



# Practical Approaches to Teaching QI: National Resources and Local Innovation

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# FINANCIAL DISCLOSURE

I have the following financial relationships to report with ACCME defined ineligible companies.

Name of Company	Nature of Relationship	Current Status
various	Stock Holder	

I will be/**will not** be discussing unlabeled/investigational uses of medical devices or pharmaceuticals during this presentation.

*(If you will be, please provide information on the nature of what you will be discussing.)*



# Why?

- ACGME
- CLER
  - QIPS
- Joy In Work
- Improve Value

# Resources



- Institute for Healthcare Improvement
  - \$210
  - 7 courses
    - Intro to Healthcare Improvement
    - How to Improve with the Model for Improvement
    - Testing and Measuring Changes with PDSA Cycles
    - Interpreting Data: Run Charts, Control Charts, and Other Measurement Tools
    - Leading QI
    - Planning for Spread
    - Addressing Small Problems to Build Safer, More Reliable Systems

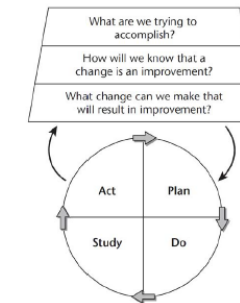
- Designed to provide anyone involved in urologic care delivery with a foundational understanding of QIPS methods and principles
- Walks through each phase of a quality improvement project – Plan, Do, Study, Act – using a urology case study to illustrate each step
- Working on a complementary slide deck
- Four accompanying podcast episodes released on Inside Tract platform
  - [Introducing AUA's New Resource](#)
  - [Planning a QI Intervention](#)
  - [Implementing and Studying a QI Project](#)
  - [Acting on the Results of and Sustaining a QI Project](#)

## FOUNDATIONAL CONCEPTS

### HEALTHCARE QUALITY

While there is no universal definition of healthcare quality, the Institute of Medicine (IOM) defines it as the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge. In addition, the IOM outlined six domains of healthcare quality in its landmark publication *Crossing the Quality Chasm: A New Health System for the 21st Century*.<sup>1</sup> According to this report, quality healthcare should continually strive to be: safe, timely, effective, efficient, equitable, and patient-centered (STEEP). In the context of these widely adopted aims of healthcare quality, it is commonly accepted that quality improvement (QI) initiatives should strive to improve on one or several of the STEEP aims.

FIGURE 1. THE MODEL FOR IMPROVEMENT



Source: *The Improvement Guide: A Practical Approach to Enhancing Organizational Performance*, 2nd Edition | © 2009, John Wiley and Sons



The Model for Improvement will be integrated throughout the document, along with a case study intended to provide tangible examples of how health professionals can approach, design, and ultimately implement care improvement efforts using this framework.



# AUA Quality Improvement Project Guide

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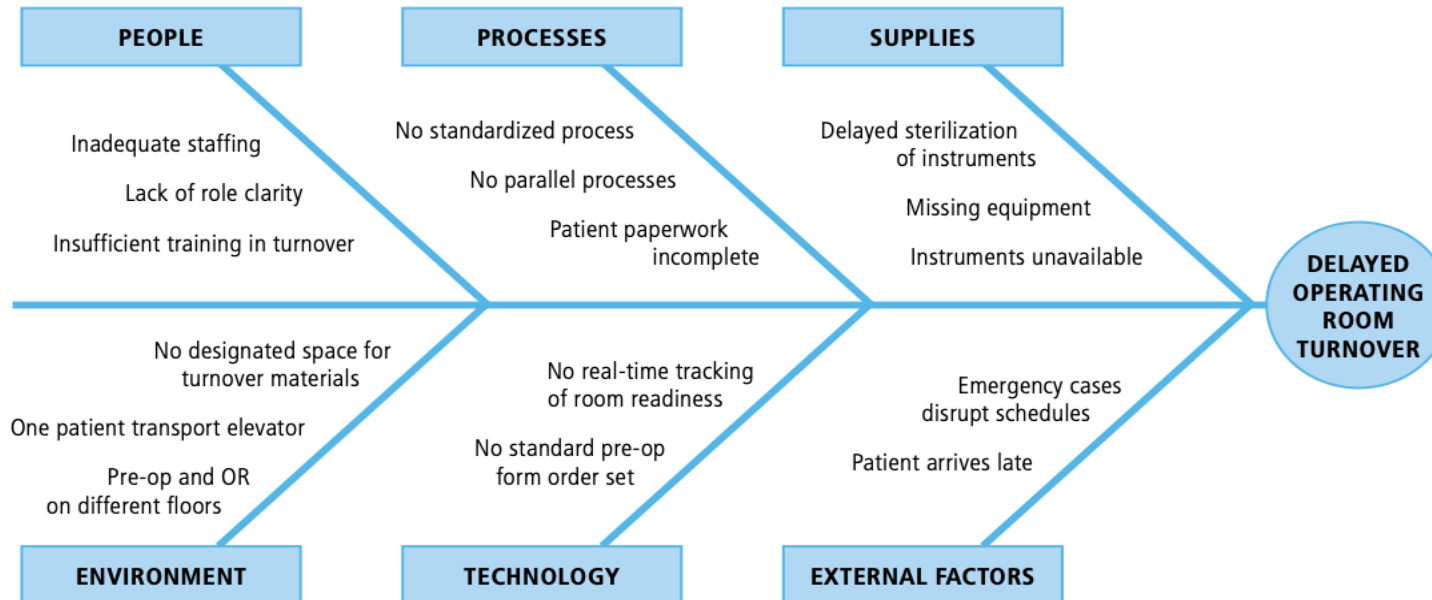
#### ISHIKAWA "FISHBONE" DIAGRAM

"Fishbone" or "cause-and-effect" diagrams can be used to quickly visualize the causes and effects of a problem. A fishbone diagram can be especially useful for brainstorming the optimal parts of the process to be targeted for improvement. The problem is displayed at the "head" of the fishbone diagram. Potential overarching causes of a problem are categorized into sections, such as environmental, policy, people, etc., and the detailed possible contributing causes are listed on the smaller "bones" of the categories.

**CASE STUDY:** In the case of delayed OR turnover (effect), the potential contributors (causes) are categorized into people, processes, supplies, environment, technology, and external factors. All possible causes of delayed turnover are then listed under the appropriate category (Figure 4).

For additional information on fishbone diagrams, visit <https://www.ihl.org/resources/tools/cause-and-effect-diagram>.

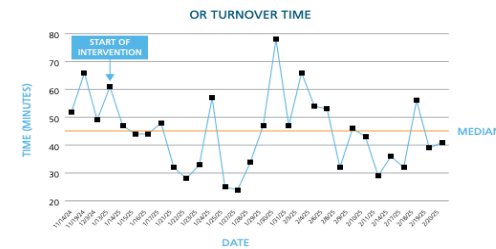
FIGURE 4. FISHBONE DIAGRAM EXAMPLE



### RUN CHART

Run charts provide a simple but effective method to visualize data over time and show the impact of process changes. Using run charts to understand the magnitude of change requires far fewer data points compared to traditional statistical analysis (e.g., p-value calculations). Typically, run charts require 5+ pre-intervention data points and 5+ post-intervention data points. The value of interest is plotted on the y-axis (e.g., biopsies via transperineal approach) and time is plotted on the x-axis (days, weeks, months, quarters, etc.) (Figure 12). After plotting the data, draw lines to connect the data points. Run charts can be even more informative if lines show the median (either overall or pre- and post-intervention separately) and the “goal” line (assuming the chart contains at least 10 points). Be sure to annotate the chart to indicate when process changes occurred or when an external event may have impacted the process. The QI Macros add-in for Microsoft Excel can do this charting work in an automated fashion.

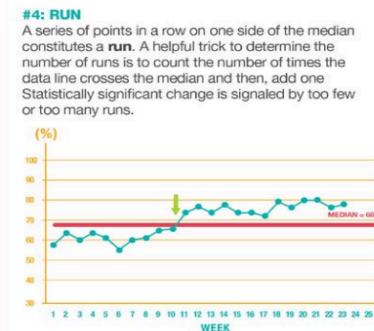
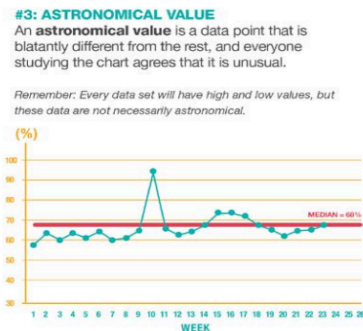
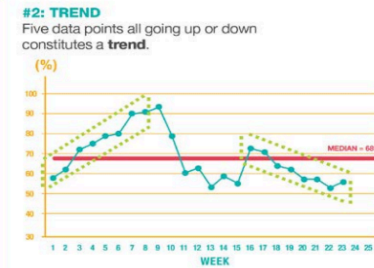
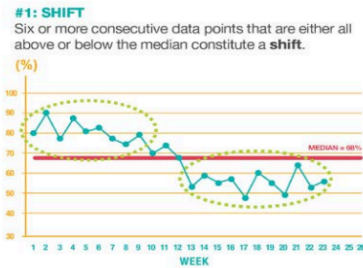
FIGURE 12: RUN CHART EXAMPLE



It is normal for data in run charts to vary over time and look like a sawtooth rather than a straight line. Four major run chart “rules” or interpretations can allow for quick identification of when a process is improving (or degrading) as a result of the intervention(s). The patterns illustrated below (Figure 13) can be critically helpful for further process improvement, providing positive feedback to teams, or reporting to stakeholders.

For additional information on run charts, visit <https://www.ih.org/resources/tools/run-chart-tool>.

FIGURE 13. RUN CHART RULES



- Interview leads of quality improvement and patient safety projects, exploring how they got started, what worked, and key lessons learned
- Episode released every other month on the Inside Tract platform
- Episodes
  - *QIPS Insights: Introducing a New Podcast Series on Quality Projects* (Drs. Andrew Harris and Greg Auffenberg)
  - *QIPS Insights: Opioid Prescribing After PCNL* (Drs. Andrew Harris and Kevin Koo)
  - *QIPS Insights: Telehealth-Based Program for the Evaluation of Men Referred for Elevated PSA* (Drs. Andrew Harris and Zach Feuer) – to be released March 2026
  - *QIPS Insights: Pathways of Care Following ED Discharge for Renal Colic* (Drs. Andrew Harris and Dave Friedlander) – to be released May 2026



# Veterans Health Administration

- Numerous opportunities
- Lean: white, yellow, green, and black belts
- HRO
- Patient Safety





# Local Resources



## Student Lean Certification Course

A Special Non-Academic One-Week Immersion in True Lean™

**Designed just for UK Students**

**Fee:** \$400 and \$2,500 non-student fee

**Location:** Robotics Building. (RMB)- UK Campus-Lexington, Kentucky

**Dates:** May 11-15, 2026 and August 17-21, 2026

#### Required Courses

- CPH 675 - Project Management and Change Leadership
- CPH 683 - Operations, Quality, and Safety

#### Elective Courses

- CPH 758 - Special Topics in Health Management and Policy
- CPH 782 - Information Systems in Healthcare\*
- CPH 783 - Applications in Healthcare Finance and Operations
- MFS 526 - Lean Operations Management I



GRADUATE CERTIFICATE IN

**Improving Healthcare Value**

PART-TIME MBA FOR

**Leaders in Healthcare**

REQUEST MORE INFORMATION

# Want More?

> [Urology](#). 2020 Apr;138:24-29. doi: 10.1016/j.urology.2019.11.059. Epub 2020 Jan 21.

## Implementing a Root Cause Analysis Program to Enhance Patient Safety Education in Urology Residency

[Andrew M Harris](#)<sup>1</sup>, [Justin Ziemba](#)<sup>2</sup>, [Jason Bylund](#)<sup>3</sup>

Affiliations + expand

PMID: 31978526 DOI: [10.1016/j.urology.2019.11.059](#)

> [J Patient Saf](#). 2025 Mar 1;21(2):101-105. doi: 10.1097/PTS.0000000000001291.

Epub 2025 Feb 18.

## Implementation of a Standardized Tool for Root Cause Analysis Selection

[Eric Wahlstedt](#)<sup>1</sup>, [Brittany E Levy](#)<sup>2</sup>, [Emma Scott](#)<sup>3</sup>, [Wesley Stephens](#)<sup>2</sup>, [Kristen E Fletcher](#)<sup>4</sup>, [Andrew Harris](#)

> [J Am Coll Surg](#). 2024 Oct 1;239(4):387-393. doi: 10.1097/XCS.0000000000001115.

Epub 2024 Sep 16.

## Surgical Intraoperative Handoff Initiative: Standardizing Operating Room Communication Using SHRIMPS

[Wesley A Stephens](#)<sup>1</sup>, [Madeline J Anderson](#)<sup>1</sup>, [Brittany E Levy](#)<sup>1</sup>, [Sherry Lantz](#)<sup>2</sup>, [Andrew M Harris](#)<sup>2</sup>, [Melissa R Newcomb](#)<sup>2</sup>

> [Jt Comm J Qual Patient Saf](#). 2025 Jul-Aug;51(7-8):474-485. doi: 10.1016/j.jcjq.2025.04.004.

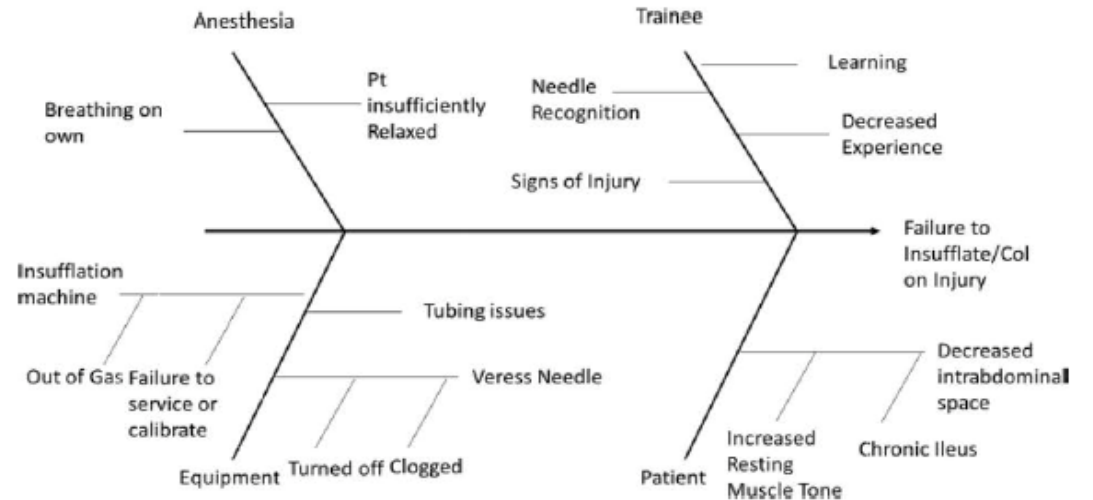
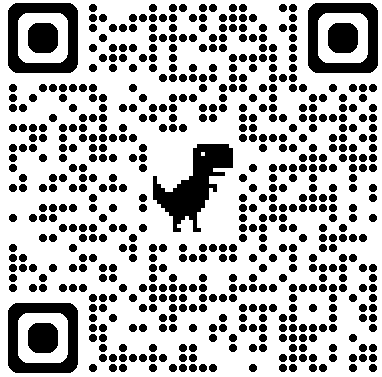
Epub 2025 Apr 15.

## Utilizing Quality Improvement Methodology to Decrease Surgical Delays

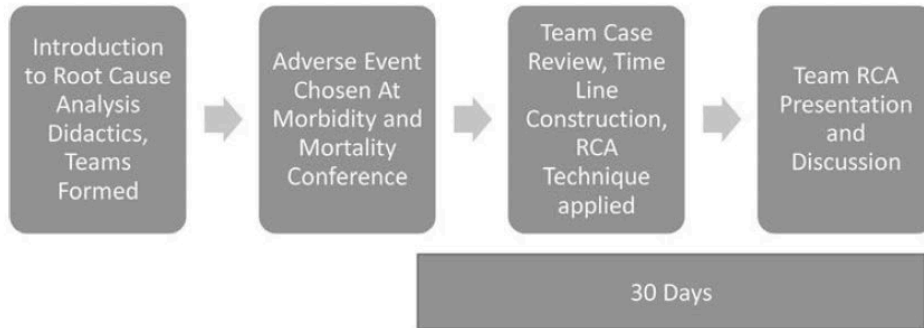
[Marina E Robson Chase](#), [Madeline J Anderson](#), [Wesley A Stephens](#), [Brittany E Levy](#), [Sherry Lantz](#), [Jennifer Goforth](#), [Melissa R Newcomb](#), [Andrew M Harris](#)



# Pieces



**Figure 1.** Fishbone template with example from a hypothetical case used for teaching.



# RCA

# Examples

# Introduction

- Frontline stakeholders approached QI team with concerns:



- **long wait** times
- generalized patient & staff **dissatisfaction**

- Baseline data from clinic workflow observations:

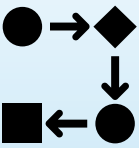


- Only **35%** seen within 15 minutes of scheduled appointment
- Median **74%** non-value-added time per appointment

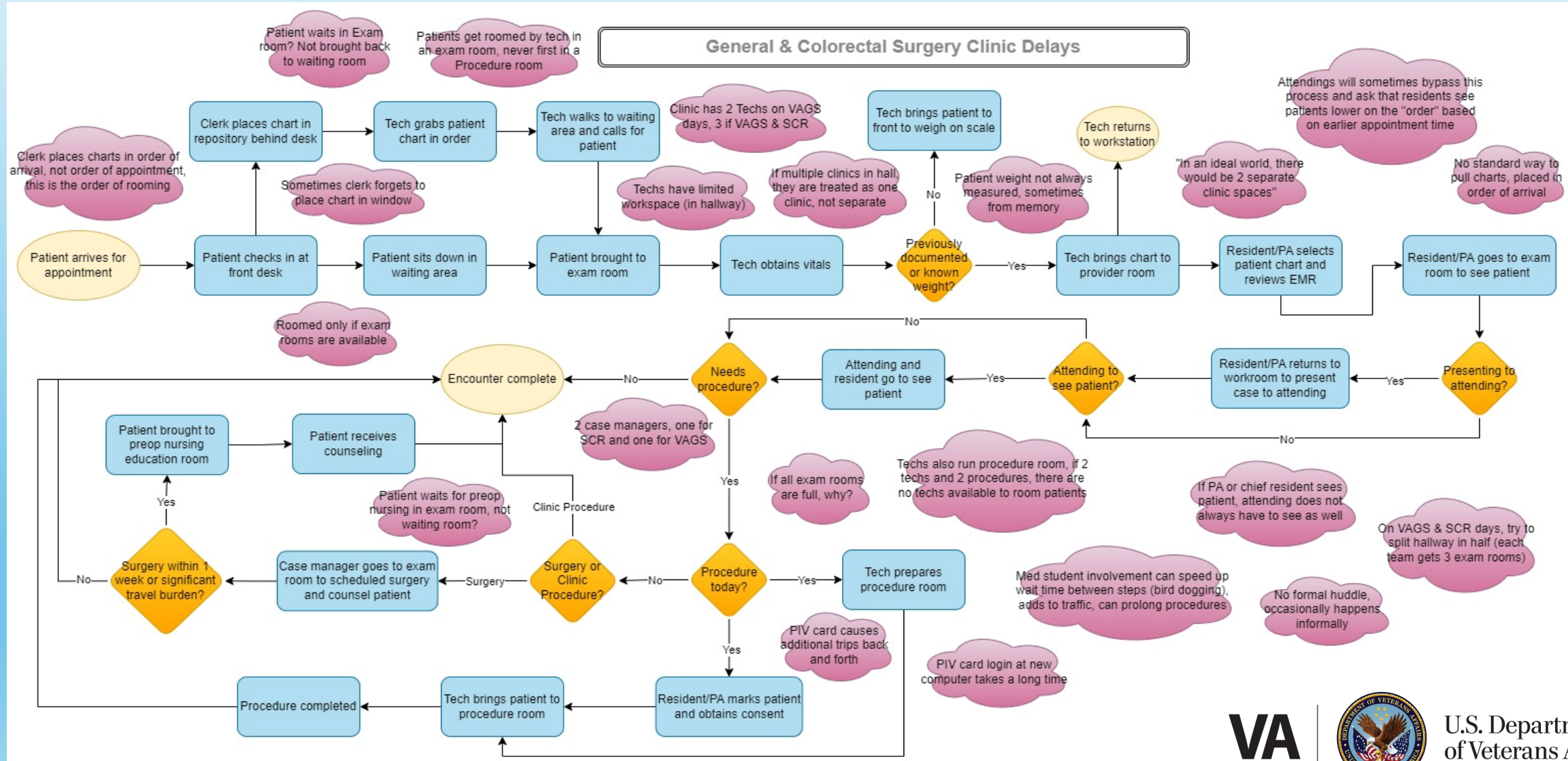
- Other observations

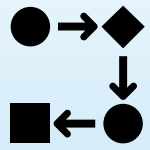


- Patients roomed by order of arrival, not appointment time
- Poor room utilization congesting patient flow

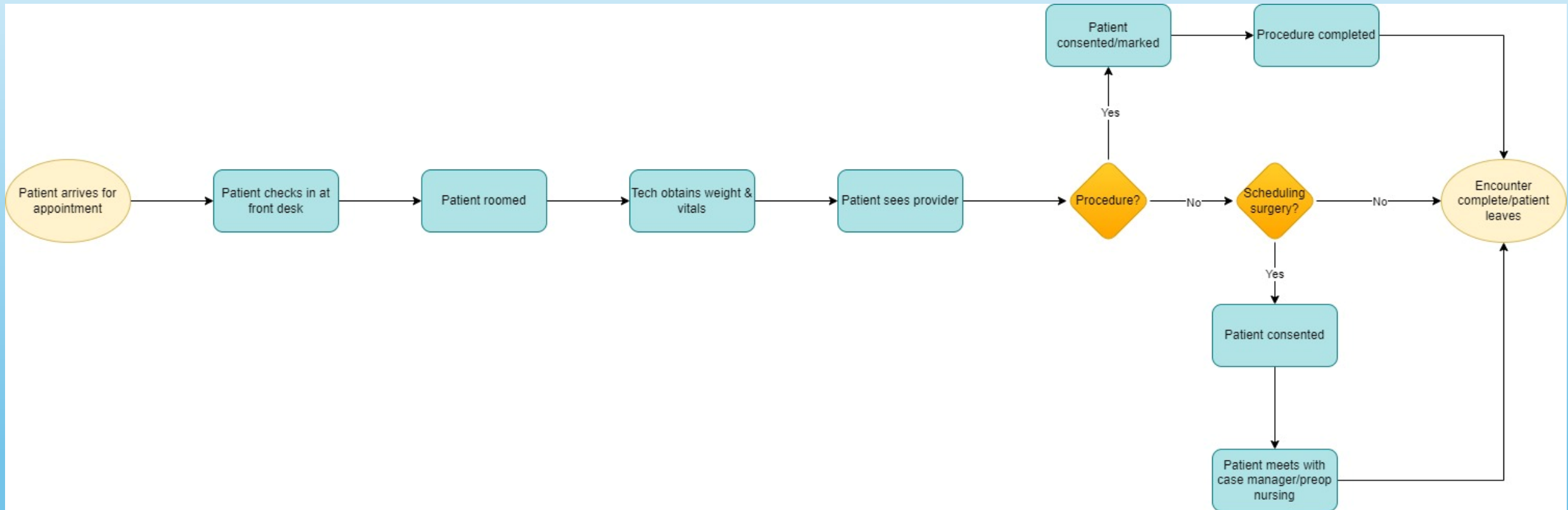


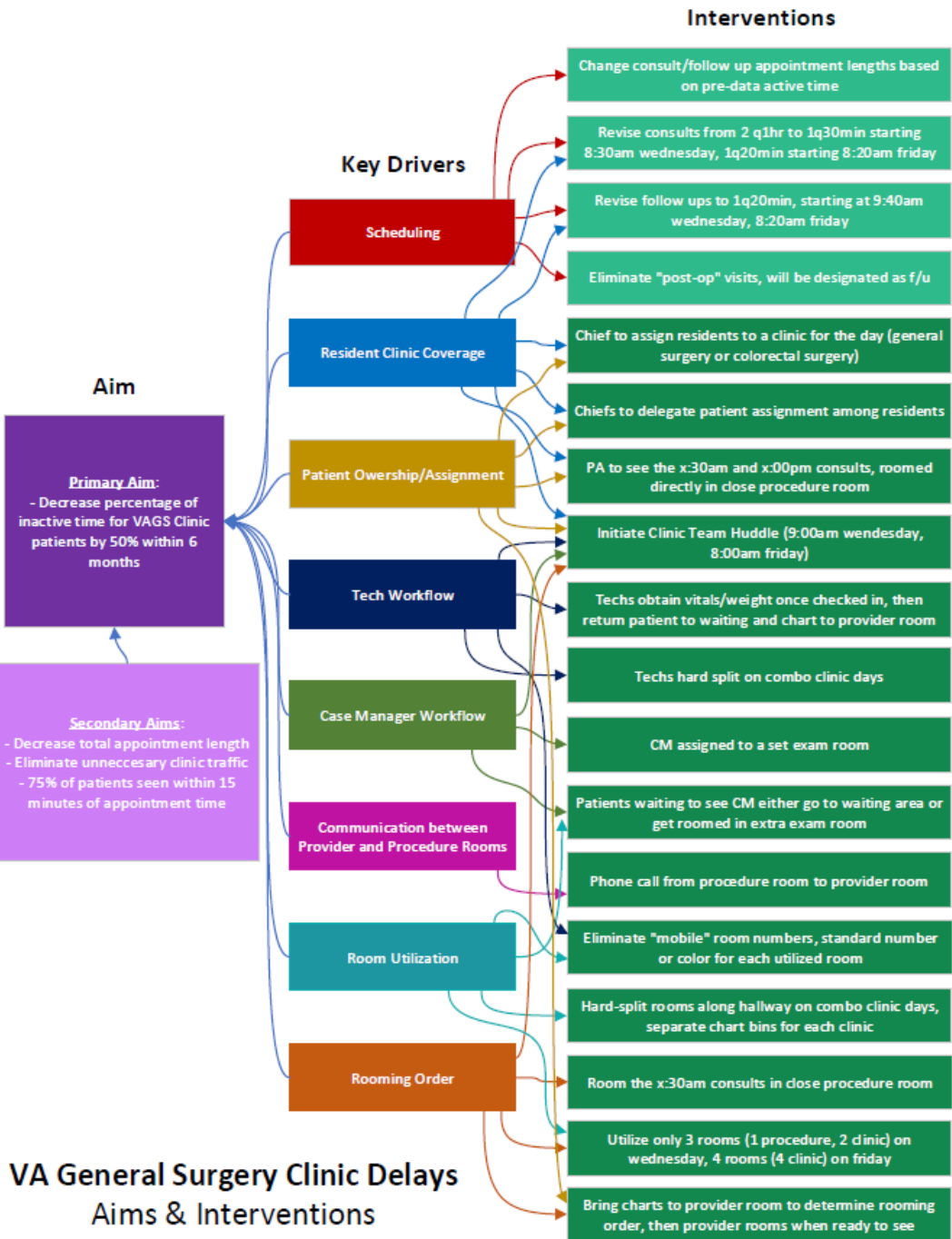
# Methods: Process Map





# Methods: Process Map





# Methods: Driver Diagram

## SMART Aim (within 6 months)

- increase percentage **seen within 15 minutes** of scheduled appointment to **75%**
- reduce **non-value-added time** to **37%**

### PDSA 1

- Several workflow changes, team huddle

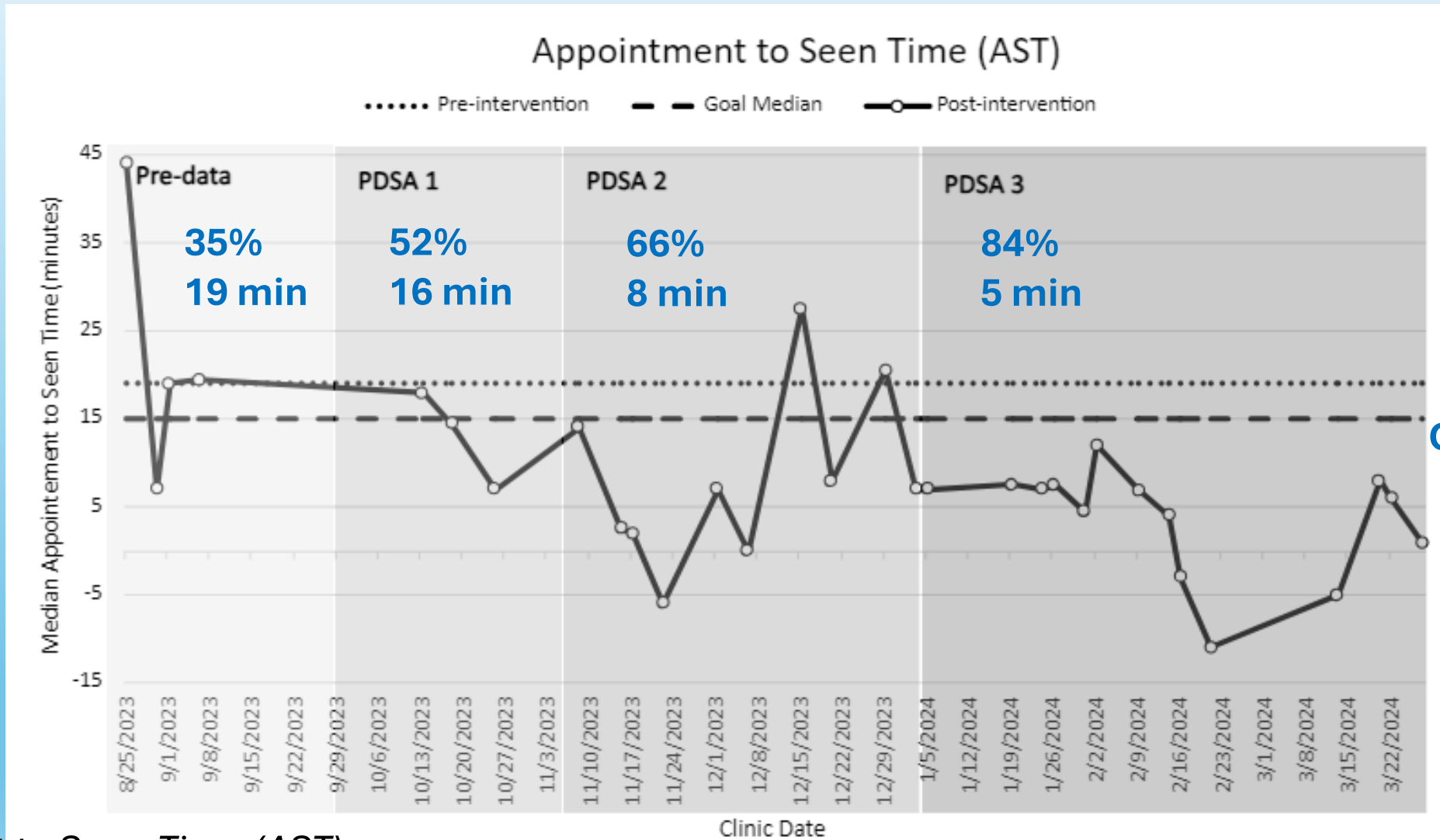
### PDSA 2

- Alternative rooming process
- Initial scheduling changes

### PDSA 3

- New scheduling template

# Results

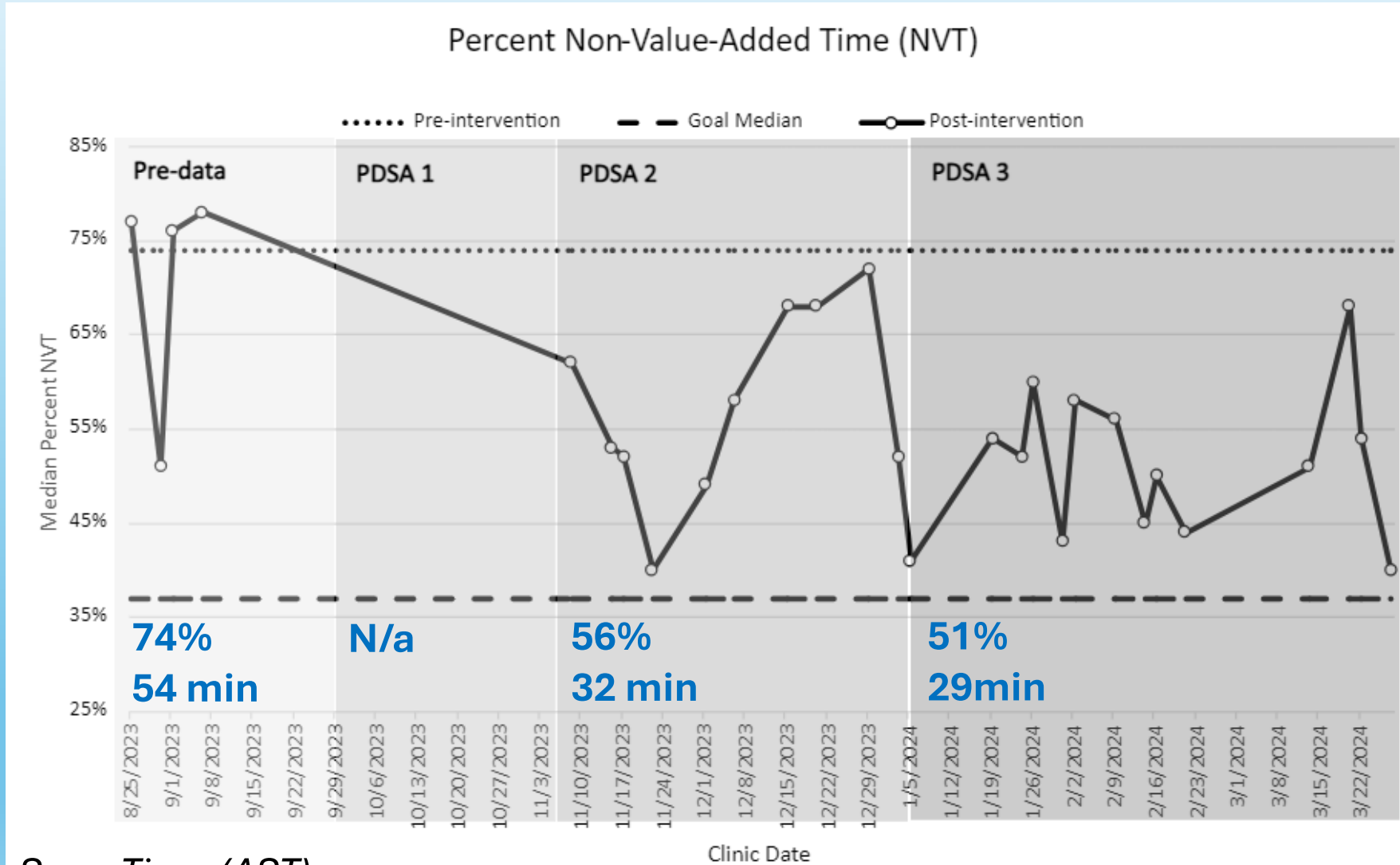


*Appointment to Seen Time (AST)*  
*Non-Value-Added Time (NVT)*



U.S. Department of Veterans Affairs

# Results

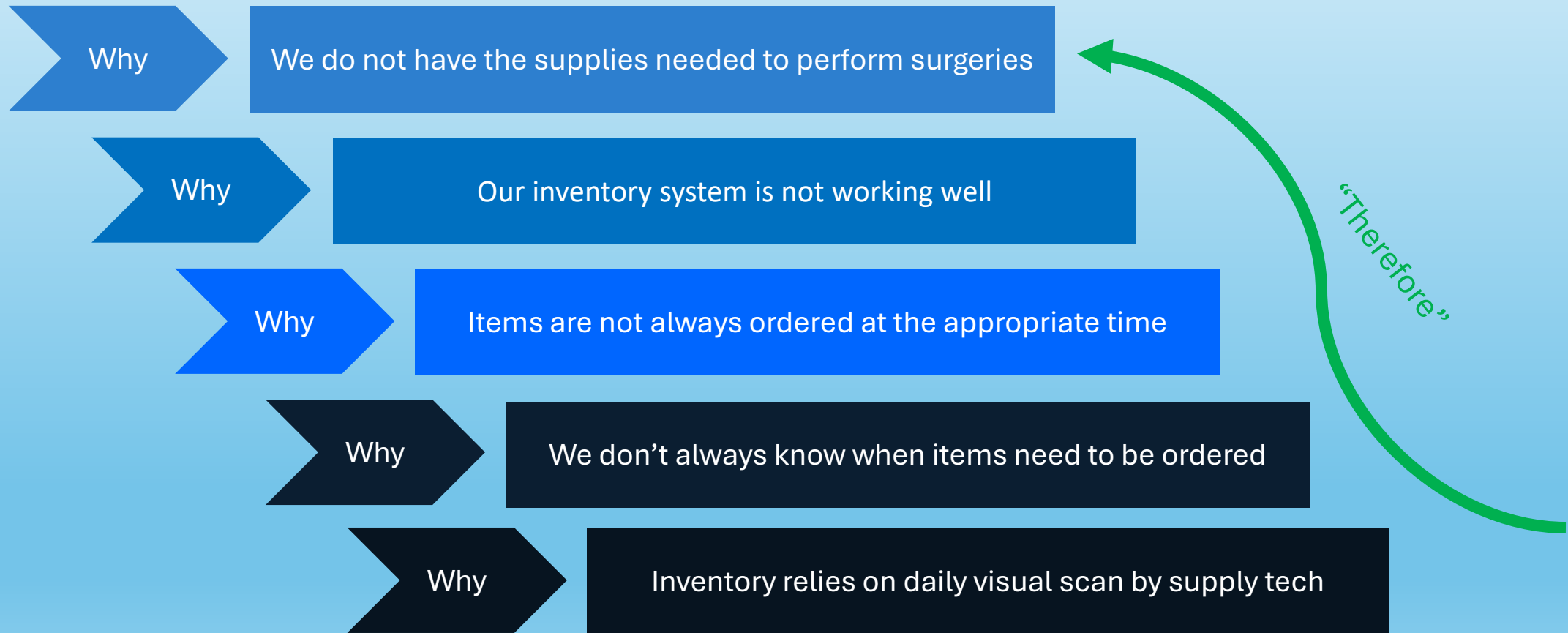


*Appointment to Seen Time (AST)*  
*Non-Value-Added Time (NVT)*



U.S. Department of Veterans Affairs

# Inventory Project: Five Why's





# Inventory Project: Interventions

## KANBAN CARDS



A1

1

When kanban card visible in front, remove it before taking supply



2

Place kanban card into recepticle bin by the door

- **Kanban**: means “visual signal” in Japanese
- Invented by Toyota engineer Taiichi Ohno in 1940’s
- Placed **at re-order point** in supply
- **Removed** by end user and **collected** by inventory staff
- **Replaced** at re-order point once supply replenished

# Inventory Project: Interventions



**Kanban card system**, start small then expand



Educated staff at OR staff meeting



Visual cognitive aid created



Red/Blue cards to indicated items on back-order



Ongoing stakeholder conversations

# Kanban Card Instillation



## PDSA 1 (8/11/23 - 8/17/23)

- First **5** bins to kanban system (5 total)
- Added pm supply rounds

## PDSA 2 (8/18/23 - 8/27/23)

- Next 5 bins added (**10** total)
- Visual aid added

## PDSA 3 (8/28/23 - 8/31/23)

- Next 10 bins added (**20** total)

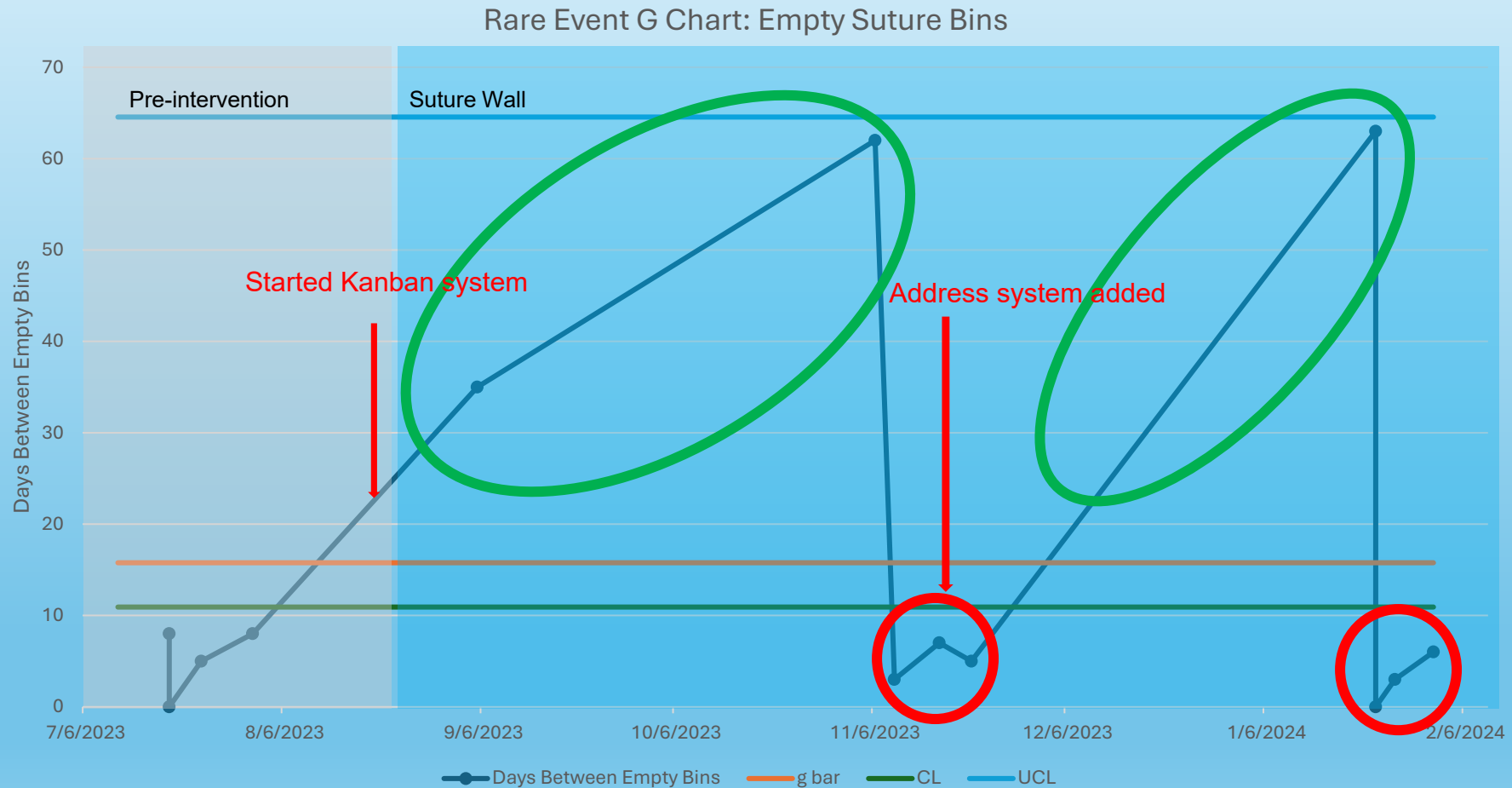
## PDSA 4 (9/1/23 - 11/15/23)

- Next 15 bins added (**35** total)

## PDSA 5 (11/15/23)

- Rest of suture bins (**160** total)
- **Address system** installed

# Suture Wall Results



Kanban cards worked when utilized correctly

# RESULTS

	Green (Open at start)	Yellow (Have ready)	Red (Have ready at end)
Distal URS, Lithotripsy, Stent Placement	Sensor Wire (G2)	Sensor Wire (G2)	Specimen Cup (R1)
	5Fr Open Ended Catheter (G3)	200µ Laser Fiber (Y1)	6Fr x 24cm/6Fr x 26cm Stent (R2)
	Semi-Rigid Ureteroscope	1.5Fr Basket (Y2)	
Proximal URS, Lithotripsy, Stent Placement	Sensor Wire x 2 (G2)	Urosecal (G1)	Specimen Cup (R1)
	5Fr Open Ended Catheter (G3)	200µ Laser Fiber (Y1)	6Fr x 24cm/6Fr x 26cm Stent (R2)
		1.5Fr Basket (Y2)	
		Semi-Rigid Ureteroscope	
		Flexible Ureteroscope	
		Dual Lumen Catheter (G4)	
10/12 Access Sheaths (G5)			
Proximal URS, Lithotripsy, Stent Removal vs Exchange	Urosecal (G1)	Dual Lumen Catheter (G4)	Specimen Cup (R1)
	Sensor Wire x 2 (G2)	200µ Laser Fiber (Y1)	6Fr x 24cm/6Fr x 26cm Stent (R2)
	5Fr Open Ended Catheter (G3)	1.5Fr Basket (Y2)	
	12/14 Access Sheaths (G5)	Semi-Rigid Ureteroscope	
	Flexible Ureteroscope		
Diagnostic URS, Possible Biopsy	Sensor Wire (G2)	Urosecal (G1)	Specimen Cup (R1)
	5Fr Open Ended Catheter (G3)	Sensor Wire (G2)	6Fr x 24cm/6Fr x 26cm Stent (R2)
		Dual Lumen Catheter (G4)	
		Semi-Rigid Ureteroscope	
		Flexible Ureteroscope	
		Cytology Brush (Y3)	
		Biopsy Forceps (Y4)	

- ▶ 55 cases pre-intervention. 13 cases post-intervention
- ▶ Statistically significant differences in the following:
  - ▶ Mean time to locate requested products (125.2 vs 42 seconds, p = 0.005)
  - ▶ Mean time staff was out of the room locating products (84.4 vs 14.7 seconds, p = 0.005)
  - ▶ Mean time operating room surgeon's attention was diverted (65.5 vs 6.2 seconds, p = 0.007)
  - ▶ Percentage of OR time spent locating and opening products (3.26% vs 1.39%, p = 0.005)

Thank you!

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