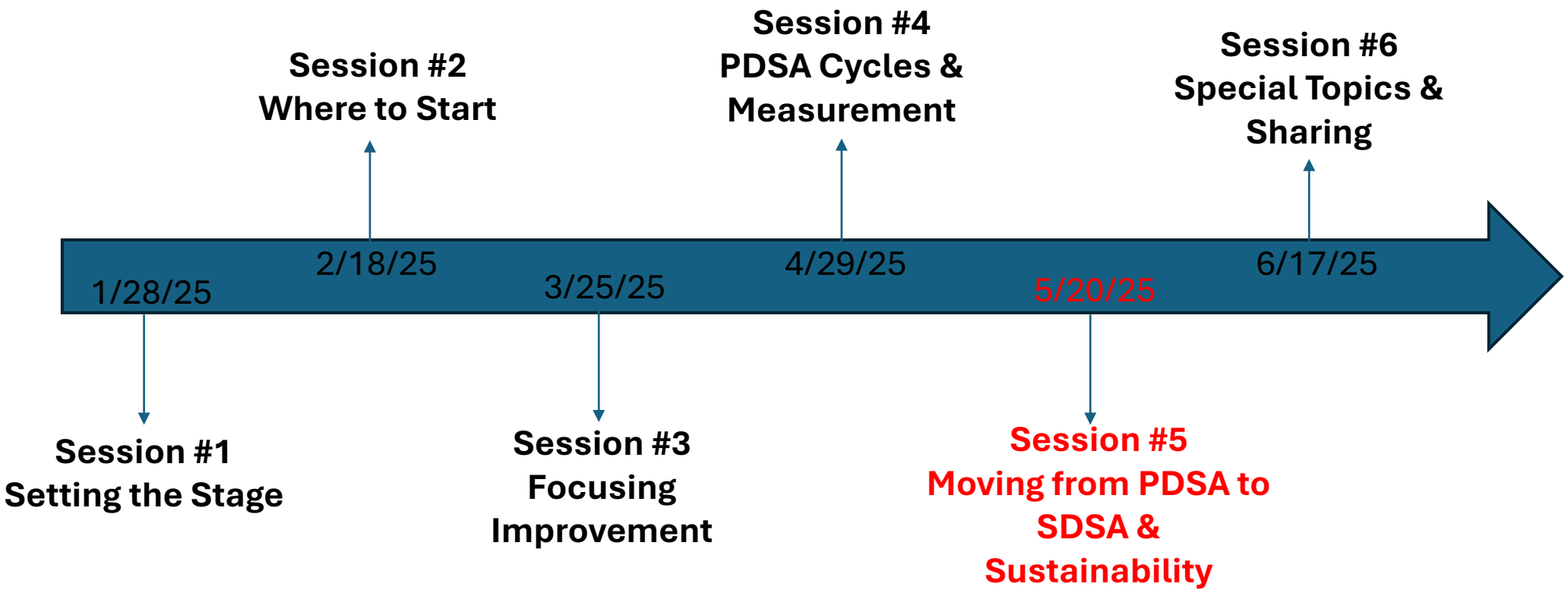
VPQHC
Quality Improvement Training
Session 5
PDSA Cycles and Measurement
May 20th, 2025
12:00 to 1:30 PM

VPQHC
Vermont Program for Quality in Health Care, Inc.

Welcome and Program Summary



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Session 5 Agenda

1. Session Agenda Review and Questions
2. Session 4 Evaluation Results
3. PDSA to Standardizing the New Improved Process
4. Simple Data Displays
5. Common Cause and Special Cause Variation

Session 5 Learning Objectives

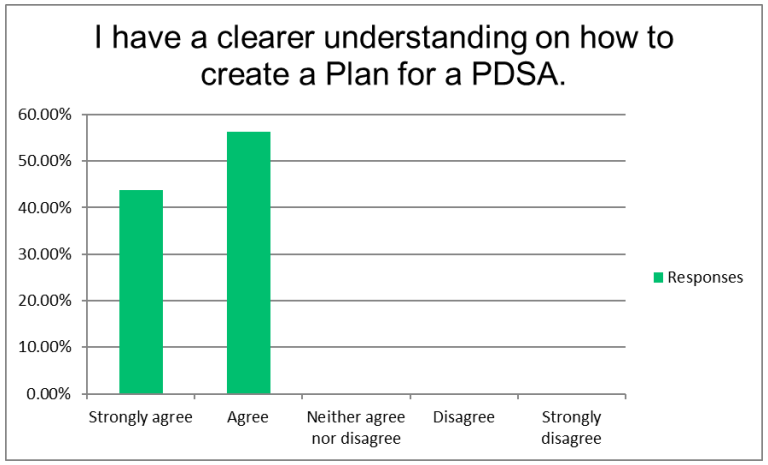
1. Transition from PDSA to SDSA: Determine when it is appropriate to move from PDSA to SDSA.

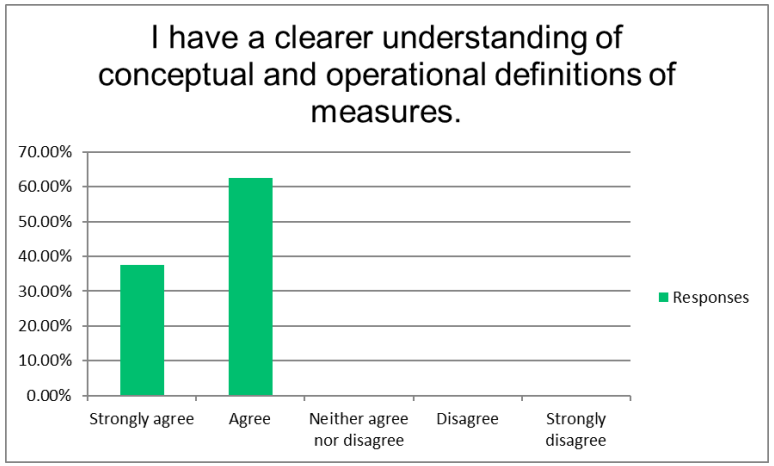
2. Develop a Sustainability Plan: Create a plan to ensure the sustainability of improvements.

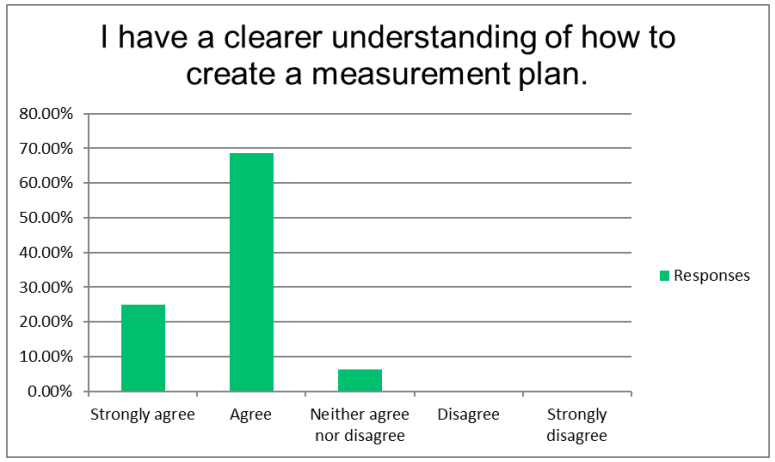
4. Representing your data

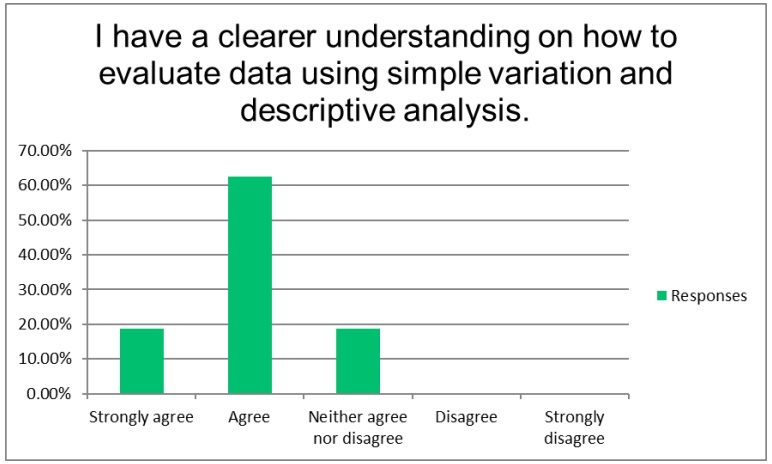
5. Simple Variation to Common Cause and Special Cause variation

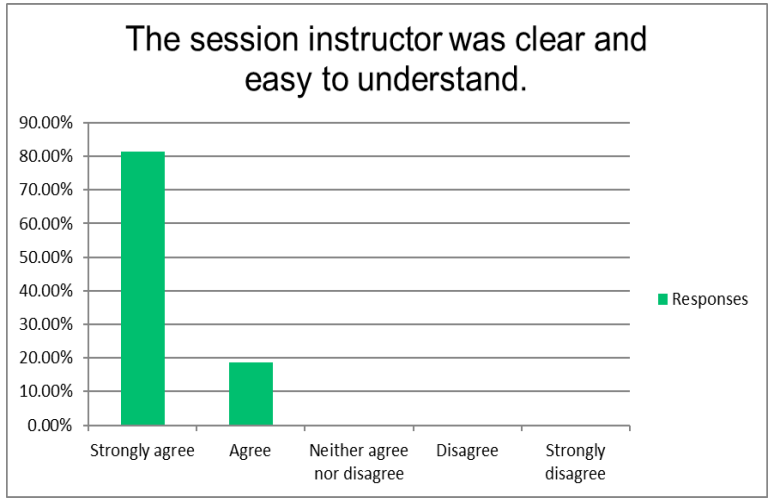
Session 4 Satisfaction Survey Results (N=16)











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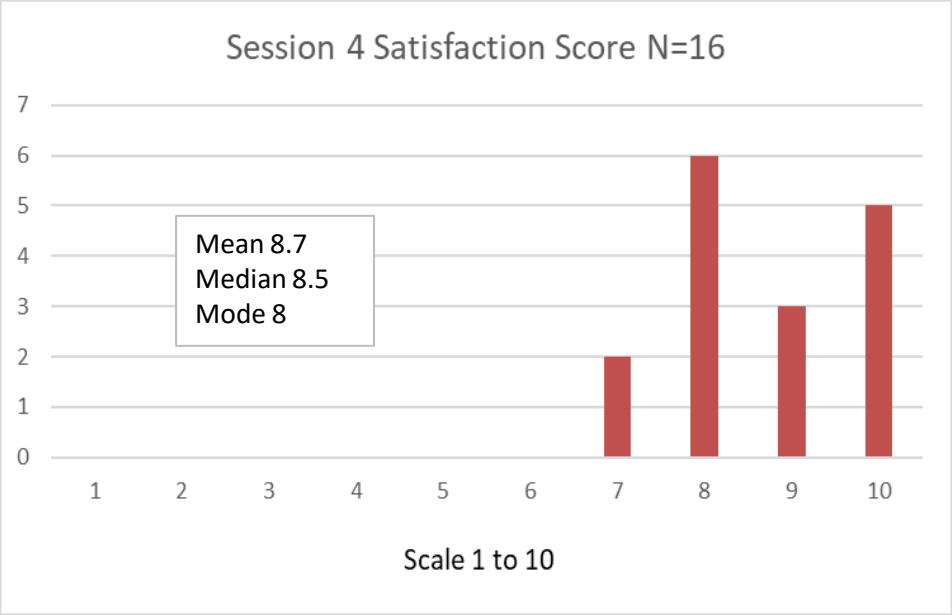


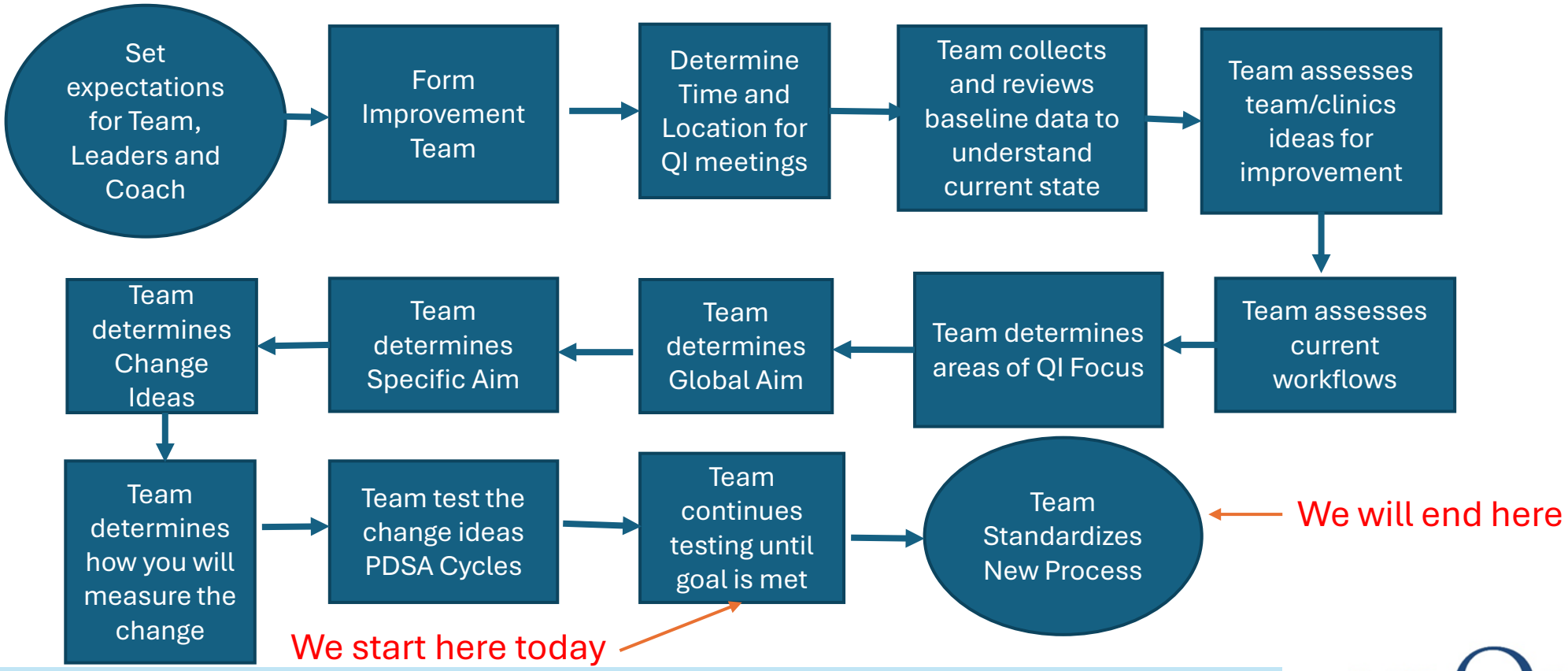
Positive Comments

Really helpful using an actual scenario/ initiative
Nicely done.
Thank you again! This is not all new information, but it is so helpful for me to think about how I approach the process and utilize tools I am familiar with.
I am new to QI. This series is my first introduction into this world. I have found a great amount of the material incredibly useful....and there is a lot to learn. I think the most difficult question I ask myself is - which initiatives warrant a PDSA approach?

Constructive Comments

I will rewatch later to help firm up my understanding.
This section was difficult for me, not with how you explained it but I don't feel in my processes that I have much data to work with other than people's opinions.
Applying this to each plan for change would be wonderful, but unfortunately time and resources are limiting. So, how do we choose when to apply the strategy?

QI Took Kit Process Outline



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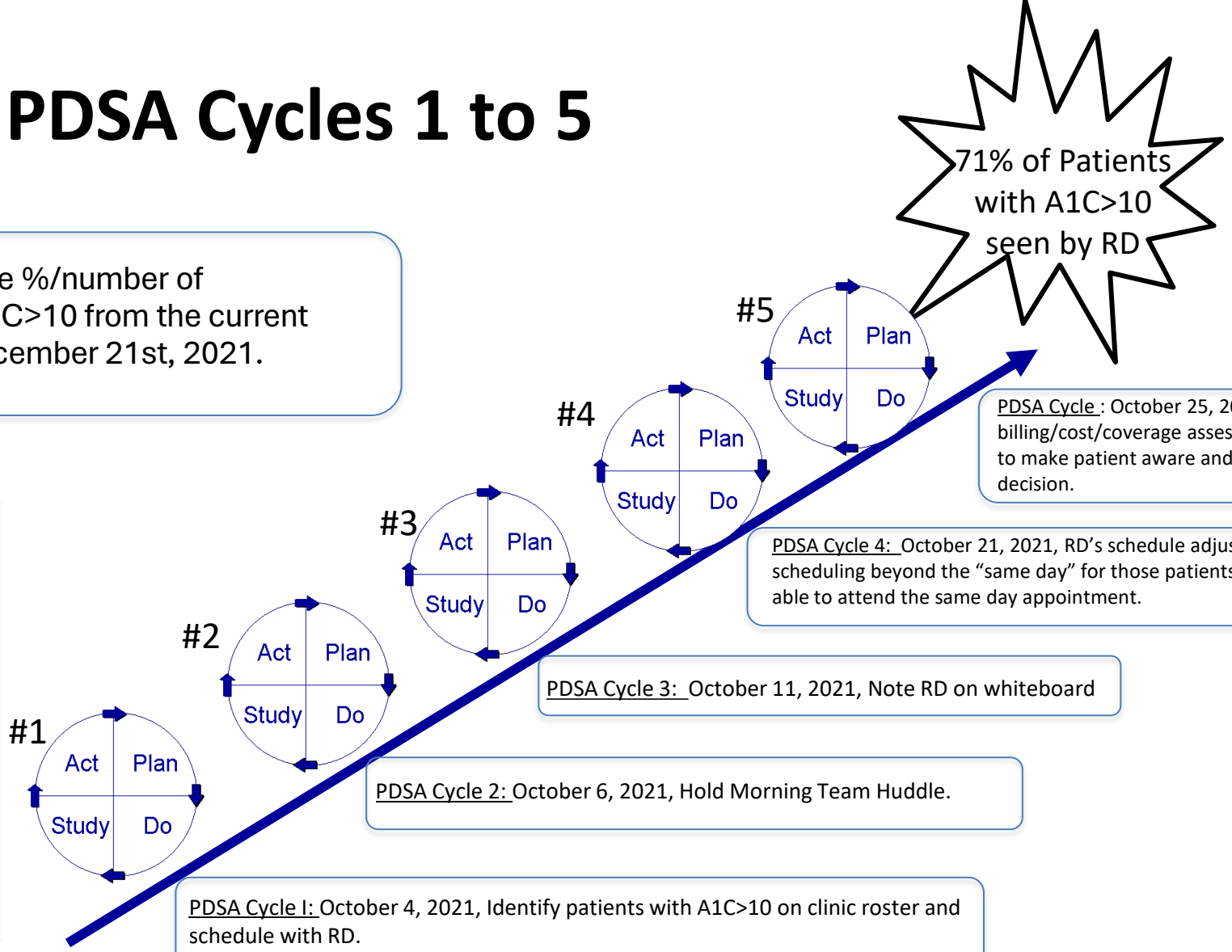
PDSA Cycles 1 to 5

We will increase the %/number of patients with an A1C>10 from the current 21% to 71% by December 21st, 2021.

	Date	# Patient Eligible for Dietician Visit	# Patients Saw Dietician	% Saw Dietician	Comments
	10/4/2021	4	1	25.0%	Forgot to include 2 patients on list
	10/5/2021	5	3	60.0%	
	10/6/2021	2	2	100.0%	Held First Team Huddle
	10/7/2021	3	2	66.7%	
Week 1	10/8/2021	4	3	75.0%	
		18	11	61.1%	
	10/11/2021	3	3	100.0%	Noted on whiteboard
	10/12/2021	2	1	50.0%	Nutritionist Sick in PM
	10/13/2021	2	2	100.0%	
	10/14/2021	1	1	100.0%	
Week 2	10/15/2021	3	2	66.7%	Patient left before being seen
		11	9	81.8%	
	10/18/2021	3	1	33.3%	Dietician called to hospital
	10/19/2021	3	2	67%	Patient left before being seen
	10/20/2021	3	2	67%	Missed one on first list
	10/21/2021	4	3	75%	
Week 3	10/22/2021	5	4	80%	Patient refused to be seen
		18	12	67%	
	10/25/2021	5	4	80%	
	10/26/2021	6	5	83%	
	10/27/2021	7	6	86%	
	10/28/2021	7	6	86%	
Week 4	10/29/2021	4	4	100%	Changed how we introduce Dietician



PDSA Cycle I: October 4, 2021, Identify patients with A1C>10 on clinic roster and schedule with RD.

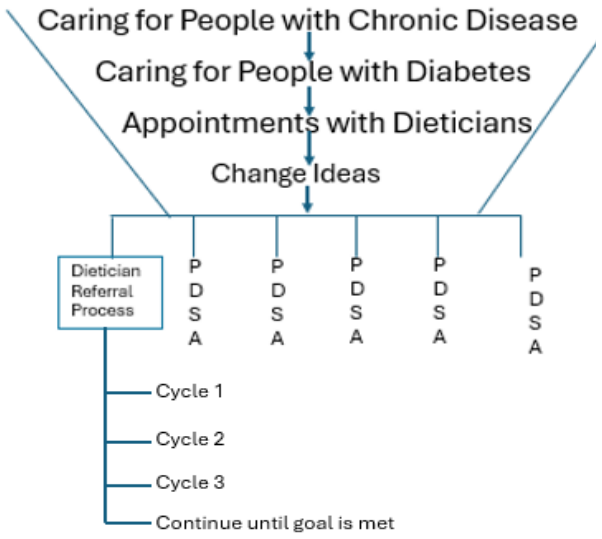
PDSA Cycle 2: October 6, 2021, Hold Morning Team Huddle.

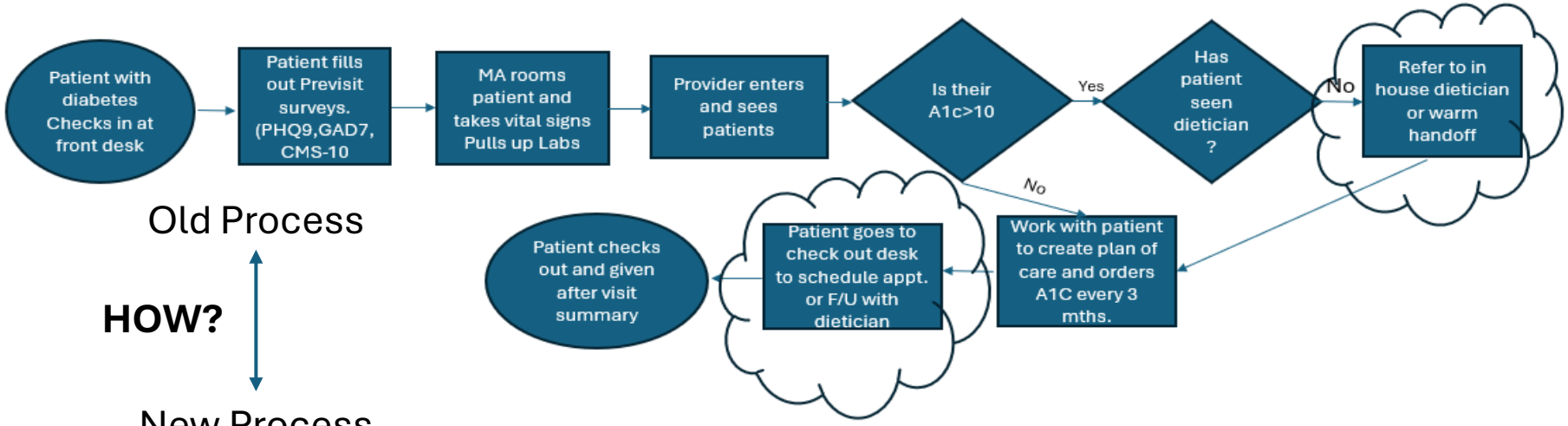
PDSA Cycle 3: October 11, 2021, Note RD on whiteboard

PDSA Cycle 4: October 21, 2021, RD's schedule adjusted to allow scheduling beyond the "same day" for those patients that were not able to attend the same day appointment.

PDSA Cycle : October 25, 2021, billing/cost/coverage assessed prior to scheduling to make patient aware and make an informed decision.

Moving from the "Old Way" to the "New Way"

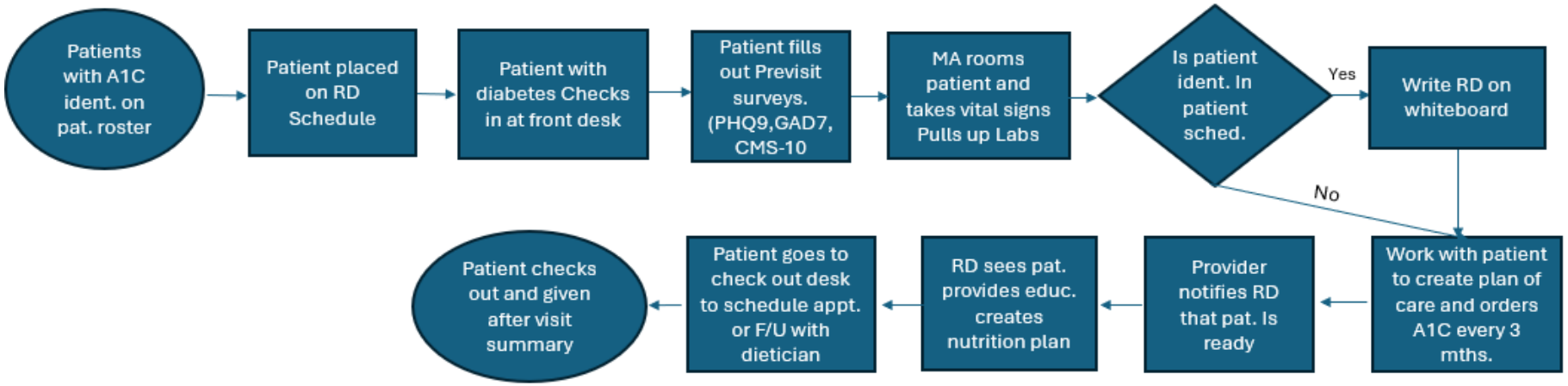




Old Process

HOW?

New Process



Moving from PDSA to SDSA

Step 13- Standardize- Once You Meet Your Goals

1. What will you need to "stop doing" in order to make this the "new normal"?
2. Is training required?
3. Is there anything we need to change or should change in the physical environment.
4. Need to create a new Policy(s) and Procedure(s)/Process Flow?
    a. Update Orientation processes
    b. Update job descriptions
    c. Update evaluation requirements
5. How will you monitor and ensure your new process continues to meet its goals?
6. How frequently will you review the procedure to ensure new process is being sustained?

"It can take anywhere from 18 to 254 days for a person to form a new habit and an average of 66 days for a new behavior to become automatic."

Ref. How Long Does It Really Take to Form a Habit? | Scientific American

Plan - Do - Study - Act – To – Standardize -Do - Study- Act

Standardization Plan

Task	Who	When	Tools Needed	Measures

Standardization Plan

Standardization Plan: Caring for people with Diabetes

Task	Who	When	Tools Needed	Measures
Update Diabetes Care Plan Policy and Procedure	Freda site supervisor	2 weeks	PDSA information, computer	Task completed?
Update process flow map as part of updated procedure and post on communication board	Freda site supervisor	2 weeks	PDSA information, computer	Task completed?
Hold an all-clinic meeting to review new procedure	Freda site supervisor and Frank MD Leader	Nov. 15th	Copies of update procedure, computer and projector	Task completed?
Require all staff and providers to read and sign off on new procedure	All staff and providers	By Dec. 15th	Procedure and sign off sheet and or computer sign off.	Did everyone sign off on reading the new procedure?
Monthly Report on % of patients with A1C>10 who saw an RD. Post on communication board and in computer-based dashboard.	Freda site supervisor Jim IT specialist	By the 10th of month	Computer, EMR report	Data posted by the 10th of each month
Quarterly report on the average A1C for diabetic patients who saw an RD.	Freda site supervisor Jim IT specialist	By the 10th after the close of the qtr.	Computer, EMR report	Data posted by the 10th of each month
Annual review of Diabetes Care Plan and associated data	All staff and providers	November each year	Procedure and sign off sheet and or computer sign off.	Did everyone sign off on reading the new procedure?
Update staff evaluation to include a section on following chronic disease care processes	Freda site supervisor	By Nov. 15th	Computer, staff evaluation forms	Task completed?

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Love and Nuts

What do you LOVE about QI measurement?

What drives you NUTS?

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What do you Love and What drives you Nuts about QI Measurement?

Love

- Satisfying to see the change
- Data representation
- Promotes further improvement
- Expected outcome
- Helps you tell the story
- A small change to make a big impact.
- Intentional teaming and collaboration
- Interesting to learn what you don't know and helps processes flow smoothly.
- Learning processes taken
- Identifying things that do and do not improve care
- Discovering outliers that may be contriputing
- Always learning

Nuts

- Vary hard to get a perfect data point. Some are close to what we want.
- Can misrepresent data
- Bias
- Trying to get team buy in and resources from other departments
- How long it takes to implement changes based on things outside our control
- Bias about the process itself- Getting data is to taxing and to much work and not part of what we are doing.
- Ineffective communication about the data. Not getting to the people it should.
- Measuring processes that are unpredictable.
- Hard to get data out of EMR.
- Not sure what to measure
- Developer of the measure not sure about real life road blocks.

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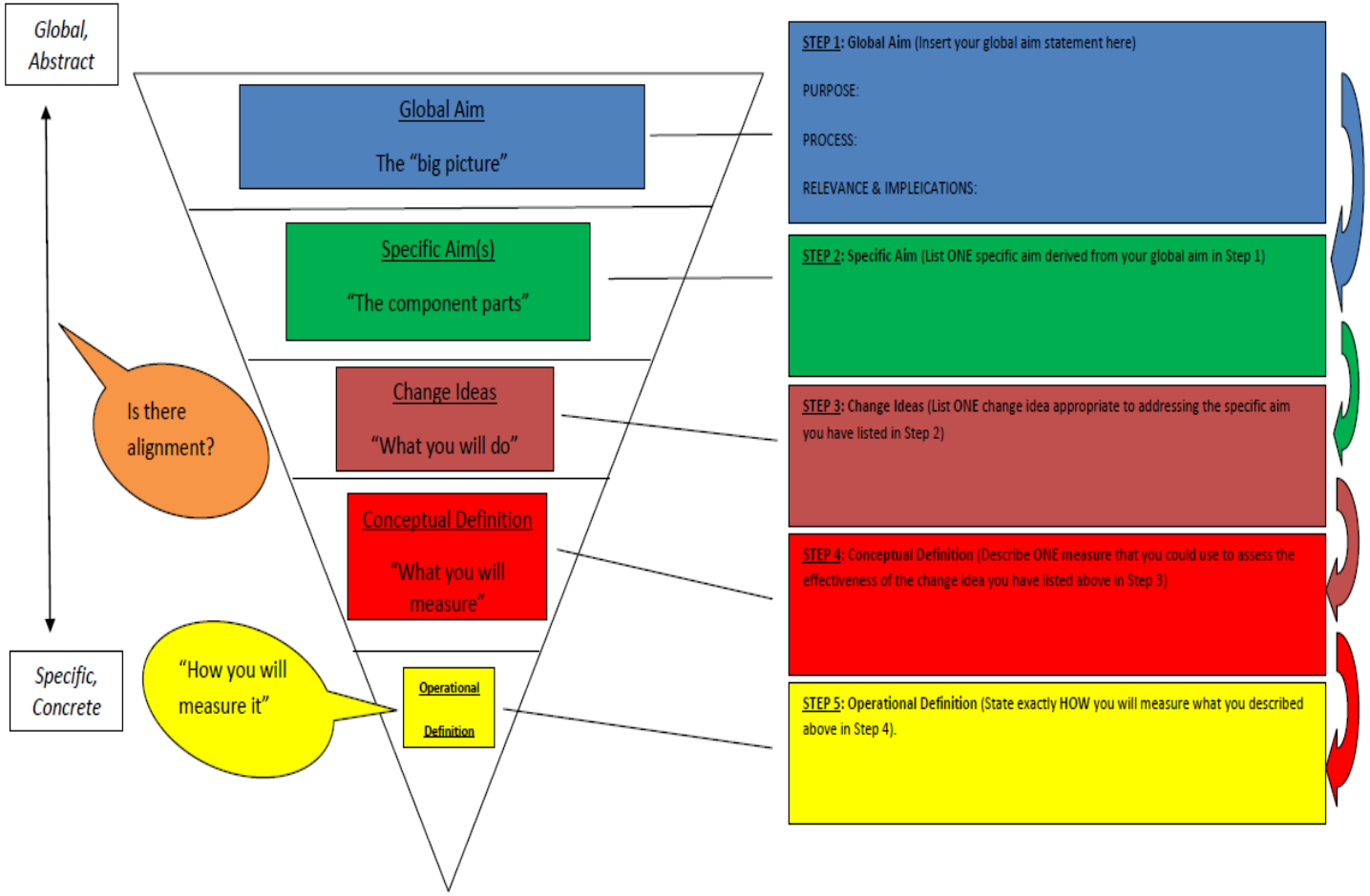
Review of Linking Aims to Measures

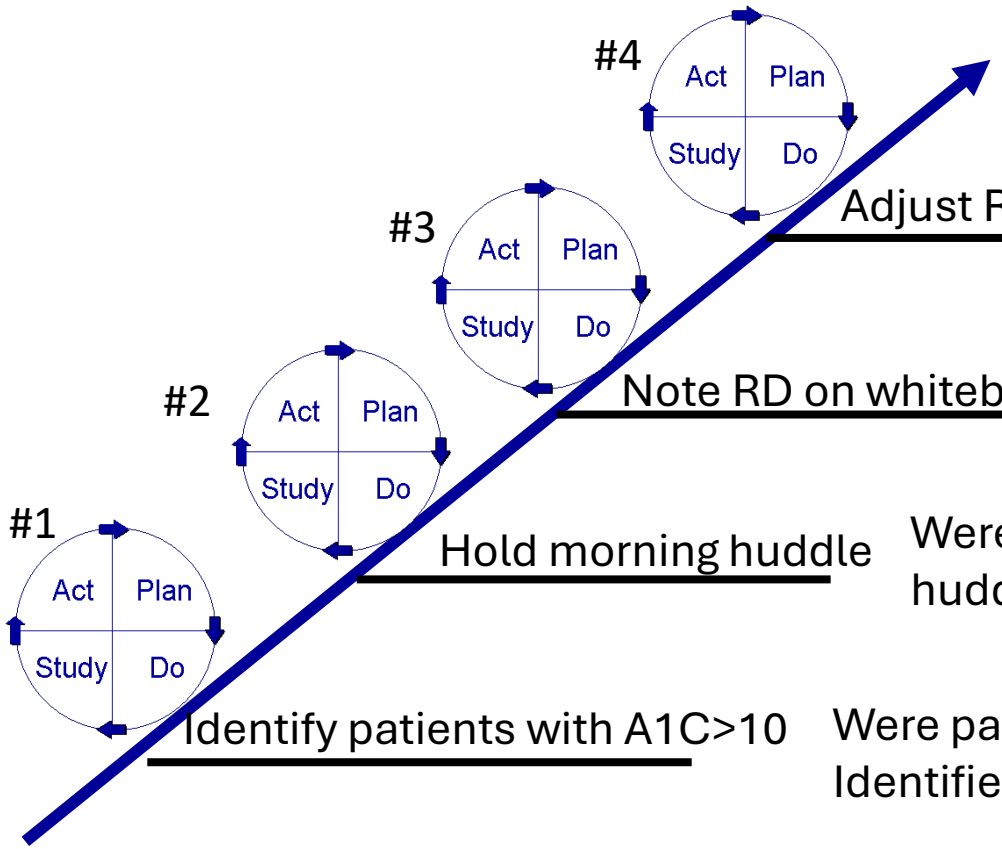
FUNDAMENTALS MEASUREMENT: Operational and Conceptual Definitions Worksheet

Instructions: Complete the following worksheet to derive measurement definitions from your global and specific aims following these 5 steps:



(Used by permission Dr. Brant Oliver)

Linking of Measures from PDSA to Process and Outcome Measures



PDSA Measures	Process Measures	Outcome Measure
Adjust RD schedule	Was schedule adjusted Y/N	
Note RD on whiteboard	Was the note added Y/N	
Hold morning huddle	Were morning huddles held Y/N	
Identify patients with A1C>10	Were patients Identified Y/N	
	#/% of eligible patients seen by RD.	#/% of people with diabetes with an A1C>10.

Chart/Graph Based on Data Type

- Data Over Time
  - Time Plots/Line Graphs
  - Stratified Time Plots
  - Run Charts (time plot with a median)
- Categorical Data
  - Pie Charts
  - Bar Charts
  - Stratified Bar Charts

Keep it simple

Accessible to all and easy to view

Display in open areas where people can see it

Should be easily interpreted by all viewers

Annotation of data helps tell the story of the improvement journey

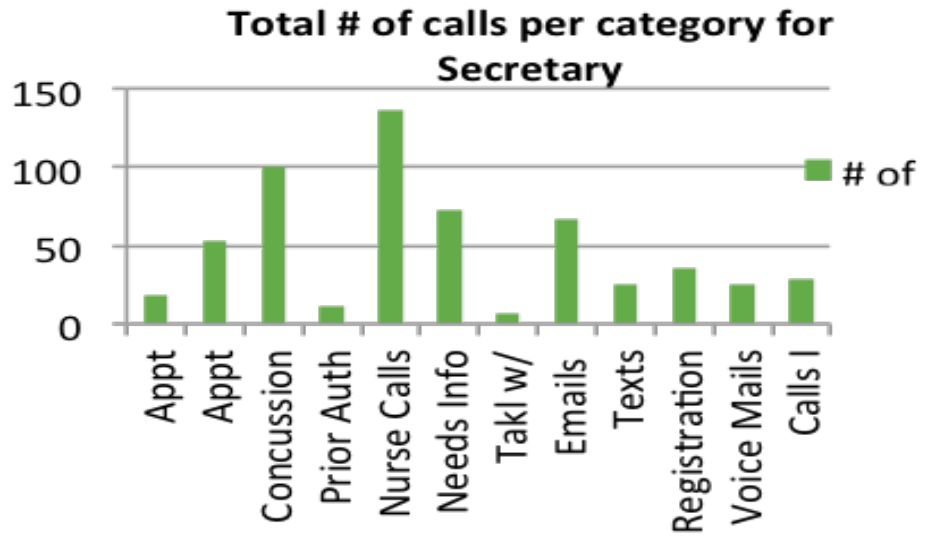
Allows you to visually represent simple variation and progress toward goal

Examples of Most Common Data Displays

Categorical Data

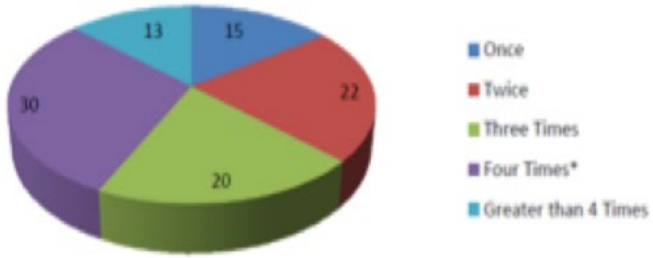
Data that is collected in groups or topics. The number of events in groups is counted and can be represented as a Bar and Pie Chart

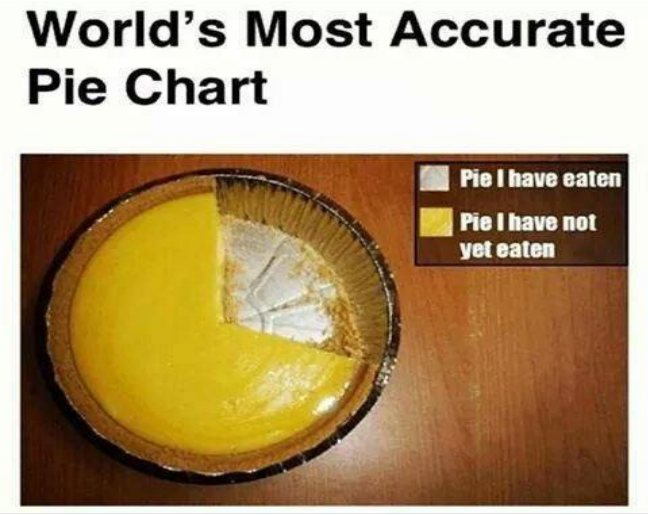
Bar Chart



Pie Chart

Number of times patient saw RD

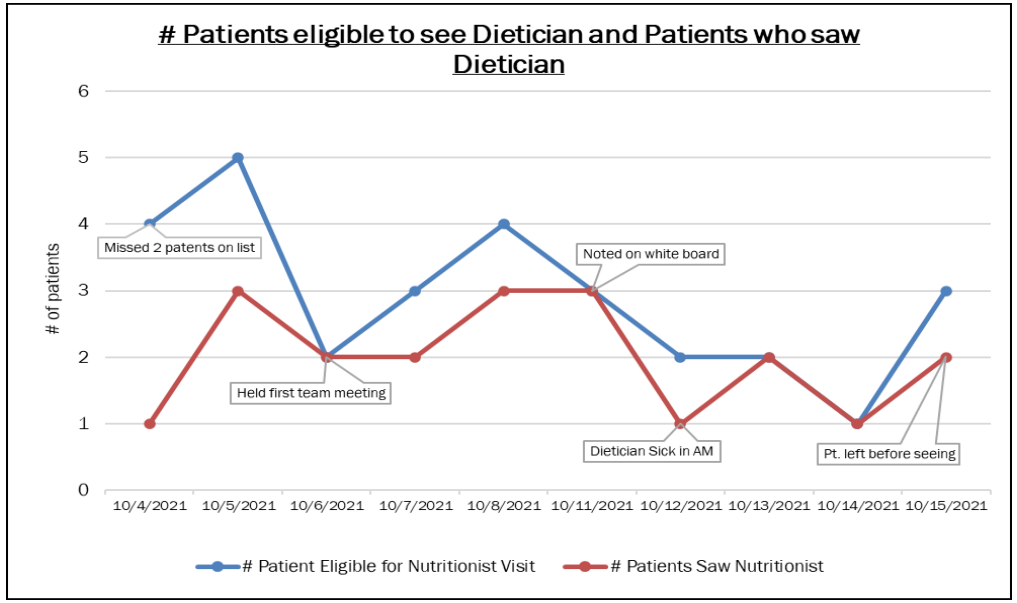




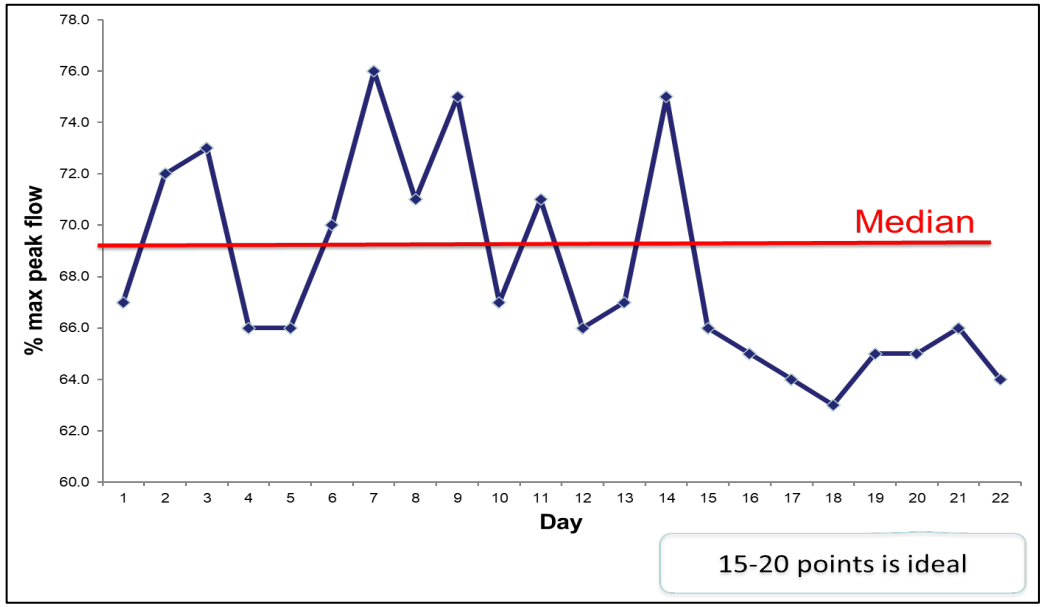
Data Over Time

Time series data captures and shows data over a period of time to help identify trends or changes over time.

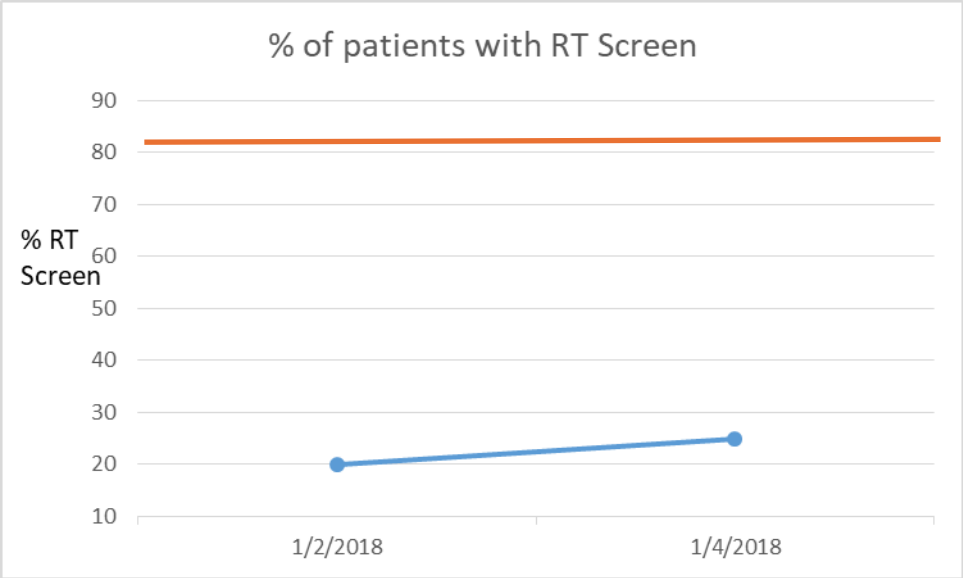
Time Plots/Line Graph

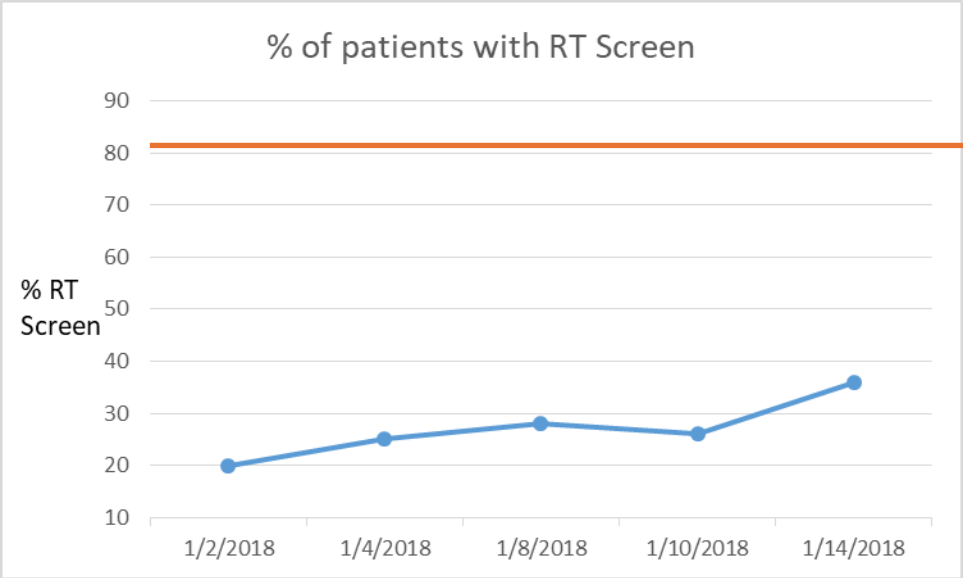


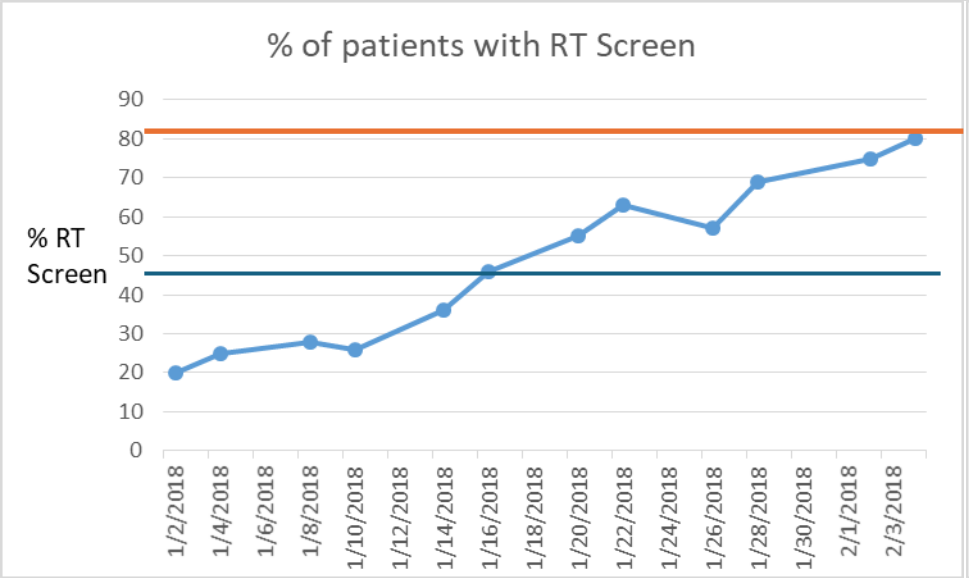
Run Chart

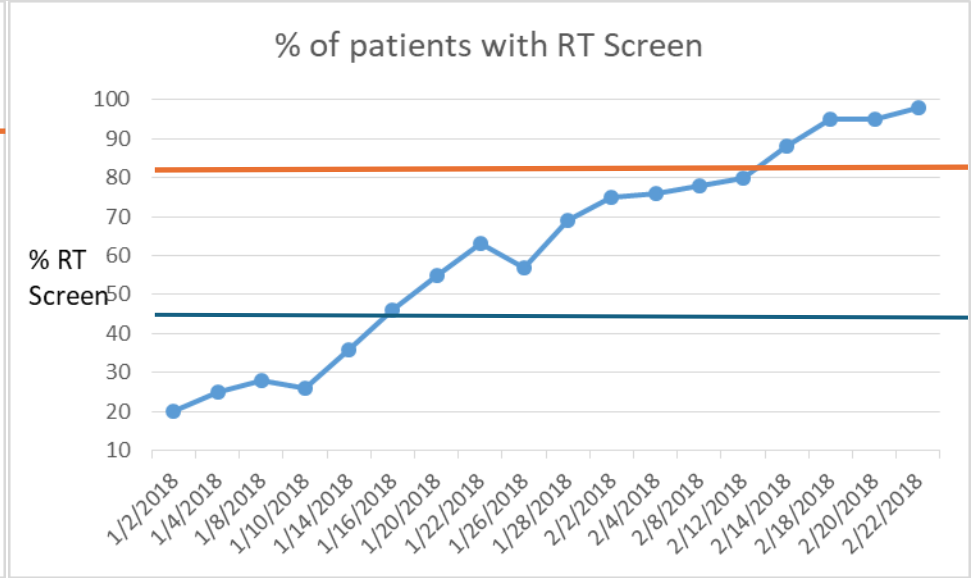


Your QI Data Develops Overtime as Do Your Charting Options









Understanding Variation Using Run Charts

Common Cause Variation

- Normal "ups and downs" inherent in the design of the process
- "Noise"
- No statistically significant variation present

Special Cause Variation

- Due to irregular or unnatural causes not inherent in the process
- Statistically significant variation present

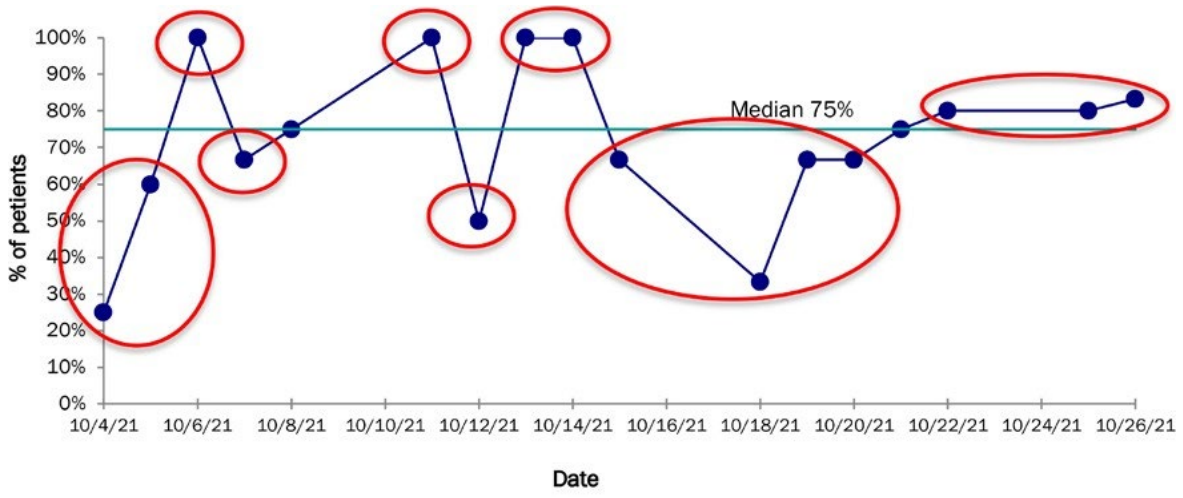
Number of RUNS in the Data

Table 5-4. Determining the Expected Number of Runs for Common Cause Variation

Number of Data Points Not on the Median	Lowest Run Count	Highest Run Count
12	3	11
13	4	11
14	4	12
15	5	12
16	5	13
17	5	13
18	6	14
19	6	15
20	6	16
21	7	16
22	7	17
23	8	17
24	8	18
25	9	18
26	9	19
27	10	19
28	10	20
29	10	20
30	11	21

Source: Adapted from Provost LP, Murray SK. *The Healthcare Data Guide: Learning from Data for Improvement.* San Francisco: Jossey-Bass, 2022.

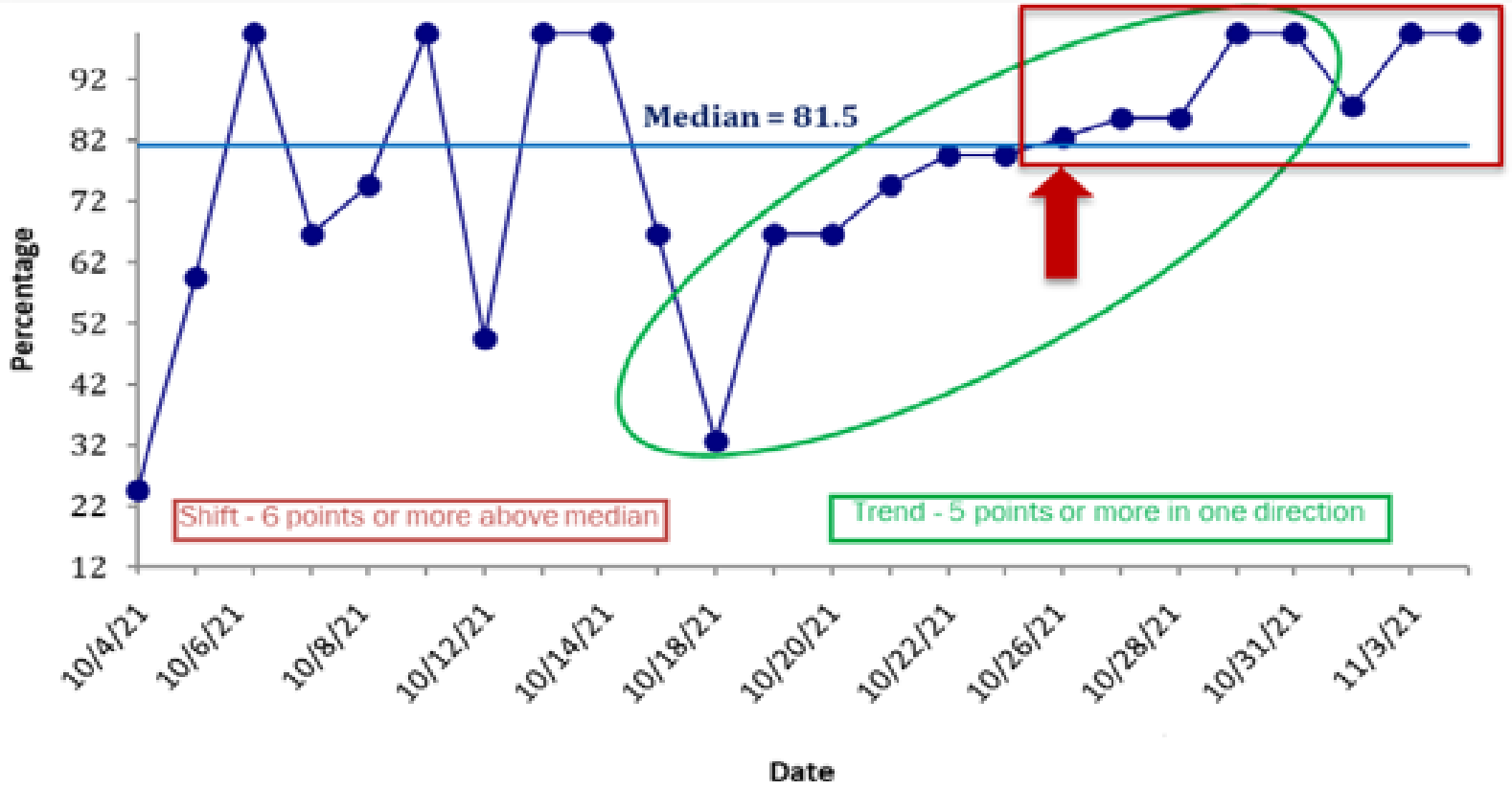
Figure 5-5. Run Chart of Percentage of Eligible Patients Who Had a Dietitian Visit per Day



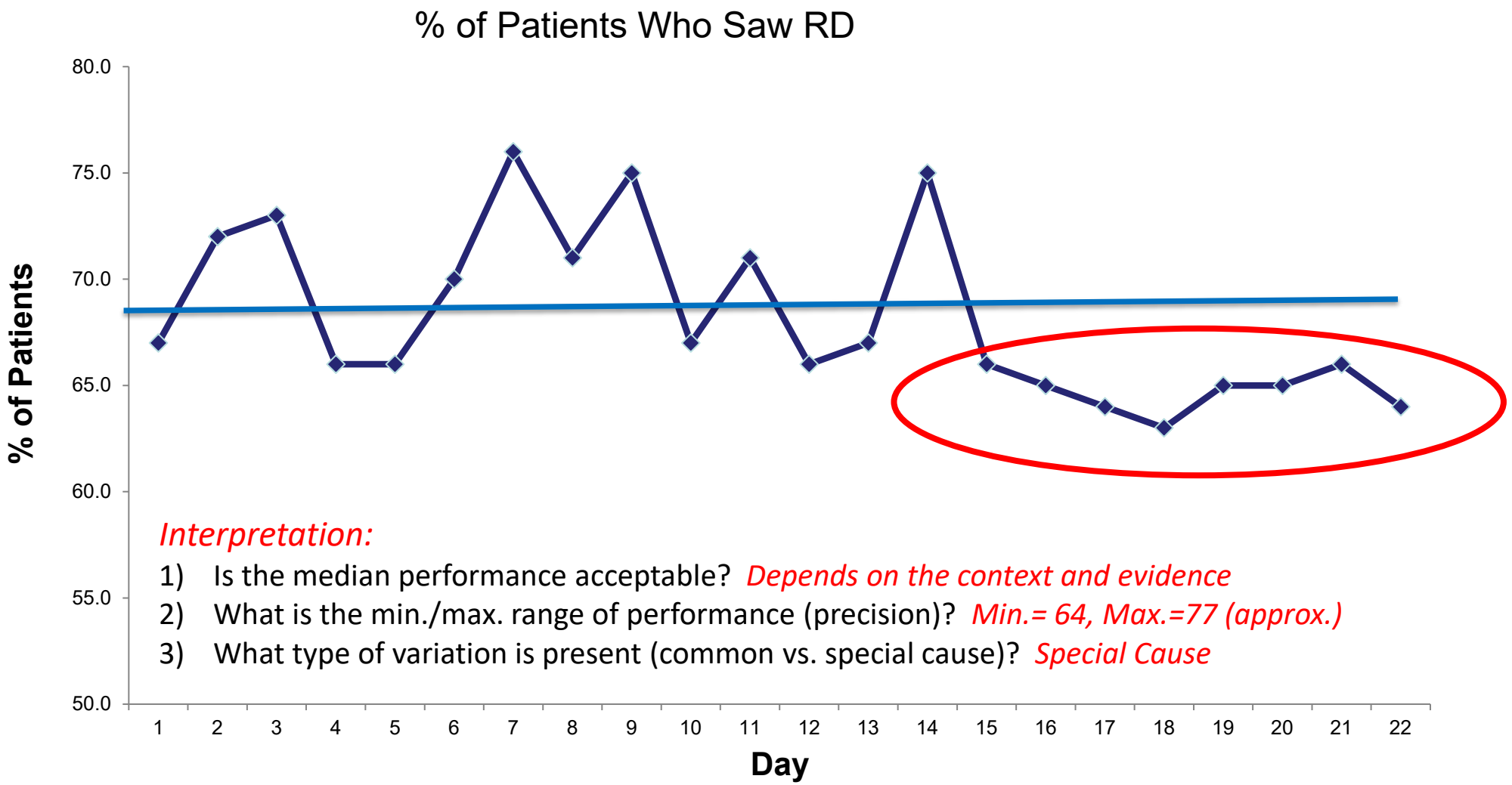
Run chart of the percentage of eligible patients who had a dietitian visit per day. The horizontal axis (*x*-axis) shows the time points observed (dates). The vertical axis (*y*-axis) shows the percentage of eligible patients seen by a dietitian (calculated as total patients seen by dietitian/total eligible patients, with the proportion expressed as a percentage between 0% and 100%). The blue line shows the variation of observed percentages over time. The center line shows the median value of all of the observed data points = 75%. Runs are circled in red—note that there are 17 data points and 8 circled runs and that this falls within the expected common cause variation range (*see* Table 5-4) of 5–13 points for a run chart containing 17 data points.

Shifts and Trends

Figure 5-7. Run Chart with Trends and Shifts Identified



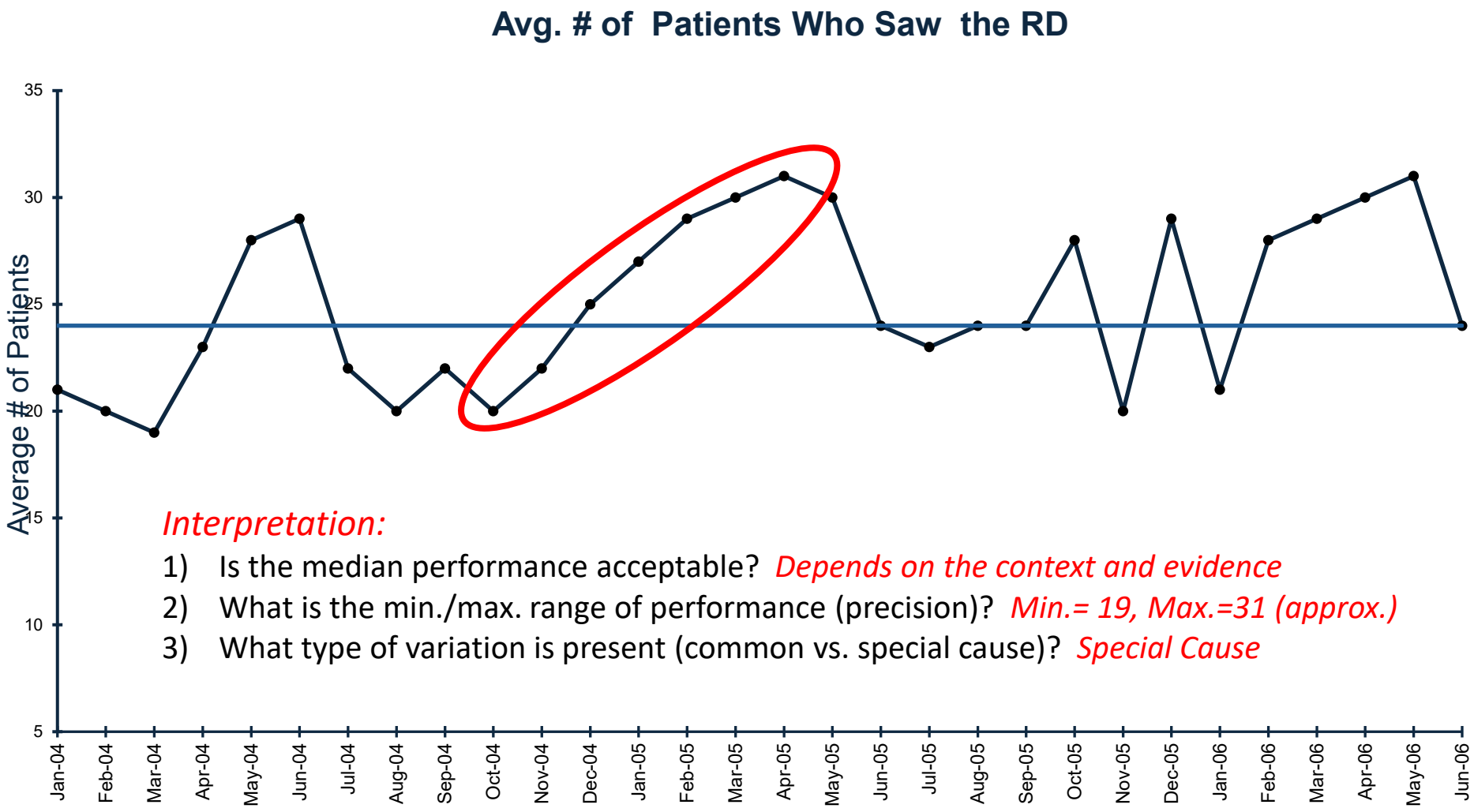
Interpreting Your Data- Shift or Trend?



Interpretation:

1) Is the median performance acceptable? *Depends on the context and evidence*
2) What is the min./max. range of performance (precision)? *Min.= 64, Max.=77 (approx.)*
3) What type of variation is present (common vs. special cause)? *Special Cause*

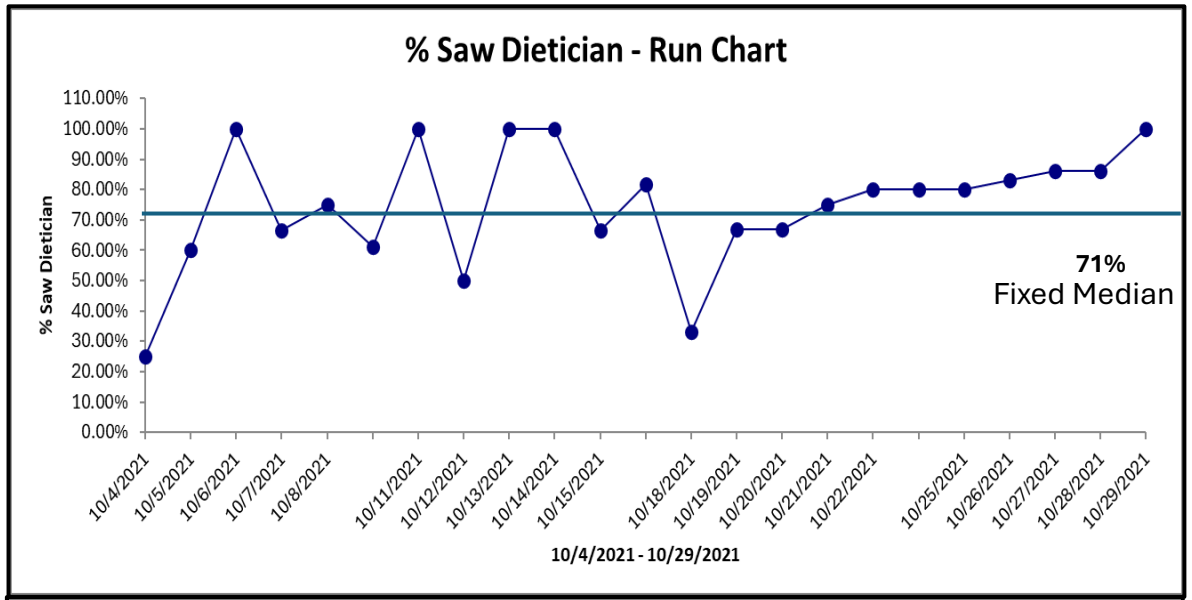
Interpreting Your Data- Shift or Trend?

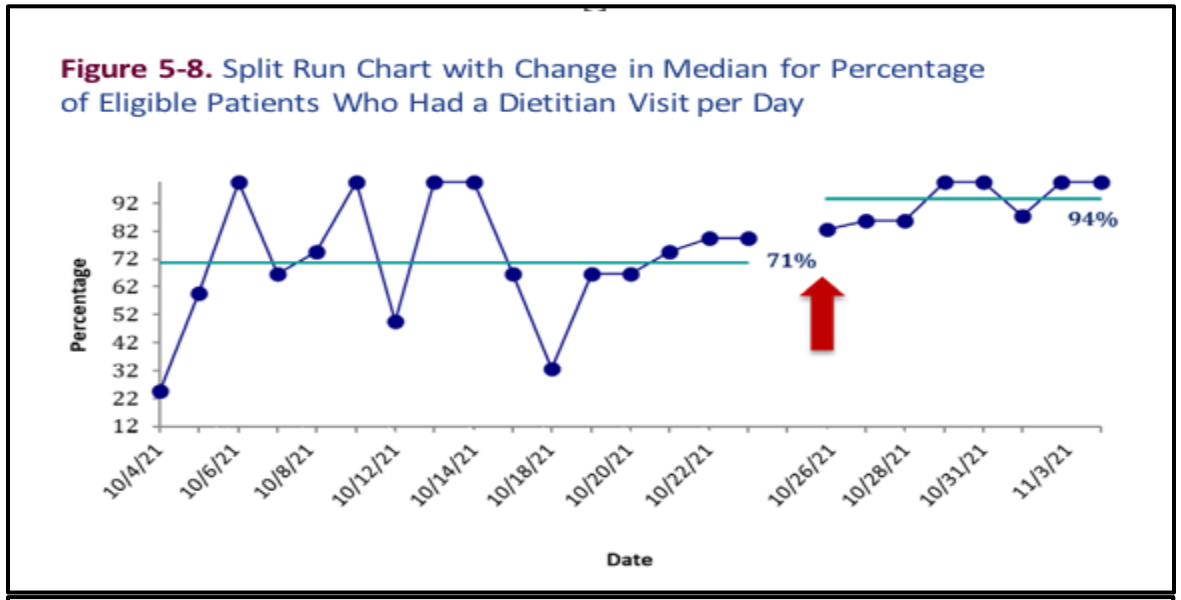


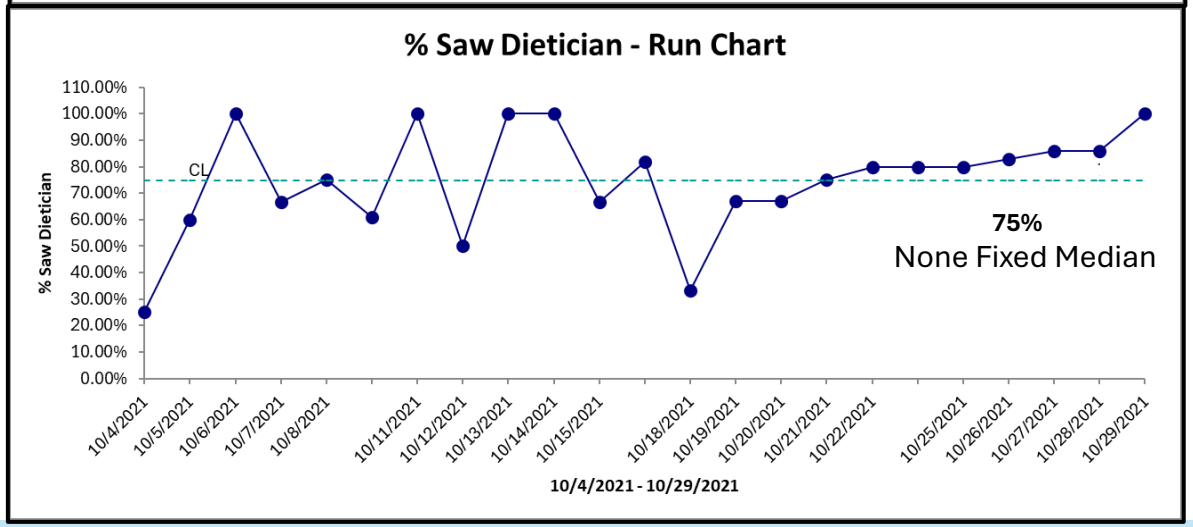
Interpretation:

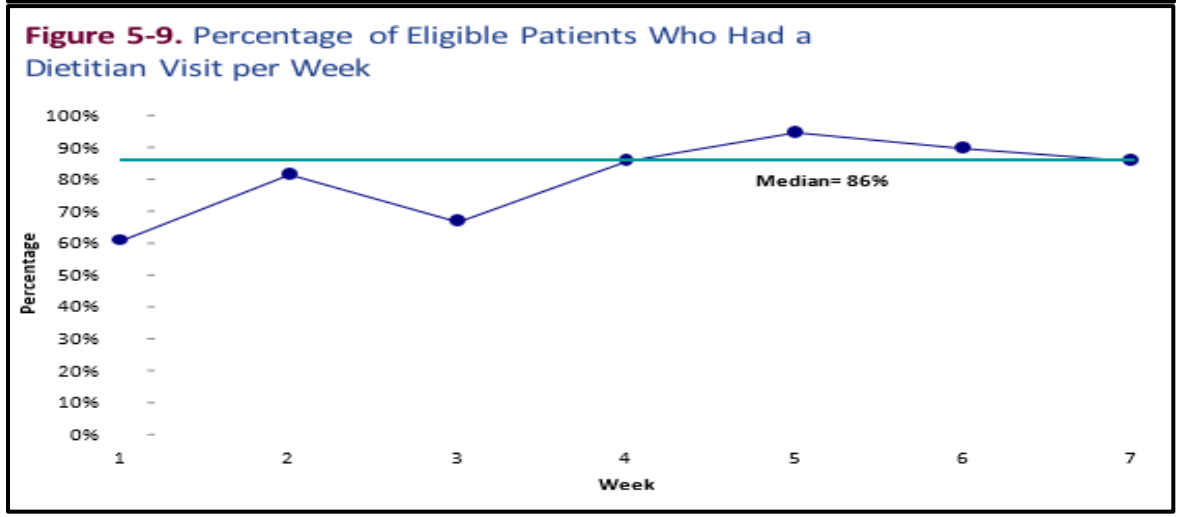
1) Is the median performance acceptable? *Depends on the context and evidence*
2) What is the min./max. range of performance (precision)? *Min.= 19, Max.=31 (approx.)*
3) What type of variation is present (common vs. special cause)? *Special Cause*

When to Re-Establish your Median/Change Frequency



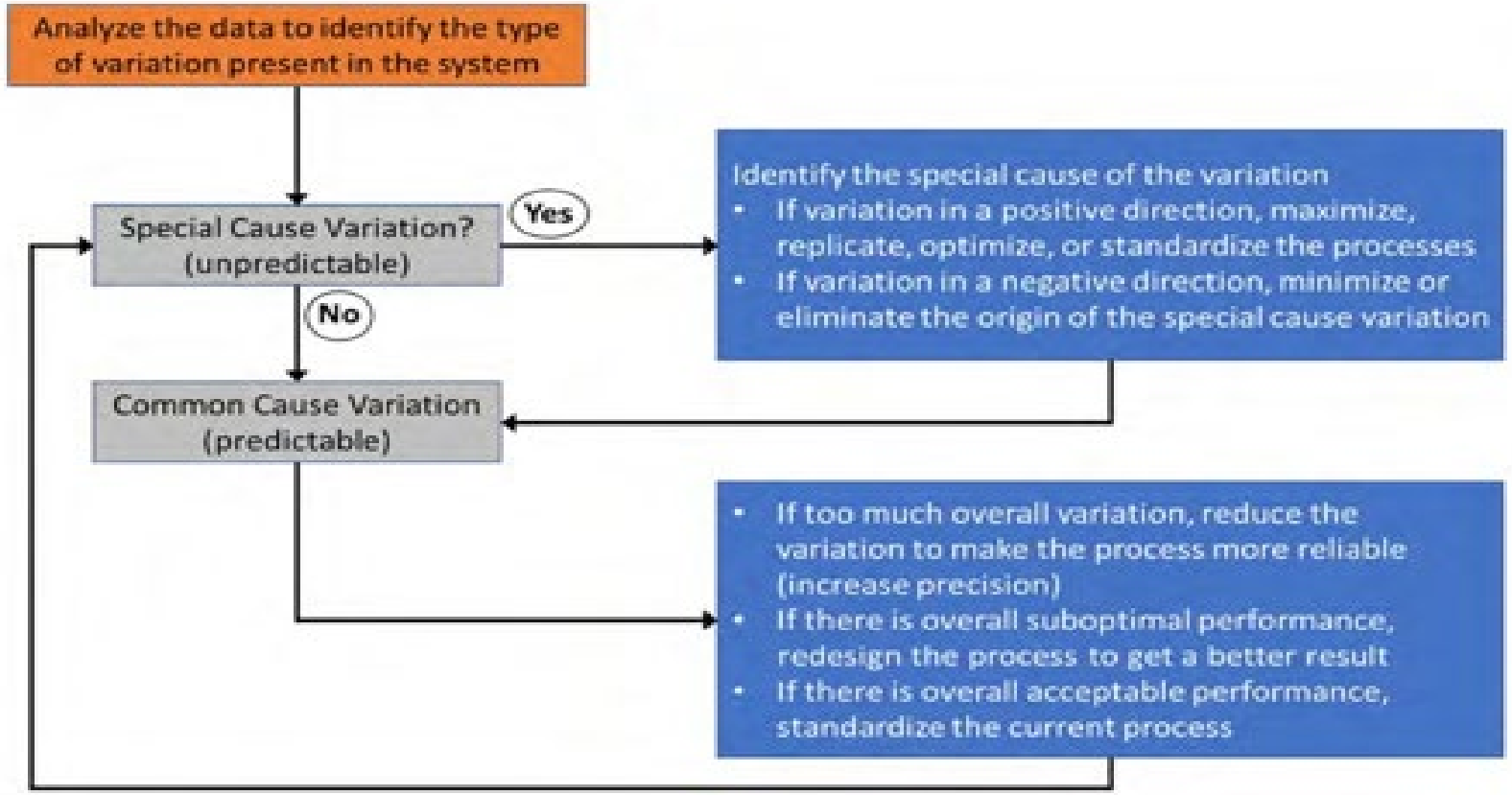






Decision Guide for Action on Common and Special Cause Variation

Figure 5-6. Guidance for Action Based on Variation Type (Common Cause vs. Special Cause) Variation Analysis



Session 5 Summary

1. The end of a QI Initiative is the START of a NEW process.
2. Like anything new it takes time to make the NEW Process a habit.
3. Do not forget the physical environment, procedures, process flows, data, job descriptions and evaluations.
4. Remember the QI Measures are in your Global Aim and Specific Aims.
5. Measures develop through out your QI from PDSA measures to Process measures to Outcome measures
6. Keep Charts Simple- 30 Second rule
7. Data overtime- Line Graph or Run Chart
8. Categorical Data- Bar Charts and Pie Charts (if 5 or fewer parts, include N)
9. Common and Special Cause Variation including shifts, trends and runs can help to determine when there has been a change or there needs to be a change in your system.
10. Make sure you establish a median/mean once you have at least 12 points. (Remember Excel will use ALL points to determine median/mean causing it to continuously change as you do your QI work.) QI Macros is an add on that works well for basic QI

Next Session

Session 6 will be June 17th at Noon

Session 6 Learning Objectives

1. Summary of Sessions 1 to 5
2. Presentations from participants (2 so far)
3. General Q and A

CREATING A CULTURE OF QUALITY THROUGH EDUCATION, MEASUREMENT AND COLLABORATION

Leveraging its expertise in facilitating productive change and quality improvement, VPQHC bridges the gap from the start of needed health care reform to organized processes, enhanced methods, and state-of-the-art tools that result in better health care experiences and outcomes for all Vermonters.

Randy Messier MT, MSA, PCMH CCE, Certification in Value Based Care Quality Consultant Vermont Program for Quality In Health Care
RandallM@VPQHC.org

Session Satisfaction Survey:
https://www.surveymonkey.com/r/VTVZNZG

www.vpqhc.org/qi2025
pw: qi