The ABCs of QI:

Session 2: Using Data for Quality Improvement

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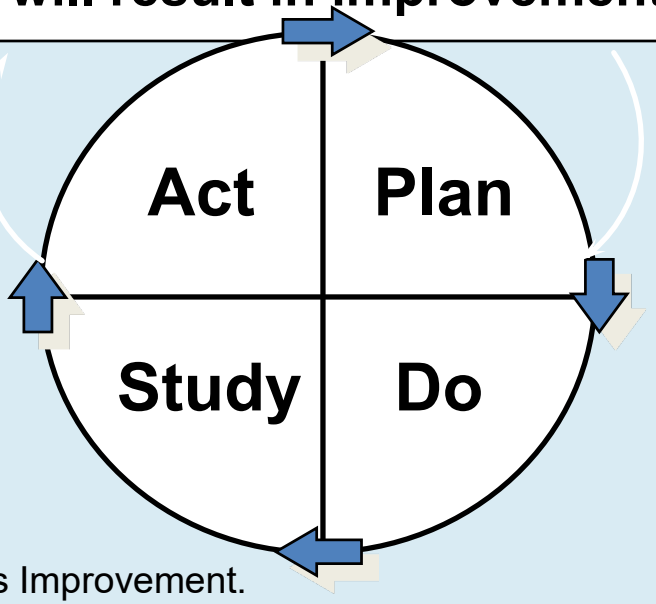
Review Session 1

Model for Improvement

What are we trying to accomplish?

How will we know that a change is an improvement?

What changes can we make that will result in improvement?

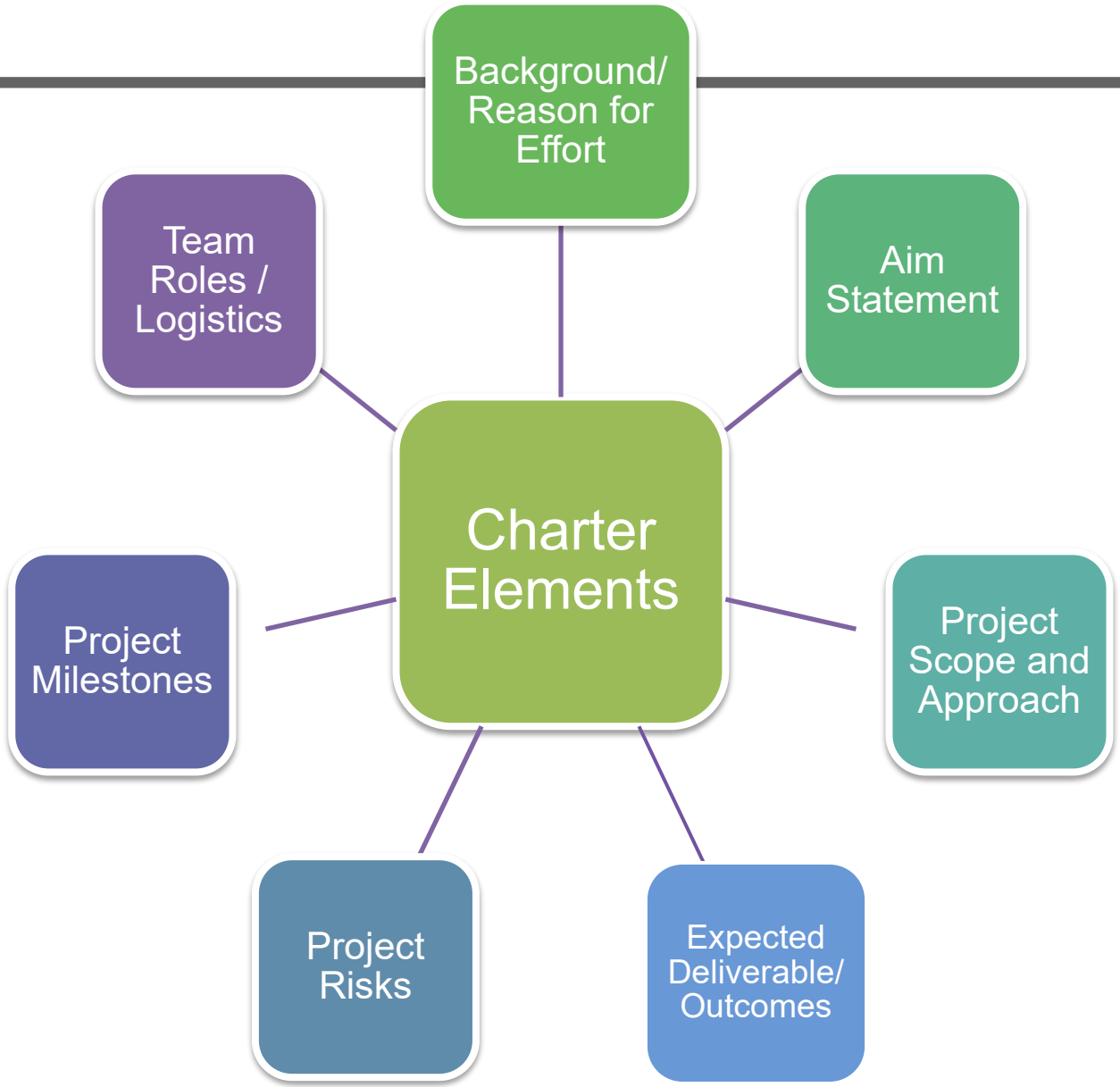


From Associates in Process Improvement.

Review Session I – Aim Statement

- Aim statements should meet the SMART criteria:
  - **S**pecific
  - **M**easureable
  - ~~**A**chievable~~ **A**mbitious
  - **R**elevant
  - **T**ime-bound
- Aim statements should be developed with a team and should consider what factors might influence the scope

Review Session 1 – Project Charter



Questions

Learning Objectives

1

Understand the importance of data context to interpret current data

2

Learn how to construct run charts

3

Interpret run charts using special cause variation

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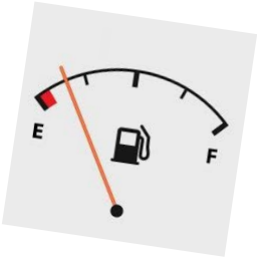
Data for Quality Improvement

What is Data?

- Merriam-Webster:
  - Facts or information used as a basis for reasoning, discussion, or calculation

- FreeDictionary.com:
  - A series of observations, measurements, or facts; information

Data Drives Personal Performance



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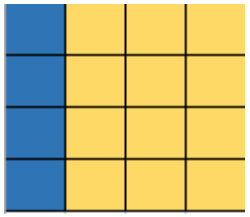
Data for Quality Improvement

Understand	• How does the current system perform?
Predict	• What interventions might improve the performance of the current system?
Evaluate	• Did our interventions result in improvement?
Monitor	• Are our improvements sustained over time?
Engage	• What do stakeholders need to know?

Calculating Percent

- Numerator/Denominator * 100 = percent
- “North Dakota”
- Examples:
  - **3**/4 = .75  .75*100 = 75%
  - **4**/16 = .25  .25*100 = 25%

Online tutorials on percent available at: https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-ratios-prop-topic#cc-6th-percentages

Important Questions about Data

Consider the **context** of the data:

- How does the data compare to…
  - Data in previous months, quarters, or years?
  - My organization's performance goals?
  - Performance of similar organizations (benchmarking)?
  - Industry standards?
- Is this what I expected to see? Does it make sense given what I know about my organization?
- Does performance differ by subgroup?

Examples of Data Without Context

- The Dow Jones Industrial Average plunged 1,033 points.
  - **It was a 4.2% drop from the previous day.**
  - **The Dow has been >20,000 points since March.**

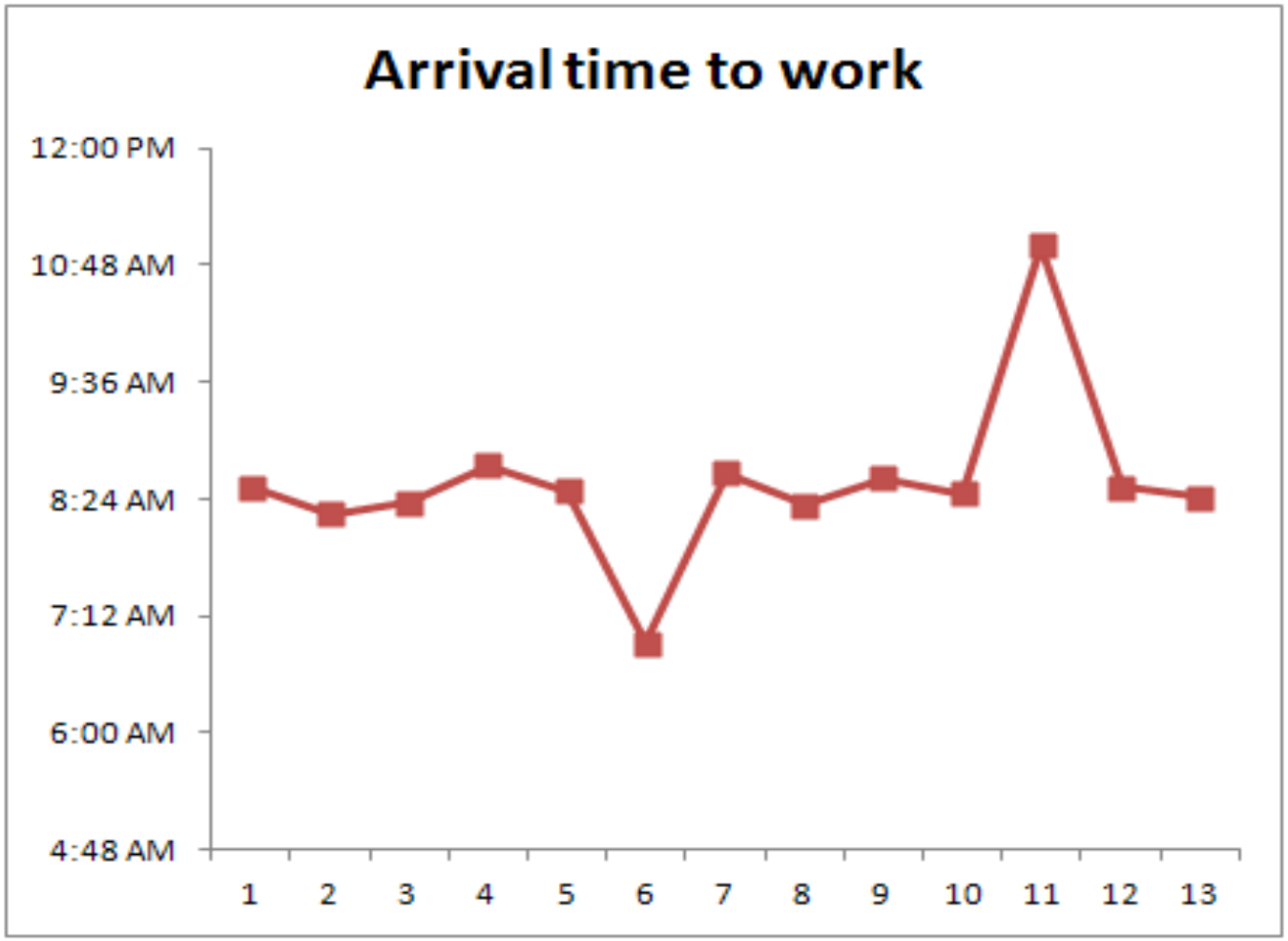
- The unemployment rate in May was at 14.7%
  - **It was 3.7% in May 2019**
  - **It was 9.2% in May 2011**

- 90% of patients are satisfied with Partnership Clinic
  - **What if the average satisfaction among peer clinics is 95%?**

Looking at Variation in Data

- How do the data vary over time?
  - All data demonstrate variation
  - How we react to variation depends on how we interpret it
- Two types of variation in data
  - Common Cause
  - Special Cause

Example 1


Arrival time to work
12:00 PM
10:48 AM
9:36 AM
8:24 AM
7:12 AM
6:00 AM
4:48 AM
1
2
3
4
5
6
7
8
9
10
11
12
13

Two Types of Variation

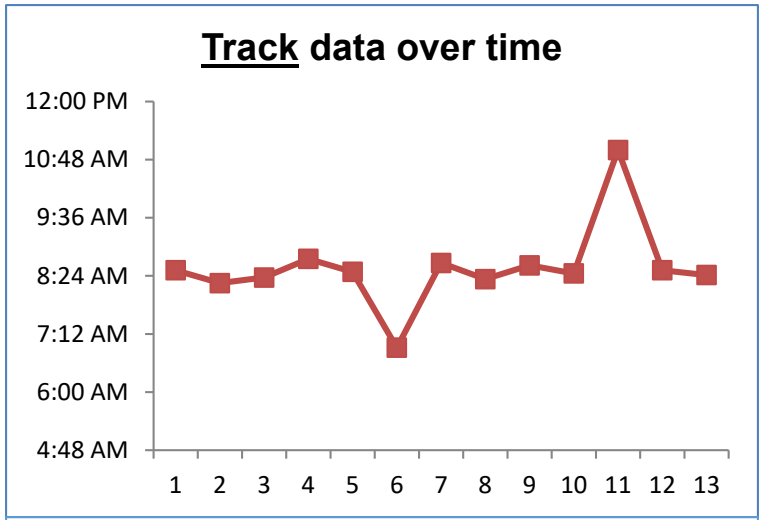
Common Cause

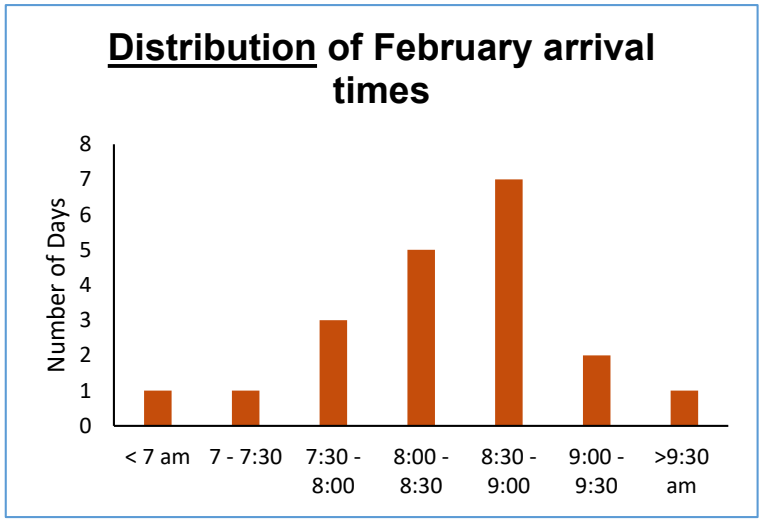
- Random
- "Natural" or expected variation
- Inherent to the system

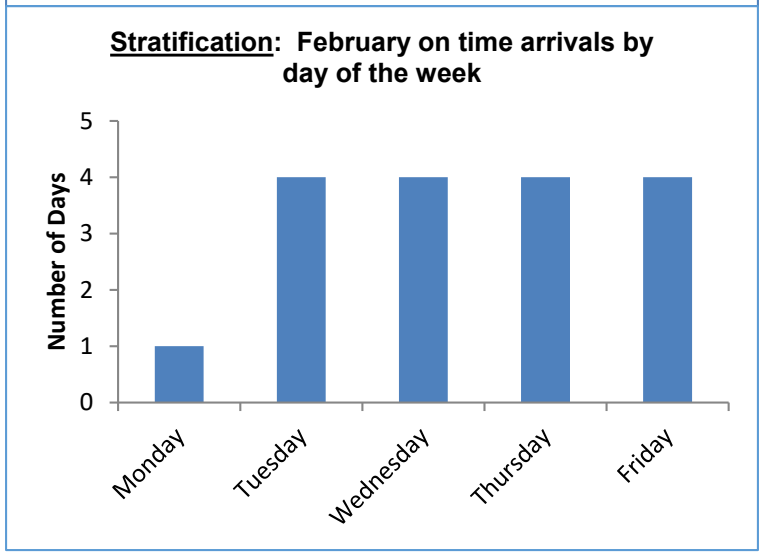
Special Cause

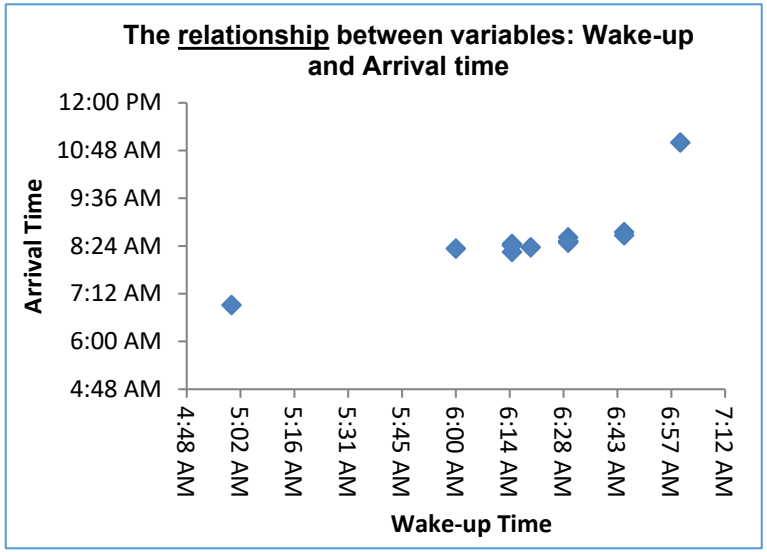
- Non-random
- Attributable to a cause
- Not inherent to the system

Tools to Understand Variation in Data



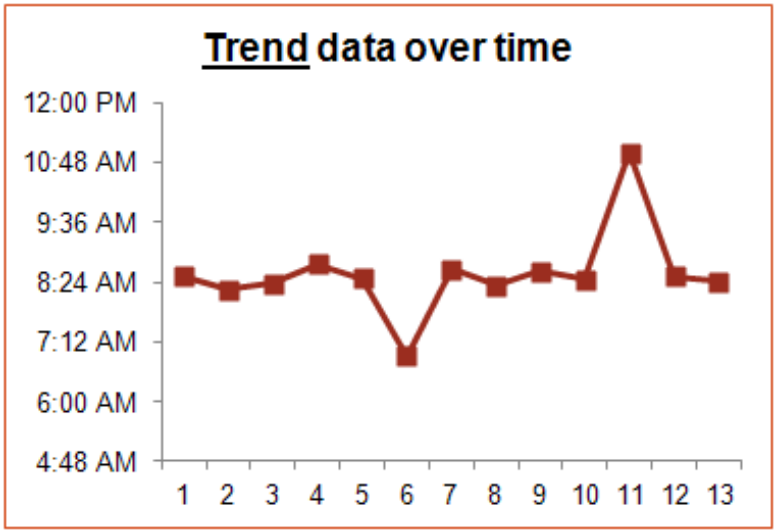






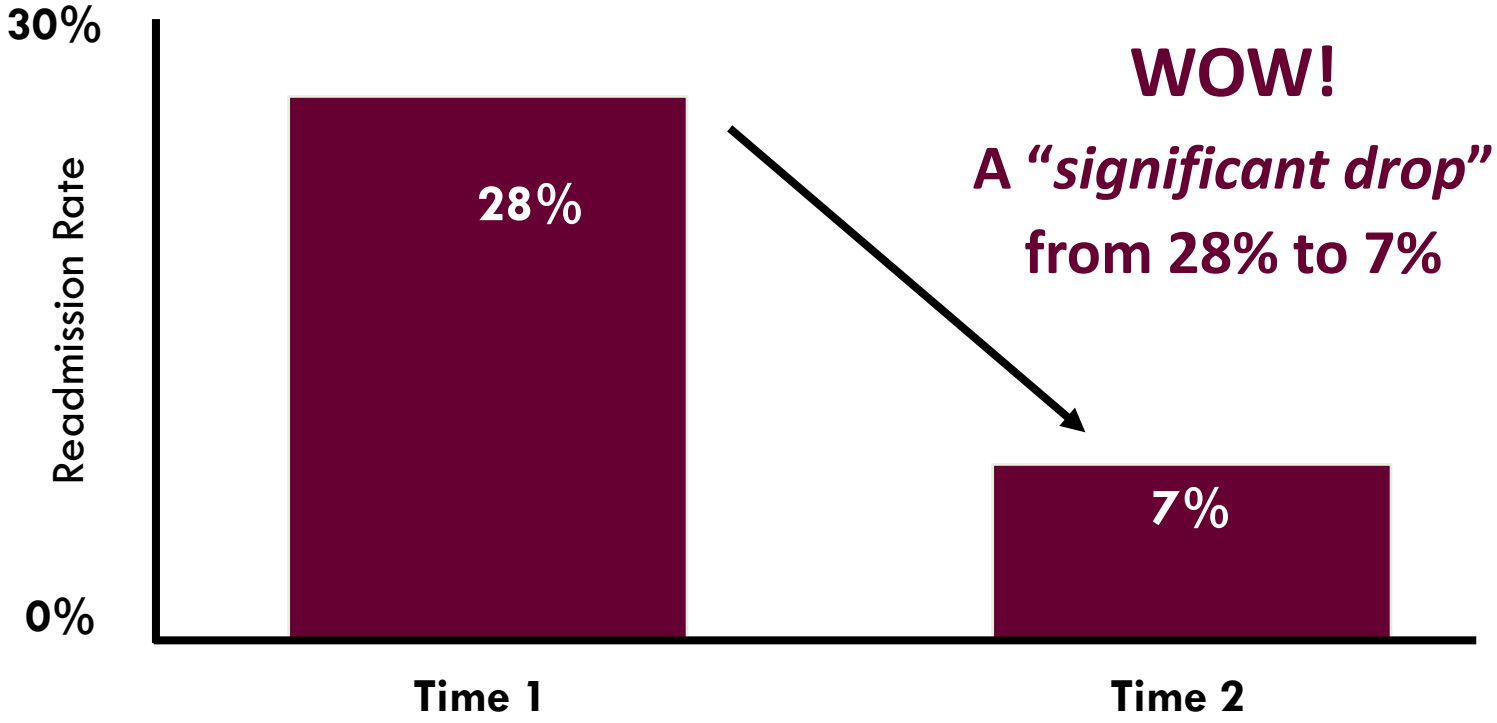
Why Track Data Over Time?

- Make performance of the process visible
- Determine if change is an improvement by comparing data before and after test
- Determine if holding the gain



Misinterpretation

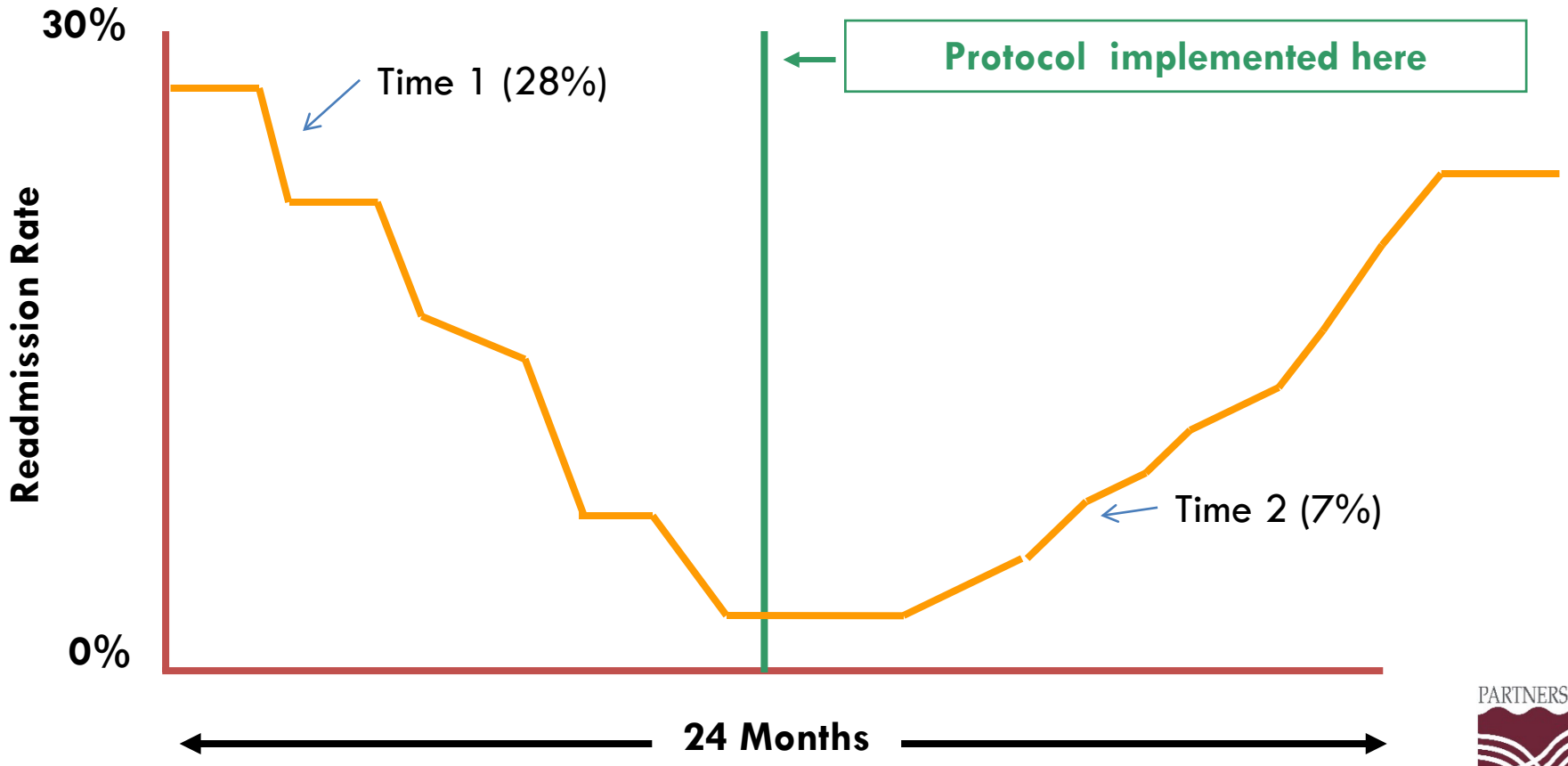
Before and after implementation of a new protocol to reduce readmissions.



Conclusion - The protocol was a success!
We saw a 75% reduction in readmission rate.

Run Charts Help Tell the Whole Story

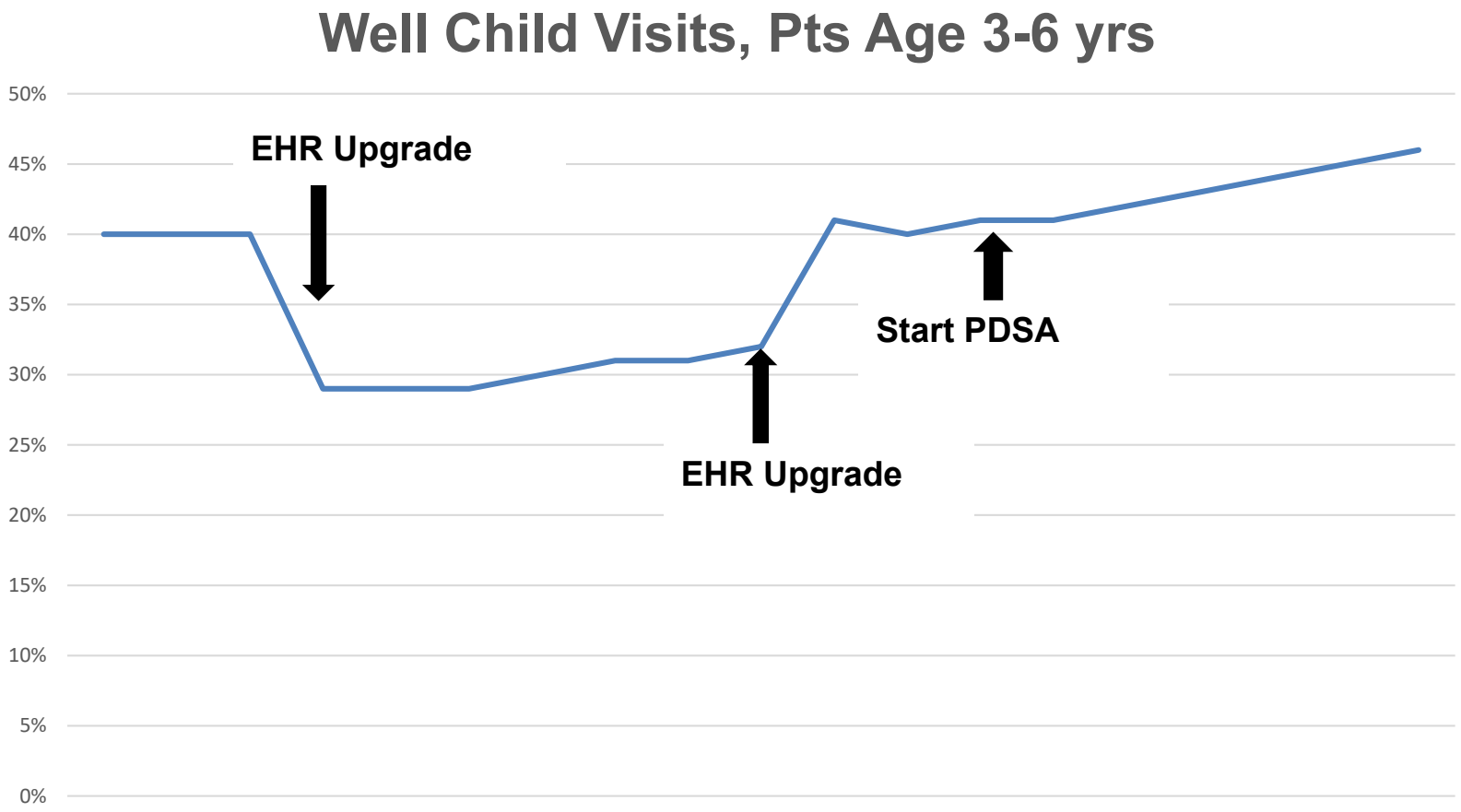
Before and after implementation of a new protocol



Well-Child Visit Example

How to increase well-child visit rate?

Data Helps Evaluate the Interventions & Impacts



Median and Mean

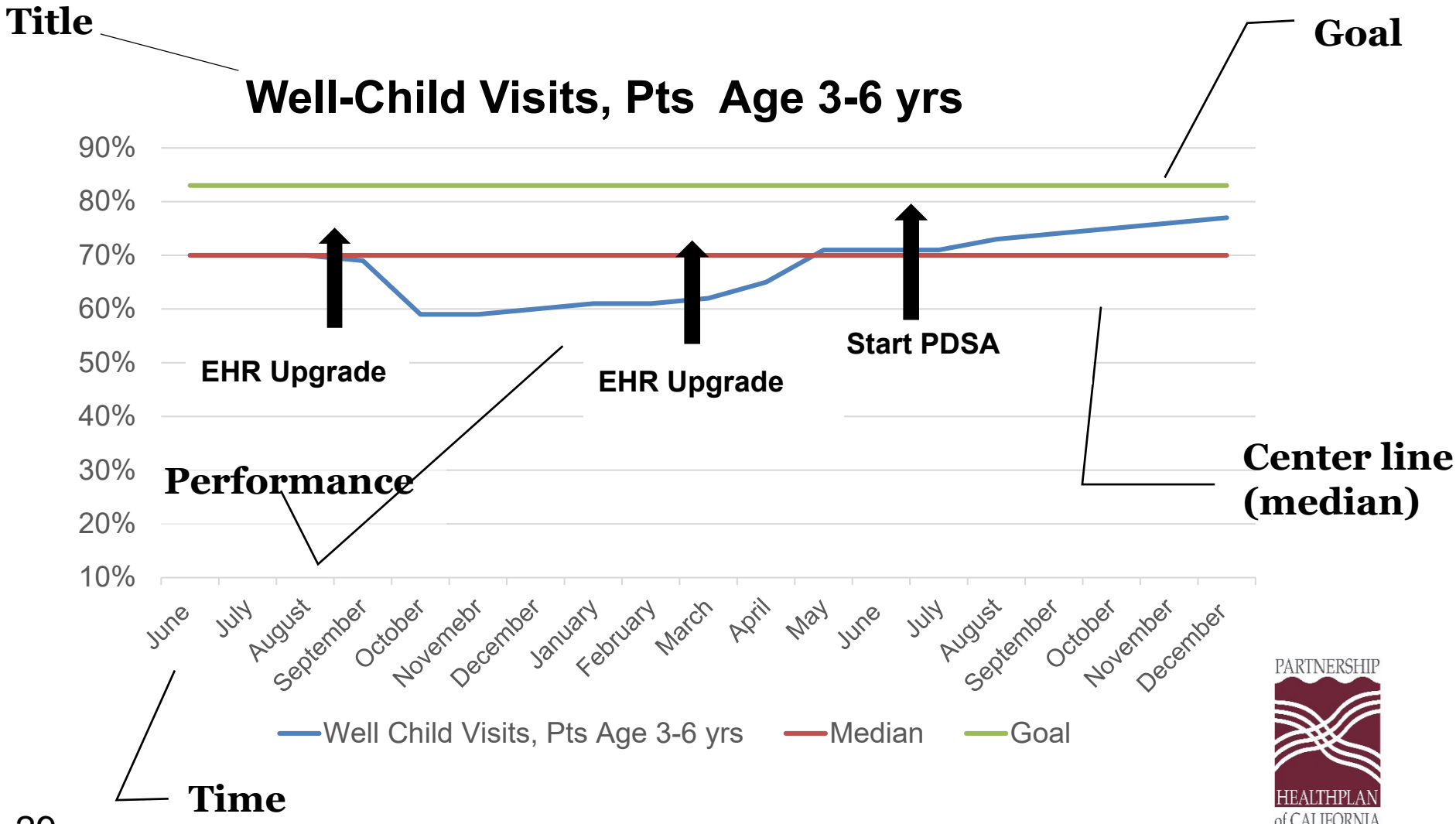
- Median: arrange a set of observations from lowest to highest and find the value in the middle
- Mean (average): the sum of the values divided by the number of values
- Examples:

2, 3, 5, 6, 7

2, 3, 5, 6, 7, 100

  - Median = 5
  - Mean = (2+3+5+6+7)/5 = 4.6
  - Median #2: (5+6)/2 = 5.5
  - Mean #2: (2+3+5+6+7+100)/6 = 20.5

Anatomy of a Run Chart

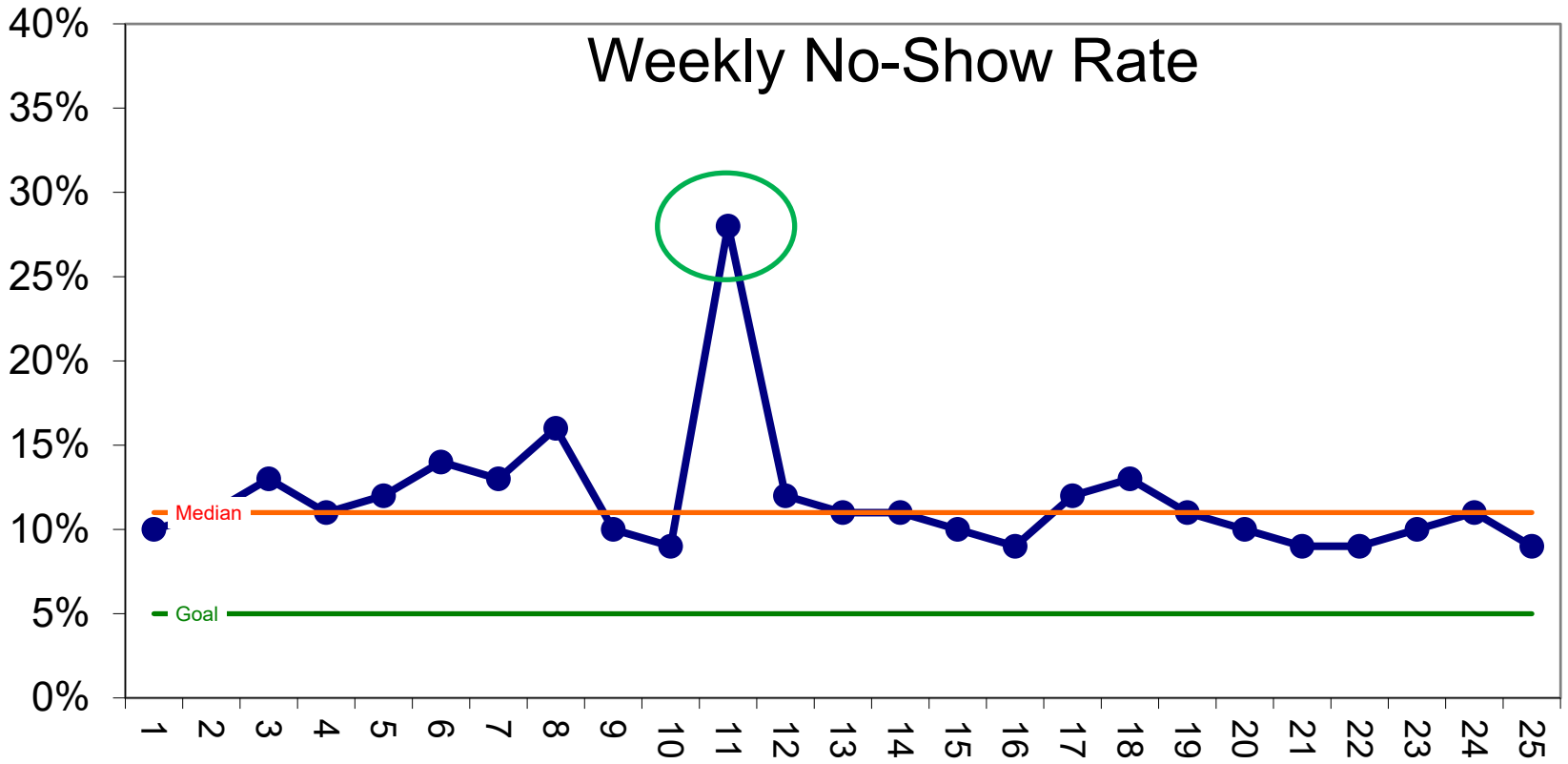


Run Chart Rules

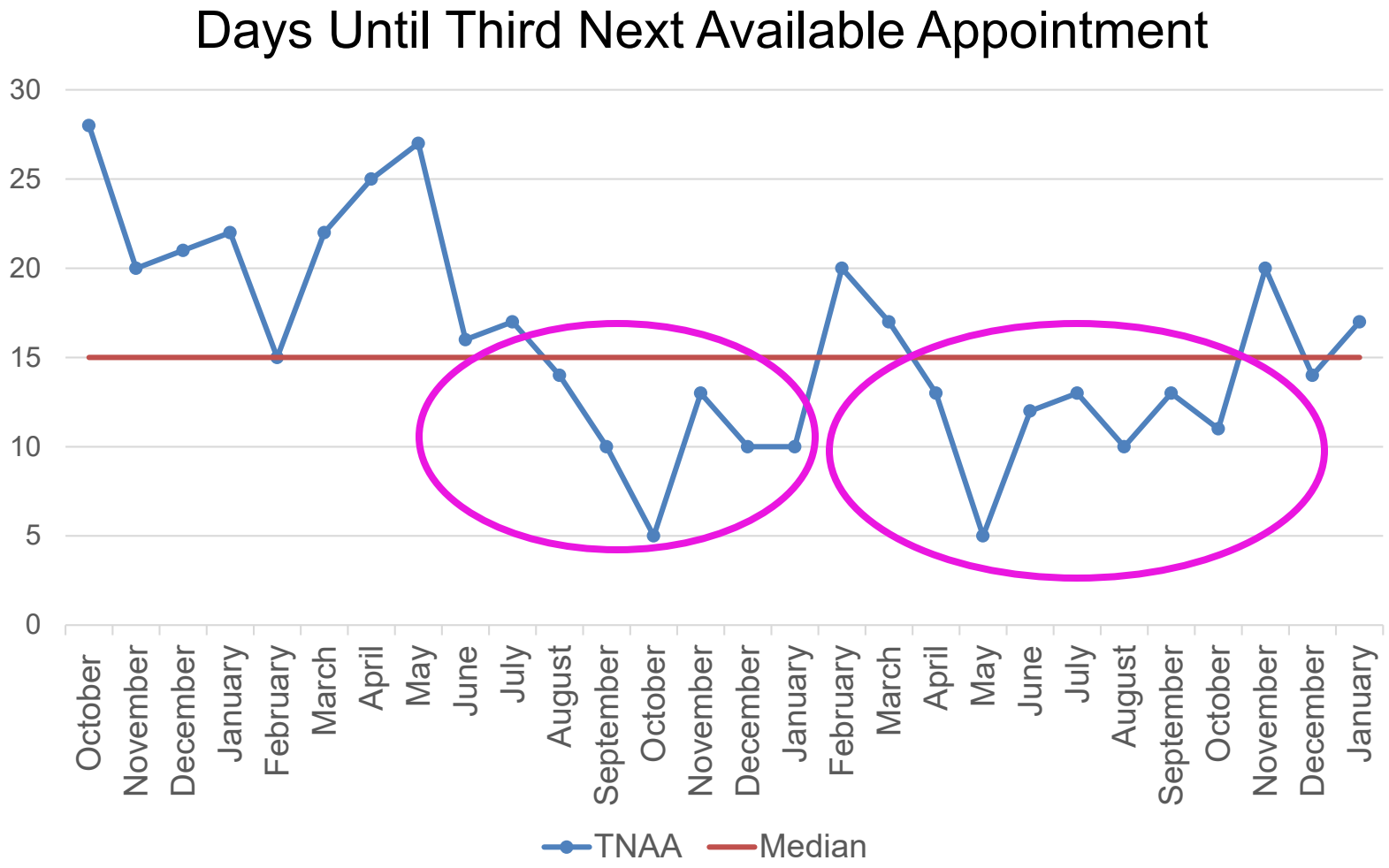
Interpreting Run Charts Using Special Cause Variation Rules

Rule	Definition
Astronomical point	- One value that is clearly different from the rest
Shift	- An indication of *movement*, where *6 consecutive points* have 'shifted' to the other side of the median - If 1 point is on the median, skip it and keep counting
Trend	- 5 or more points in a row, each one consecutively higher or lower in value than the previous data point - If 2 or more consecutive points have the same value, skip all but one of the matching points when counting

Astronomical Point

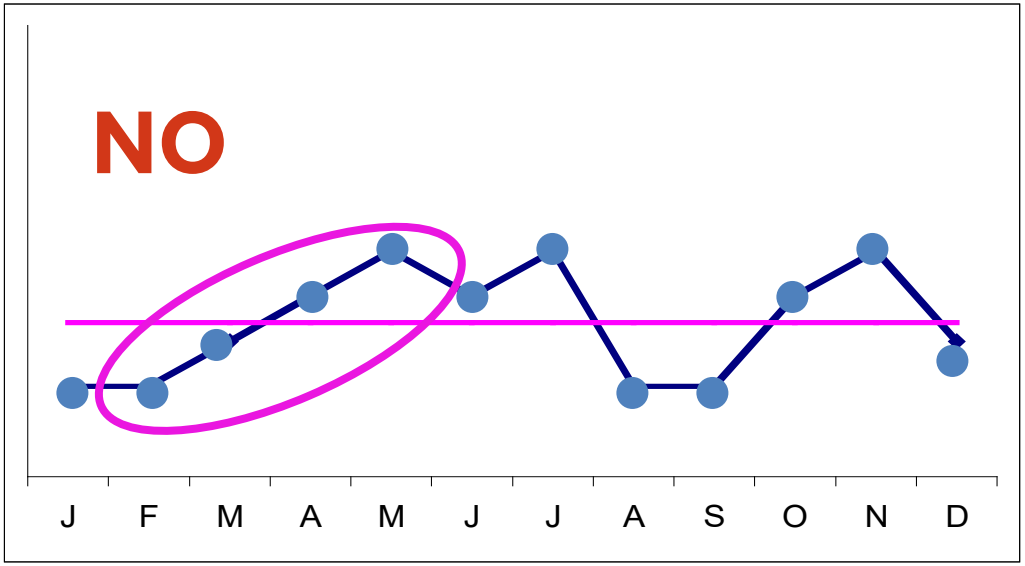


Shift?

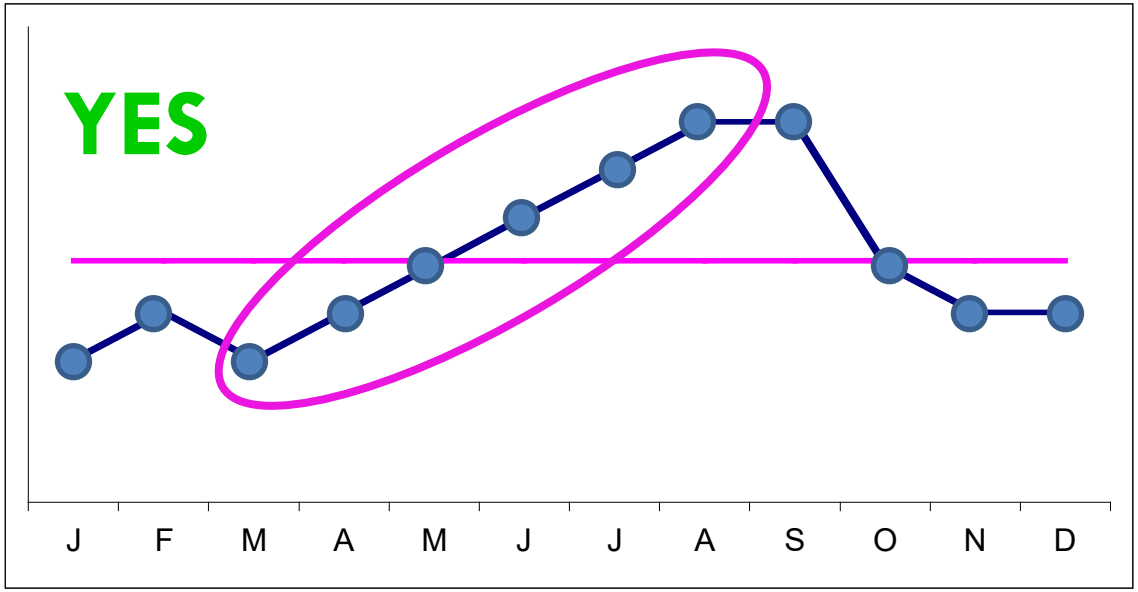

Days Until Third Next Available Appointment
30
25
20
15
10
5
0
October
November
December
January
February
March
April
May
June
July
August
September
October
November
December
January
February
March
April
May
June
July
August
September
October
November
December
January
TNAA
Median

Trend?

A.



B.



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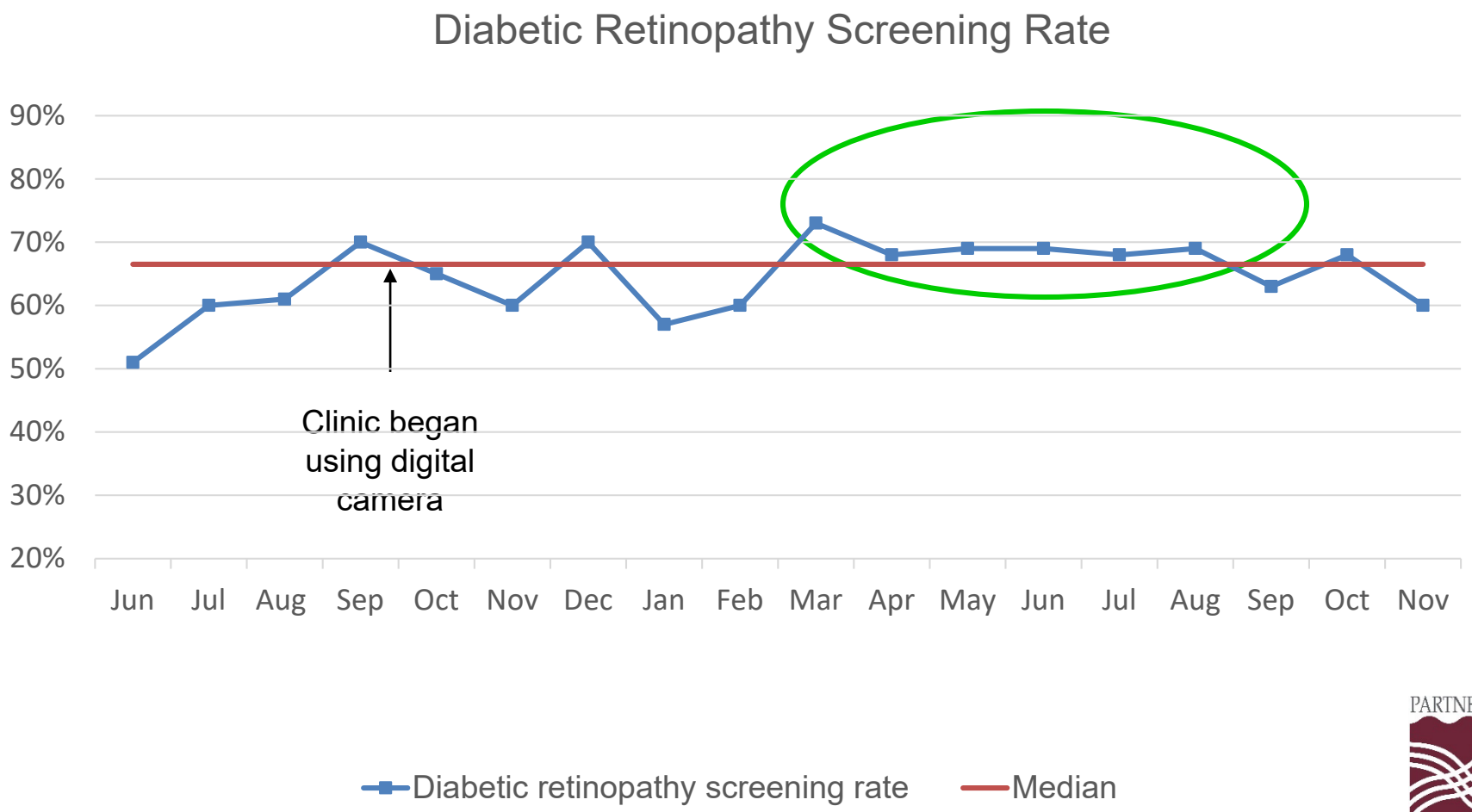
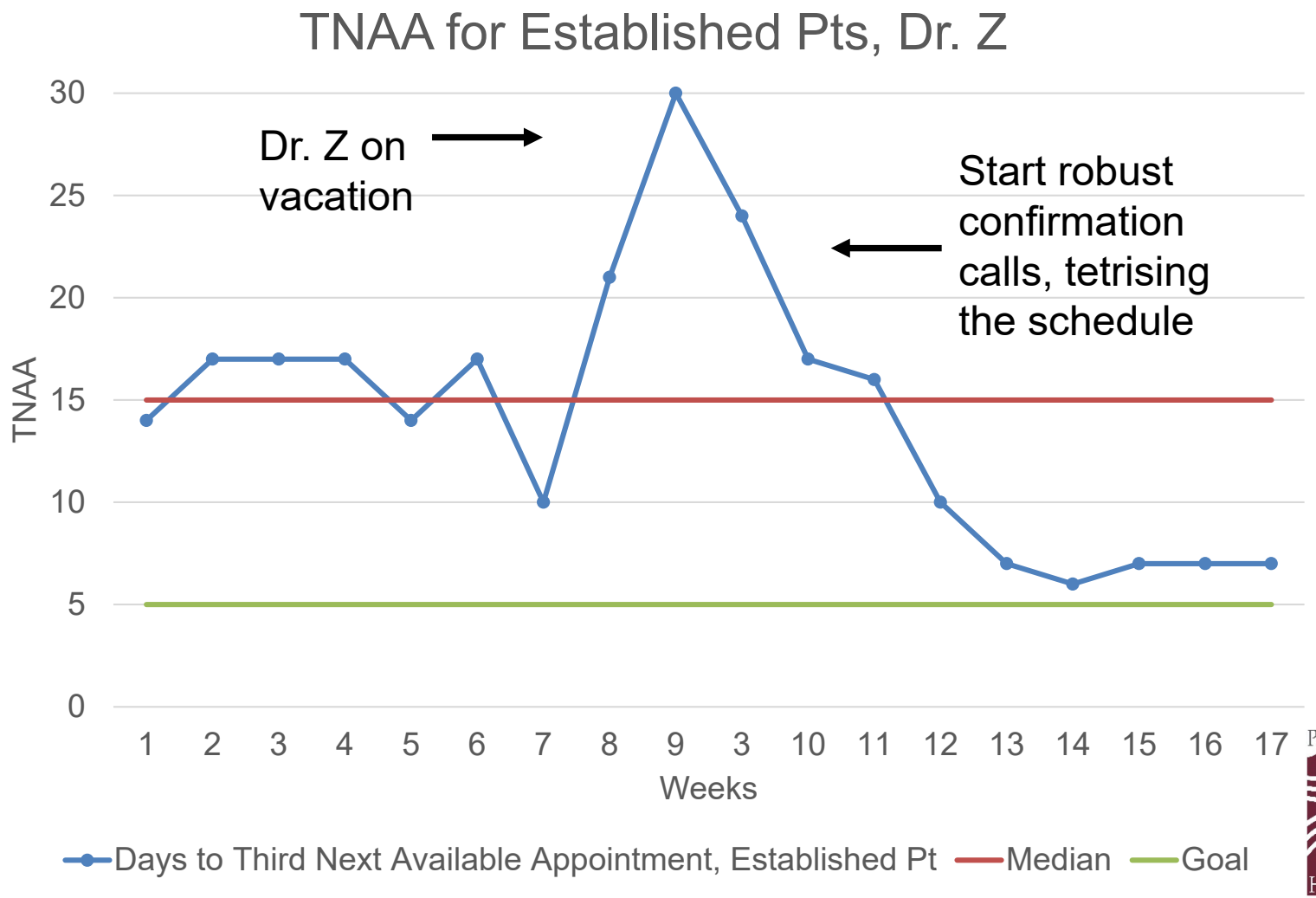
Example 1
Which Run Chart Rule Applies?



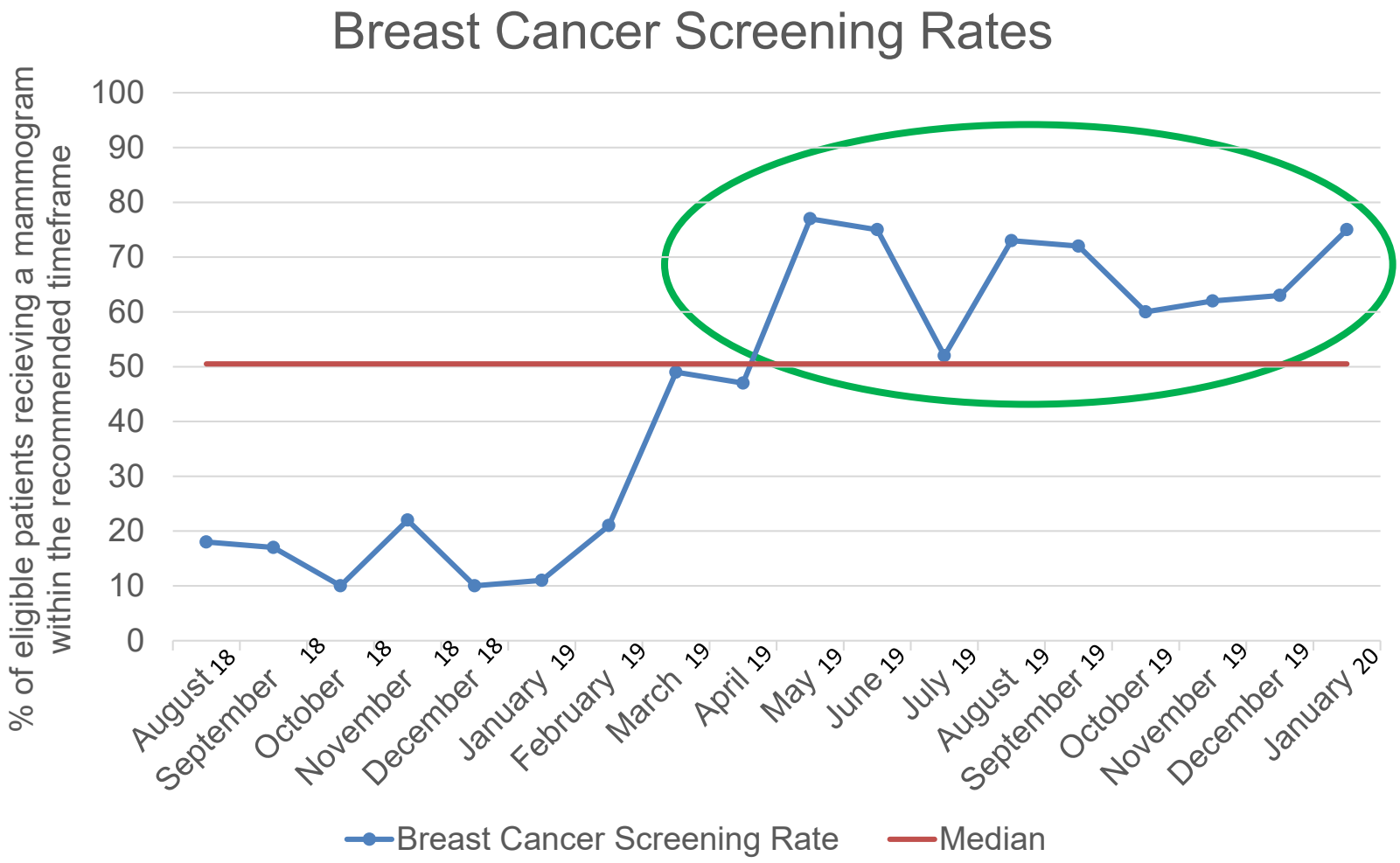
Example 2


TNAA for Established Pts, Dr. Z
TNAA
30
25
20
15
10
5
0
Dr. Z on vacation
Start robust confirmation calls, tetrising the schedule
1 2 3 4 5 6 7 8 9 3 10 11 12 13 14 15 16 17
Weeks
Days to Third Next Available Appointment, Established Pt
Median
Goal

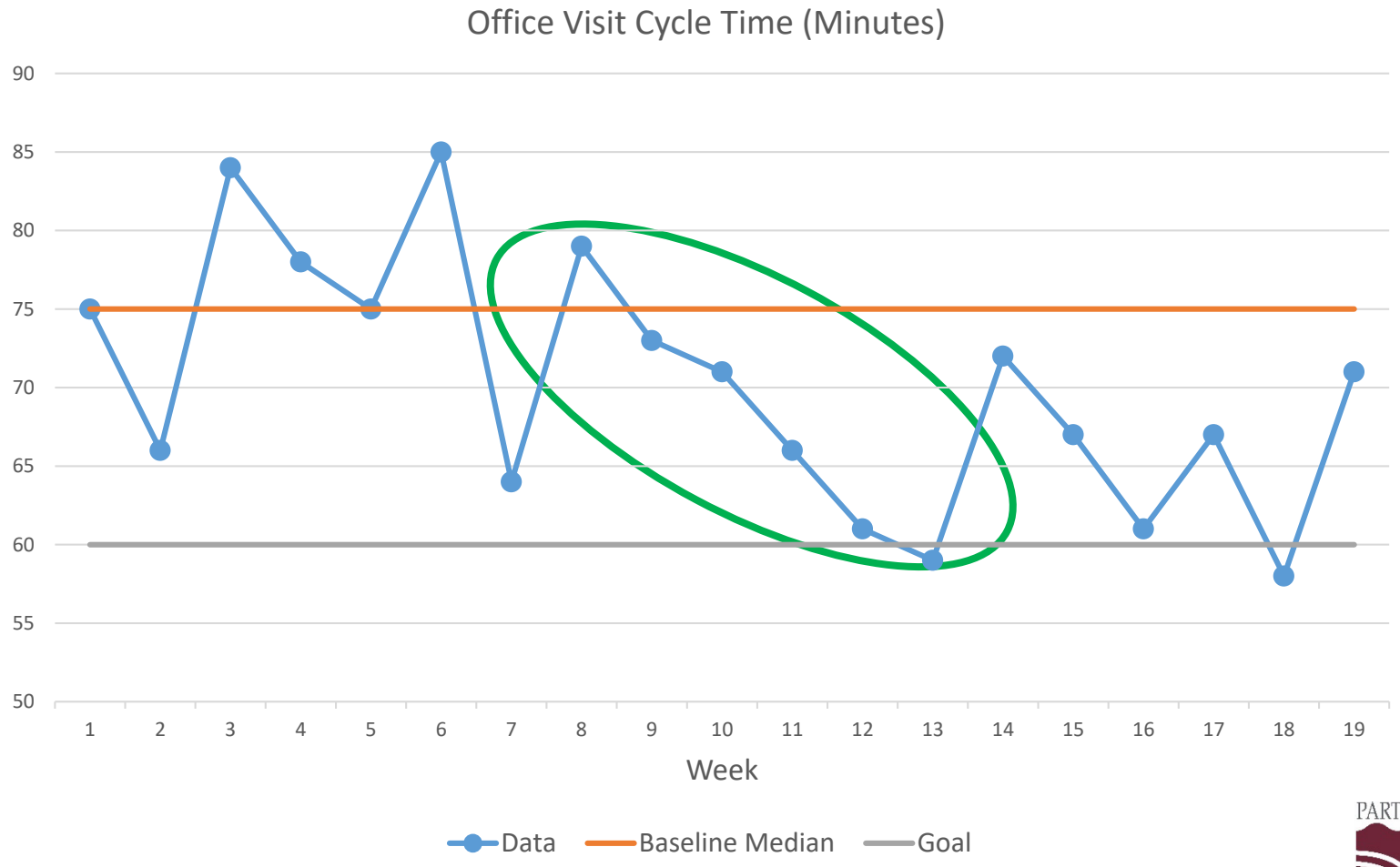
Run Chart Rules Recap

- 3 Decision rules:
  - Astronomical point
  - Shift
  - Trend
- Only 1 rule needs to be fulfilled to suggest non-random (special cause) variation
- These rules help address gut reactions to the data

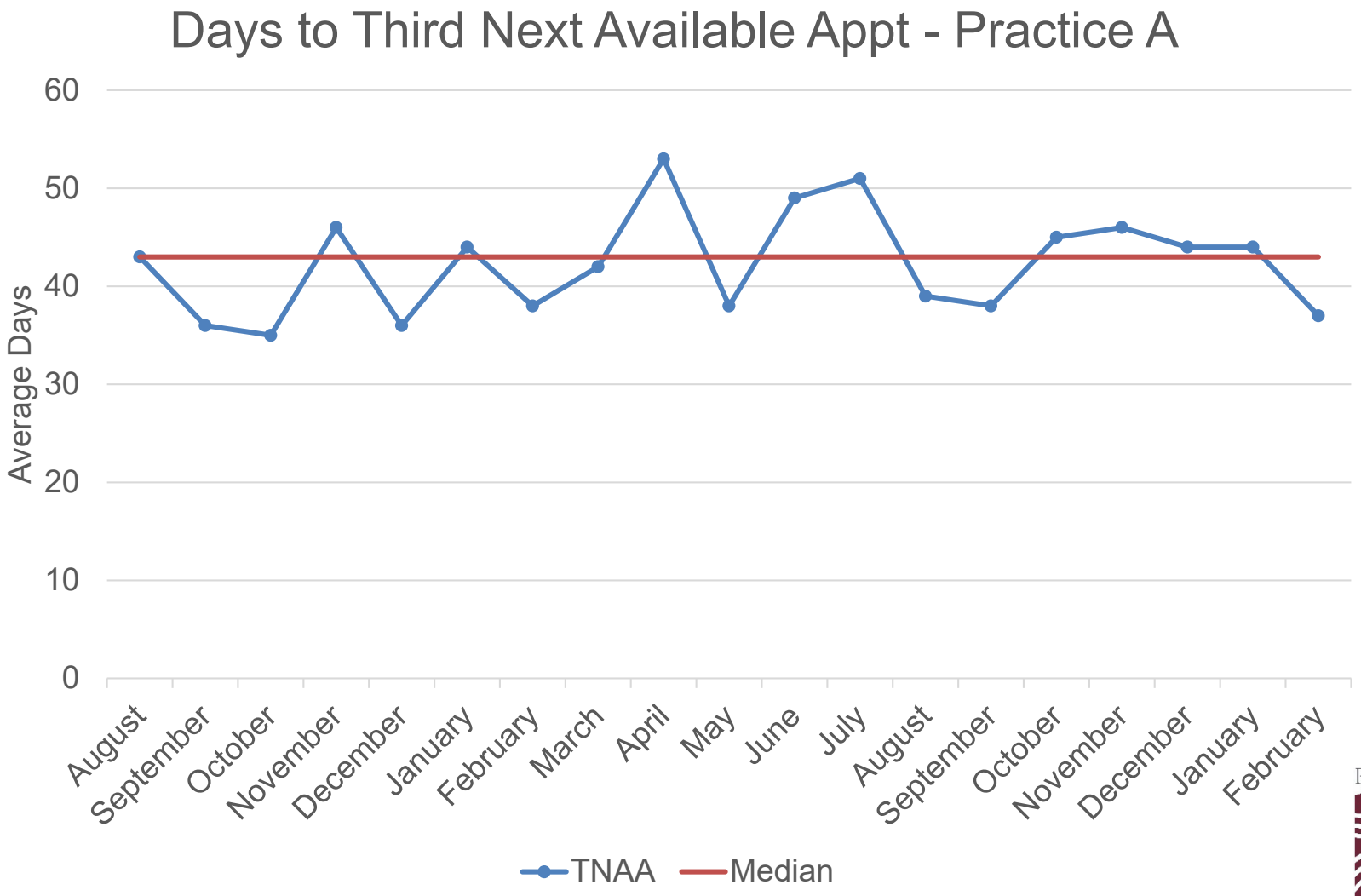
Exercise - Run Chart 1



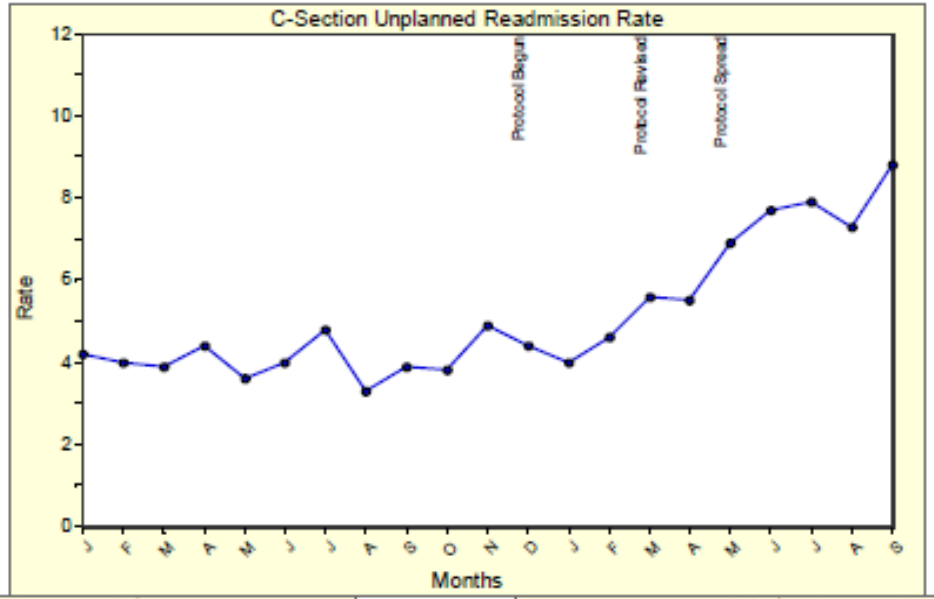
Exercise - Run Chart 2

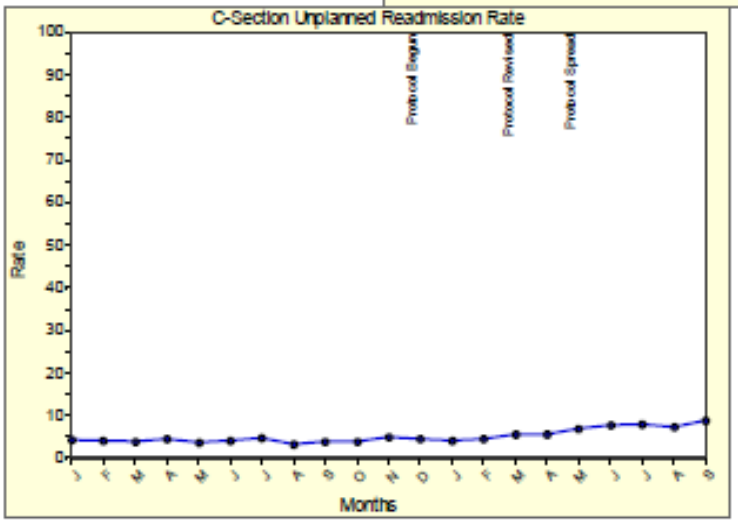


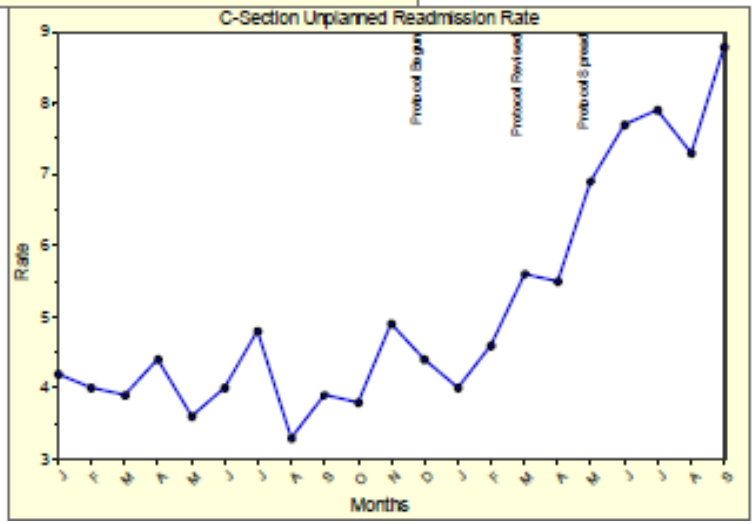
Exercise - Run Chart 3



Scale Matters







From the Institute for Healthcare Improvement

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In Summary: Using Data for QI

- Understanding the context of the data helps with interpreting the data
- All data exhibits variation, either common cause or special cause
- A run chart is one of the easiest and most widely-used QI tools to track data over time and to help analyze the data

Data for Quality Improvement

Understand	• How does the current system perform?
Predict	• What interventions might improve the performance of the current system?
Evaluate	• Did our interventions result in improvement?
Monitor	• Are our improvements sustained over time?
Engage	• What do stakeholders need to know?

Questions

ABC's of QI - Upcoming Sessions

Session 3: How Do We Know That a Change is an Improvement?

Date: Wednesday, June 1 **Time:** Noon - 1 p.m.

Session 4: What Changes Can We Make That Will Result in Improvement

Date: Wednesday, June 8 **Time:** Noon - 1 p.m.

Session 5: Testing Change Ideas - Plan-Do-Study-Act (PDSA)

Date: Wednesday, June 22 **Time:** Noon - 1 p.m.

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Quality Improvement Trainings

Accelerated Learning Education Program

These learning sessions will cover Partnership HealthPlan of California's Primary Care Provider Quality Incentive Program measures.

Date: June 7 **Time:** Noon - 1:15 p.m.
Pediatric Health - A Cluster of Services for 0 – 2 Year Olds

Date: July 12 **Time:** Noon - 1:15 p.m.
Pediatric Health - Child and Adolescent Well-Care Visits (3-17 years), Screenings, and Immunizations for Adolescents

Using Lean and A3 Thinking to Manage Improvement Projects

This course will provide an introduction to Lean Thinking and how improvement teams can use the A3 tool to manage the full cycle of an improvement project from planning, monitoring, and sharing what you are learning.

Date: June 15 **Time:** Noon - 1:15 p.m.

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Evaluations

Please complete your evaluation.

Your feedback is important to us!

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Thank You!

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