



# Quality Improvement Research— A Primer

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- No financial conflicts
- Research funding from VA HSR&D
  - I01 HX002447
- There is no right way to do QI Research
  - These are my opinions and approaches I've used

# What is Quality Improvement?

# Defining QI?

- AHRQ
  - Framework used to systematically improve the ways care is delivered to patients.
- CMS
  - Systematic and continuous actions that lead to measurable improvement in health care services and the health status of targeted patient groups.
- Lay-speak
  - Figuring out how to improve what we do to give patients the best possible outcome.

# Surgeons Have Been Doing this a Long Time

- Long history of surgical QI
  - Ernest Codman (1869-1940)
    - End Results cards
- QI vs Research
  - Gray area between surgical QI and contemporary HSR and Outcomes research
    - Much of the intent of these forms of research is QI on a local, regional, national scale

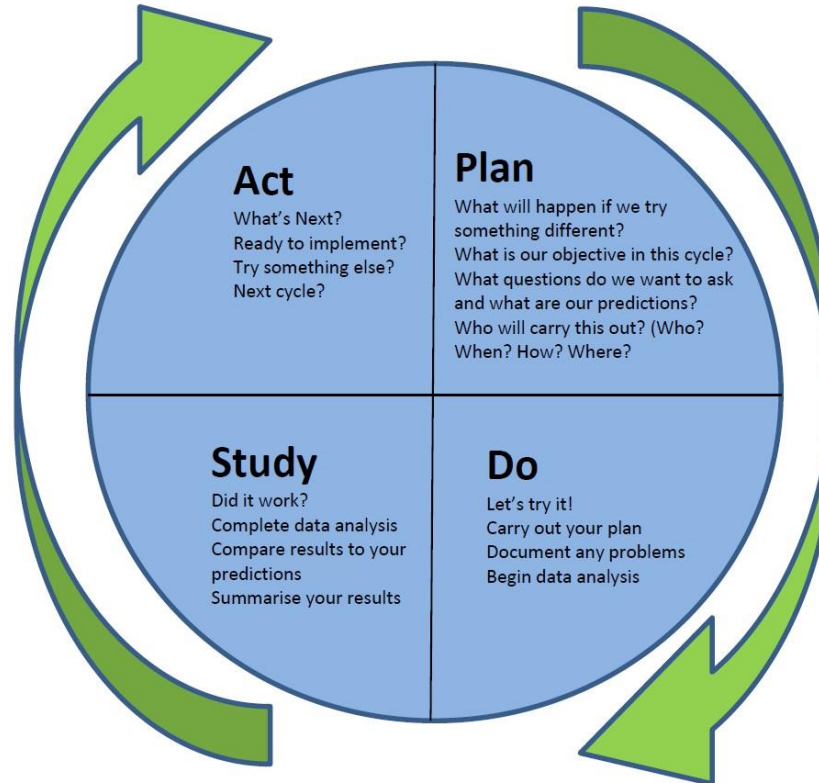


# QI vs Research

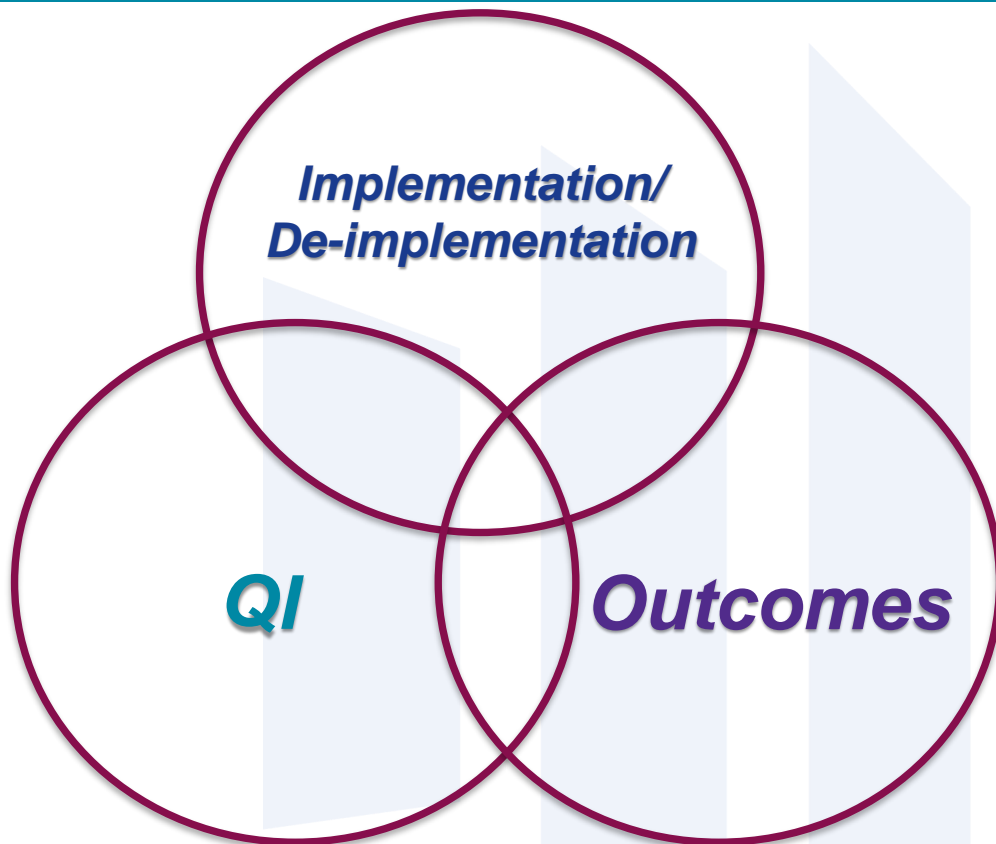
- QI
  - Goal is to improve care processes and/or outcomes within an organization
    - Think local
  - Does not require IRB review and approval
  - Can be published, but carefully (see below)
- Research
  - Attempt to generate generalizable data
    - Think global
  - Requires IRB review and approval

# What is QI Research?

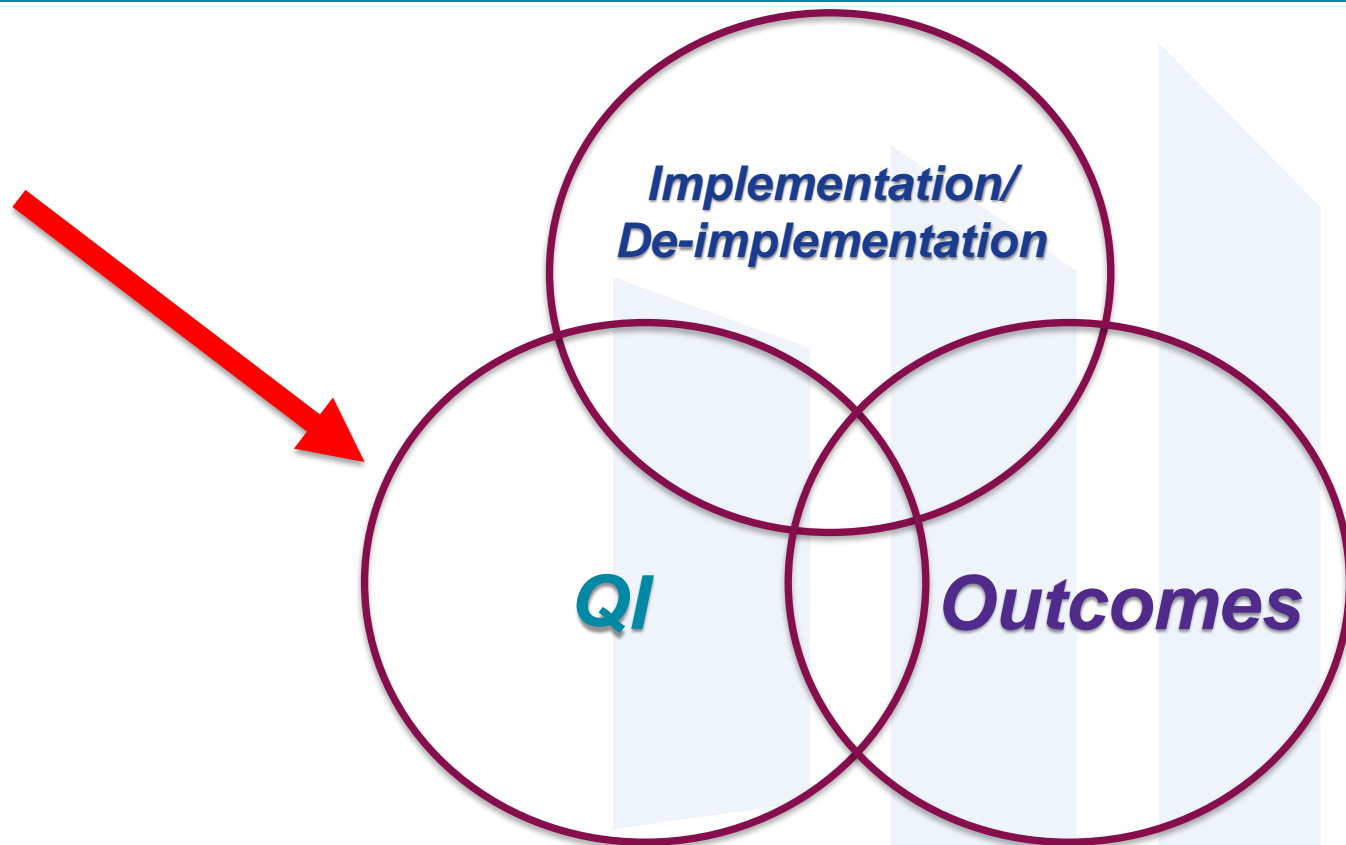
# Plan, Do, Study, Act (PDSA)



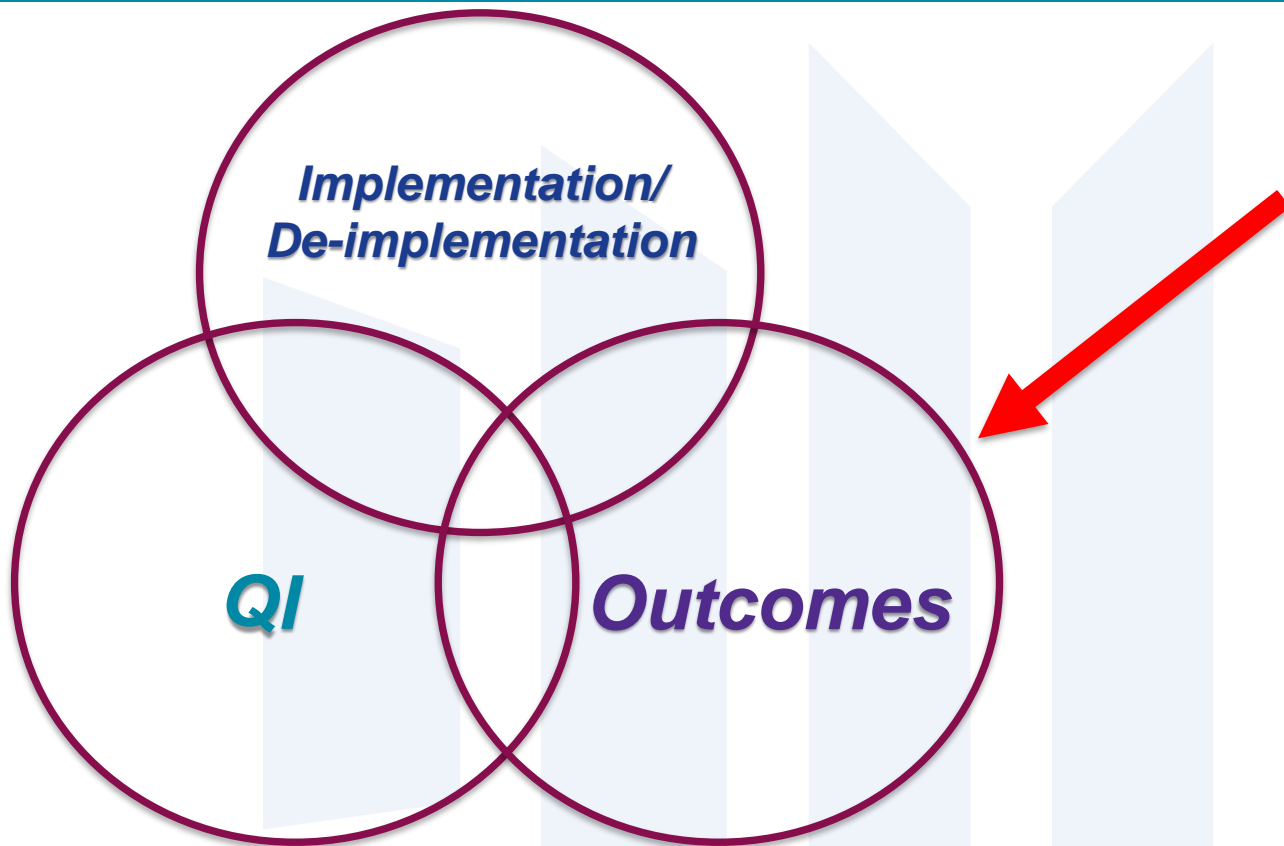
# X Marks the Spot



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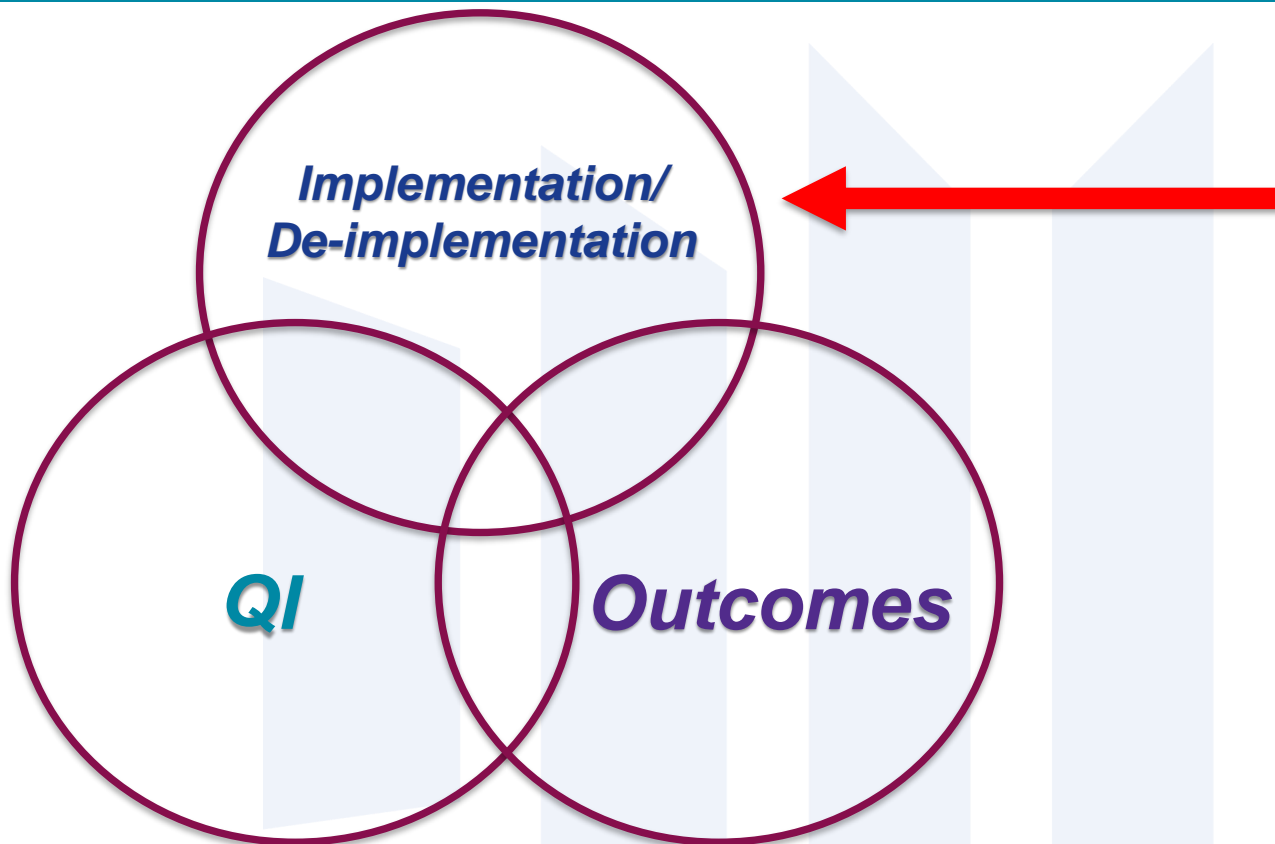
- Neither has a consistent or well-specified definition

QI

Goal is to improve care processes and/or outcomes within an organization

- value care
- Outcomes
    - Studying the end result of care and interventions that are provided

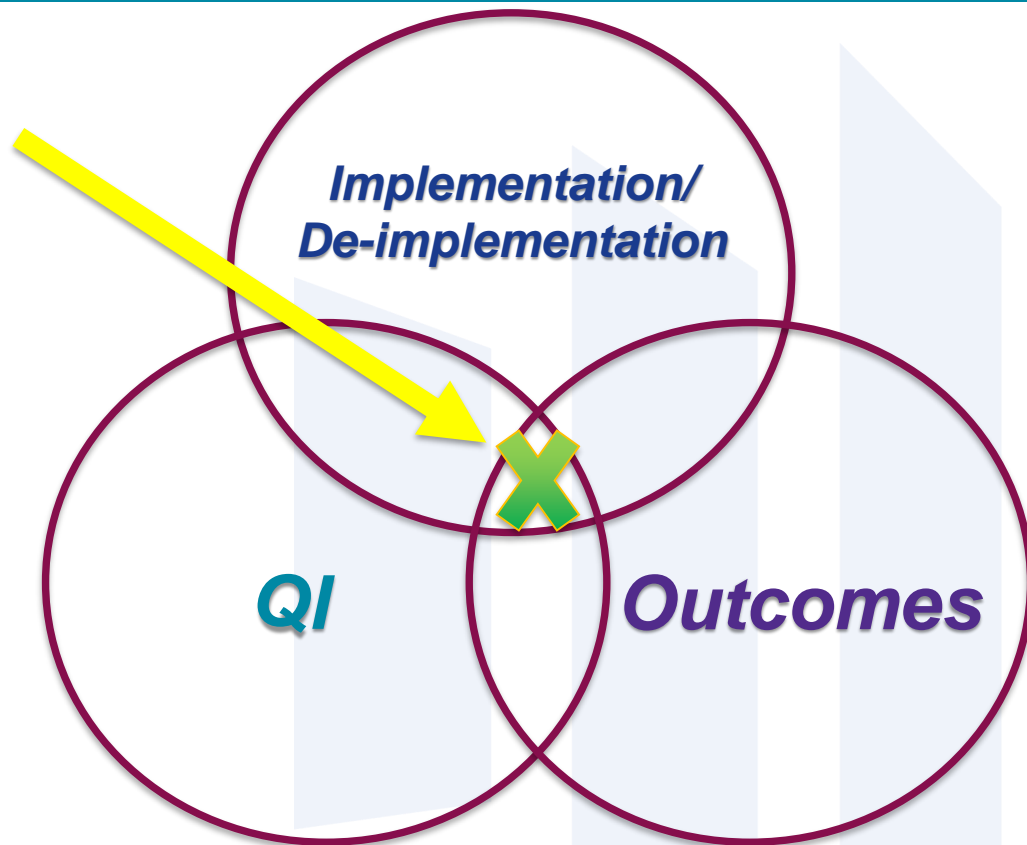
# X Marks the Spot



# What is Implementation/De-Implementation

- Implementation
  - Studying how best to sustain a new intervention or solution and and/or bring it to scale
    - Factors affecting success
    - Most effective or efficient process for introduction
    - Results
  - Understand how best to make things work in real-world practice and improve upon them
- De-implementation
  - Opposite

# X Marks the Spot



# How Can I Do QI Research?

# Improving on your Improvement

- Lots of ways to do research with an eye toward QI
  - Do local QI and try to publish it
  - Evaluate the effectiveness of a QI program/initiative across multiple hospitals, hospital systems, or nationally
  - Explore the impact and/or value of existing or proposed quality measures
  - Explore ways to improve existing QI programs

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## Reducing cost and improving operating room efficiency: examination of surgical instrument processing

Adam R. Dyas, BS, Kelly M. Lovell, CRNP,  
Courtney J. Balentine, MD, MPH, Thomas N. Wang, MD, PhD,  
John R. Porterfield Jr., MD, Herbert Chen, MD,  
and Brenessa M. Lindeman, MD MEHP\*

Department of Surgery, University of Alabama at Birmingham, Birmingham, Alabama



Fig. 1 – Original head and neck tray before instrument reduction.



Fig. 2 – Thyroidectomy and parathyroidectomy tray after instrument reduction.

## Research

Original Investigation | ASSOCIATION OF VA SURGEONS

# Effect of a Preoperative Decontamination Protocol on Surgical Site Infections in Patients Undergoing Elective Orthopedic Surgery With Hardware Implantation

Serge P. Bebko, MD; David M. Green, MD; Samir S. Awad, MD, MPH

Table 2. Types of Surgical Site Infection

Surgical Site Infection	Patients, No.	
	Control Group (n = 13)	Intervention Group (n = 4)
Superficial	7	2
Deep	5	2
Organ/space	1	0

Table 4. Multivariate Analysis of Independent Risk Factors Associated With the Development of SSIs<sup>a</sup>

Risk Factor	Adjusted OR (95% CI)	P Value
Decontamination	0.24 (0.08-0.77)	.02
Duration of surgery ≥150 min	4.59 (1.67-12.65)	.003
COPD	6.76 (2.16-21.19)	.001

# Improving on your Improvement

- Lots of ways to do research with an eye toward QI
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  - Evaluate the effectiveness of a QI program/initiative/policy across multiple hospitals, hospital systems, or nationally
  - Explore the impact and/or value of existing or proposed quality measures
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# QI program effectiveness

## Bariatric Surgery Complications Before vs After Implementation of a National Policy Restricting Coverage to Centers of Excellence

Justin B. Dimick, MD, MPH

Lauren H. Nicholas, PhD

Andrew M. Ryan, PhD

Jyothi R. Thumma, MPH

John D. Birkmeyer, MD

### Original Investigation

## Association of Hospital Participation in a Surgical Outcomes Monitoring Program With Inpatient Complications and Mortality

David A. Etzioni, MD, MSHS; Nabil Wasi  
Samuel F. Hohmann, PhD; James M. N:

### ORIGINAL ARTICLES

## Does Surgical Quality Improve in the American College of Surgeons National Surgical Quality Improvement Program *An Evaluation of All Participating Hospitals*

Bruce L. Hall, MD, PhD, MBA, FACS,\*†‡§ Barton H. Hamilton, PhD,§ Karen Richards, BS,¶  
Karl Y. Bilimoria, MD, MS,|| Mark E. Cohen, PhD,¶ and Clifford Y. Ko, MD, MS, MSHS, FACS\*\*¶

# Improving on your Improvement

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# Existing Quality Measures

Research

## Original Investigation

### Evaluation of Surveillance Bias and the Validity of the Venous Thromboembolism Quality Measure

Karl Y. Billimoria, MD, MS; Jeanette Chung, PhD; Mila H. Ju, MD; Elliott R. Haut, MD; David J. Bentrem, MD, MS;  
Clifford Y. Ko, MD, MS; David W. Baker, MD, MPH

Research

## JAMA | Original Investigation

### Association of the Hospital Readmissions Reduction Program With Mortality Among Medicare Beneficiaries Hospitalized for Heart Failure, Acute Myocardial Infarction, and Pneumonia

Rishi K. Wadhera, MD, MPP, MPhil; Karen E. Joynt Maddox, MD, MPH; Jason H. Wasyly, MD, MPhil; Sebastien Haneuse, PhD;  
Changyu Shen, PhD; Robert W. Yeh, MD, MSc

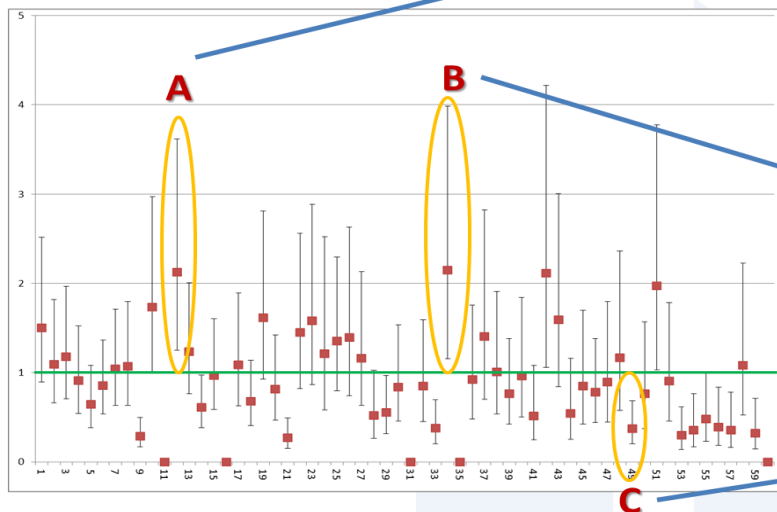
# Improving on your Improvement

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# Improving QI programs

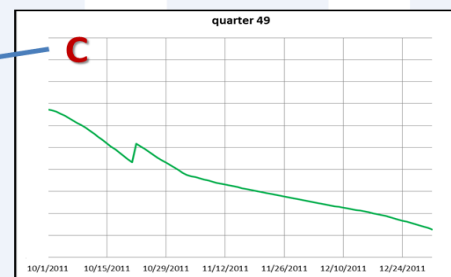
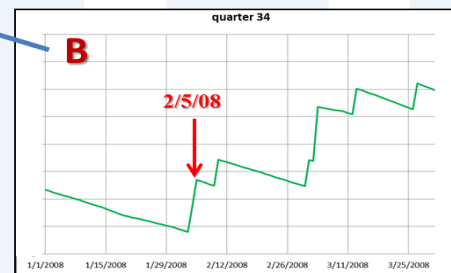
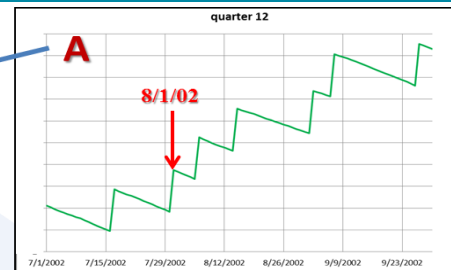
- WARNING!!!
  - The following will be self-aggrandizing behavior in that I will be discussing my own work....
  - Sorry, couldn't find or think of a better example, but....
  - This is the basis for my first VA Merit and will give you some sense of my second merit and NIH R01 I'm working on.

# Alternatives to episodic feedback



***\*Caterpillar plot x-axis represents each of the 60 quarters from 2000-2014.***

***\*CUSUM plot x-axes represent days within each of the selected quarters.***



# Funding QI Research

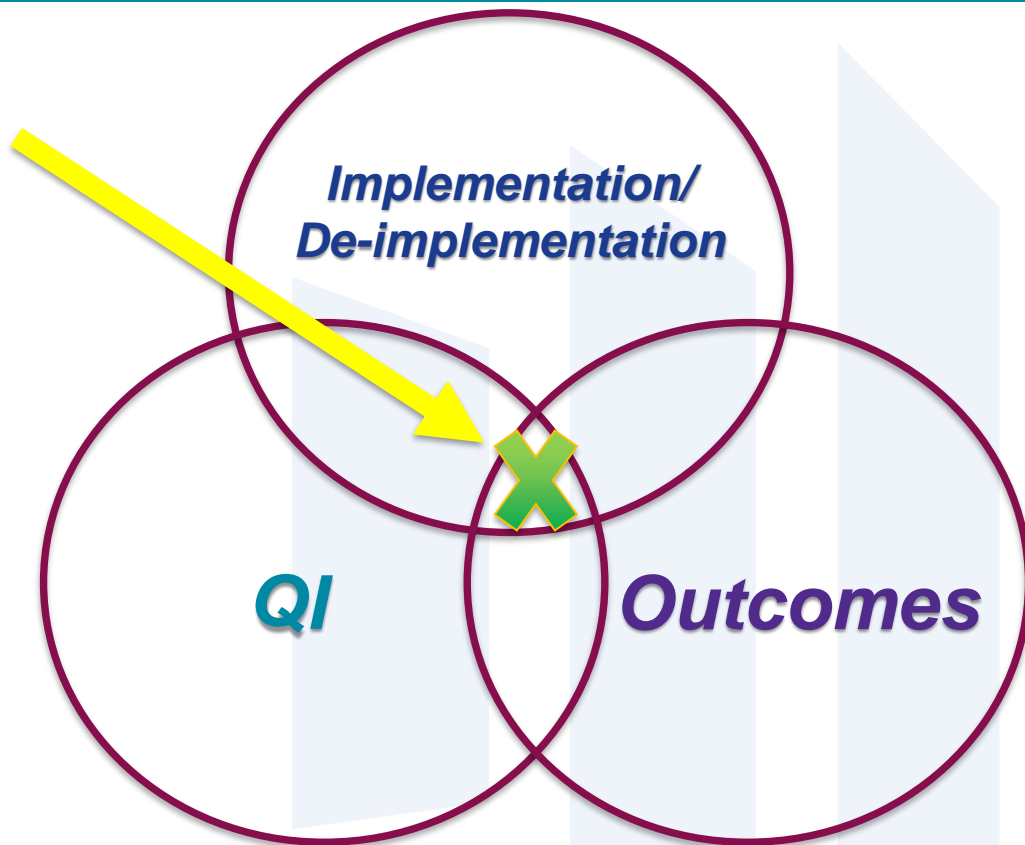
# How to get QI work funded

- This can be challenging because
  - There are many gray lines that we have discussed about what constitutes QI vs research
  - Funding bodies aren't typically looking to fund local QI
  - No funding sources specific to QI

# How to get QI work funded

- Ways to generate interest
  - Focus on generalizability
    - What you do has to have more than just a local audience
  - Create a sense of urgency
    - Sell the problem that you are trying to address
    - Sell the solution you are proposing
    - Remember Alec Baldwin's ABC's in "Glengarry Glen Ross"
- Identify funding sources that have previously funded this type of work
- Aim for the 'X'

# X Marks the Spot



# Conclusions

- QI research is equally challenging and rewarding
- Many untapped opportunities to create a niche in QI research
- Need to be creative to get this type of work funded and published
- Marrying QI, outcomes assessment, and a clear broad implementation plan can be helpful