



The ABCs of QI:



Data in Quality Improvement



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Webinar Instructions

To avoid echoes and feedback, we request that you use the telephone audio instead of your computer audio for listening and speaking during the webinar.

Figure 1

Click Switch Audio

You can switch your audio connection by clicking on the three dot ellipsis icon found at the bottom of your screen.

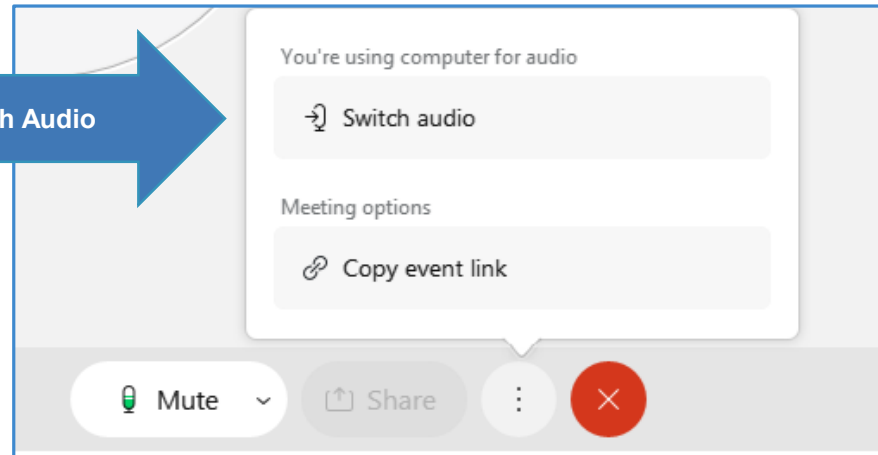
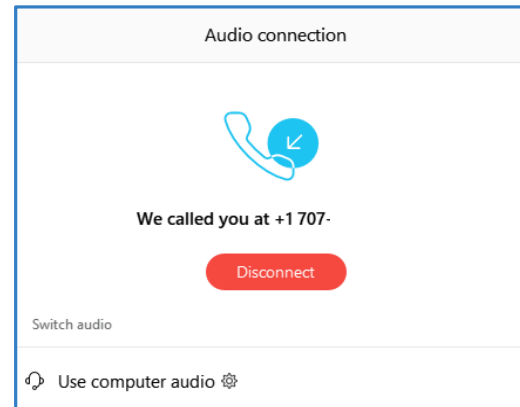


Figure 2

Enter telephone number





Webinar Instructions

- All attendees have been muted to eliminate any possible noise/interference/distraction.
- Please take a moment and open your chat box by clicking the chat icon found at the bottom right-hand corner of your screen and as shown in **Figure 1**.
- If you have any questions, please type your questions into the chat box, and they will be answered throughout the presentation.
- Be sure to select “**Everyone**” when sending a message.



Figure 1





Conflict of Interest

All presenters have signed a conflict of interest form and have declared that there is no conflict of interest and nothing to disclose for this presentation.



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



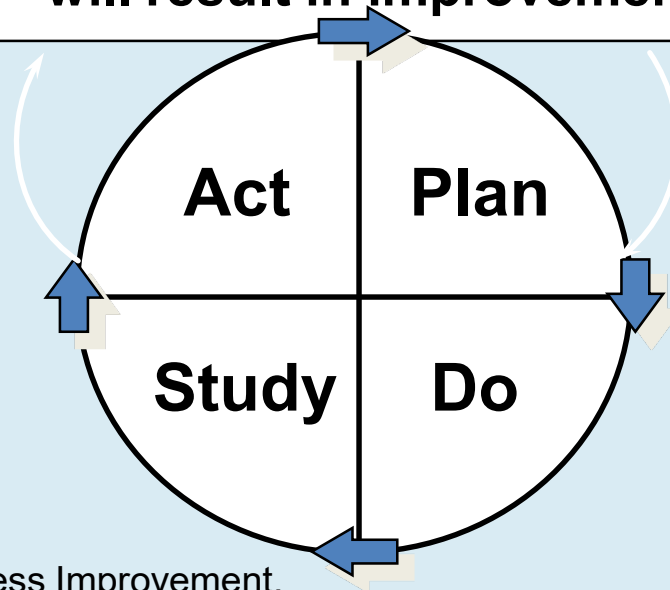
Review Session 1

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.

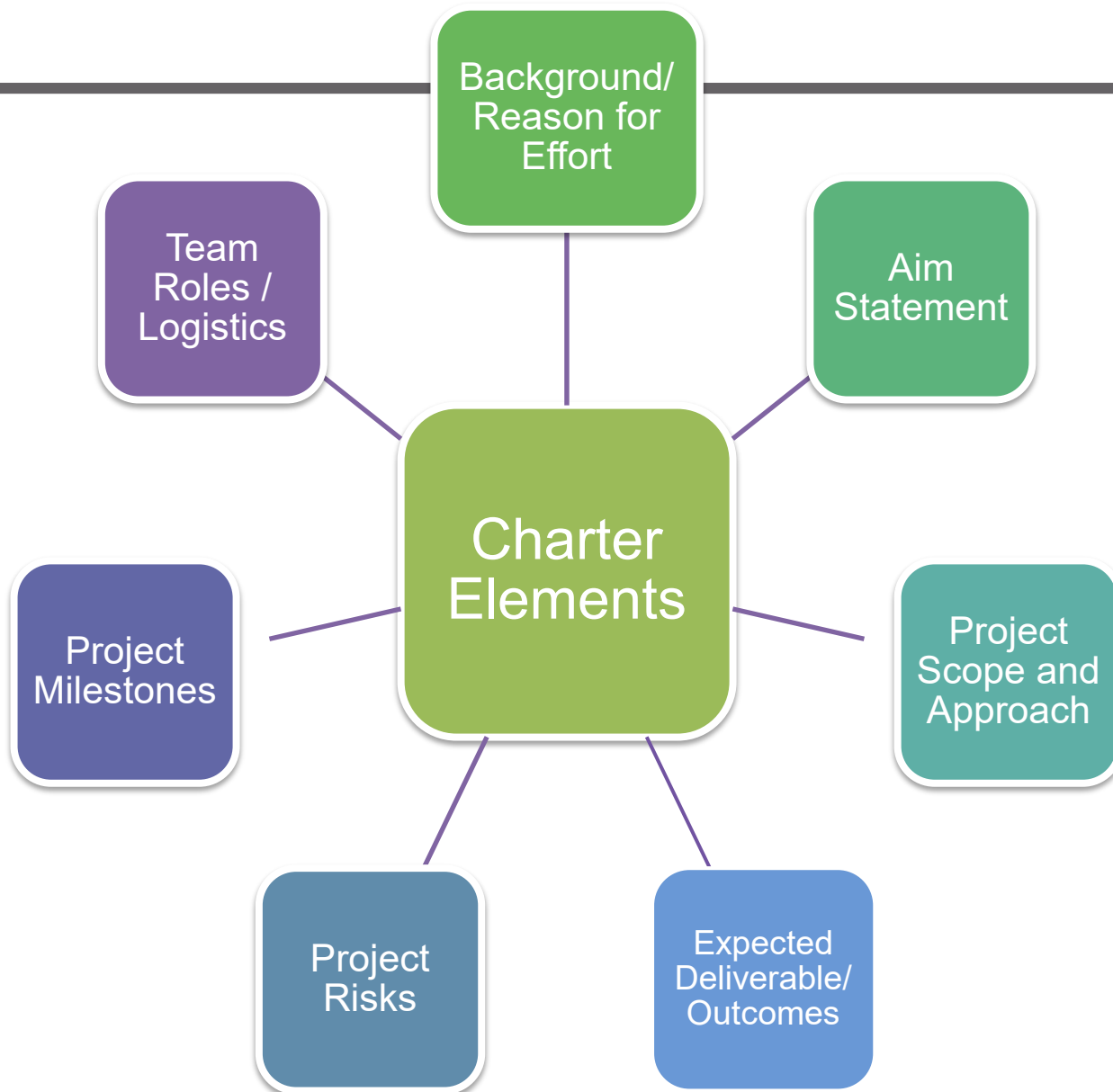


Review Session I – Aim Statement

- Aim statements should meet the SMART criteria:
 - Specific
 - Measurable
 - ~~Achievable~~ Ambitious
 - Relevant
 - Time-bound
- Aim statements should be developed with a team and should consider what factors might influence the scope



Review Session 1 – Project Charter





Questions



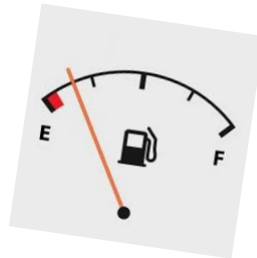


Data for Quality Improvement



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 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?



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?



Calculating Percent

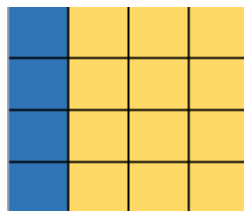
- Numerator/Denominator * 100 = percent
- “North Dakota”
- Examples:

○ $3/4 = .75$



$.75 * 100 = 75\%$

○ $4/16 = .25$



$.25 * 100 = 25\%$

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



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 2020.
- The unemployment rate in June 2020 was at 14.7%
 - It was 3.7% in June 2019
 - It was 9.2% in June 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



Two Types of Variation

Common Cause

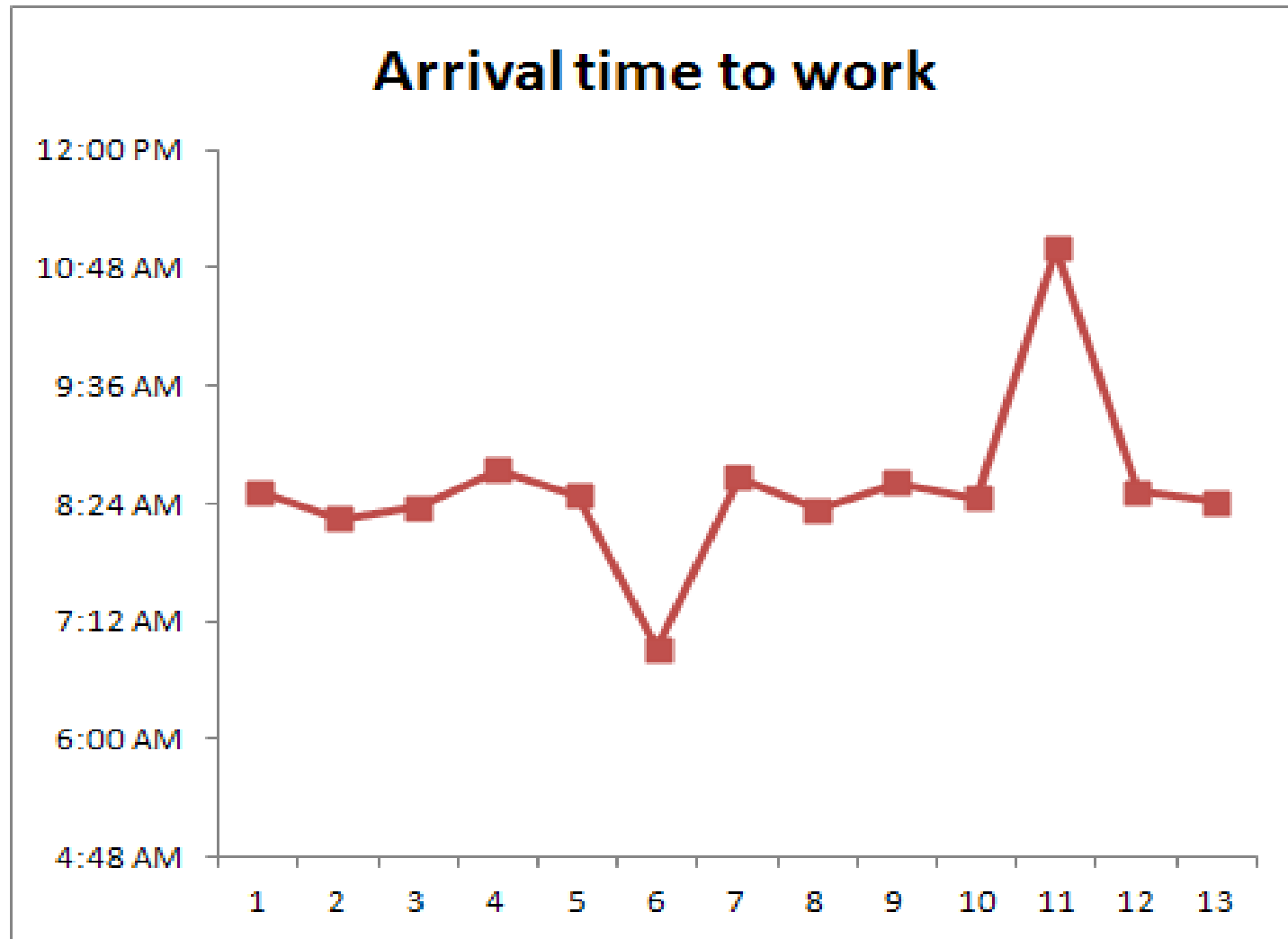
- Random
- “Natural” or expected variation
- Inherent to the system

Special Cause

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



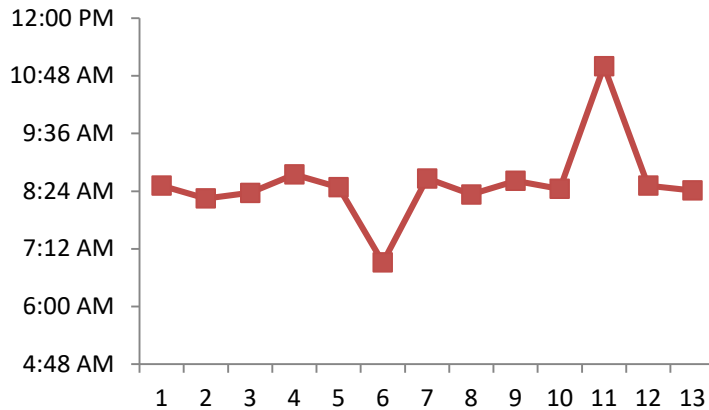
Example 1



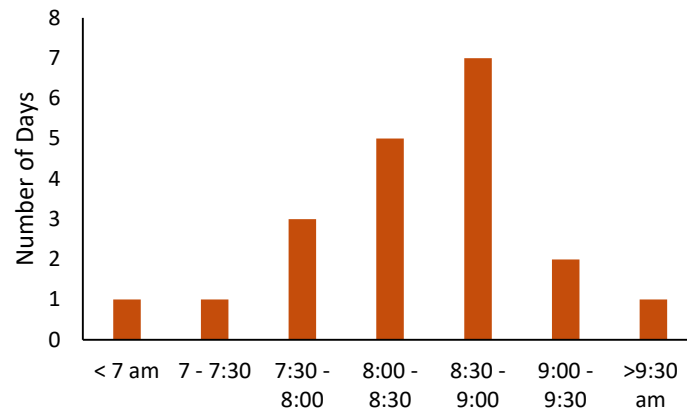


Tools to Understand Variation in Data

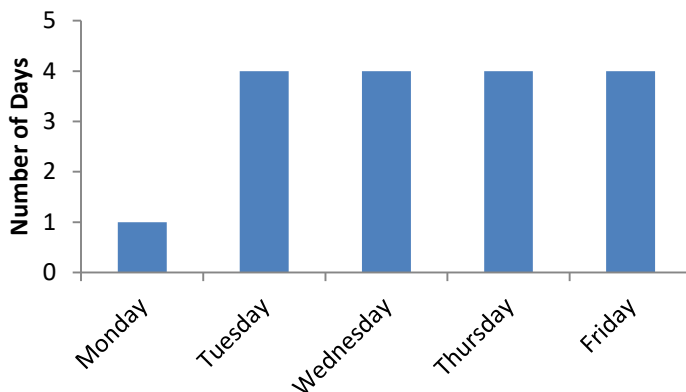
Track data over time



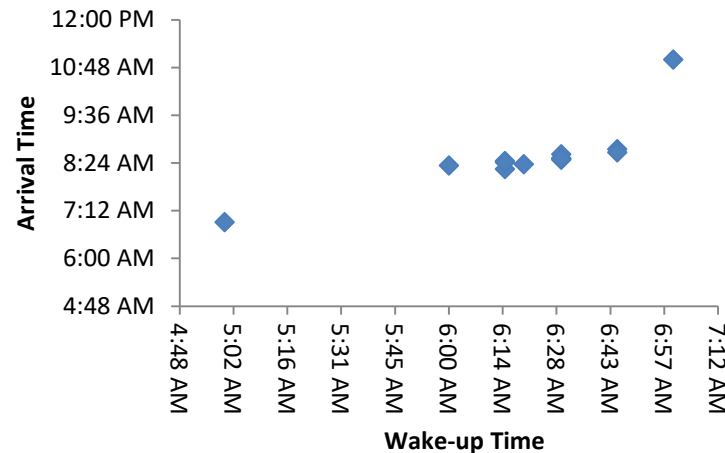
Distribution of February arrival times



Stratification: February on time arrivals by day of the week



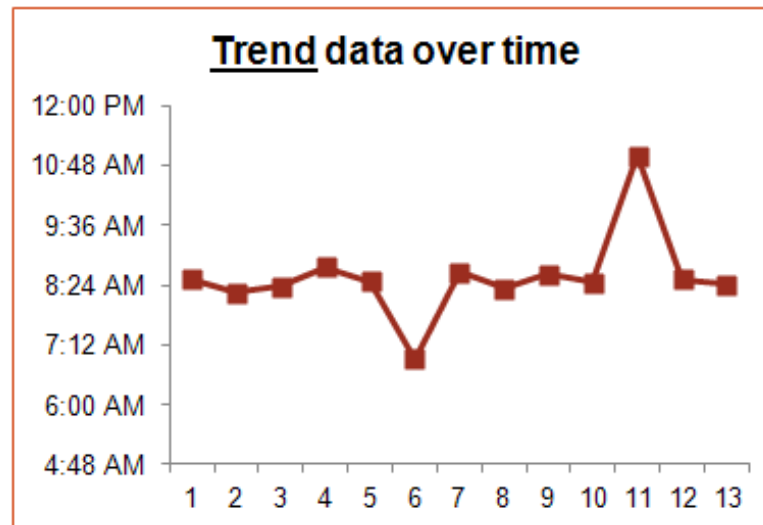
The relationship between variables: Wake-up and Arrival time





Why Track Data Over Time?

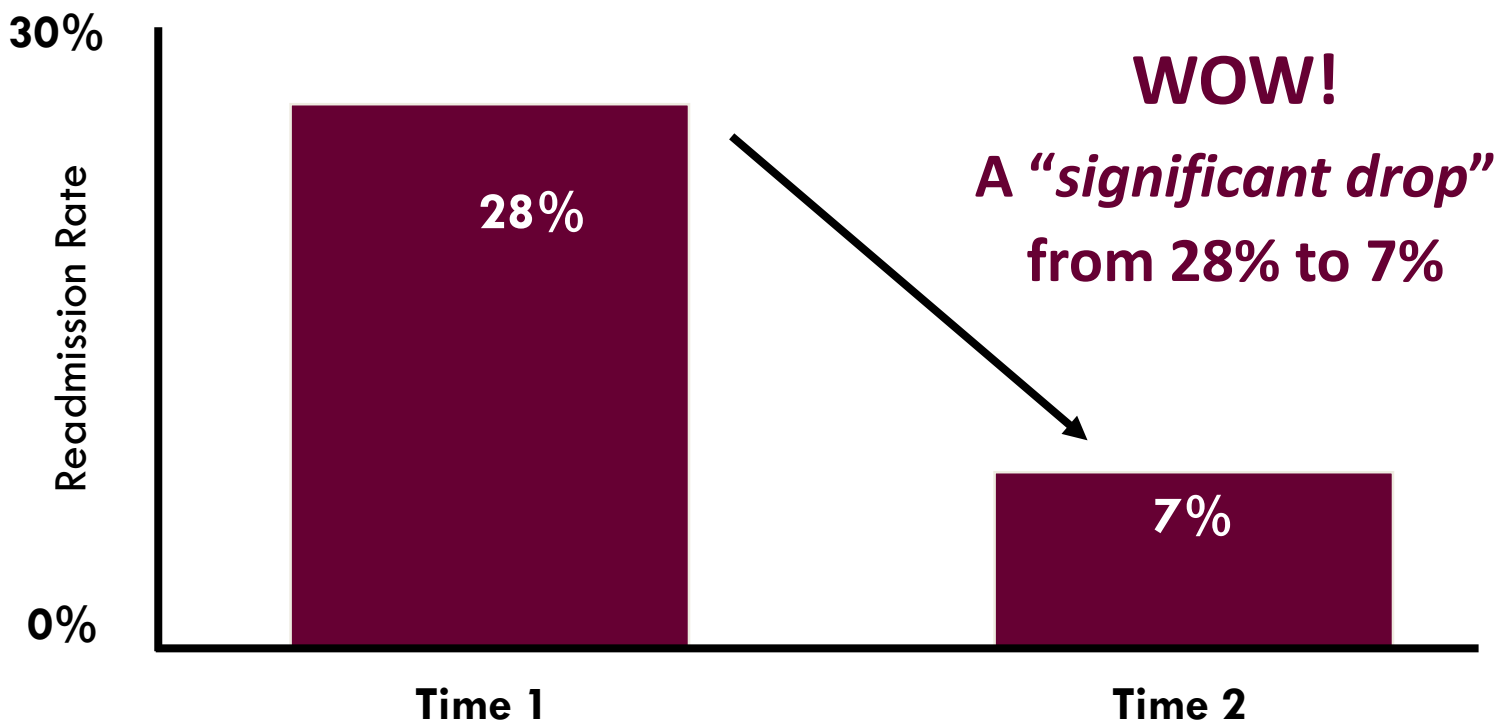
- Make performance of the process visible
- Determine if change is an improvement by comparing data before and after test
- Determine if holding the gain





Misinterpretation

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

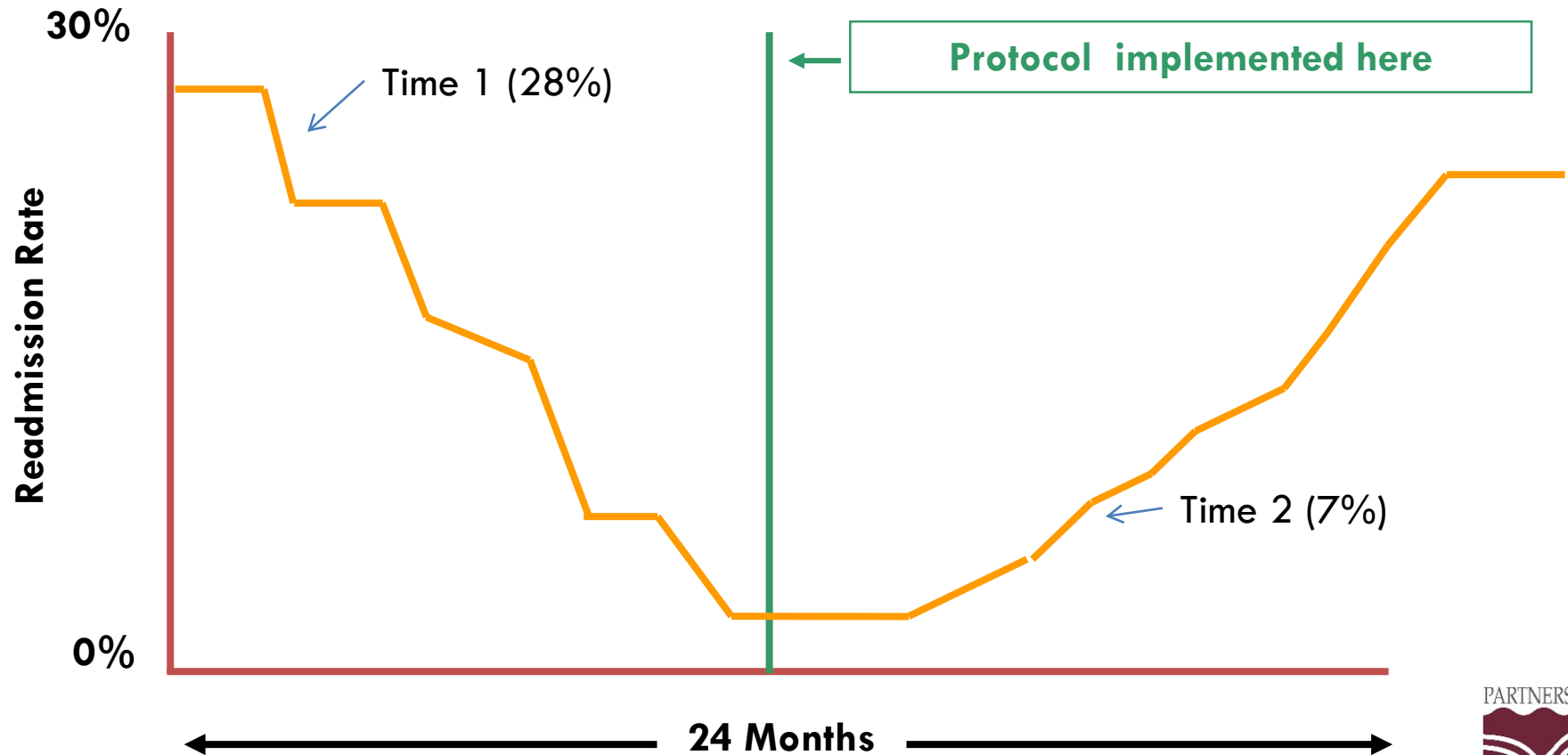


**Conclusion - The protocol was a success!
We saw a 75% reduction in readmission rate.**



Run Charts Help Tell the Whole Story

Before and after implementation of a new protocol





Well Child Visit Example

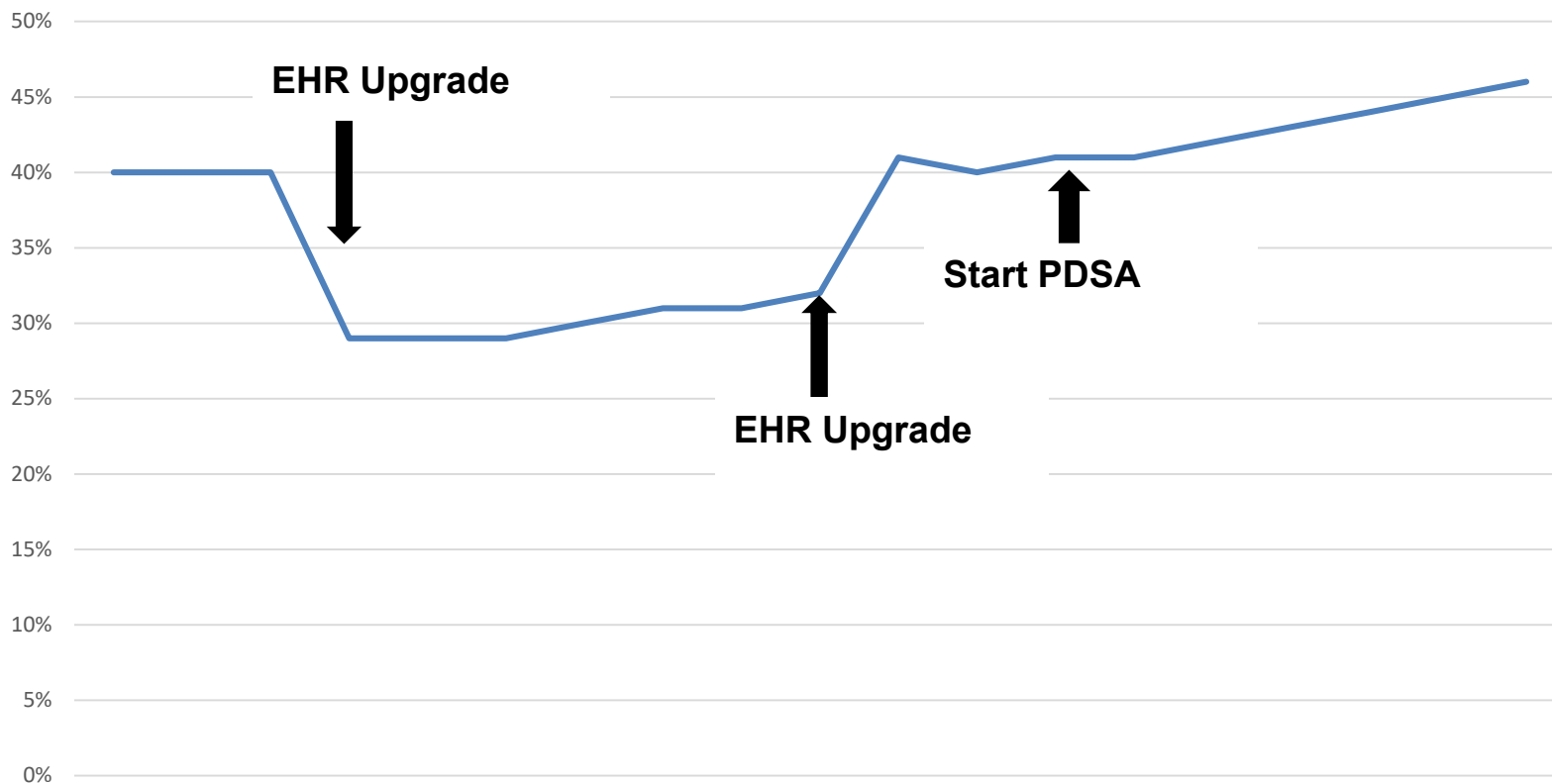
How to increase well child visit rate?





Data Help Evaluate the Interventions & Impacts

Well Child Visits, Pts Age 3-6 yrs





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:

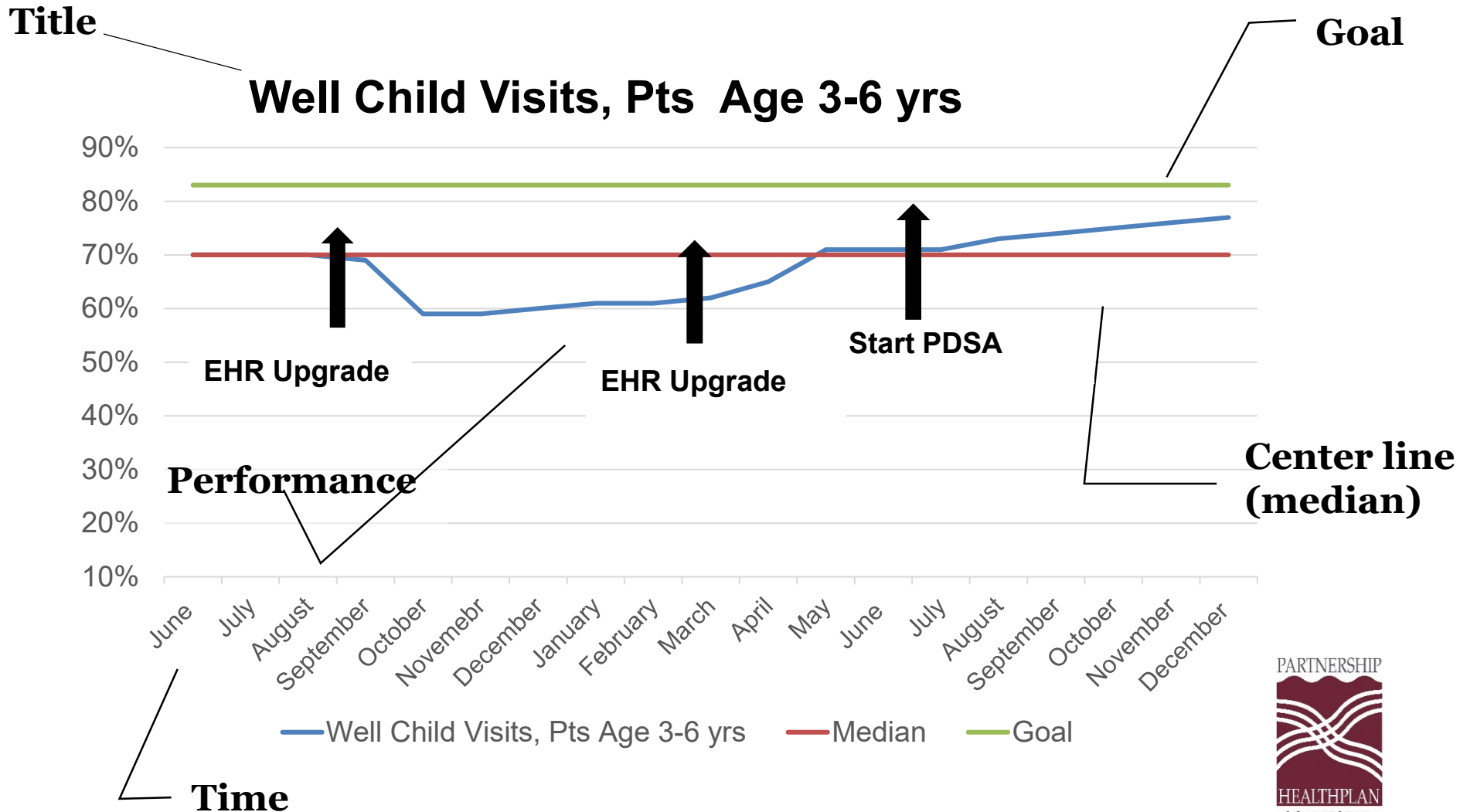
2, 3, 5, 6, 7

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





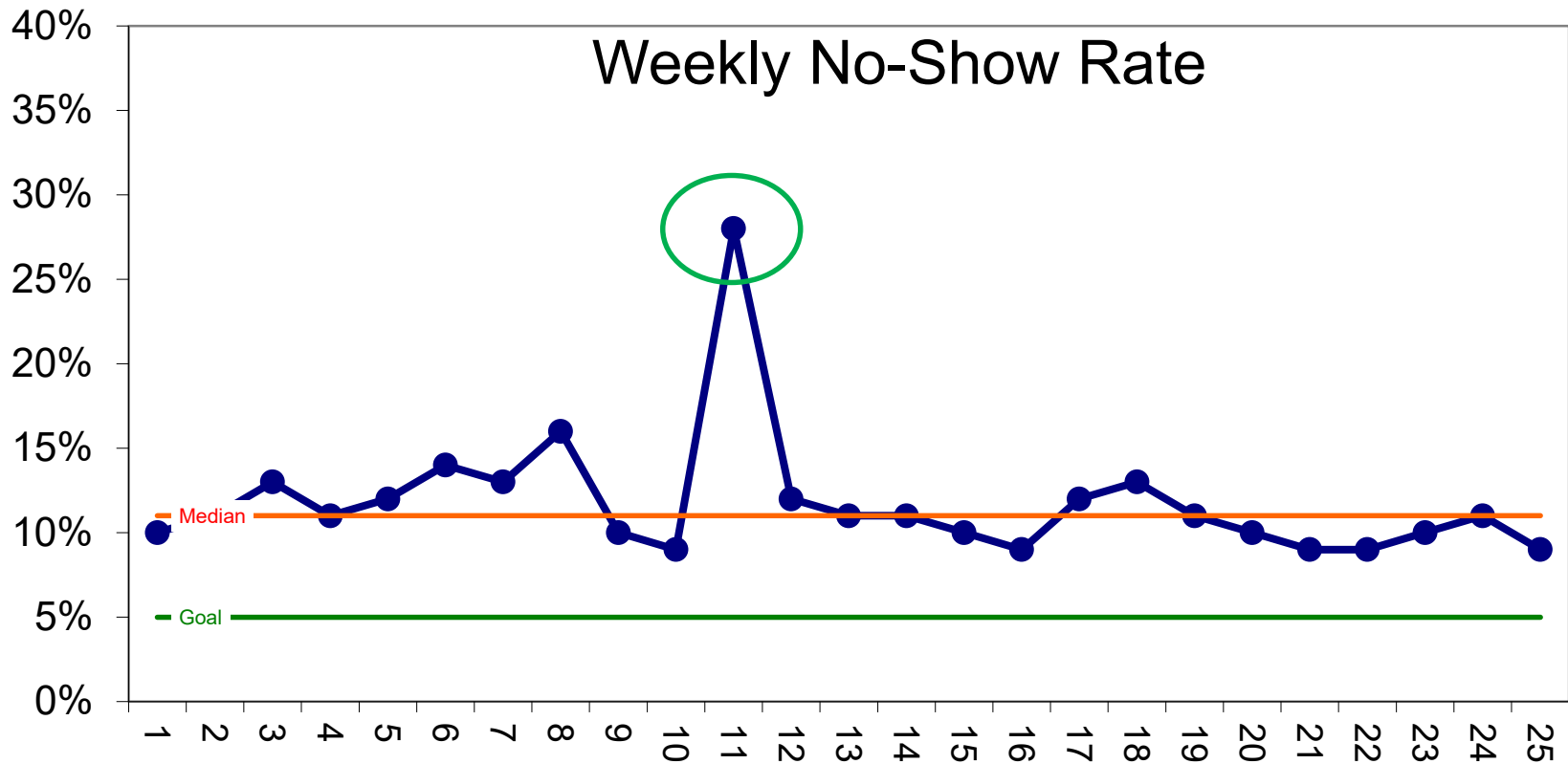
Run Chart Rules

Interpreting Run Charts Using Special Cause Variation Rules

Rule	Definition
Astronomical point	<ul style="list-style-type: none">- One value that is <u>clearly different from the rest</u>
Shift	<ul style="list-style-type: none">- An indication of <i>movement</i>, where 6 <i>consecutive points</i> have ‘shifted’ to the other side of the median- If 1 point is on the median, skip it and keep counting
Trend	<ul style="list-style-type: none">- 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



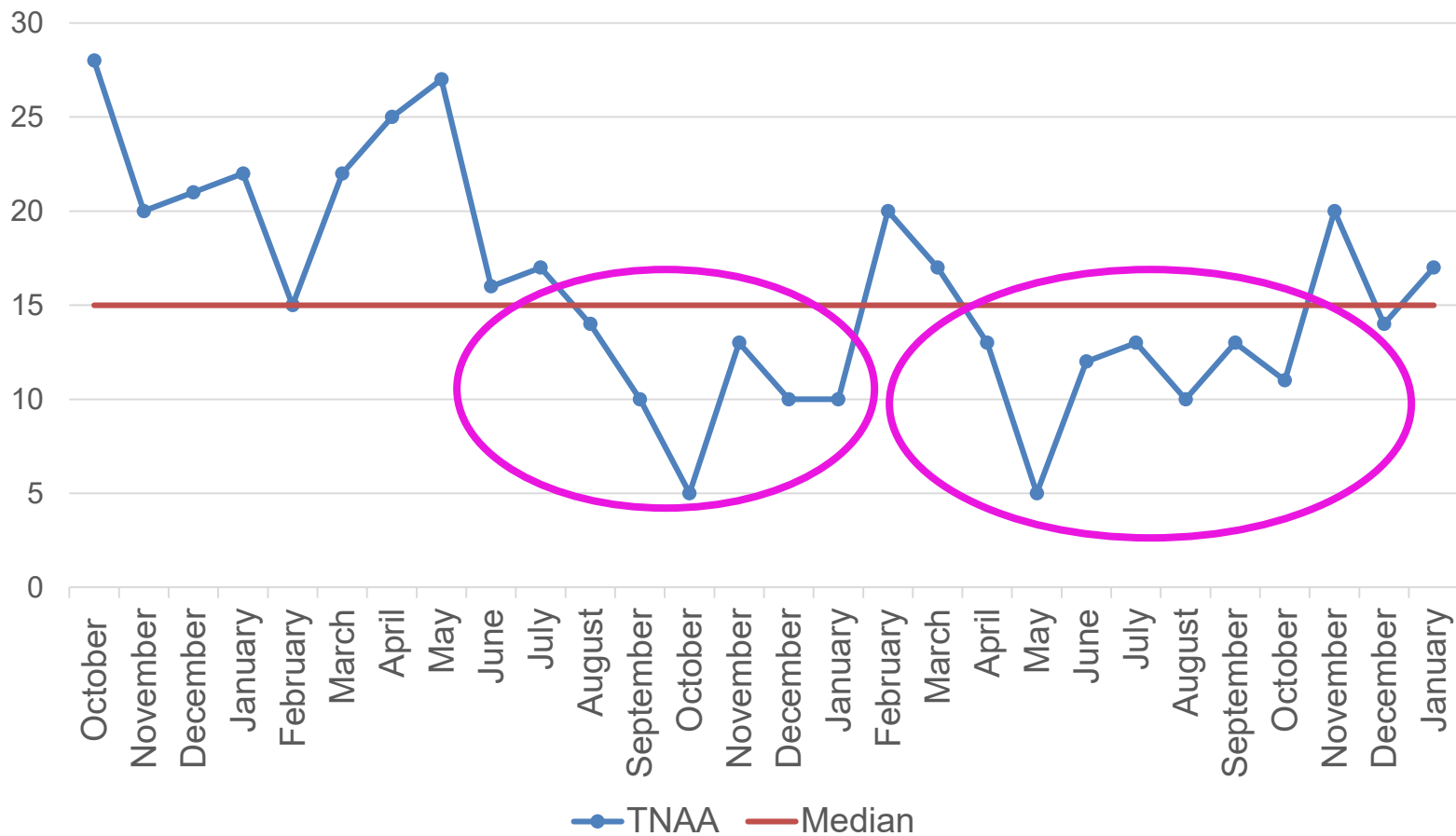
Astronomical Point





Shift?

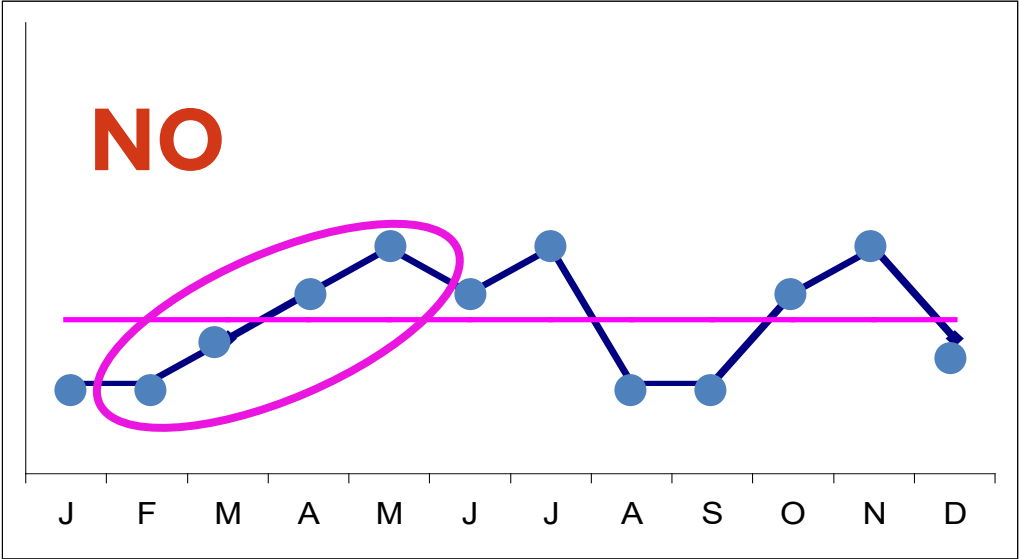
Days Until Third Next Available Appointment



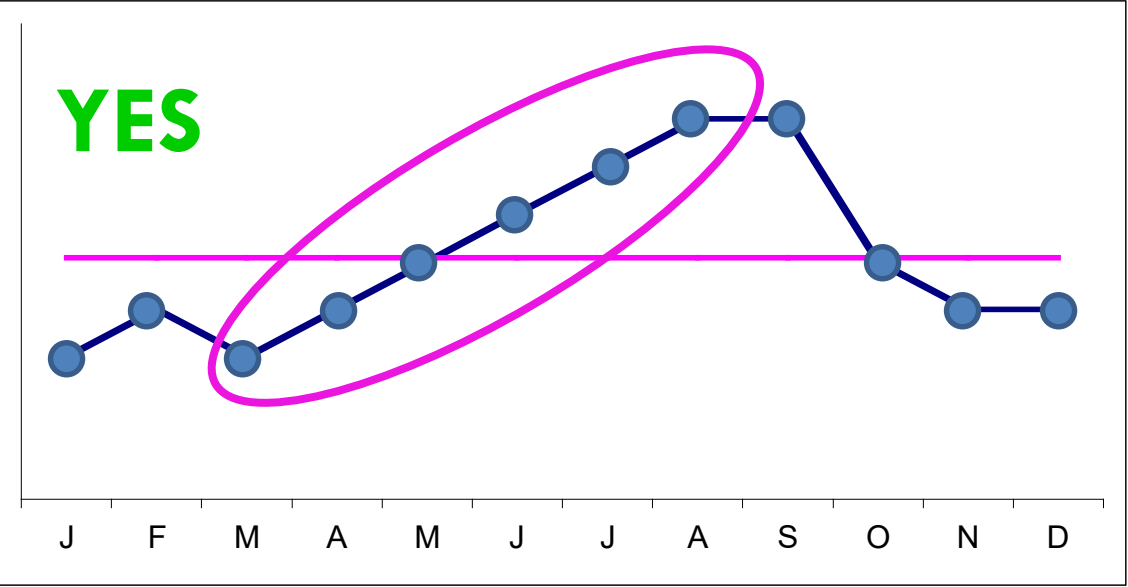


Trend?

A.



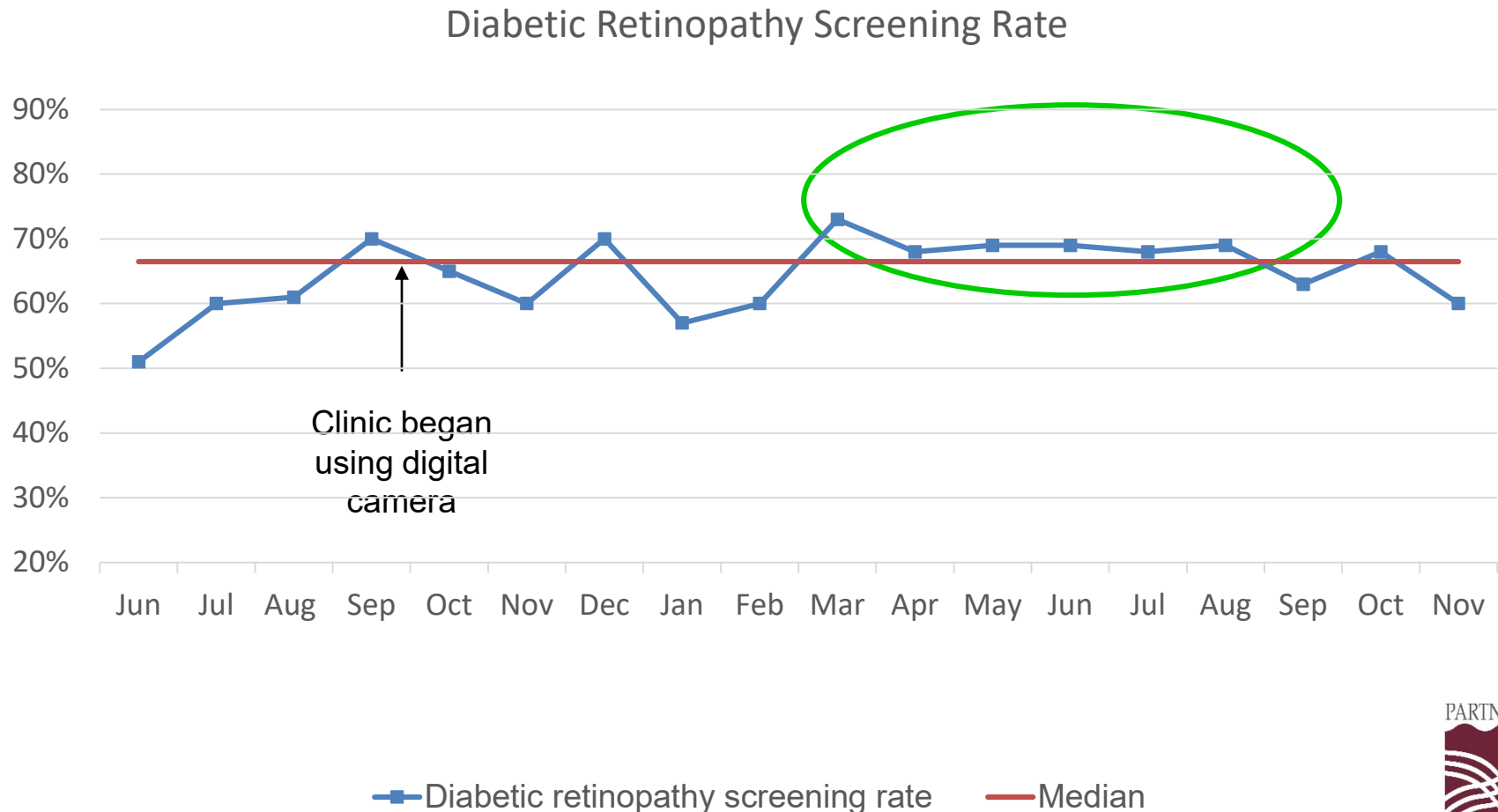
B.





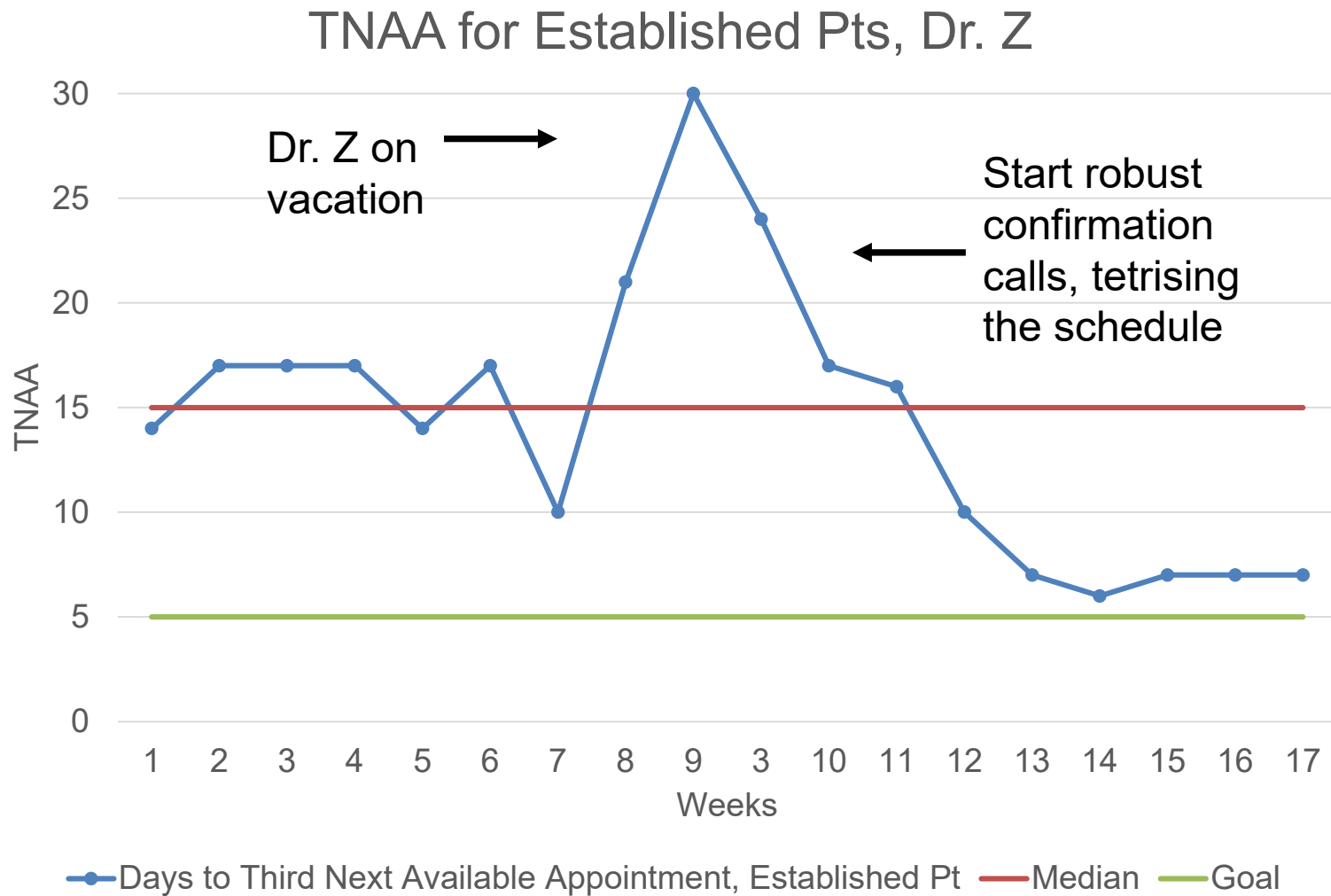
Example 1

Which Run Chart Rule Applies?





Example 2





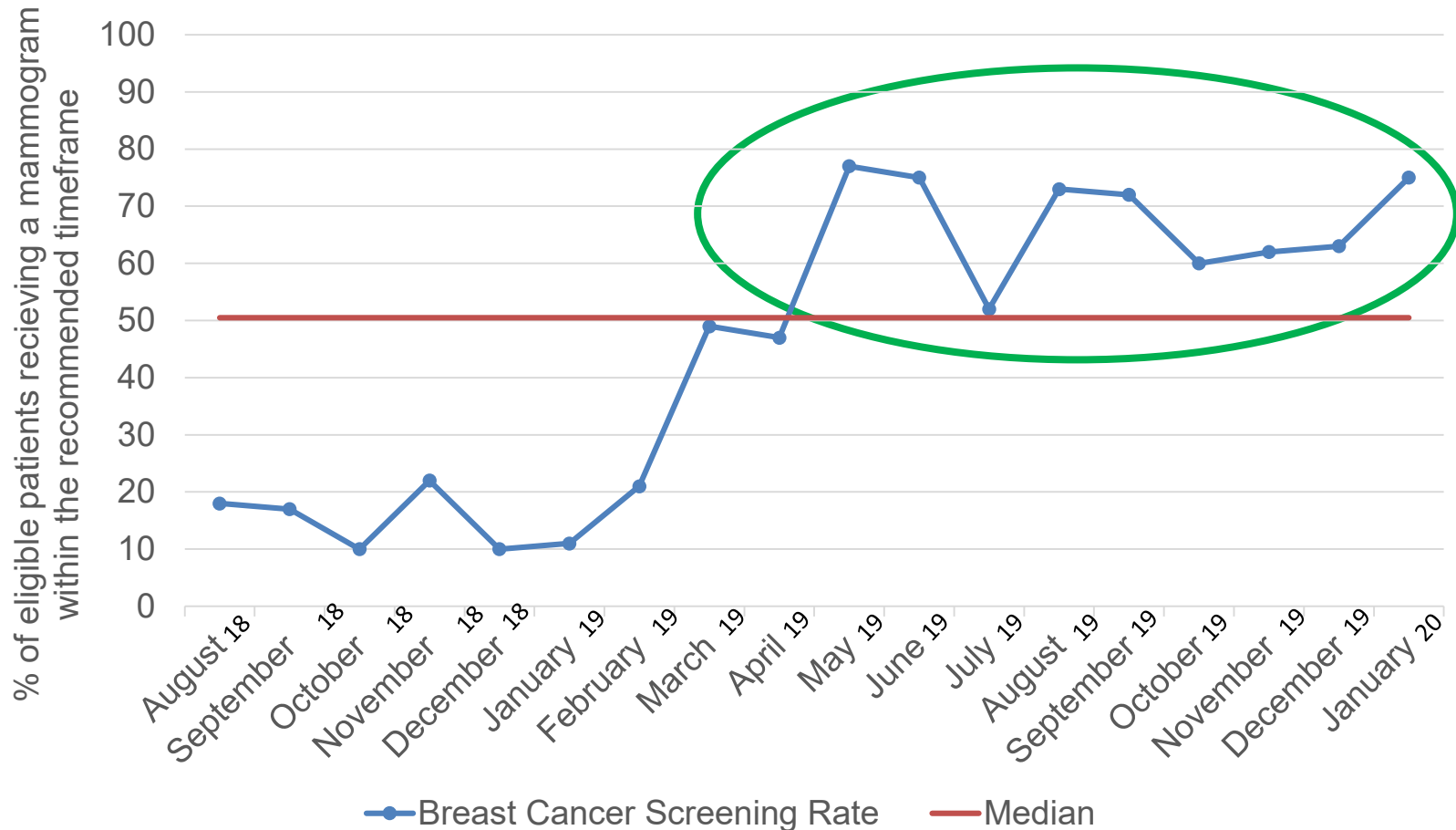
Run Chart Rules Recap

- 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



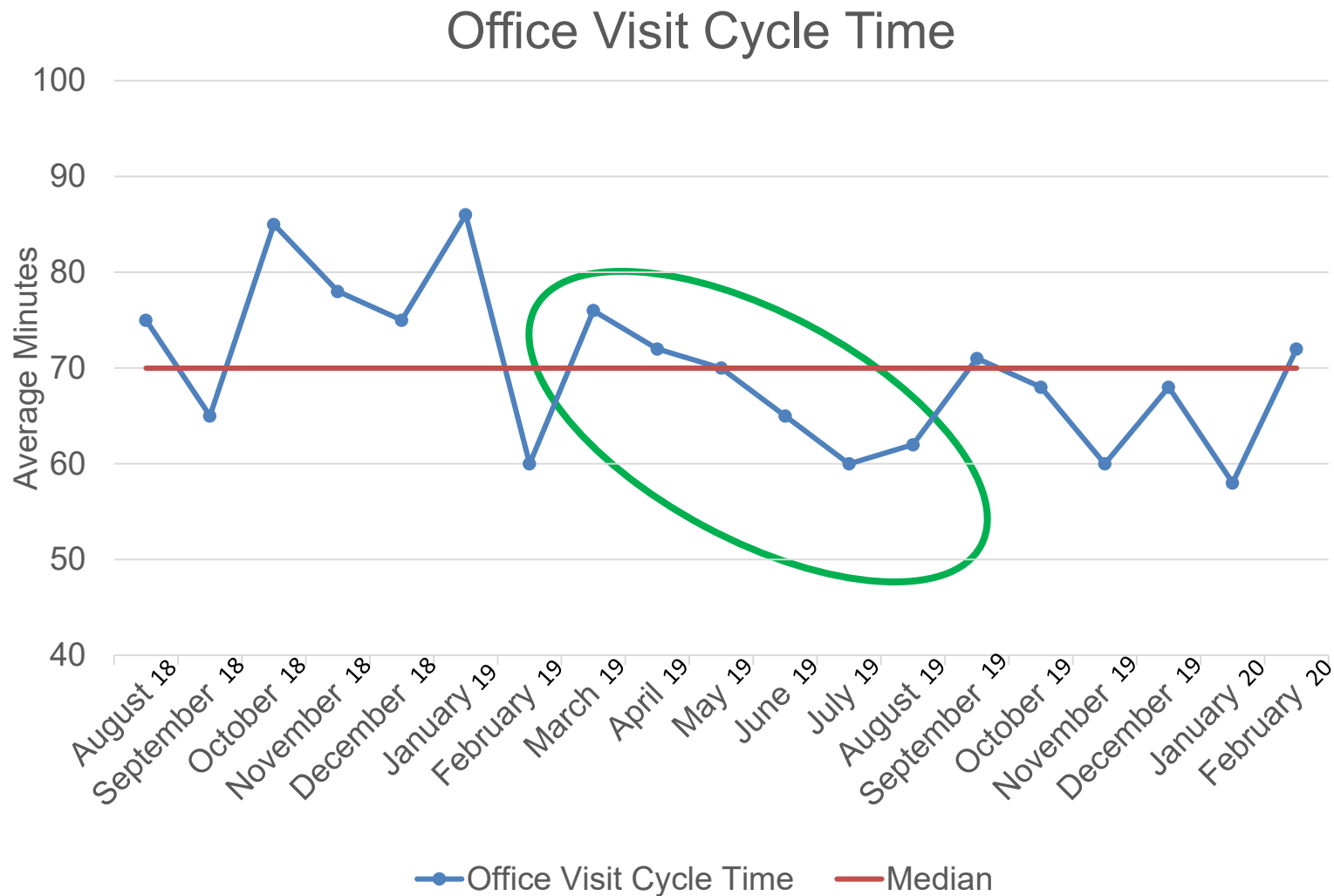
Exercise - Run Chart 1

Breast Cancer Screening Rates



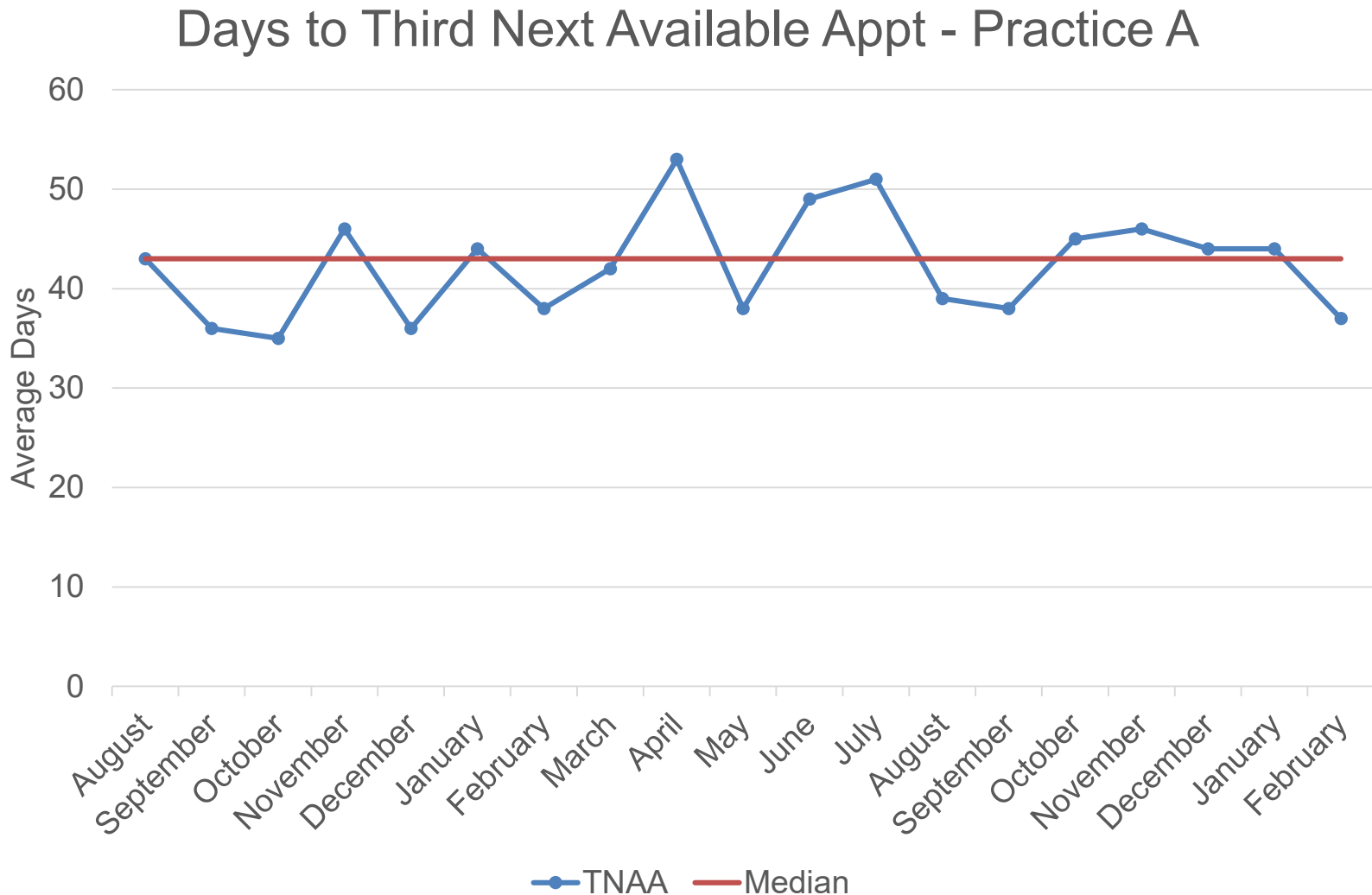


Exercise - Run Chart 2



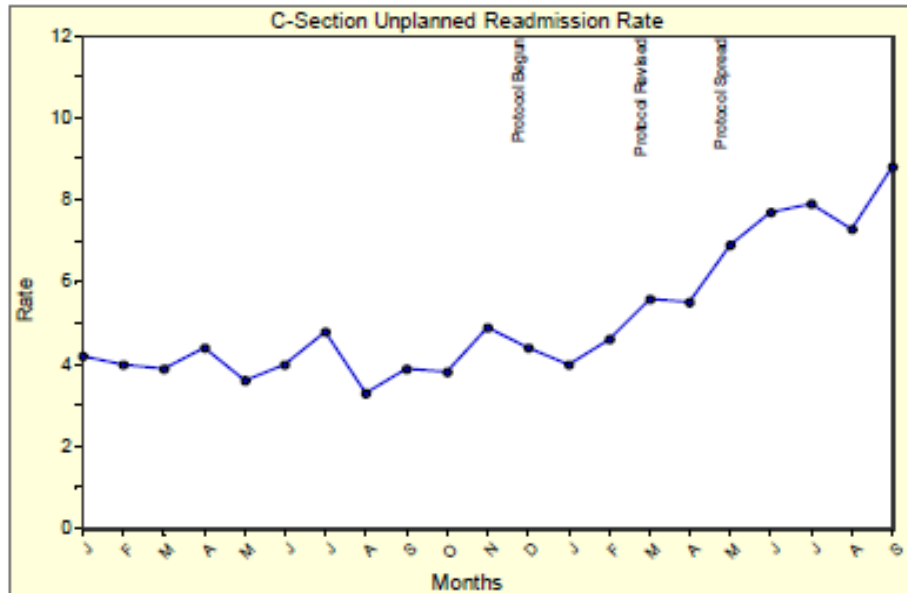


Exercise - Run Chart 3

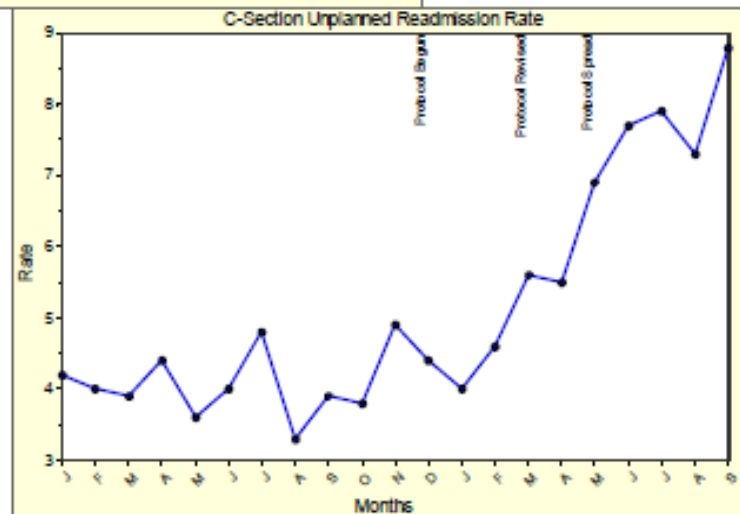
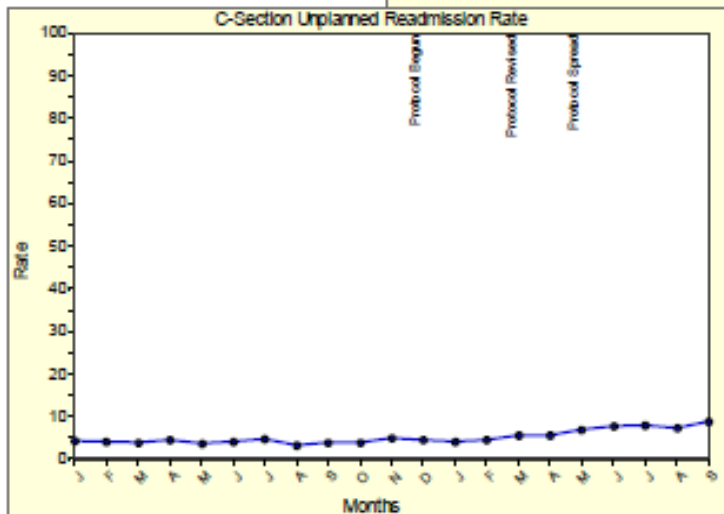




Scale Matters



From the Institute
for Healthcare
Improvement





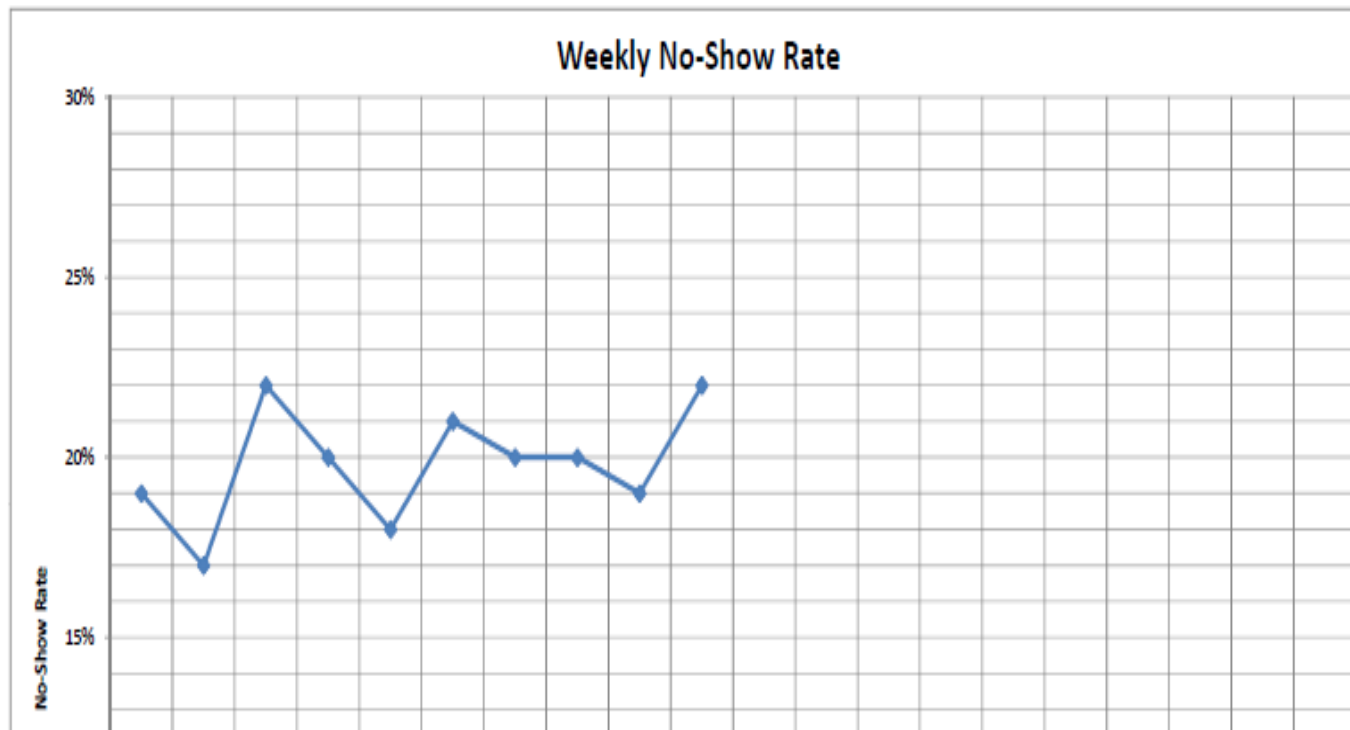
Exercise

Make Your Own Run Chart

Instructions: Use the data table below to complete the run chart.

- 1) Finish plotting the no-show rate. (Rates for weeks 1-10 are already plotted for you. Continue the line by plotting the data points for weeks 10-20.)
- 2) Draw your median line.
- 3) Draw your goal line.
- 4) Annotate the graph to show the timing of the change.*
- 5) Answer the following questions: Did the change result in an improvement? Did the team achieve their aim?

Data Table	
Week	No-Show Rate
1	19%
2	17%
3	22%
4	20%
5	18%
6	21%
7	20%
8	20%
9	19%
10	22%
11	21%
12	20%
13	18%
14	18%
15	19%
16	17%
17	17%
18	19%





In Summary: Using Data for QI

- Understanding the context of the data helps with interpreting the data
- All data exhibit 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



Questions





ABC's of QI Upcoming Sessions

Session 3 of 5: How Do We Know a Change is an Improvement?

Date: Wednesday, October 21 **Time:** Noon - 1:00 p.m.

Office Hours with Improvement Coaches

Date: Wednesday, October 28 **Time:** Noon – 1:00 p.m.

Session 4 of 5 - Tips for Developing Change Ideas for Improvement Webinar

Date: Wednesday, November 4 **Time:** Noon - 1:00 p.m.

Session 5 of 5 - Testing and Implementing Changes via the Plan-Do-Study-Act Cycle Webinar

Date: Thursday, November 12 **Time:** Noon - 1 p.m.

Registration:

http://www.partnershiphp.org/Providers/Quality/Pages/Quality_Events.aspx



Quality Improvement Trainings

Accelerated Learning Education Program

(Recording Available)

- Well Child Visit in the First 15 Months of Life Webinar
Date: Tuesday, September 22 **Time:** Noon – 1 p.m.
- Childhood Immunization Measures Webinar
Date: Tuesday, October 6 **Time:** Noon – 1 p.m.
- Academic Detailing Webinar: Improving Asthma Care and the HEDIS Asthma Medication Ratio
Date: Tuesday, October 20 **Time:** Noon – 1 p.m.

2019 PCP QIP High Performers – How'd They Do That?

(Recording Available)

- Webinar #1 of 3 (PCP's with > 10, 000 PHC members)
Date: Thursday, September 17 **Time:** Noon – 1:00 p.m.
- Webinar #2 of 3 (PCP's between 10 – 20,000 PHC members)
Date: Thursday, October 8 **Time:** Noon -1:00 p.m.
- Webinar #3 of 3 (PCP's with < 20, 000 PHC members)
Date: Thursday, November 5 **Time:** Noon – 1:00 p.m.

• Tools for Prioritizing Quality Measures

Date: Thursday, October 1 **Time:** Noon – 1:00 pm

(Recording Available)

• Change Management/Change Fatigue and QI Webinar

Date: Tuesday, October 27 **Time:** Noon – 1:00 p.m.

Register:

http://www.partnershiphp.org/Providers/Quality/Pages/Quality_Events.aspx

Recordings:

<http://www.partnershiphp.org/Providers/Quality/Pages/PIATopicWebinarsToolkits.aspx>



1:1 Coaching with an Improvement Advisor

Improvement Advisors Can Help:

- Additional Training & Clarification on the Model for Improvement
- Project Planning
- Advise on Quality Improvement Projects including:
 - Aim Statement
 - Project Charter
 - Driver Diagram / Process Mapping
 - PDSAs



Evaluations

Please complete your evaluation.
Your feedback is important to us!





Continuing Education Credits

Approved for 1.0 AAFP Elective credits.**CME is for physicians and physician assistants and other healthcare professionals whose continuing educational requirements can be met with AAFP CME.

Provider approved by the California Board of Registered Nursing, Provider #CEP16728 for 1.0 hours.



Thank You!

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