



THE UNIVERSITY OF
CHICAGO

Biological Sciences Division
Department of Medicine
Section of Hospital Medicine

Why Quality Improvement Fails (And What You Can Do About It)

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2019 CQI Conference: In Pursuit of Quality
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October 29, 2019

Agenda

- Background
- Why Initiatives Fail
- Unifying Elements of Successful Projects
- Methodologies and Tools
- Group Discussion



Introductions

- Introduce yourself to your neighbors

- Name
- Role
- Agency



- Give a brief example of a project that didn't go as planned or an idea that you have yet to act upon
- Share an example of a project that you had a hard time engaging in



Objectives

By the end of this session, you should be able to:

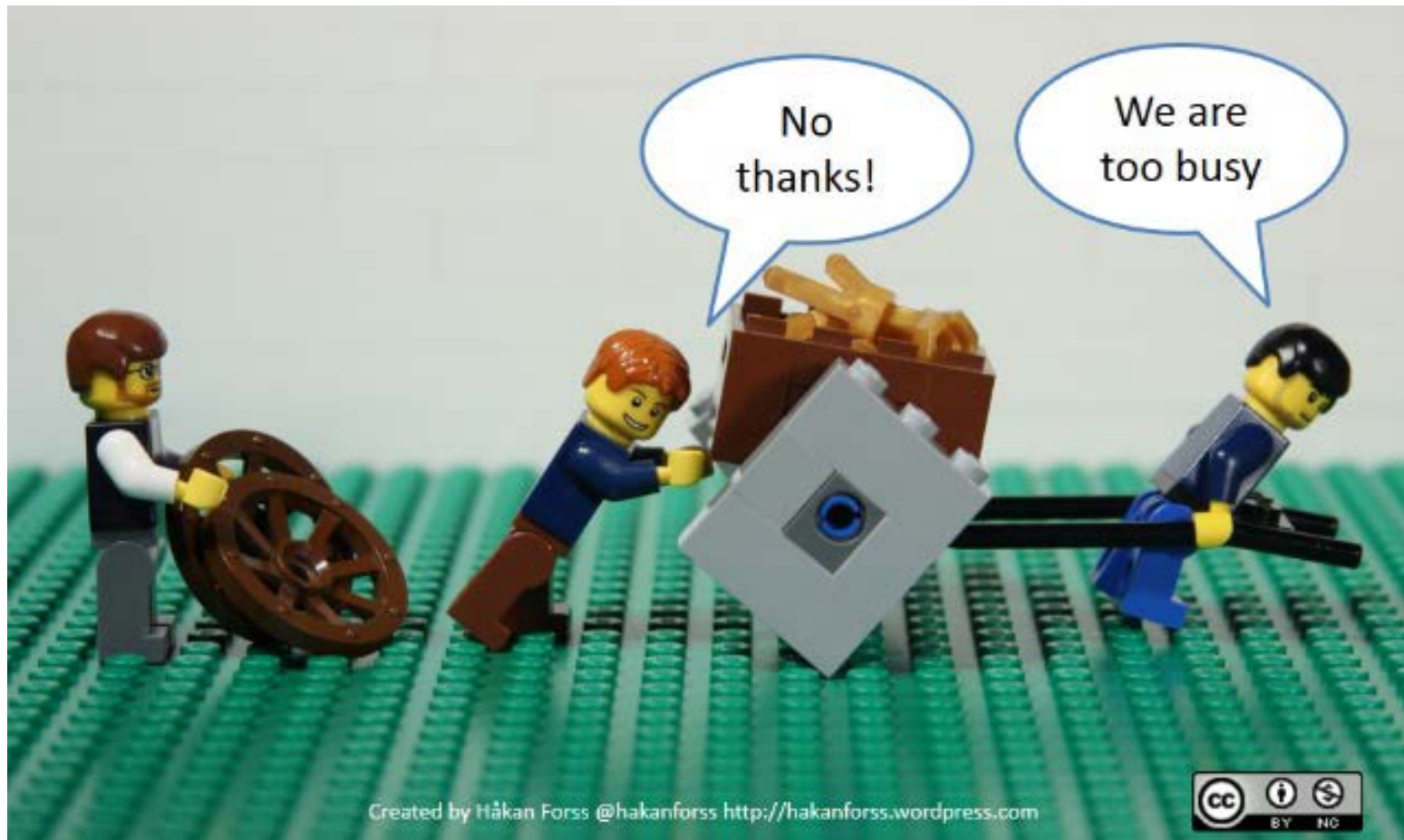
- Identify critical phases in QI projects that can lead to failure
- Understand the necessity of a clear, shared vision among stakeholders
- Recognize the opportunities provided by a multidisciplinary approach to any QI project
- Utilize appropriate QI methodology to appropriately address specific problems



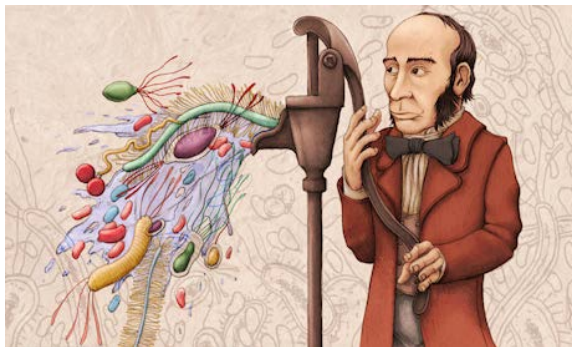
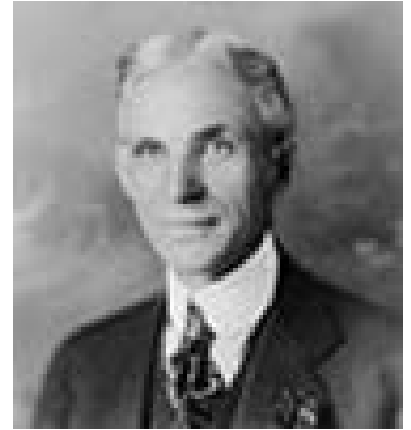
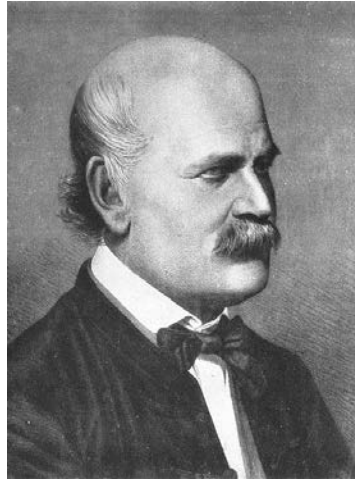
Background



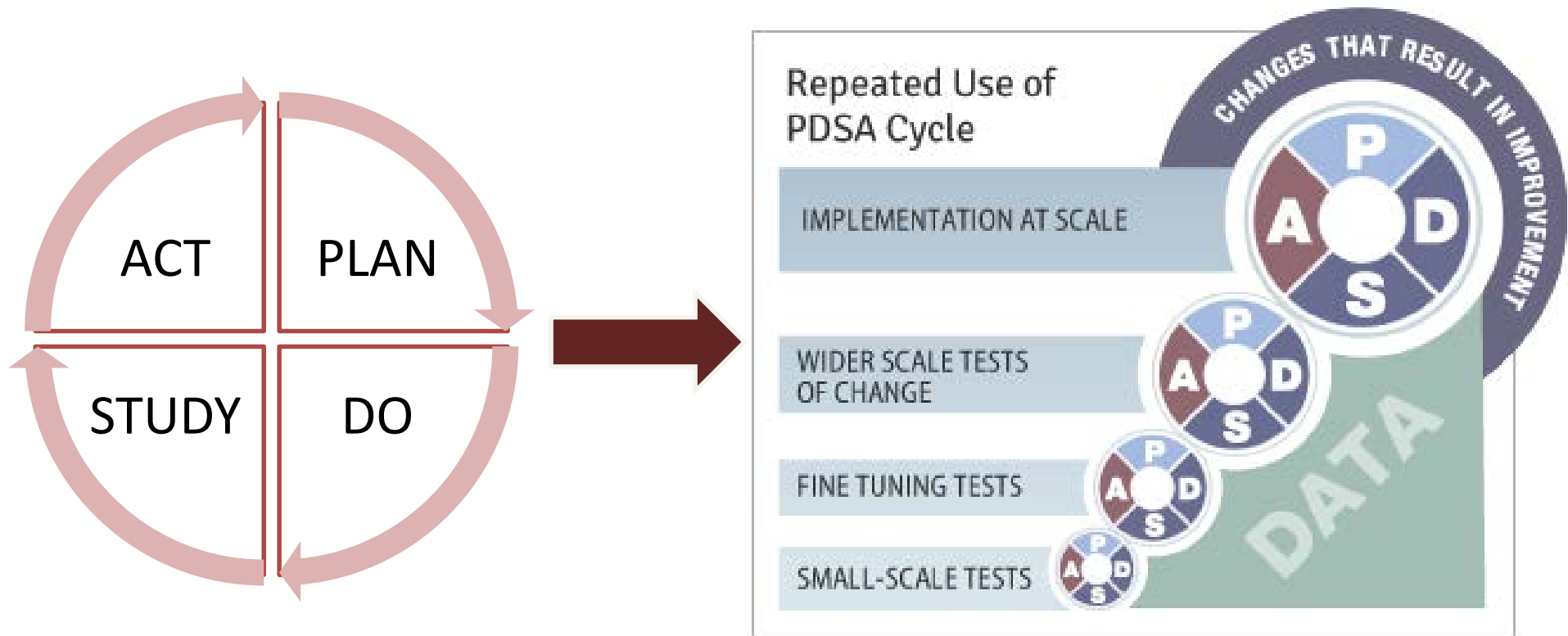
The First CQI Project



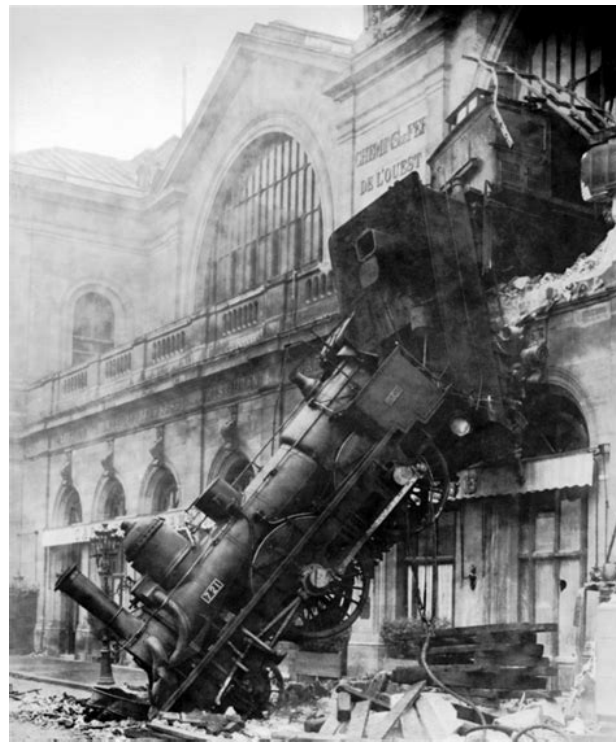
QI Champions



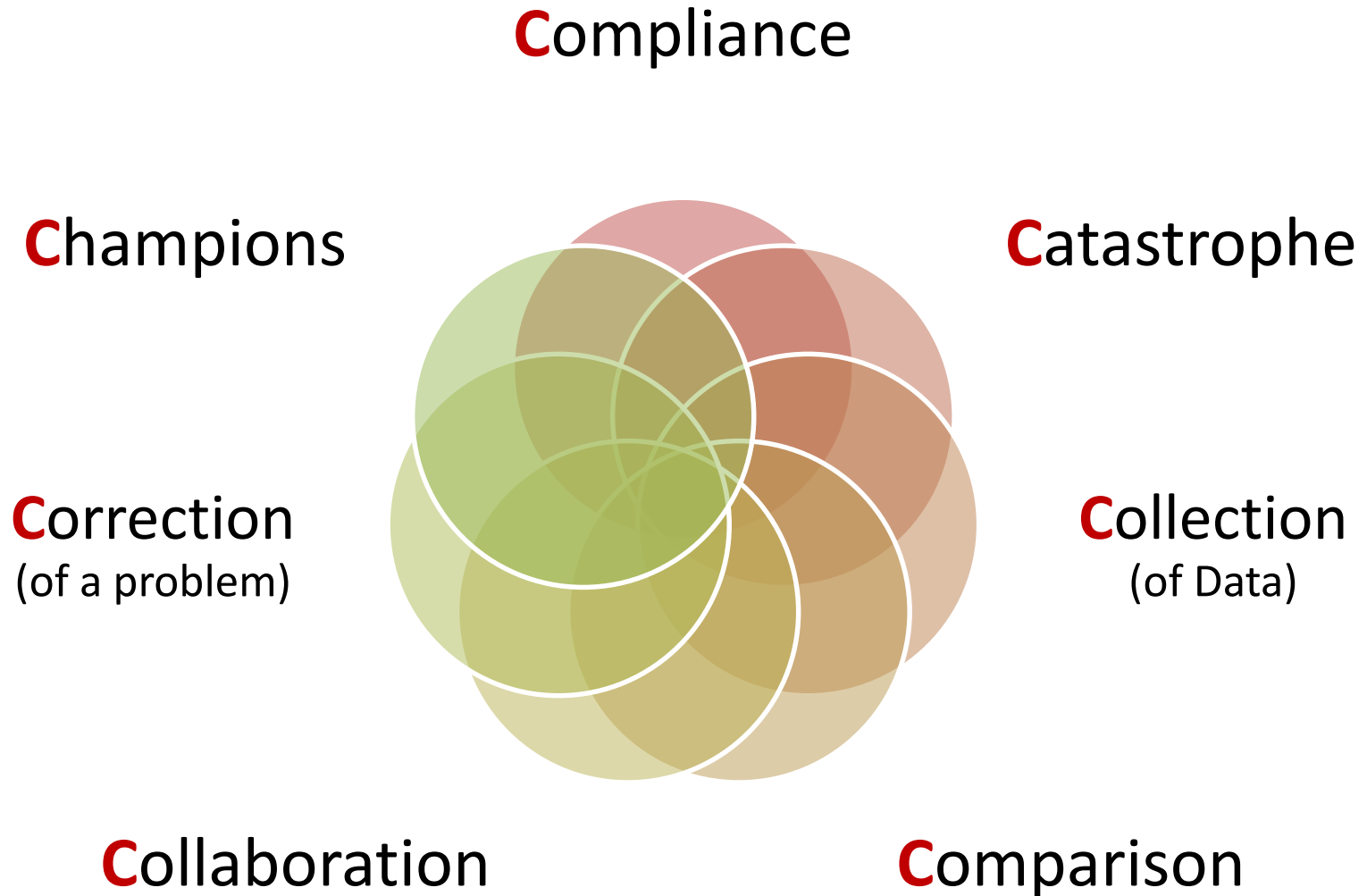
Basic Make-Up of a QI Process



Why Projects Fail



The Big C's: How Projects are Born



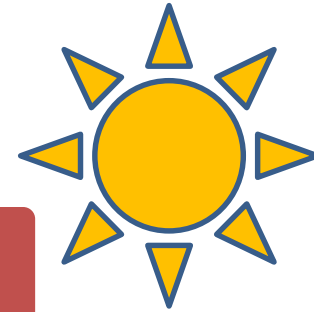
Why Understand Pitfalls?

- High rewards, high risks
- Improvements often viewed as technical and not a management topic (du Toit, 2012)
- Studies suggest that nearly 60% of all corporate process improvement studies fail to yield desired results (Chakravorty, [WSJ, 2010](#))



Threats and Pitfalls

Your Awesome Analyst
LEAVES THE COMPANY
Go Back 5 Spaces



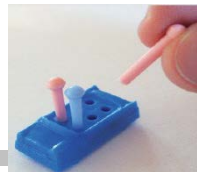
Meaningful
Change!
Positive
Outcomes!



C Q I



NO BUY IN
*"But This is the Way
 We've Always Done it..."*
*"The Boss Says This Isn't
 a Priority"*
Return to Start



A CRISIS HAPPENS
All Meetings Canceled.
Skip 2 Turns



Basic Psychology of QI



People like to feel good



Careers give people meaning



Meaning + career = good feeling



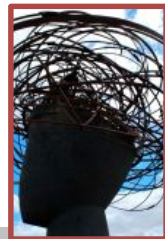
However...



QI tells us we can do better



If we need to improve, does that mean we are not good?!



COGNITIVE
DISSONANCE



Unifying Elements of Successful Projects



Unifying Elements

- As we've experienced, there are any number of threats to navigate
- Conversely, there are also opportunities that can strengthen QI projects and culture
- There are important **organizational**, as well as **project-specific**, elements to consider



Project Resources



Phases of QI Projects

Laying the Groundwork

- Stakeholders
- Problem Definition
- Background
- Current State

Defining the Approach

- Aims
- Root Cause Analysis
- Recommendations/Solutions
- Implementation plan

Implementation and Impact

- PDSA Cycle Results
- Sustainability Plan
- Lessons Learned



Project Title:

Project Lead:
Coach/Mentor:
Sponsor:

Team Members:

Stakeholders:
Clients/Patient/Families

Start Date:
Estimated Completion:
Project Support:

1. Problem Statement (Define)
-

2. Background
-

3. Current State (Measure)
-

4. Aims
1.
2.
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5. Root Cause Analysis (Analyze)
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6. Recommendations/Solutions (Improve)

7. Implementation Plan
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8. Results (from . PDSA Cycles)
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Choosing the Problem

- From your table, select a problem to use an example project on your A3
- Provide some context about the problem and fill in into the “Background” section



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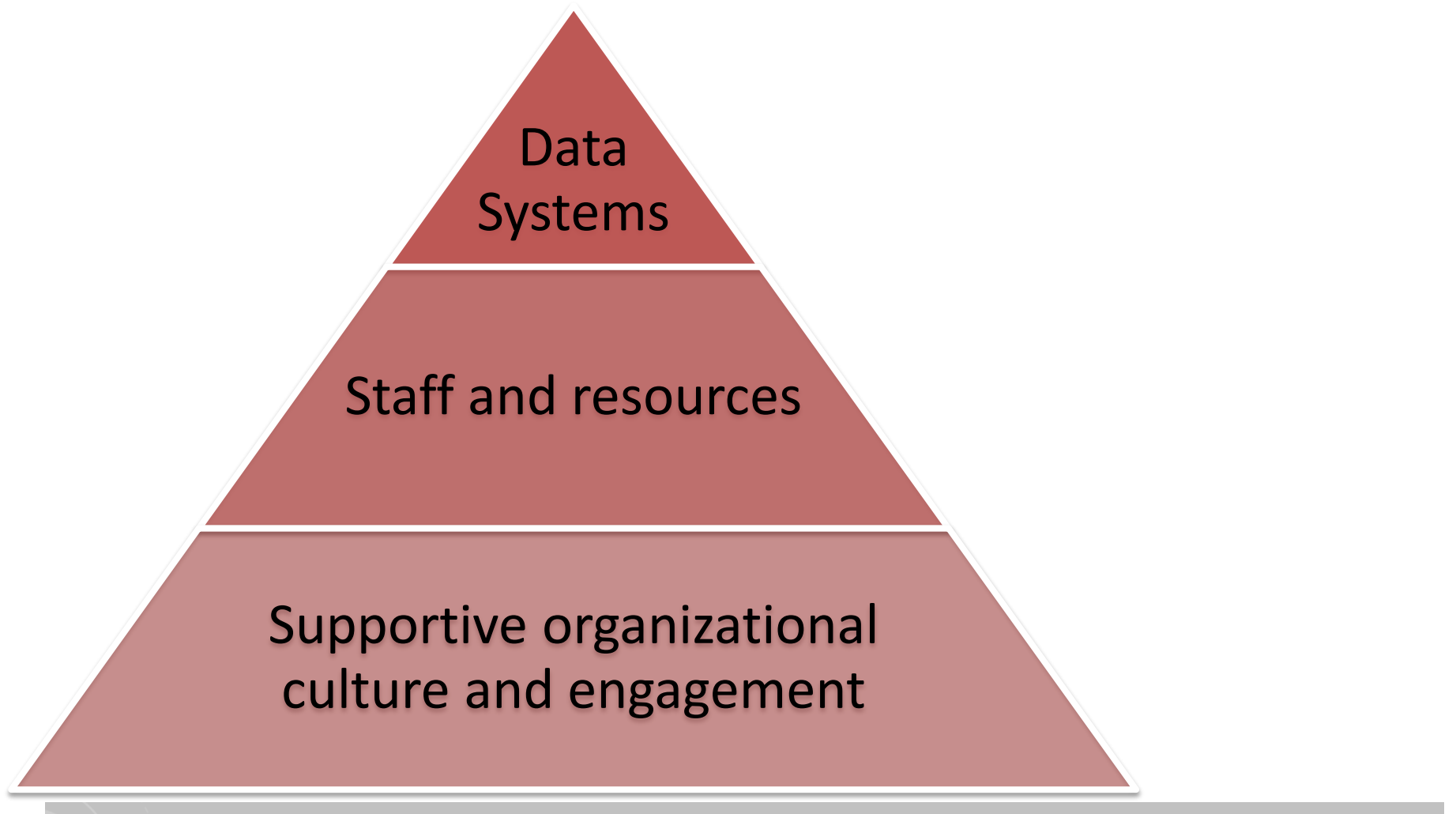
10. Lessons Learned

-


Organizational Considerations



Components of Effective Change Cultures



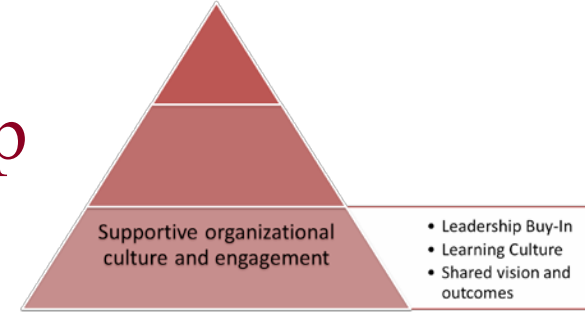
Culture and Engagement



Supportive organizational
culture and engagement

- Leadership Buy-In
- Learning Culture
- Shared vision and outcomes

Organizational Culture and Leadership



- Foundation of your QI culture
- Everyday leadership
- Engagement and trust
 - Transparency – goals, data, challenges
 - Don't take the blame, take responsibility
- QI as a shared responsibility or characteristic, e.g., evidence-informed decision-making
- Shared vision (and responsibility) for success*
- WIIFM?



Engagement: Stages of QI Grief

Once you've brought your team around to the fact that something could be better, there might be different reactions before they can buy into improvement



From Grief to Great

- Meet people where they are
- Frustration, suspicion, anger, denial, excitement, despair— all normal reactions
- Listen to concerns, and problem-solve collaboratively
- Interests may not always align, which is why sharing a standardized framework can be vital
- Everyone can have a place at the table



Ted discovers that the Devil he knows is as full of surprises as the Devil he doesn't know.



Multidisciplinary Approach to QI

- See the idea of engaging everyone as an opportunity instead of a challenge
- Different perspectives individuals bring to a shared problem and vision for success can map the best trajectory
- Stakeholders
 - Higher level leadership – Help create the change culture, buy-in, commitment
 - QI staff – Guiding, measuring, and reflecting change
 - Clinical/care teams – Frontline, the ones executing the intervention
 - Finance – Monetary impact, potential for growth, sustainability
 - Clients and families – Experiencing what we do day to day. “Nothing about us without us”
 - All: Shared desire to do what is best to serve clients



People and Resources



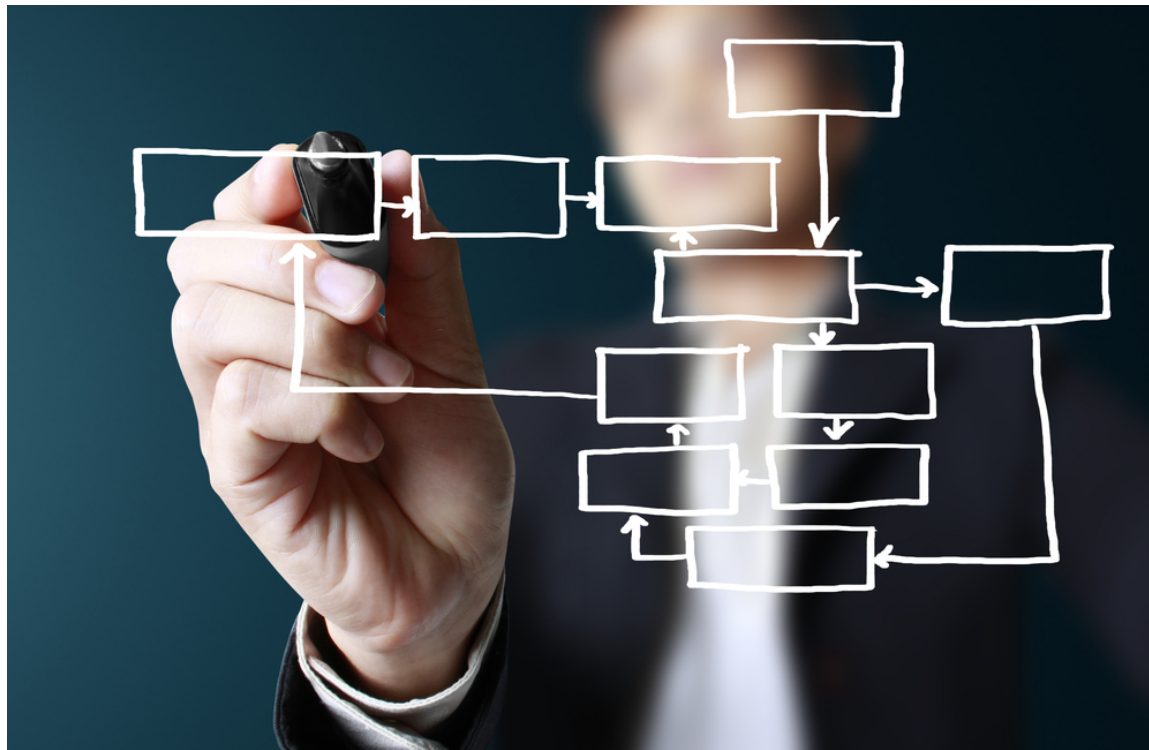
Staff and Resources



- Not enough to have culture, need to tools, time, and people to do the work
- Education and skills
- Teams: multiple disciplines, interests
- Spheres of influence and accountability
 - Individual
 - Team
 - Organization
 - Systems



Methodologies and Tools



Data Systems

Data
Systems

- Data Entry
- Extraction and Use
- Analysis
- Visualization

Staff and
resources

Supportive organizational
culture and engagement

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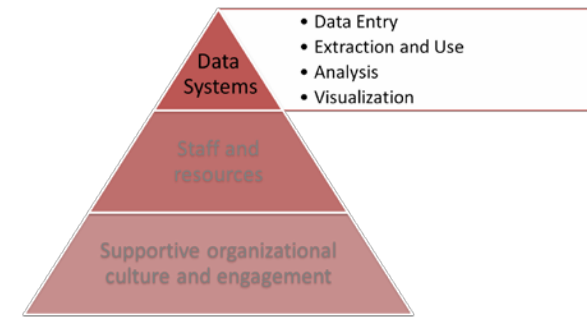
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Data Systems

- Data → Information



Examples of DATA

- Intake / discharge dates
- Assessment scores
- Demographics
- Incident reports
- Satisfaction surveys

Examples of INFORMATION

- Length of stay dashboard
- Client progress report card
- Community characteristics map
- Behavioral intervention report
- Organizational needs and strengths profile

- The Quality Question



Measuring What Matters



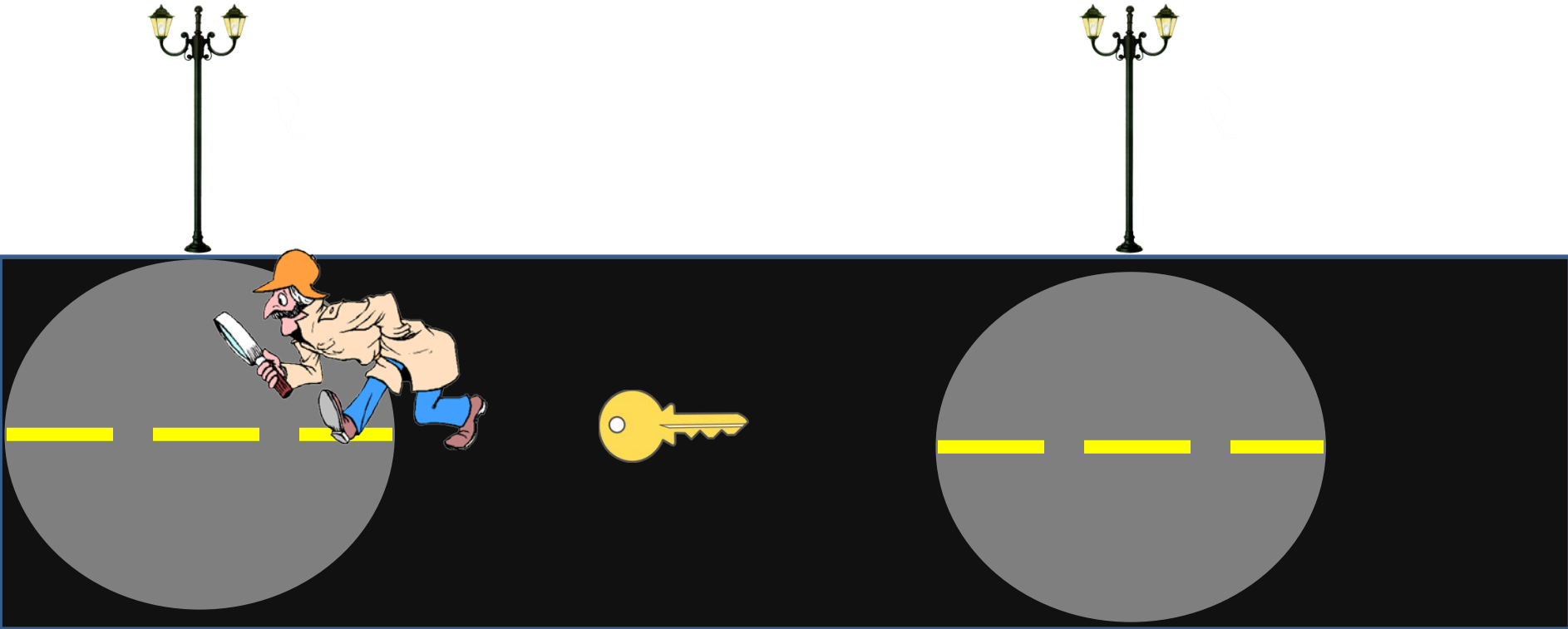
Measurement

“The irony is that by being less focused on your results, you may achieve better ones.”

--Nate Silver, The Signal and the Noise



Measurement Pitfall- Streetlight Effect



Measurement Pitfall- Streetlight Effect



Listen

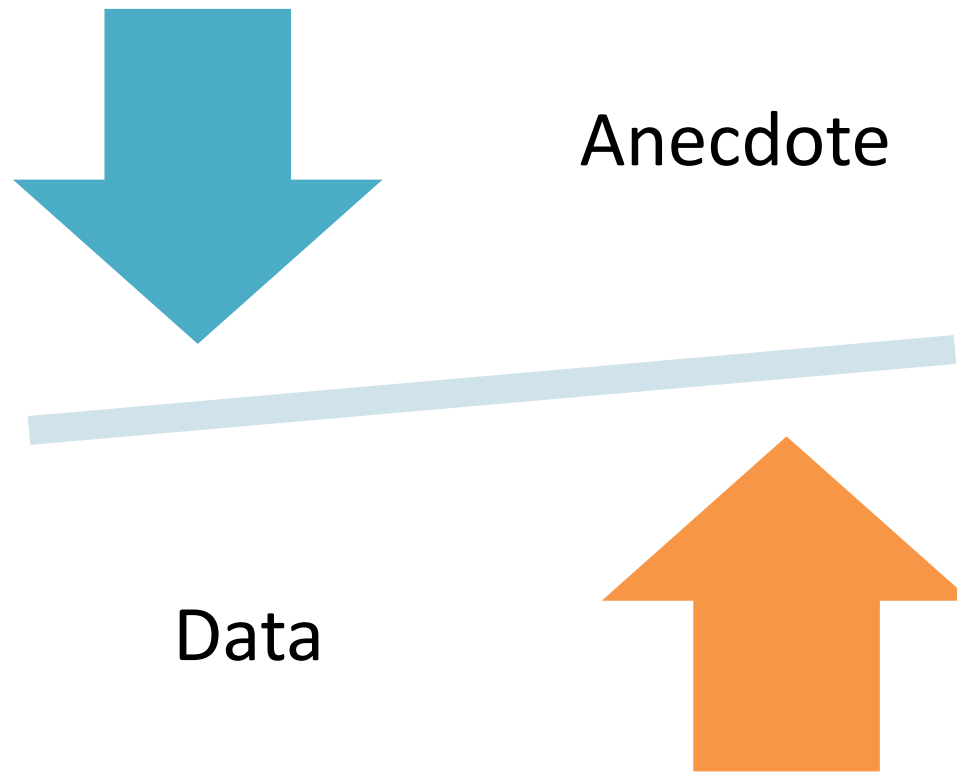
Shared Decision-
Making

Respect

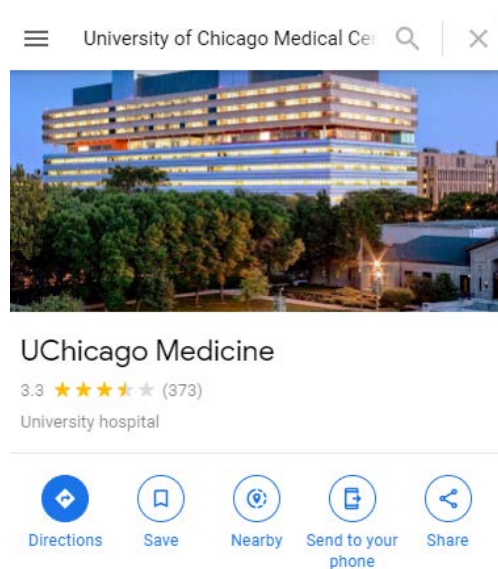
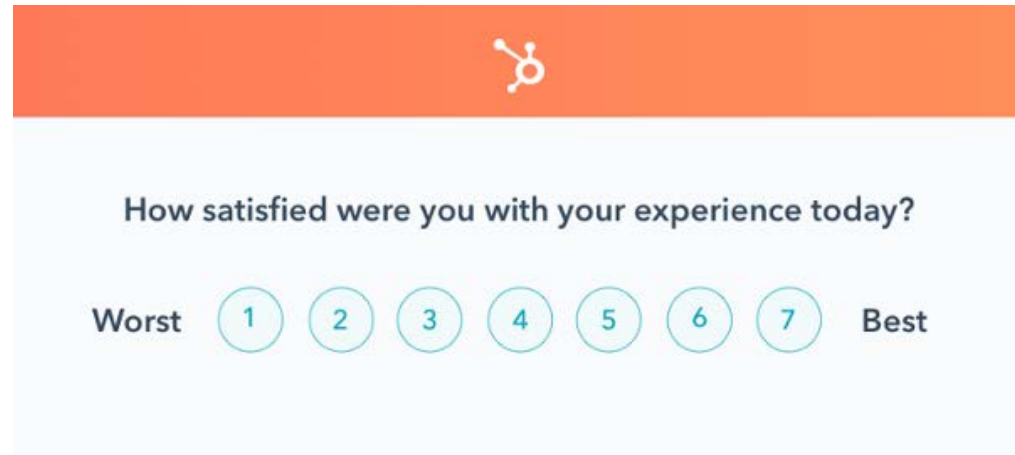
Coordinated
Care



A Balancing Act



Evidence?

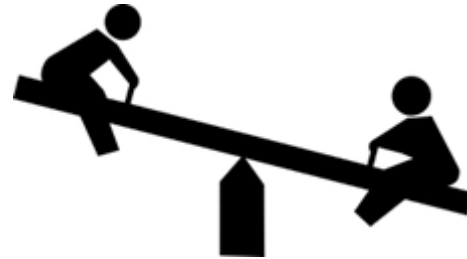
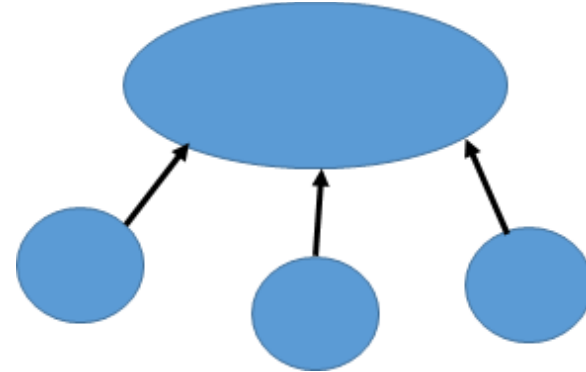


Turning Anecdotes to Information



Different Types of Measures

- Outcome
- Process
- Balancing



Types of Measures: Example

- Your group's case note form is completed in the field on paper, then transcribed onto the official system by an administrative assistant at the main office.
- The process can be slowed due poor handwriting that can require the form's author to re-review the document multiple times, delaying its submission.
- In order to expedite the process, your group has created an option to use an online form instead of paper, so there are no handwriting issues.



Create a Measure for Each Category

- Outcome:
- Process:
- Balancing:



Create a Measure for Each Category

- **Outcome:** On-time submission of final document
- **Process:** Proportion of group members using online form
- **Balancing:** Time required for group members to complete initial documentation



Engaging with Data



Displaying Data

The screenshot displays a dashboard for "High Level Provider Quality and Safety" at UChicago Medicine. The interface includes a navigation menu on the left with "Data & Analytics" and a "Department" dropdown set to "(All)". The main content area features a header for "High Level Provider Quality and Safety" and a sub-header for "Provider Quality". A search bar is visible with the text "Admitting risk of mortality (Vizient)". Below the search bar, the title "High Level Provider Quality and Safety" is displayed in large, colorful letters, accompanied by "764 views" and a star icon with the number "2". The dashboard is divided into several sections: a "Highlight" section on the left with input fields for "Provider Name", "Department", "Section", and "Measure Title"; a central bubble chart with green, orange, and grey circles of varying sizes; and a right-hand section with two horizontal bar charts labeled "Discharges Before Noon" and "Inpatient Discharges".

Key Performance Indicator (KPI) Boards



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CHICAGO
MEDICINE

AT THE FOREFRONT OF MEDICINE®



THE UNIVERSITY OF
CHICAGO MEDICINE &
BIOLOGICAL SCIENCES

Our KPI Boards



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Be SMART (Aims)

- **S**pecific
 - **M**easurable
 - **A**chievable
 - **R**elevant
 - **T**imely
- Not SMART:
 - “We expect to see a moderate reduction in <Some Things>”
 - **SMART!**
 - “By working with <Stakeholders> in implementing <New Approach>, we expect to see a 15% reduction in <Relevant Variable 1> by the end of quarter one, as evidenced by changes in <Reliable Data Source>”



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(Simple!) Analytics



Analysis Tools

- Quantitative (Statistical) Analysis Tools
 - Run Chart
 - Control Chart
- Qualitative (Root Cause) Analysis Tools
 - 5 Why's
 - Fishbone Diagram
 - Pareto Chart
 - FMEA – Failure Mode Effects Analysis



Analysis Paralysis

Research Studies

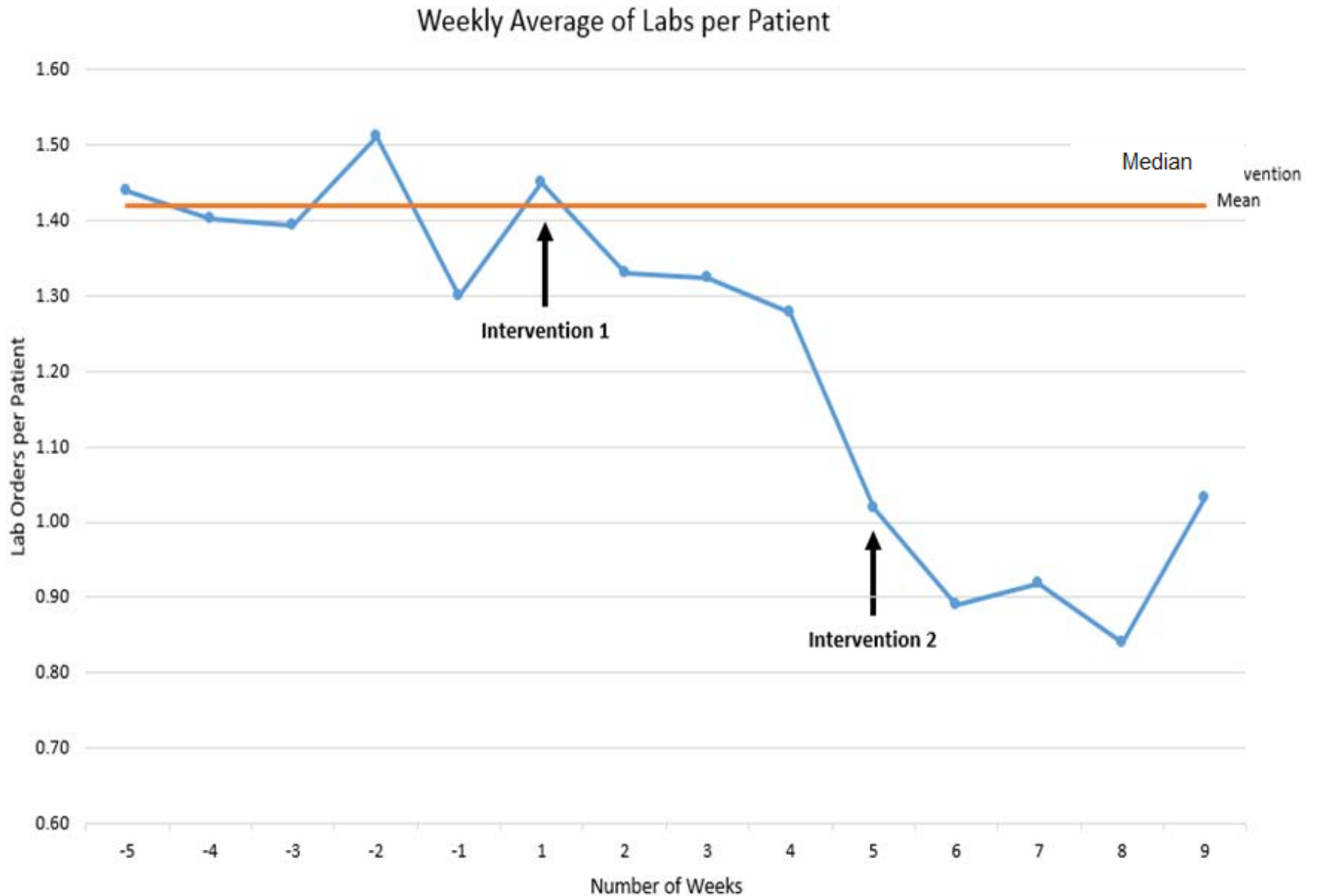
- T-Test
- Chi-Squared
- Logistic Regression
- Propensity Matching

Quality Improvement

- Run Chart
- Control Chart

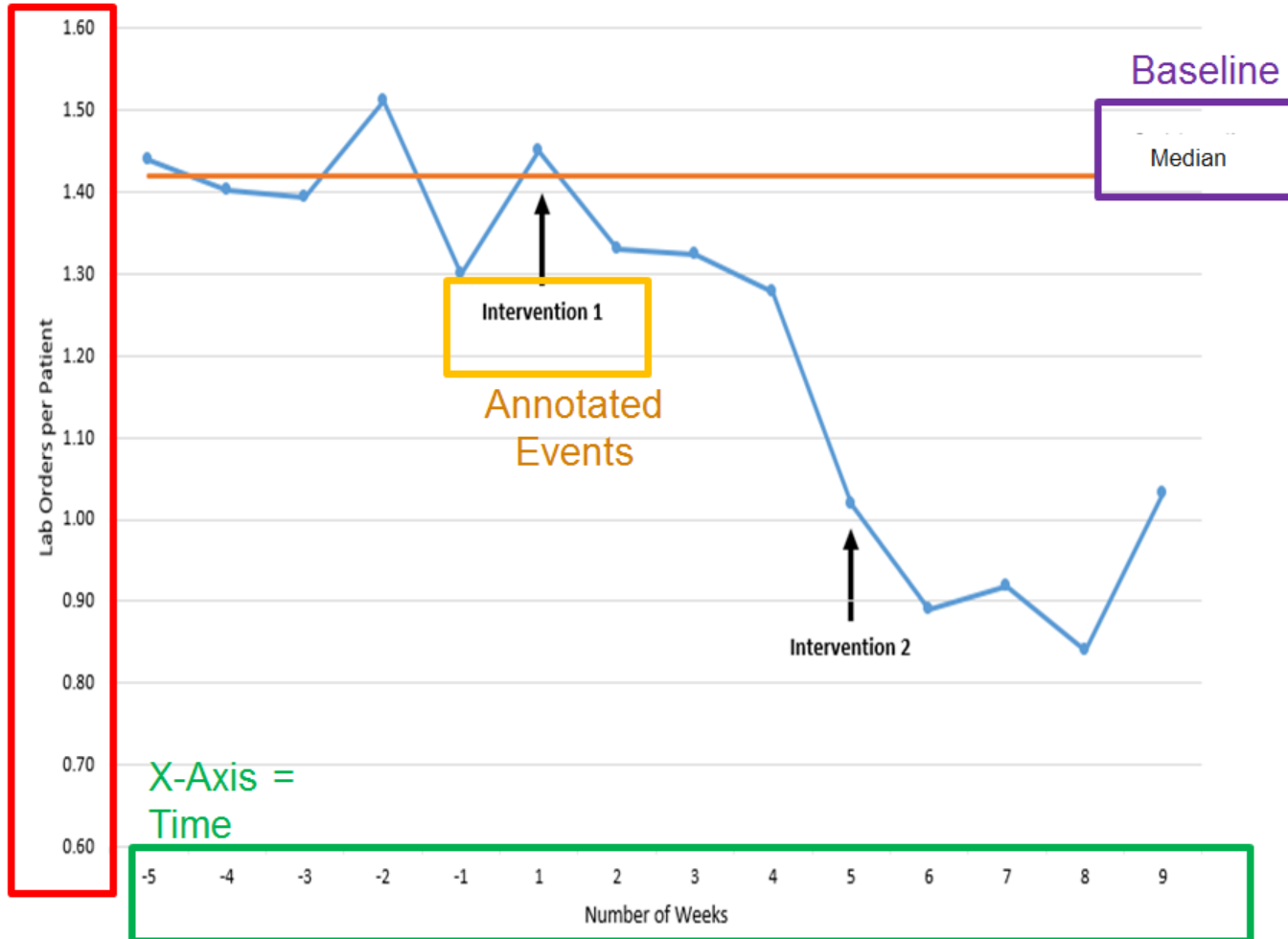


Easy Analysis - Run Charts



Run Chart Components

Y-Axis = Units of Measure

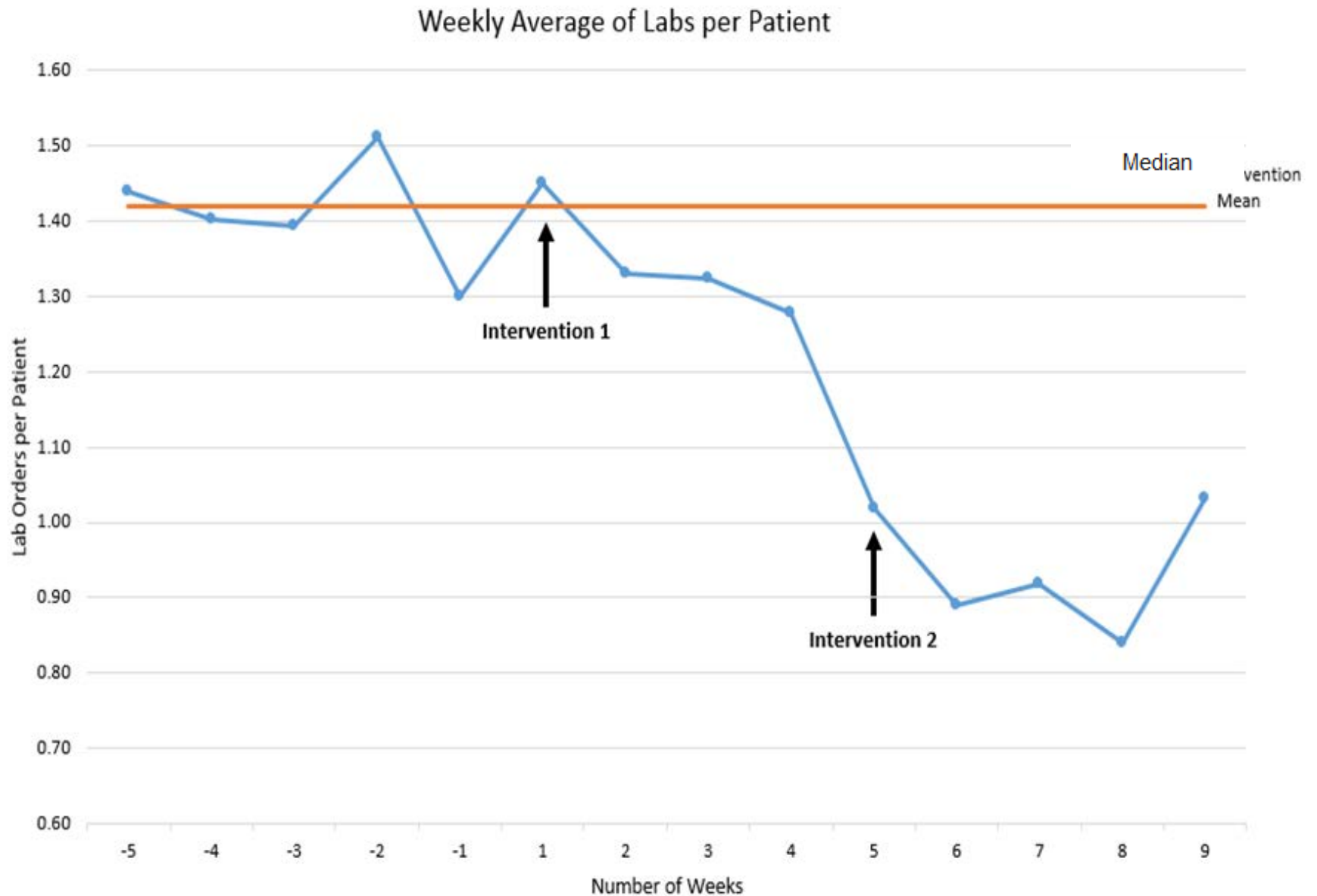


Run Chart – Determining Statistical Significance

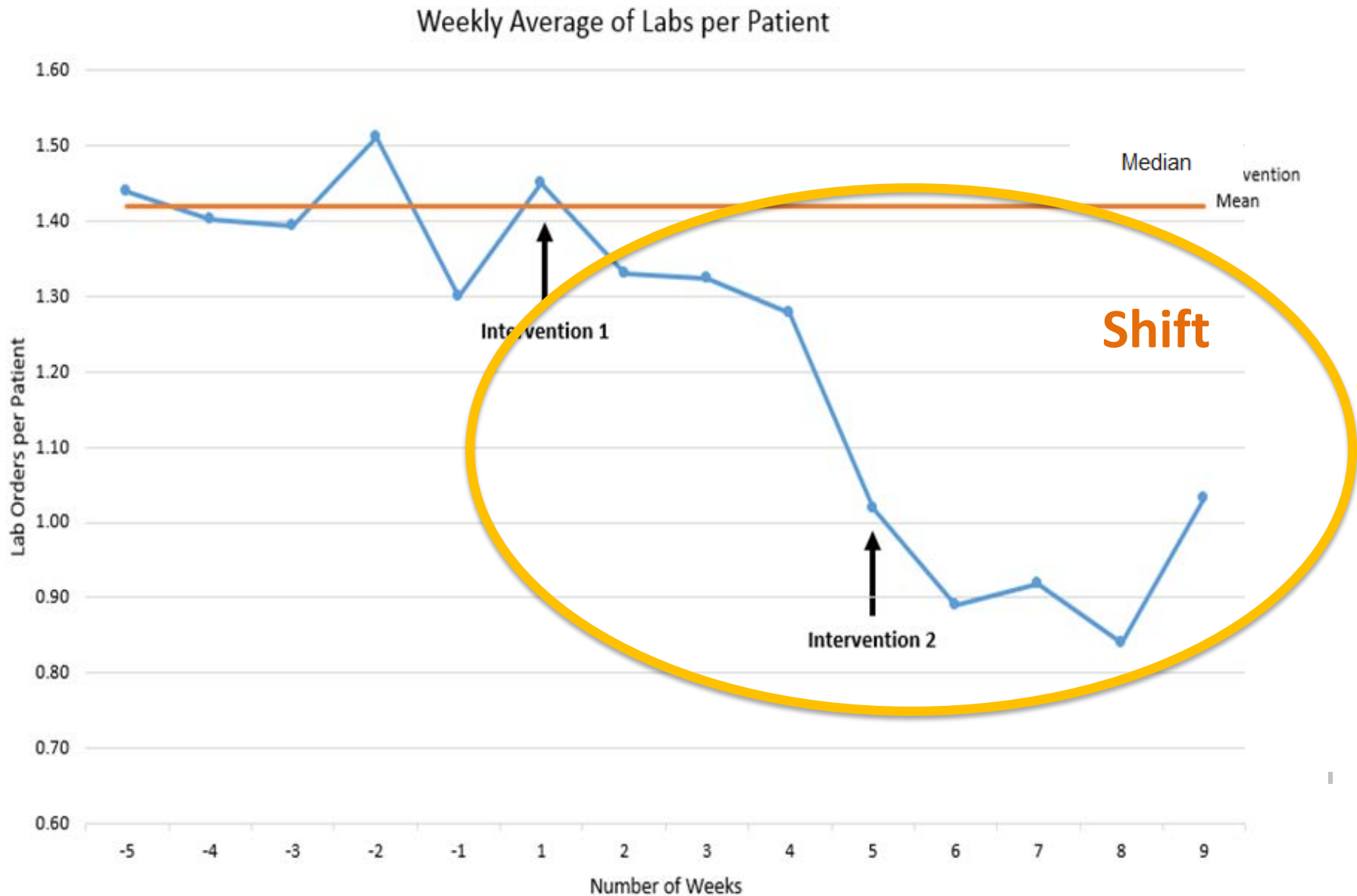
1. **Shift** – 6 or more consecutive points above or below the median
2. **Trend**- 5 or more consecutive points all increasing or decreasing
3. **Too Many or Too Few Runs** - Too Few = Total Data Points/3, Too Many = Total Data Points x2 /3
4. **Astronomical Data Point**- Data point clearly out of context of the others



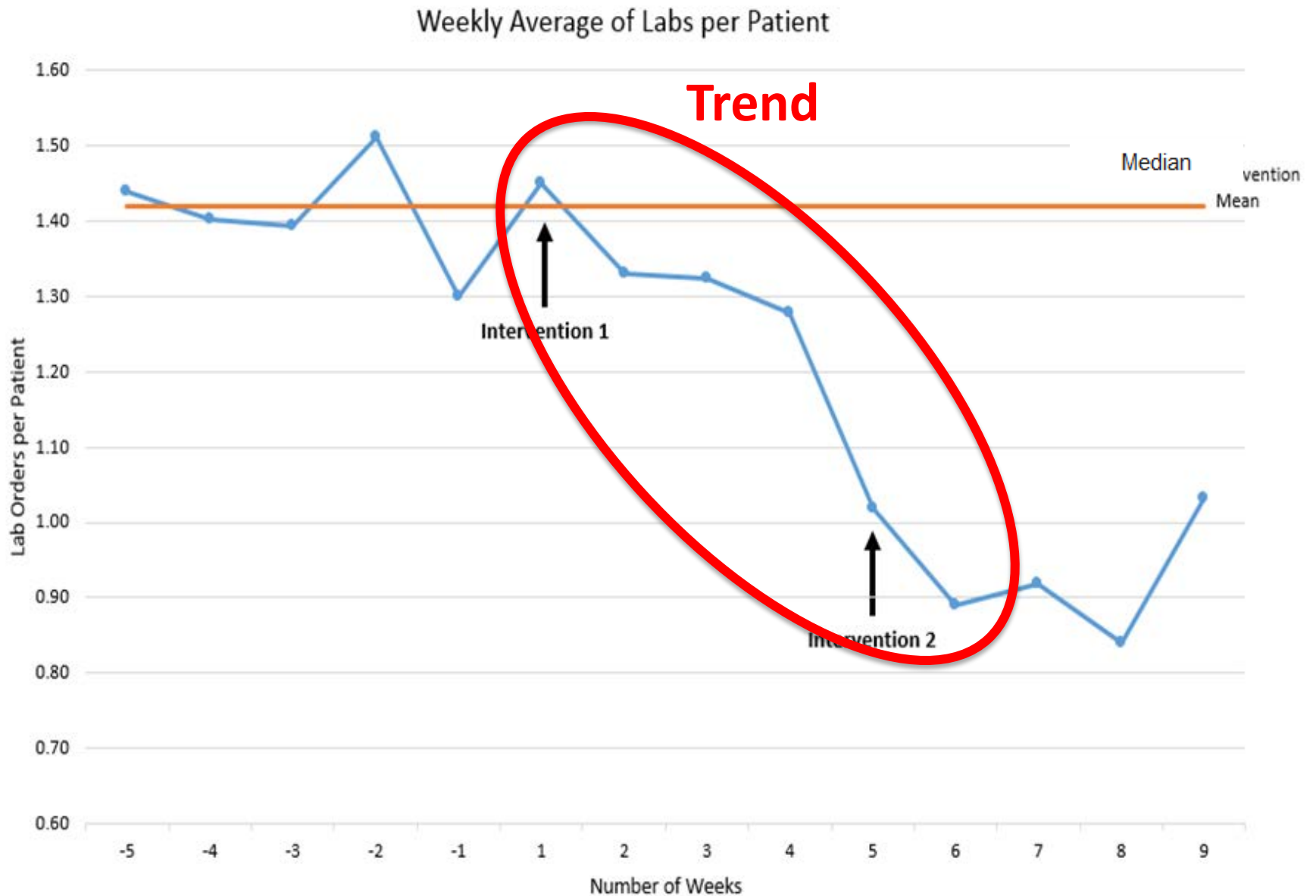
Statistically Significant?



Statistically Significant?



Statistically Significant?



Control Charts

- Run Charts

+

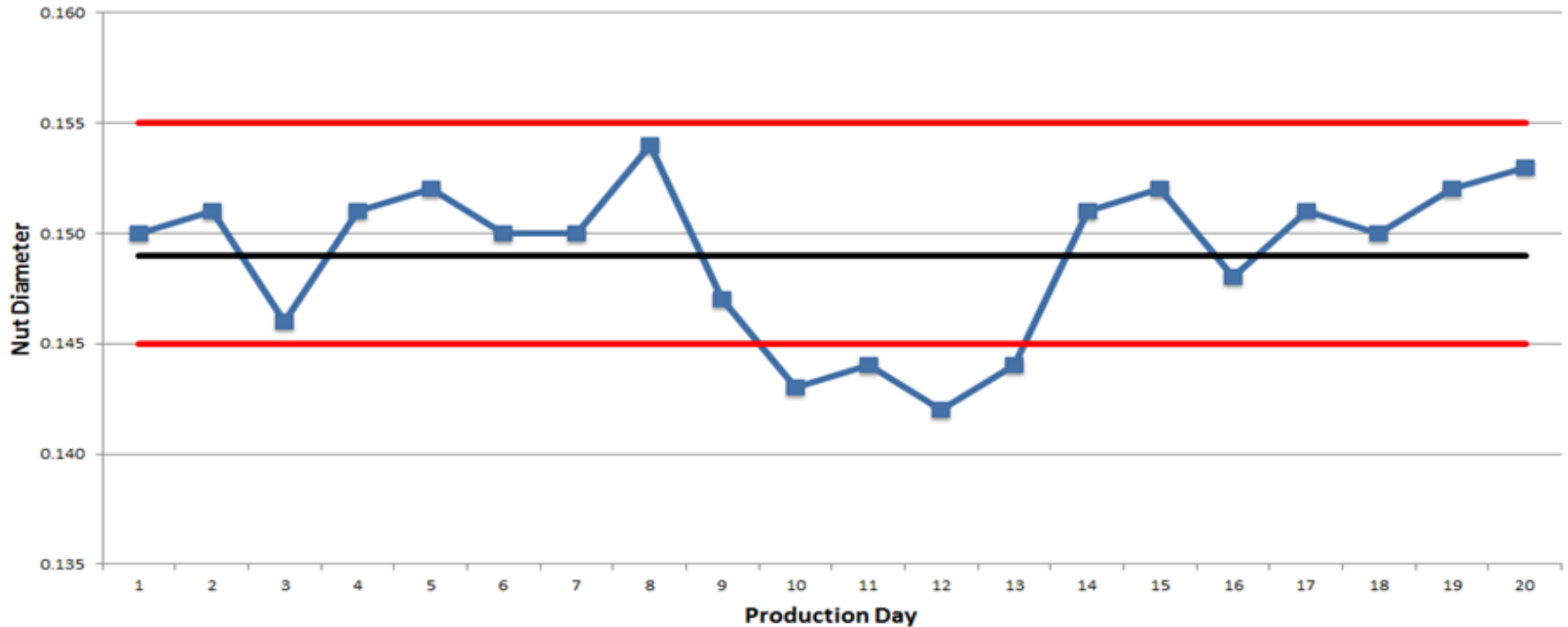
- Selected Upper and Lower Boundaries

Or

- Statistical Upper and Lower Boundaries



Control Chart Example



DIY Control Charts



Qualitative (Root Cause) Analysis Tools



5 Why's

- Easy method of drilling down to a root cause
- Application as simple as it sounds
- Recognized quality improvement tool



5 Why's - Example

A patient on mechanical bypass unexpectedly passed away after being on the machine for an extended duration of time following an unexpected malfunction with the machine

- **Why #1:** There was significant blood loss from circuit
- **Why #2:** Pump was not stopped at time of event
- **Why #3:** Providers were not familiar with the standard policy/procedure to shut off bypass pump in similar events
- **Why #4:** Medical ICU infrequently primary providers for bypass patients
- **Why #5:** Most bypass patients are cared for by Cardiac ICU



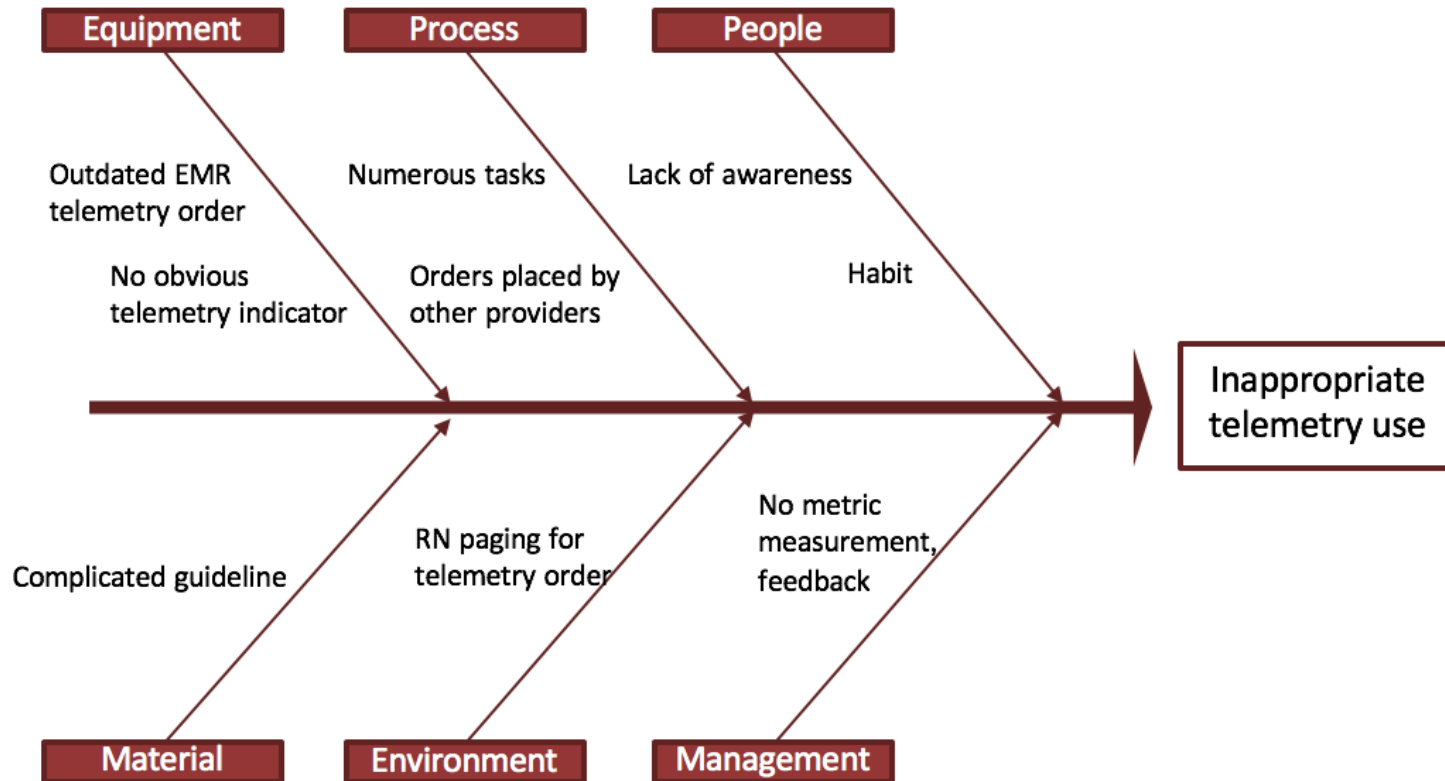
5 Why's – Alternate Example

A youth ran away from their foster home

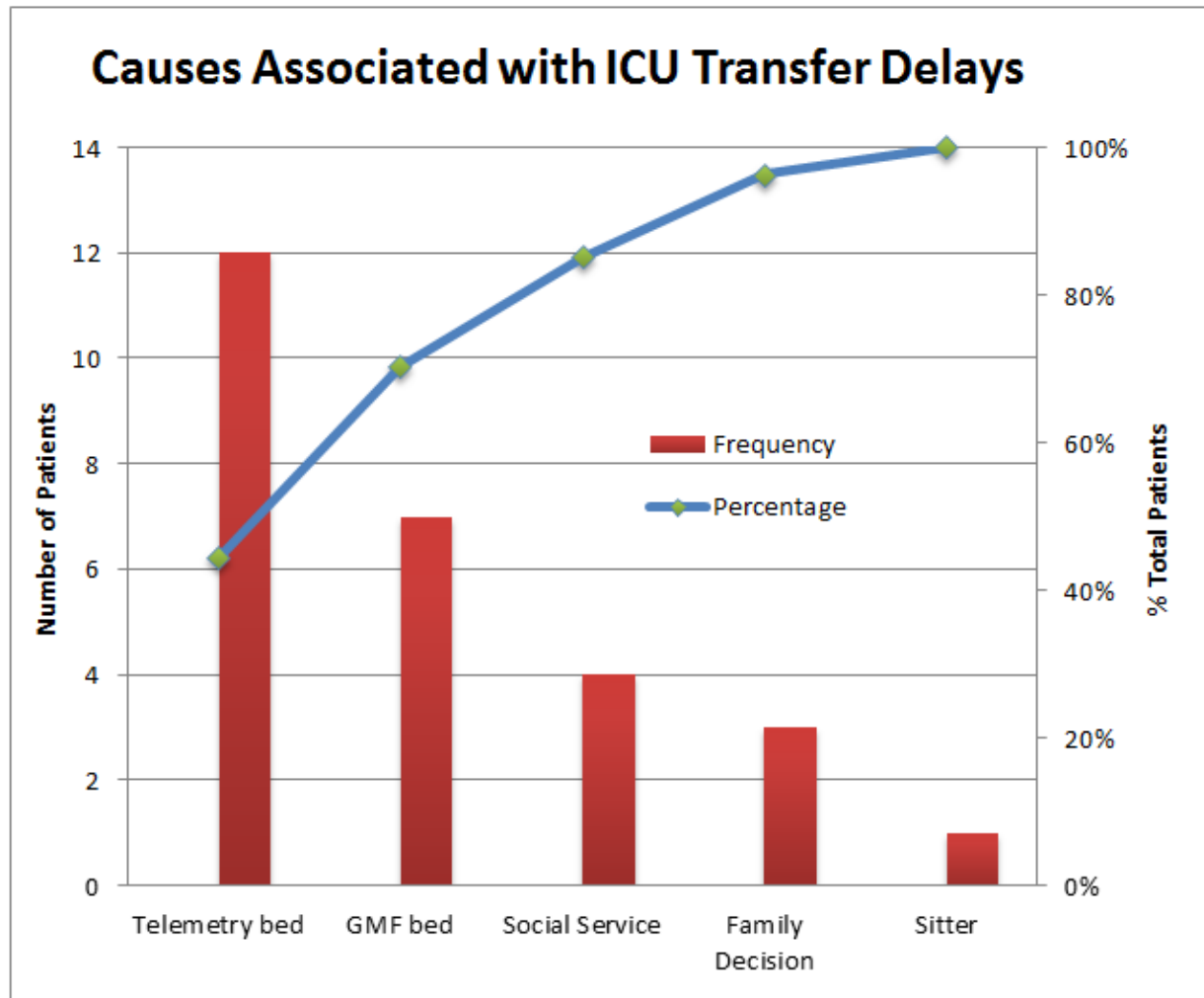
- **Why #1:** The youth wanted to see their family
- **Why #2:** The youth had not seen them in several weeks
- **Why #3:** Scheduled visitations had been cancelled or postponed
- **Why #4:** Family lacked transportation and care team lacked enough resources to facilitate
- **Why #5:** Agency was short staffed and couldn't coordinate supervised visits or transportation until following month



Fishbone Diagram



Pareto Chart



FMEA – Failure Mode and Effects Analysis

- Quantify Opportunities to Improve
- Requires Input from All Stakeholders
- Rank by RPN – Risk Priority Number

Process	Risk Assessment (1-10)			RPN
	Error Occurrence	Severity	Missed Detection	
Admission Medication Reconciliation	7	5	4	140
Scheduling Follow-up Appts	7	5	9	315
Discharge Medication Reconciliation	3	9	2	54
Post-Discharge Monitoring Labs	2	10	8	160
Testing to Follow-up Abnormal Inpatient Results	9	4	10	360
Medication Refill Requests	9	6	8	432



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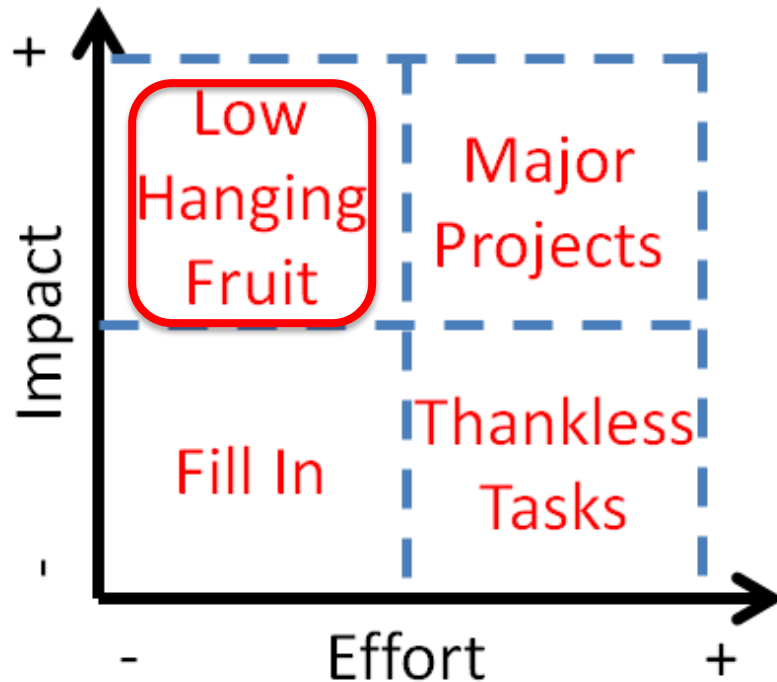
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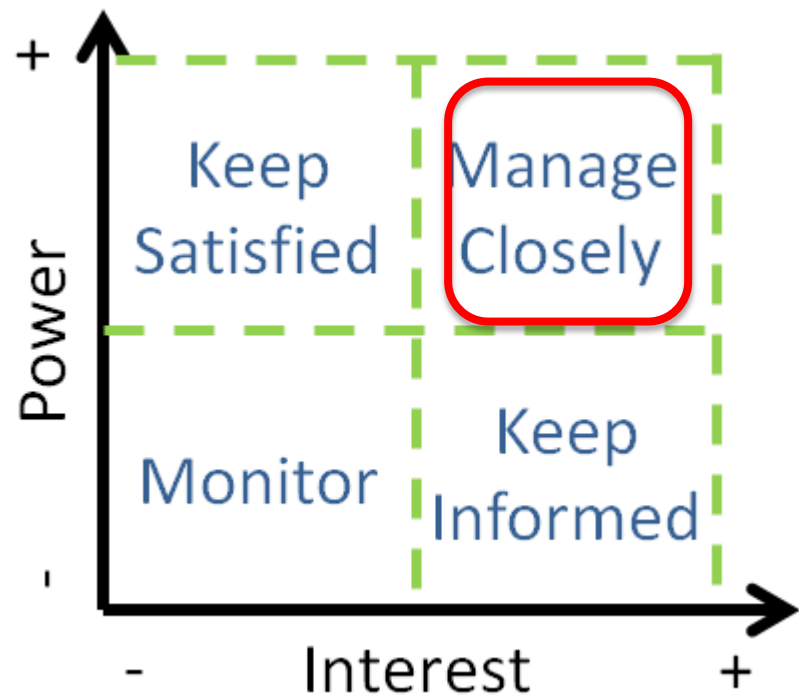
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Tools for Prioritizing: 2x2 Grids

- Effort-Impact (**Where** to start)



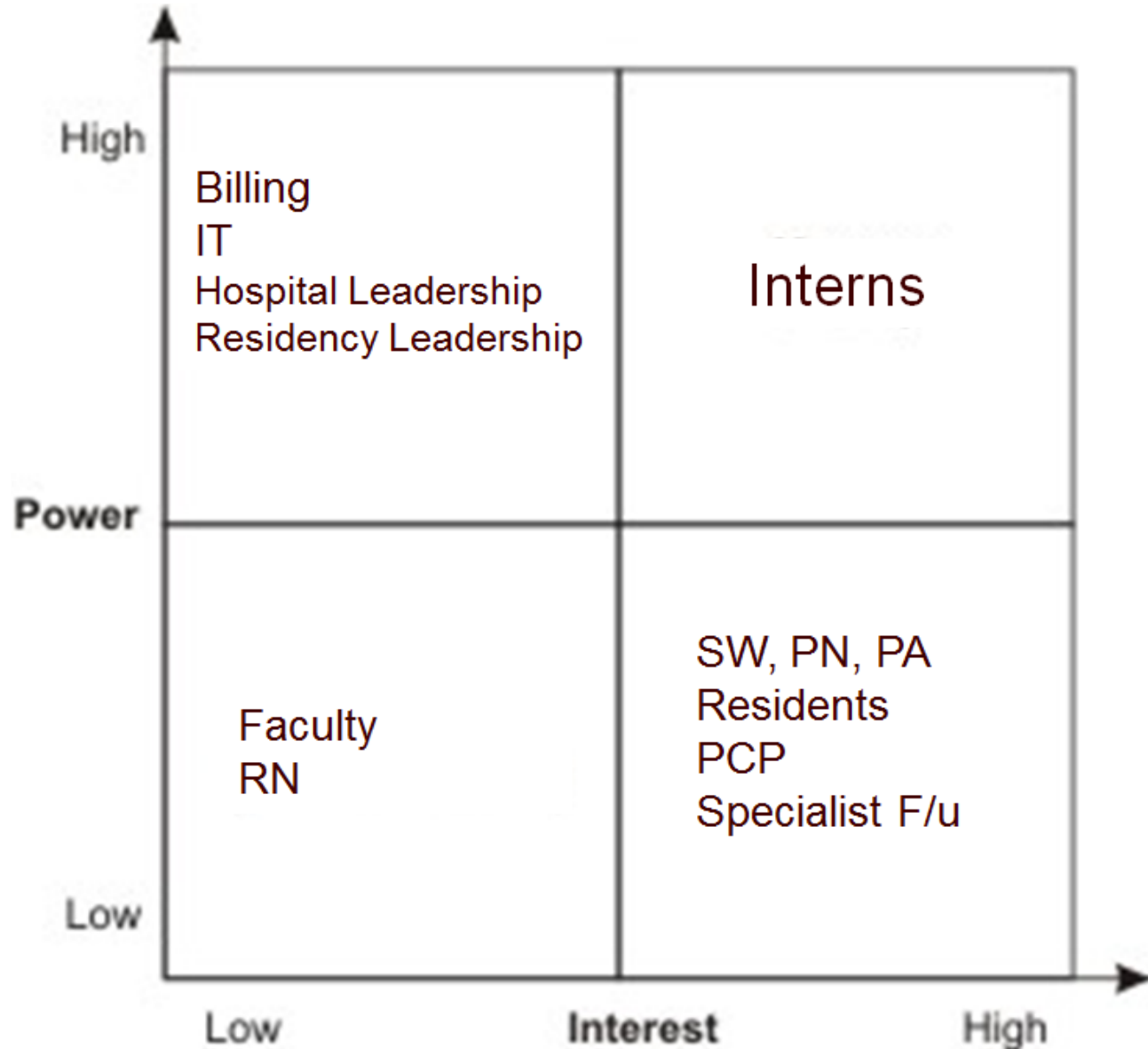
- Power-Interest (**Who** to involve)



Example of Power-Interest Grid

Project:

Incorporating Intern
Handoffs into
Electronic Health
Record



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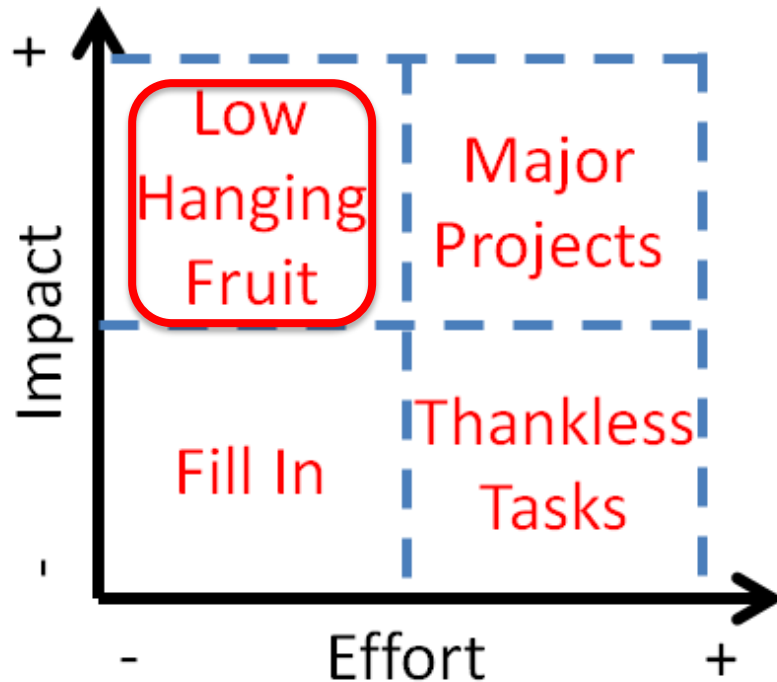
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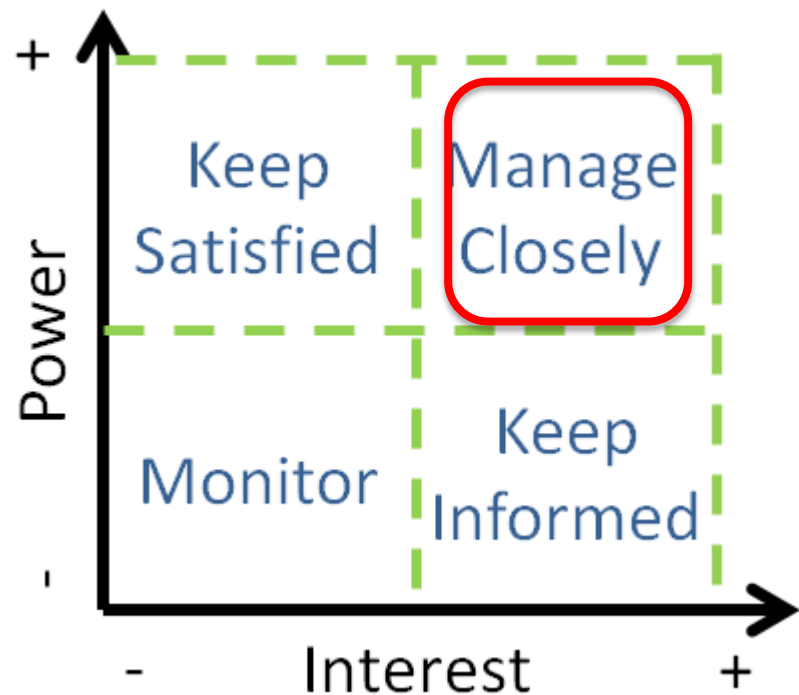
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Frameworks



Quality Improvement Schools of Thought

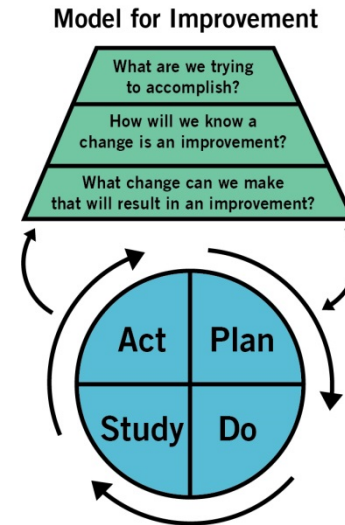
Lean/Toyota Production System

Eliminate Waste



Institute of Healthcare Improvement

Healthcare Focus

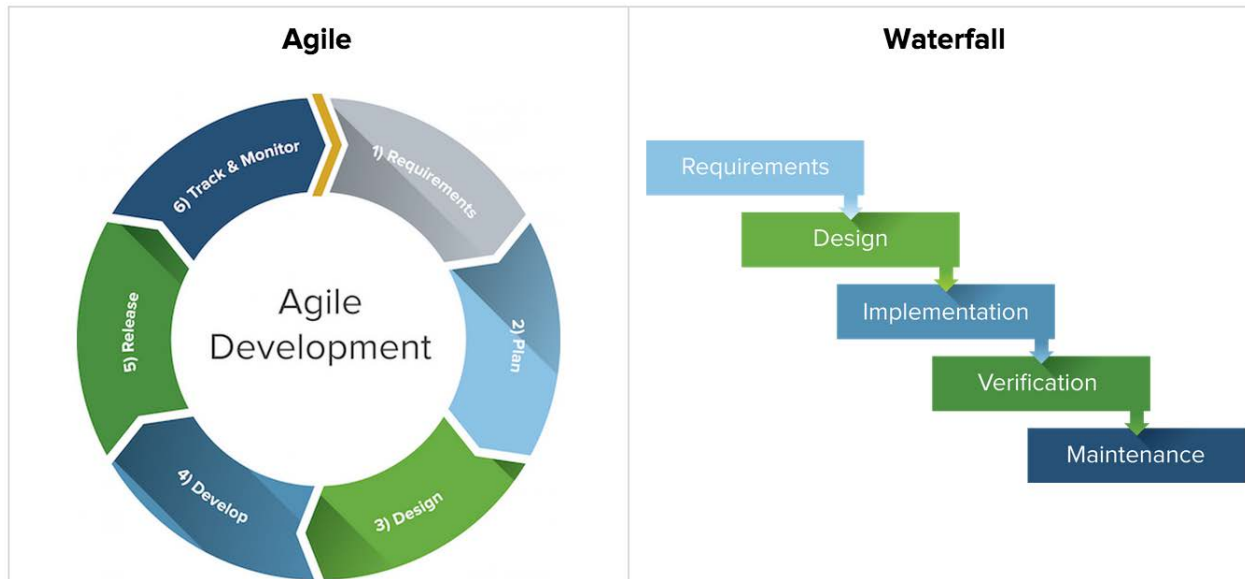


Six Sigma - Reduce Variability



Quality Improvement Schools of Thought (cont.)

Agile Implementation – Fail Faster



TCOM – Integrate multiple perspectives

			
When we engage individuals and their families	The work that we do, one individual at a time, helps to	To know that change is happening	When we communicate with a common language we can work towards
transformational change happens	change our systems	measurement is key	the same goals

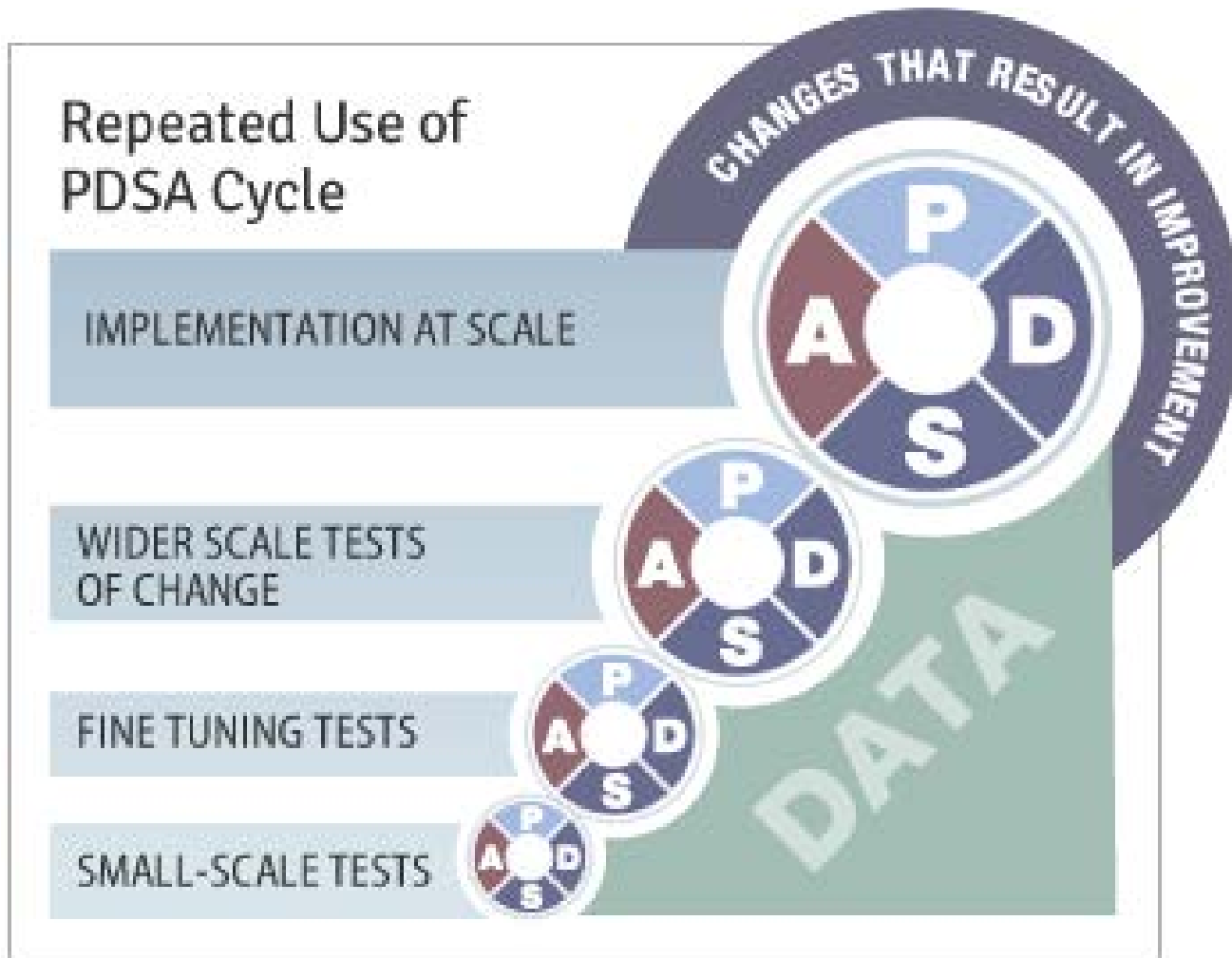


Choosing Your Framework

- Humans are not widgets: Focus of QI in healthcare and social services different than manufacturing, IT, etc.
- Eclectic QI: Useful components to many different methodologies, find best fit for project/team
- Positive change and wide-scale impact at the heart of QI



Execution and Spread



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-

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-

9. Sustainability Plan (Control)
-

10. Lessons Learned
-

Expanding Scope

- What kind of change are you trying to effect?
 - Now? Later?
- Is this a project that should be sustained, or a one-time intervention?
- If it should be sustained, what adjustments are needed?
- Process improvement programs typically show early progress, and then things return to the way they were



When to Let it Go



- We ask what success would look like, but also important to consider what failure looks like
- What are your termination criteria? Determine these **before** the project begins
- Don't think of projects as things that must succeed
- Better to change course early, than to drag on a project that is not having desired effect, which can be harmful to morale, teams, and outcomes
- A failed project or approach does NOT equal failure!



A3 is a Living Document

- Meant to be done in pencil
- Size of paper is to fax to all the stakeholders with each update
- Project updates and revisions don't always go in order



Real Ongoing Project - Start

Society of Hospital Medicine Quality Improvement Special Interest Group AD Project Template

Project Title: QI Enthusiasts Needs and Support (Formal title TBD)			
Project Lead: C. Abalos, M. Cerasale Coach/Mentor: TBD Sponsor: Society of Hospital Medicine (C. Nyenpan)	Team Members: S. Baron, P. Pavuluri, N. Tripathi, A. Schleyer	Stakeholders: SHM QI Community, SHM QI SIG, Hospital Medicine QI Enthusiasts At-Large, SHM HQPS Committee	Start Date: May 2019 Estimated Completion: March 2020 Project Support: TBD (from SHM)

1. Problem Statement (Define)
 - Support for QI Enthusiasts within SHM, especially those with more advanced QI experience/skills is either lacking or has not been made widely available, such that the majority of community members are unaware

2. Background
 - SHM has developed large scale mentored QI projects (BOOST, MARQUIS), but are not aimed at individuals
 - Many QI community outreach efforts have been attempted within SHM over the past few years
 - QI Resource Review – HQPS QISS 2017 Resource List (attached)
 - QI Mentoring program – HQPS 2017/18: 1-2 pilot pairing, limited feedback and limited responses
 - Information regarding QI Enthusiast support has not been well disseminated within SHM

3. Current State (Measure)
 - **Individual-Level QI Resources through SHM:** Updated QI Modules on SHM Website, Monthly QI Enthusiast Webinars through QI SIG, QSEA, Quality Track at National Meeting
 - **Size of Community:** #QI SIG Members and #Attendees HM19 to QI track sessions (ask CN to verify)
 - **Details of Community:** Who they are (organization type, experience level, titles, institutional support) and what they need to grow
 - **Information is missing and planned focus of first steps of QI SIG Initiative Subgroup**

4. Aims
 1.
 2.
 3.

5. Root Cause Analysis (Analyze)
 -

6. Recommendations/Solutions (Improve)
 -

7. Implementation Plan
 -

8. PDSA Cycle Results
 -

9. Sustainability Plan (Control)
 -

10. Lessons Learned
 -



After Gaining Data

Project Title: QI Enthusiasts Needs and Support (Formal title TBD)			
Project Lead: C. Abalos, M. Cerasale Coach/Mentor: TBD Sponsor: Society of Hospital Medicine (C. Nyenpan)	Team Members: S. Baron, P. Pavuluri, N. Tripathi, A. Schleyer	Stakeholders: SHM QI Community, SHM QI SIG, Hospital Medicine QI Enthusiasts At-Large, SHM HQPS Committee	Start Date: May 2019 Estimated Completion: March 2020 Project Support: TBD (from SHM)
1. Problem Statement (Define) - Support for QI Enthusiasts within SHM, especially those with more advanced QI experience/skills is either lacking or has not been made widely available, such that the majority of community members are unaware		6. Recommendations/Solutions (Improve) -	
2. Background - SHM has developed large scale mentored QI projects (BOOST, MARQUIS), but are not aimed at individuals - Many QI community outreach efforts have been attempted within SHM over the past few years <ul style="list-style-type: none"> - QI Resource Review – HQPS QISS 2017 Resource List (attached) - QI Mentoring program – HQPS 2017/18: 1-2 pilot pairing, limited feedback and limited responses - Information regarding QI Enthusiast support has not been well disseminated within SHM			
3. Current State (Measure) - Individual-Level QI Resources through SHM: Updated QI Modules on SHM Website, Monthly QI Enthusiast Webinars through QI SIG, QSEA, Quality Track at National Meeting - Size of Community: (Location specific data pending from Christopher) <ul style="list-style-type: none"> - 2559 SHM members QI (clearly identified) <ul style="list-style-type: none"> - 673 are members of QI SIG - 1600 additional users of QI material - Total SHM Membership- 14-15k - SHM QI modules used between 118 and 5 times, with more recent Diagnosis Reasoning module up to 170 - JHM: Last 4 issues, 1-5 articles out of typical 15 clearly QI related, may consider more QI- From SHM perspective 25-30% QI. Hospitalist Magazine -12% QI - National Meeting: 1/11 Tracks dedicated to QI, multiple other sessions touch on QI from workshops			
4. Aims 1. Identify roles that hospitalists fill within their institution/healthcare system/at-large within QI space 2. Provide detailed assessment of QI educational needs within a population of self-identified QI enthusiast-hospitalists 3. Create and educational intervention to directly address the major needs identified in the assessment			
5. Root Cause Analysis (Analyze) 			
7. Implementation Plan -			
8. PDSA Cycle Results -			
9. Sustainability Plan (Control) -			
10. Lessons Learned -			



Share Your Table's A3

- What did you learn?
- Did it change how you conceptualize a project?
- What elements (if not the whole thing) would be most relevant at your work?
- Where could you better engage multidisciplinary perspectives?



Completed A3

Project Title: Reducing Inappropriate Telemetry Use for General Medicine Floor (GMF) Patients

Project Lead: D. Asupan MD and D. Cao MD
Coach/Mentor: M Cerasale, MD MPH
Sponsor: L. Vidovic, Director of Quality and Patient Safety, Mercy Hospital

Team Members: A Ali MD A Narayanan MD (Mercy Residents), T Nguyen MD (Content Expert), S Reddy MD, J Yoon MD (Faculty Support)

Stakeholders: Mercy Internal Medicine Staff, Mercy IM Residents, Patients, Nurses, Hospital Administration

Start Date: 12/10/17 (A3 Updated : 4/30/18)
Estimated Completion: September 2018
Project Support: No finances or dedicated time support

1. Problem Statement (Define)

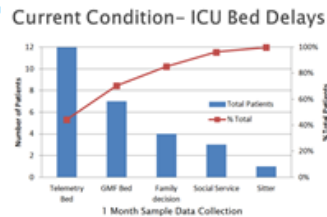
- Cardiac telemetry at Mercy Hospital in Chicago, IL is ordered and maintained on general medicine patients without direction or oversight, which is likely leading to system inefficiencies that have not been clearly measured. Further evaluation is required to optimize patient care and support resident education on appropriate practices surrounding the use of telemetry.

2. Background

- Appropriate Telemetry Use in the Choosing Wisely Campaign for Adult Hospital Medicine
- Practice Standards for Telemetry Use Updated by AHA in November 2017
- Multiple Studies Demonstrated Telemetry Frequently Over Ordered on Medicine Units
- Mercy Hospital has Limited Number of Telemetry Beds Available
- Restricted Telemetry Beds Can Create Backlog of Patients at Capacity

3. Current State (Measure)

- Mercy Hospital has 64 Telemetry Beds for Med/Surg Patients on 7th and 11th Floors
- Cost of Telemetry Bed ~\$1,200 vs. \$900 for GMF Bed Daily
- Approximately 66% of patient are inappropriately on telemetry daily, which corresponds with about 17 patients on the GMF service
- Telemetry Floors have slightly better nursing to patient ratios than non-telemetry floors and have a dedicated tele tech
- Potential change supported by residency and multiple willing residents, but not financial or leadership resources



4. Aims

1. To reduce the total number of Hospital Medicine providers inappropriately ordering telemetry by 33% by June 2018
2. To reduce the total duration of Hospital Medicine patients on telemetry overall by 25% by June 2018

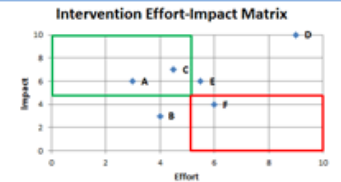
5. Root Cause Analysis (Analyze)

- No Current Guidance or Internal Recommendations for Appropriate Telemetry Use
- Lack of Telemetry Bed Availability Delays Patient Transfer
- Residents are Unaware of Available Guidelines and Deny Having a Standardized Practice for Telemetry Ordering
- Workflow of telemetry ordering includes non-GMF providers, such as ED and ICUs



6. Recommendations/Solutions (Improve)

- A. GMF Resident Education at Noon Lecture on Tele Guidelines
- B. GMF Faculty Education on New Tele Guidelines
- C. Add "Still Need Tele" to Multidisciplinary Round Checklist
- D. Change EMR to Have Orders Cancel by Time
- E. Education to Emergency Medicine Attending/Trainees
- F. Education to ICU Attendings

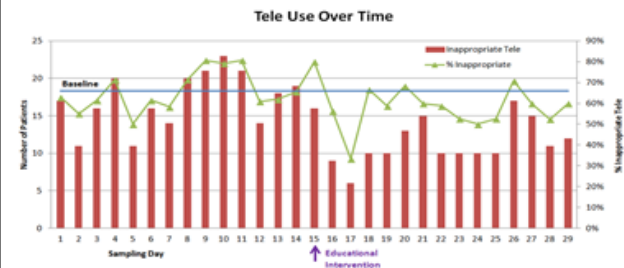


7. Implementation Plan

1. Educational Session Given to Residents at Noon Lecture – December 2017 (Completed)
2. Core Faculty Review of Telemetry Indications and QI Project Results – January 2018 (Completed)
3. Case-Based Noon Lecture Session on Telemetry – February 2018 (Completed)
4. Emergency Medicine Lecture on Telemetry Usage – May 2018 (Pending) – Led by Asupan and Cao, with assistance from Ali.
5. Include "Still Need Tele" to MDR Checklist – July 2018 – Led by Asupan with support from Vidovic

8. Results/PDSA Cycles

- Baseline data and following first 2 interventions are captured from run chart (below)



- Project team performs regular chart audits of GMF patients for appropriate telemetry indication and duration of use
- Significant improvement noted after initial education that persisted through sampling period

9. Sustainability Plan (Control)

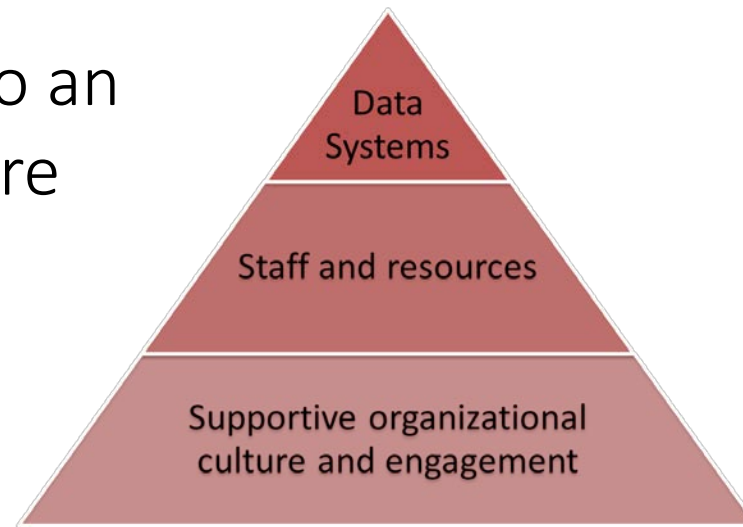
- **Data Audits**- Performed by Asupan, Ali, and Narayanan at regular intervals, even when intervention are not being implement to monitor appropriate telemetry use
- **Education Refreshers**- Rounding faculty involved in project will continue to remind providers of appropriate telemetry indications when on service

10. Lessons Learned

- Initial discussion of telemetry guidelines with residents during noon lecture setting was successful for small change in system, but required buy-in from faculty to support on rounds
- Making changes outside of residency program took solid data and clear support from faculty to present at hospital-level venues

Summary

- QI is full of many potential pitfalls, as well as rewards
- Components central to an effective change culture



- Methodologies are many, find which one(s) work best for your group/problem
- Engage everyone wherever you can, when you can

Thanks!

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