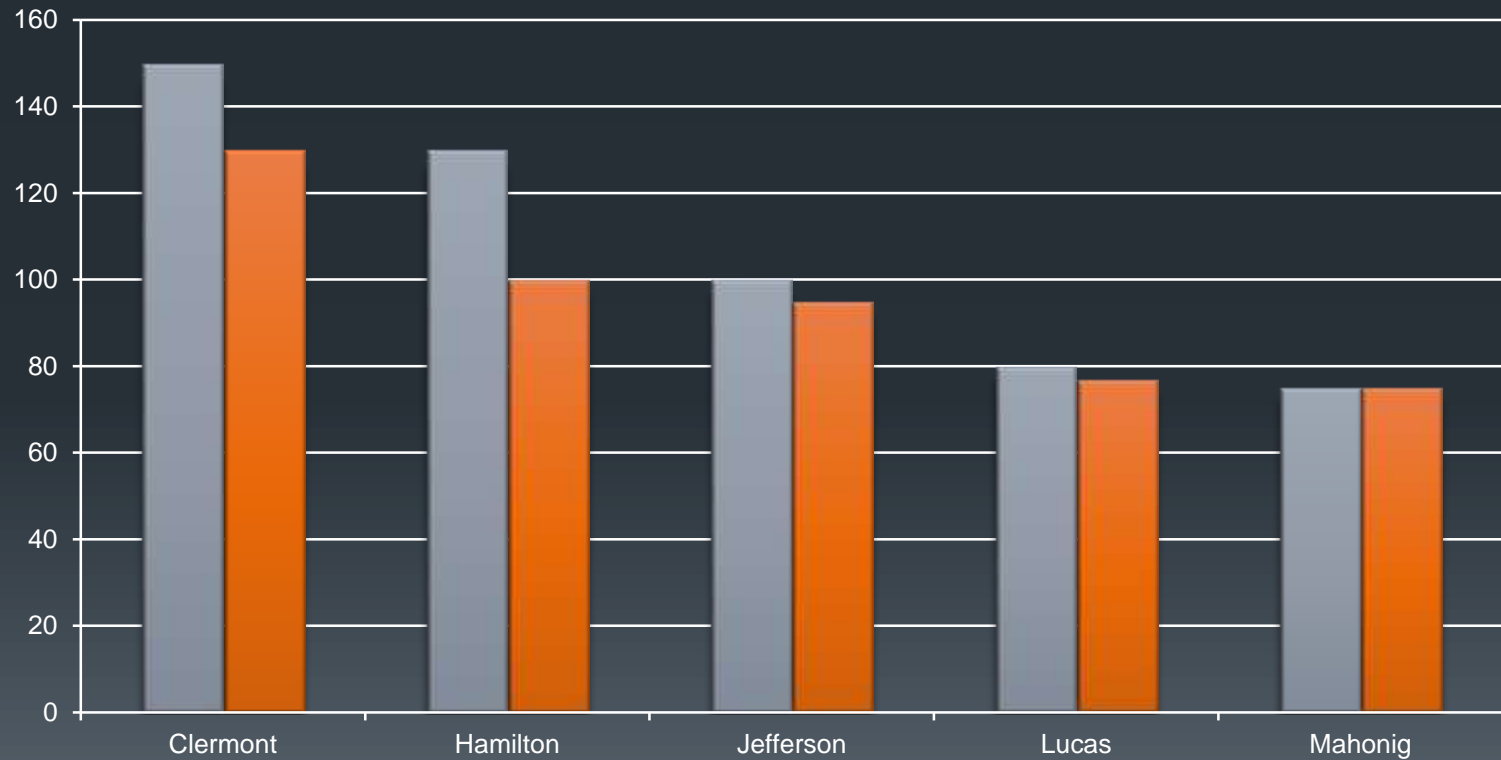
## Average Distance (meters) to Stores with Healthy Food





# Before and after

**Average Distance (meters) to Stores with Healthy Food**

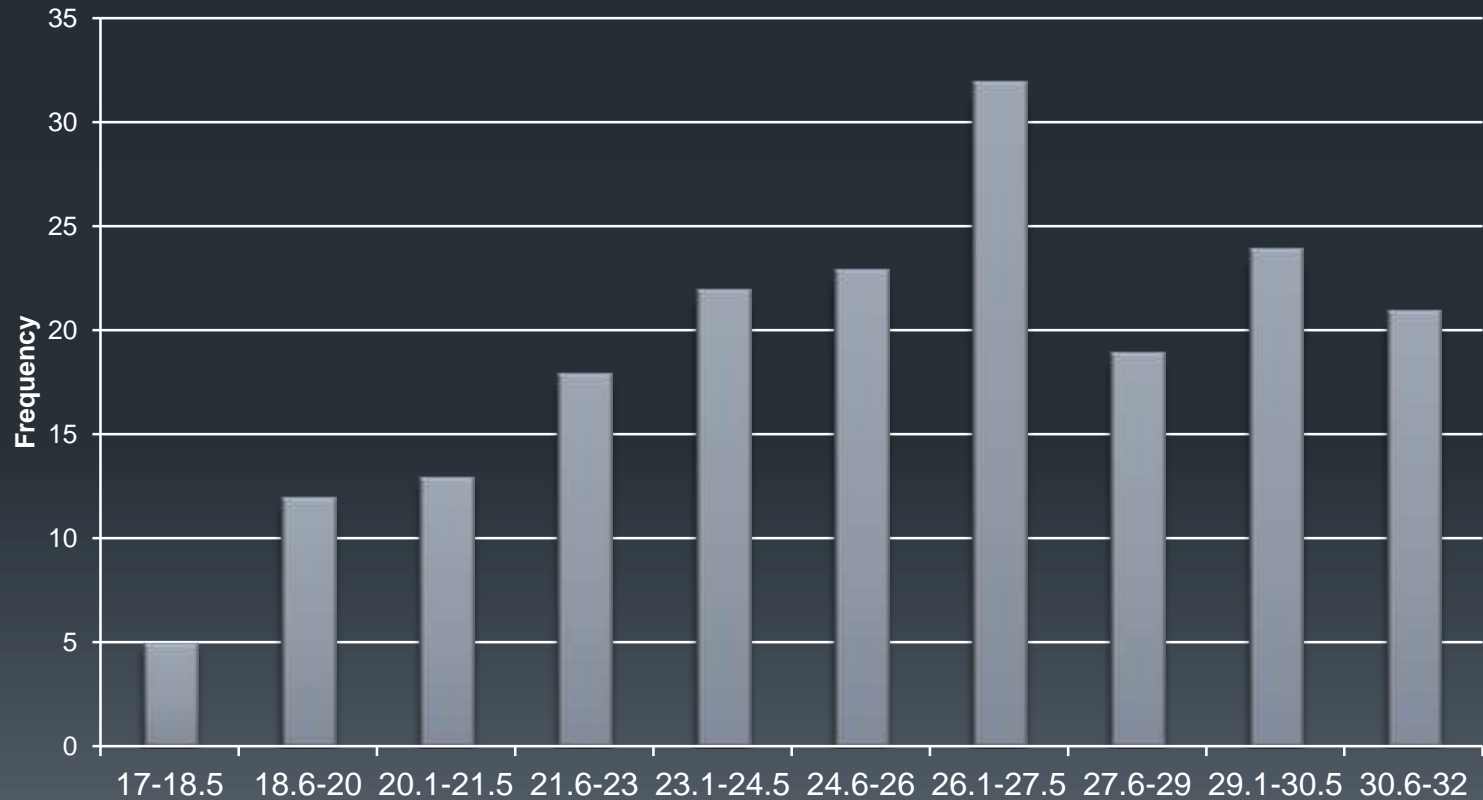


# Interpretation

- Tallest bars indicate the biggest contributors to the overall problem (as a general rule)
- Focus your improvement strategy on what will make the biggest difference to your audience or stakeholders

# Histograms

**BMI for Patients in Primary Care Clinic**



# What does it do?

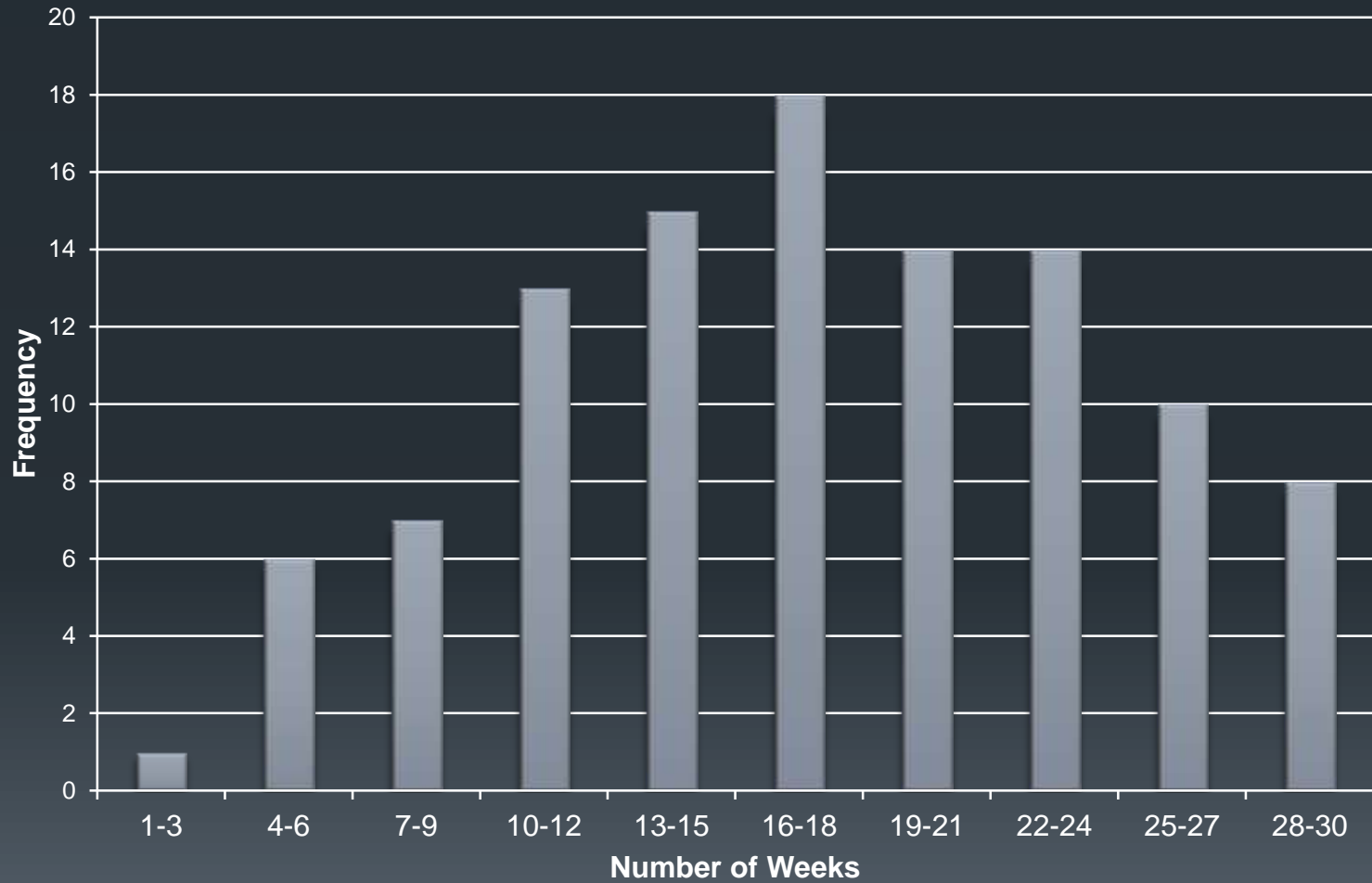
- Displays large amounts of data in visual format
- Shows relative frequency of various data values
- Illustrates underlying distribution of the data
- Provides information for predicting future performance
- Reveals the shape and variation of the data

# How to do it?

- Decide on the indicator to be measured
- Collect at least 50 data points
- Prepare a frequency table from the data
- Group the data into intervals
- Create the histogram

Time to Finalize Contract	
Number of weeks	Frequency
1-3	1
4-6	6
7-9	7
10-12	13
13-15	15
16-18	18
19-21	14
22-24	14
25-27	10
28-30	8

## Time to Finalize Contract



# Interpretation

- Consider where the distribution is centered
- Analyze the variation and spread of the data
- Look at the shape of the distribution
- Consider these factors in the context of targets

# Using data to measure improvement

- How will you know that change is improvement?
- When will you know that the improvement is real?



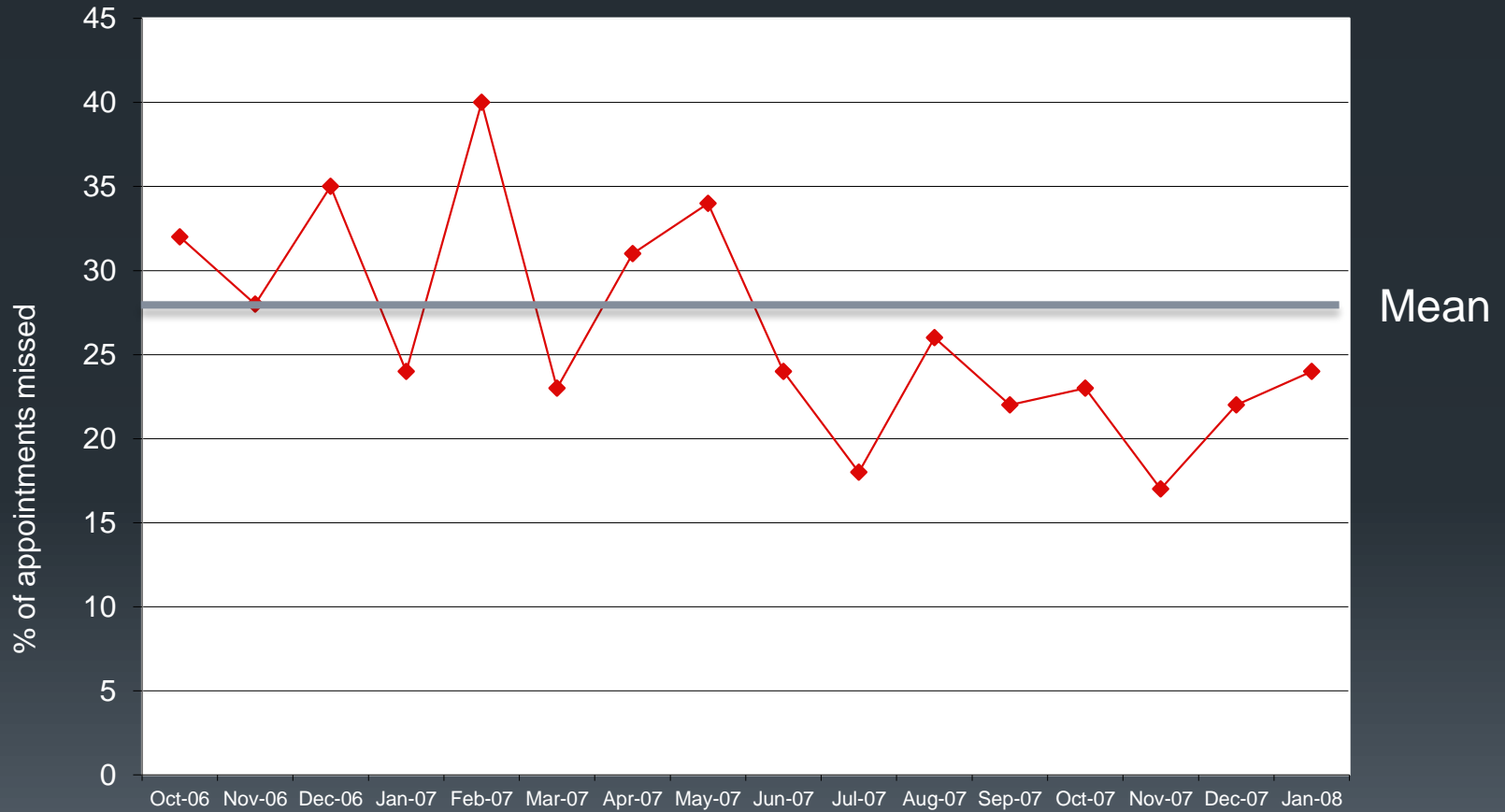


# Selecting the right tool

- Run Charts
- Control Charts
- Histograms

# Run Chart

WIC No Show Rate - Isanti County  
Run Chart



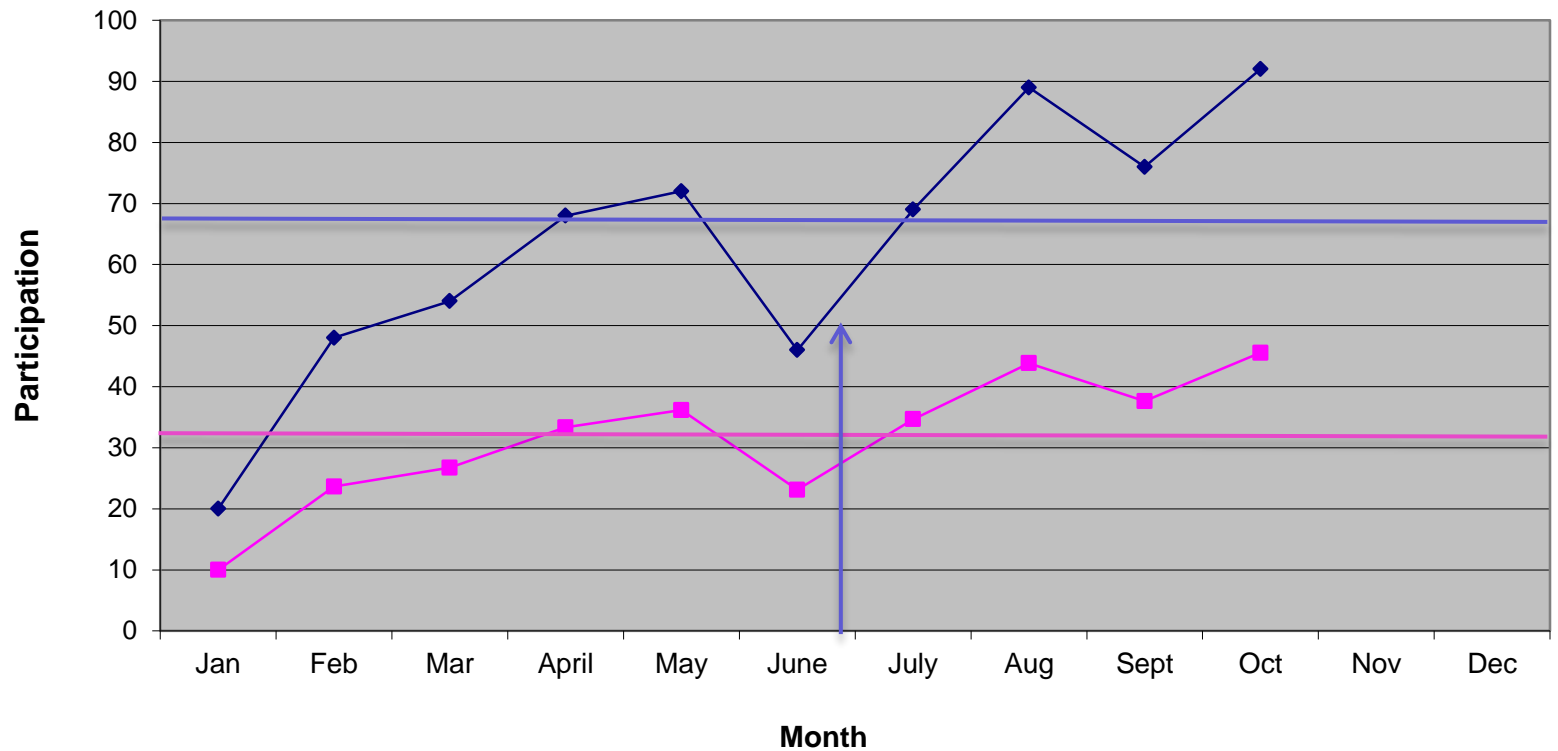
# What does it do?

- Monitors performance over time
- Allows for comparison of measurement before and after implementation of an intervention
- Tracks information for predicting trends

# How to do it?

- Select the indicator to be measured
- Collect the data
- Create the graph
- Plot the data

## Participation in Employer Sponsored Physical Activity Programs



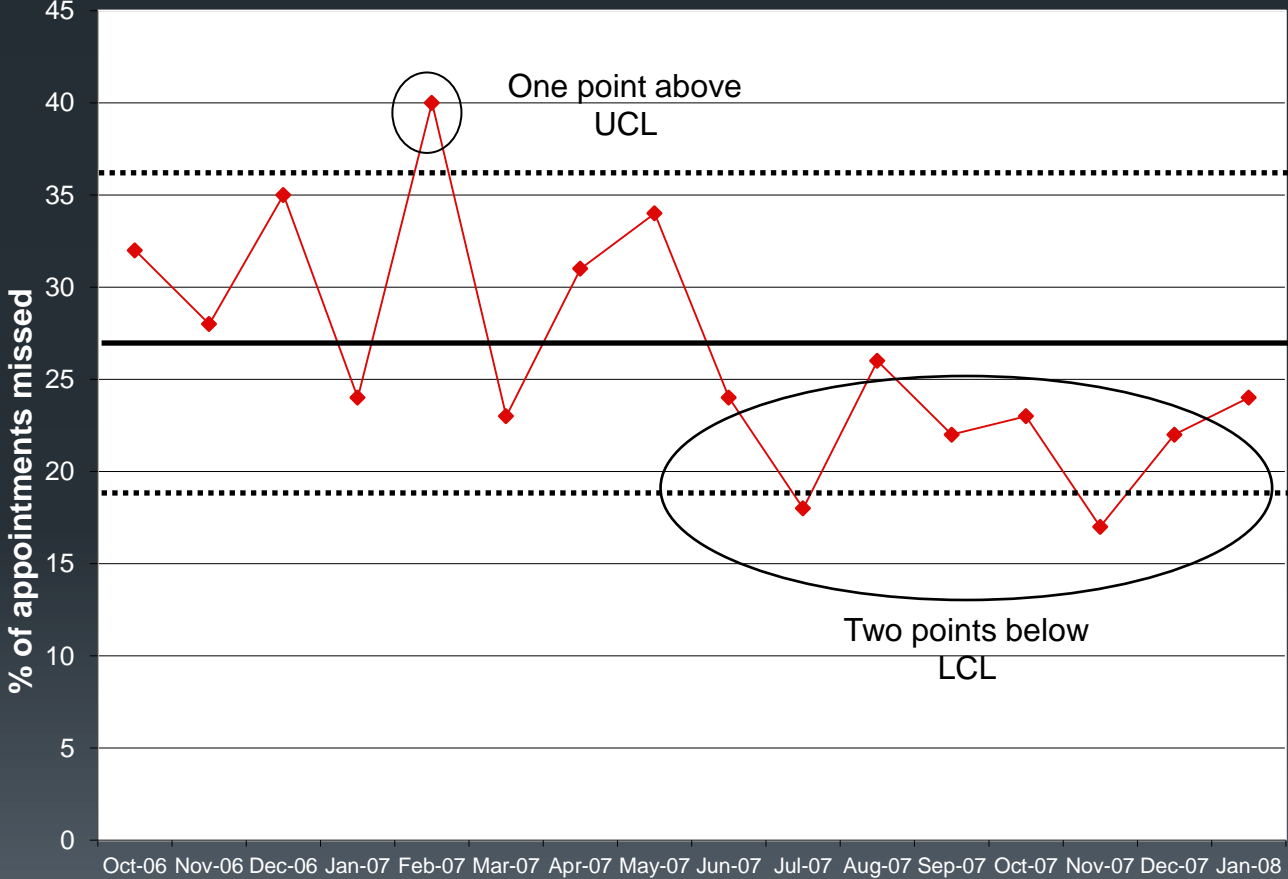
- ◆ Number of employees participating in two sessions
- Percent of employees participating in two sessions

# Interpretation

- Look for obvious patterns or trends
- Consider the position of the average value
- Do not assume that all variation is important

# Control Charts

WIC No Show Rates - Isanti County Public Health



Control limits, along with the centerline (mean), describe the capability of a common cause system

UCL = 36  
Mean = 28  
LCL = 19

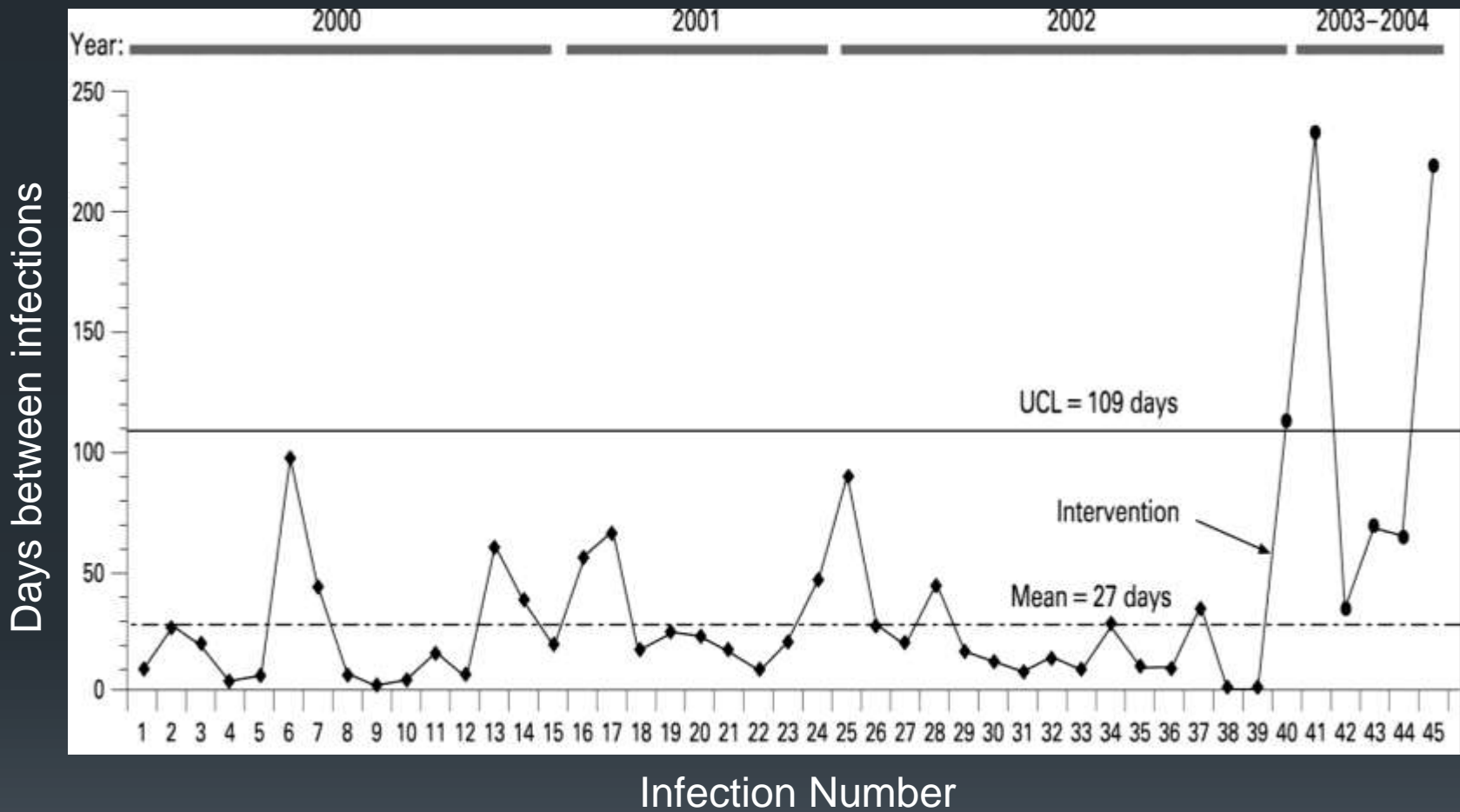
# What does it do?

- Detect and monitor process variation over time
- Distinguish between special and common cause of variation
- Serves as a tool for ongoing control of a process
- Helps improve a process to perform consistently and predictably



# How to do it?

- Select the process to be charted
- Determine sampling method and plan
- Initiate data collection
- Calculate the appropriate statistics (standard deviation, mean, median)
- Calculate the control limits
- Construct the Control Chart



Ogrinc G et al. Qual Saf Health Care 2008;17:i13-i32

# Interpretation

- Analyze the data relative to the control limits
- Distinguish between Common causes and Special causes of variation.
  - Common cause: variation results from factors inherent to the process. This variation can only be affected by changing that process.
  - Special cause: variation caused by external influences such as human errors, unplanned events, or unusual occurrences. Special causes should be eliminated.
- The amount of variation from special causes is usually much greater than it is for common causes.

# Driving to work each day

- Average time: 14 minutes
- Common causes of variation:
  - Miss or make the traffic lights
  - Amount of traffic on the road
  - Weather – wind, sun, rain

# Driving to work each day

- Special causes of variation:
  - Flat tire
  - Parade or protest on your route
  - Speeding ticket

# Interpretation

- A special cause is indicated when
- One or more points are outside the UCL or LCL
- Two out of three successive values are: a) on the same side of the centerline, and b) more than two standard deviations from the centerline.
- Eight or more successive values fall on the same side of the centerline.
- Six or more values in a row are steadily increasing or decreasing.

# Data Tracking and Display

- Integrate data collection into daily routine whenever possible
- Simple graphs and charts can help tell your story - a picture can be worth a thousand words
- Keep your audience in mind
- Consider your message
- Label clearly

# Questions?

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