



Using Data & Information Systems in Partnered Research

FY24 Session 2:

# The Surgical Pause: Measuring Frailty and Doing Something About It

May 23, 2024

Hosted by 

Daniel E Hall, MD, MDiv, MHSc

Staff Surgeon, VAPHS | Professor of Surgery, University of Pittsburgh

Core Investigator, Center for Health Equity Research and Promotion

Multiple PI, SAGE QUERI Program



## Using Data & Information Systems in Partnered Research Cyberseminar Series

*Presentations from the field focusing on VA data use  
in quality improvement and operations-research partnerships.*

### Sessions cover...

- Use of VA data and information systems in QUERI Projects and Partnered Evaluation Initiatives
- Operational data resources and QI-related data
- Challenges in using and managing multiple data sources
- VA resources to support data use
- Experiences working within operations/research partnerships



Where can I  
download a  
copy of the  
slides?



## SAMPLE EMAIL

### A Practical Approach to Working with VA-Purchased Community Care Data

Thursday, October 13, 2022

2:00 PM | (UTC-04:00) Eastern Time (US & Canada) | 1 hr

Please download today's slides

~~Please click here for today's live captions~~

Join webinar

More ways to join:

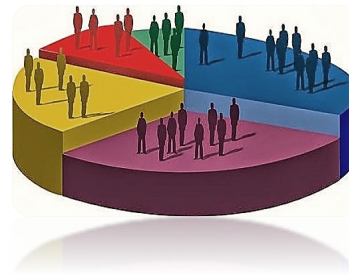
Join from the webinar link

<https://veteransaffairs.webex.com/veteransaffairs/j.php?>

## Poll #1:

*What is your primary **role** in projects using VA data?*

- Investigator, PI, Co-I
- Statistician, methodologist, biostatistician
- Data manager, analyst, or programmer
- Project coordinator
- Other – please describe via the chat function



## Poll #2:

*How many years of experience working with VA data?*

- None – I'm brand new to this!
- One year or less
- More than 1, less than 3 years
- At least 3, less than 7 years
- At least 7, less than 10 years
- 10 years or more





## Using Data & Information Systems in Partnered Research

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# The Surgical Pause: Measuring Frailty and Doing Something About It

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# Outline

- Describe the Surgical Pause
  - Origin story
  - Conceptual Framework
  - Data--it works!
- Step 1: Measuring Frailty
- Step 2: Do Something About It (Prehabilitation)
  - Clarify goals
  - Increase physiologic reserve, if possible.
- Lessons Learned



# Disclosures: Blessed by Robust Funding

- HSR&D CDA 2010-2015 (Surgical Ethics)
- HSR SDP (IRB Quality and Efficiency)
- RR&D Spire (Prehabilitation)
- VISN4 CPPF (Frailty Assessment)
- CHERP COIN CPPF (Patient Centeredness of Care and Satisfaction)
- SAGE QUERI (Preoperative Goal Clarification)
  - Rapid Response Projects (Frailty Dashboard and Perioperative LSTI)
- HSR IIR
  - PAUSE Trial (Multidisciplinary Conference)
  - LOI (Long-term Loss of Independence after Surgery)
  - SDoH (Social Determinants of Surgical Outcomes)
- NIH U01 (“Jail-breaking” ACS NSQIP)
- UPMC (Enterprise Wide Adoption)





**CAUTION**

- NOT going to tell you who should/should not have surgery.
- But if I could identify the patients you'd be rounding on in the ICU 25 days after surgery, would you want to know?
- Culture change is hard





# Please forgive me, I'm a surgeon

- My remarks are surgeon and surgery specific
- But we surgeons can't do our job without the army of other allied health professionals on whose excellence we are interdependent.
- So for the nurses, physical & occupational therapists, administrators, financial wizards, anesthesiologists, internists, geriatricians and all y'all:
  - Please volunteer how we can help each other best care for the patients in our charge.



# Case Study: Mr. B

- 97 year old male.
- Multiple comorbidities.
- Risk Analysis Index score: 52, consistent with severe frailty
- Impending renal failure.
- Referred to vascular surgeon to create an arterio-venous fistula in preparation for eventual dialysis.
- Surgeon identified frailty, called a Surgical Pause, and referred the patient to a palliative care clinician for preoperative goal clarification.



# Case Study: Mr. B

Vascular surgeon to Palliative Care Clinician:

*“Patient is still relatively independent though considering getting himself into assisted living and has insight into that his dementia is becoming a problem for him. Patient says his goals are about quality of life, not quantity of life and would be willing to go on dialysis if he has to, but doesn't seem to know the implications of being on dialysis and how it will change his life. Please discuss goals of care for surgery vs. no surgery and implications of being on dialysis.”*



# Case Study: Mr. B

- Goals clarified:
  - Maximizing time with grandchildren
  - Minimizing reliance on healthcare institutions
  - Concern about complications of A-V fistulas.
- Recommended treatment:
  - Delay dialysis as long as possible
  - If initiated, give short term trial through temporary catheter to assess patient's experience.
  - Only then consider establishing AV fistual



# Case Study: Mr. B

Vascular surgeon to Palliative Care Clinician:

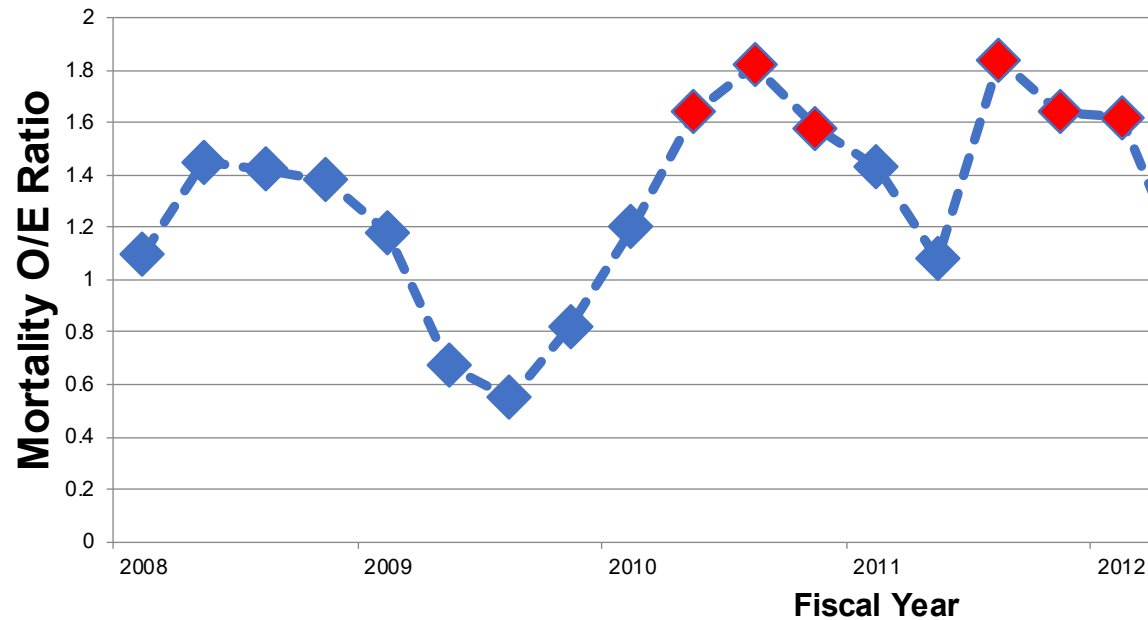
*“Thank you! This particular patient...is really the classic example of why we should be doing the surgical pause program! I owe you and your team so much gratitude for all that you do...I can’t tell you how many times I’ve been so relieved to see you [or your colleagues] when I go in for one of those really heart-wrenching discussions and we are still able to leave with...peace of mind and clarity of what their goals are, how we can best support them, and understand what’s really important to them...I’m so proud and grateful to be part of such an amazing team.”*



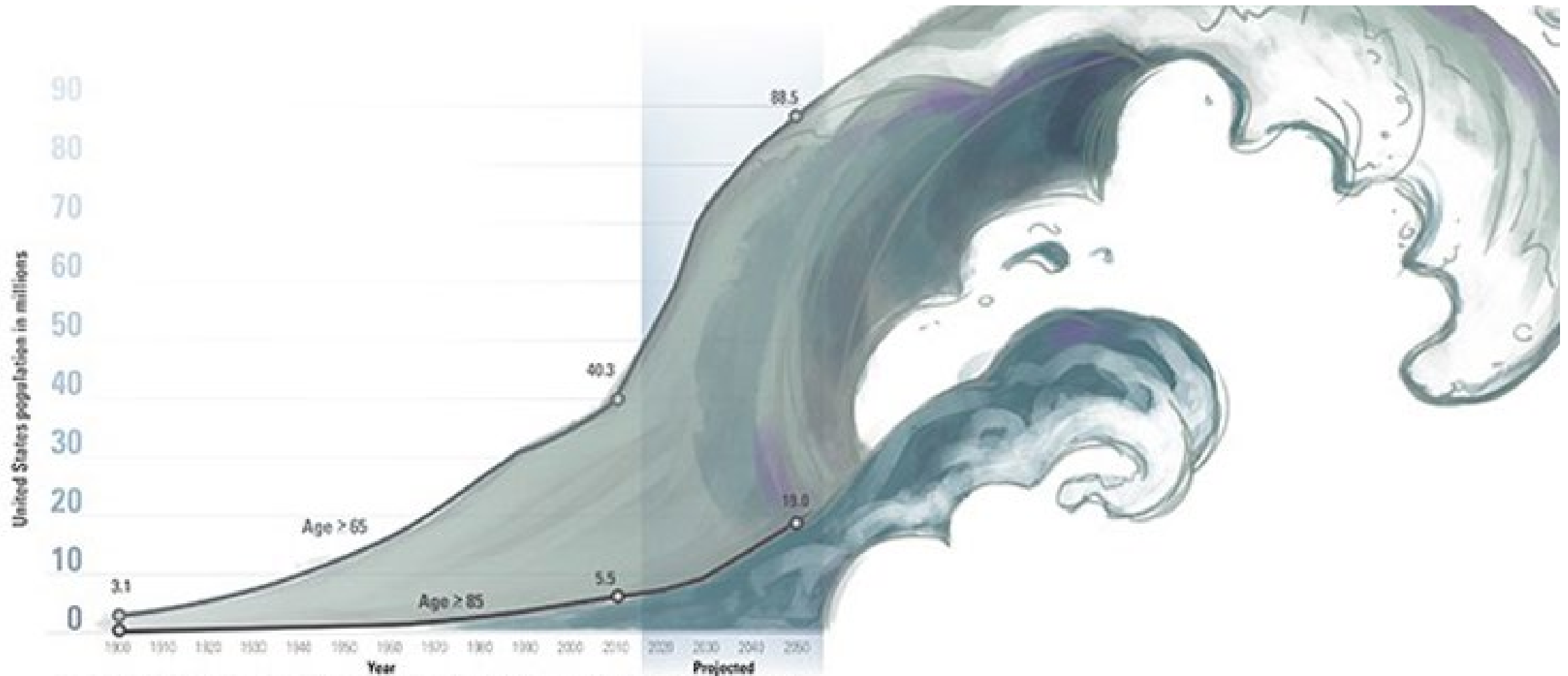
# Origin Story & Conceptual Framework

## Omaha: We've got a problem

Observed/Expected Mortality at the Omaha VAMC  
(Red points are > 90% Confidence Interval)



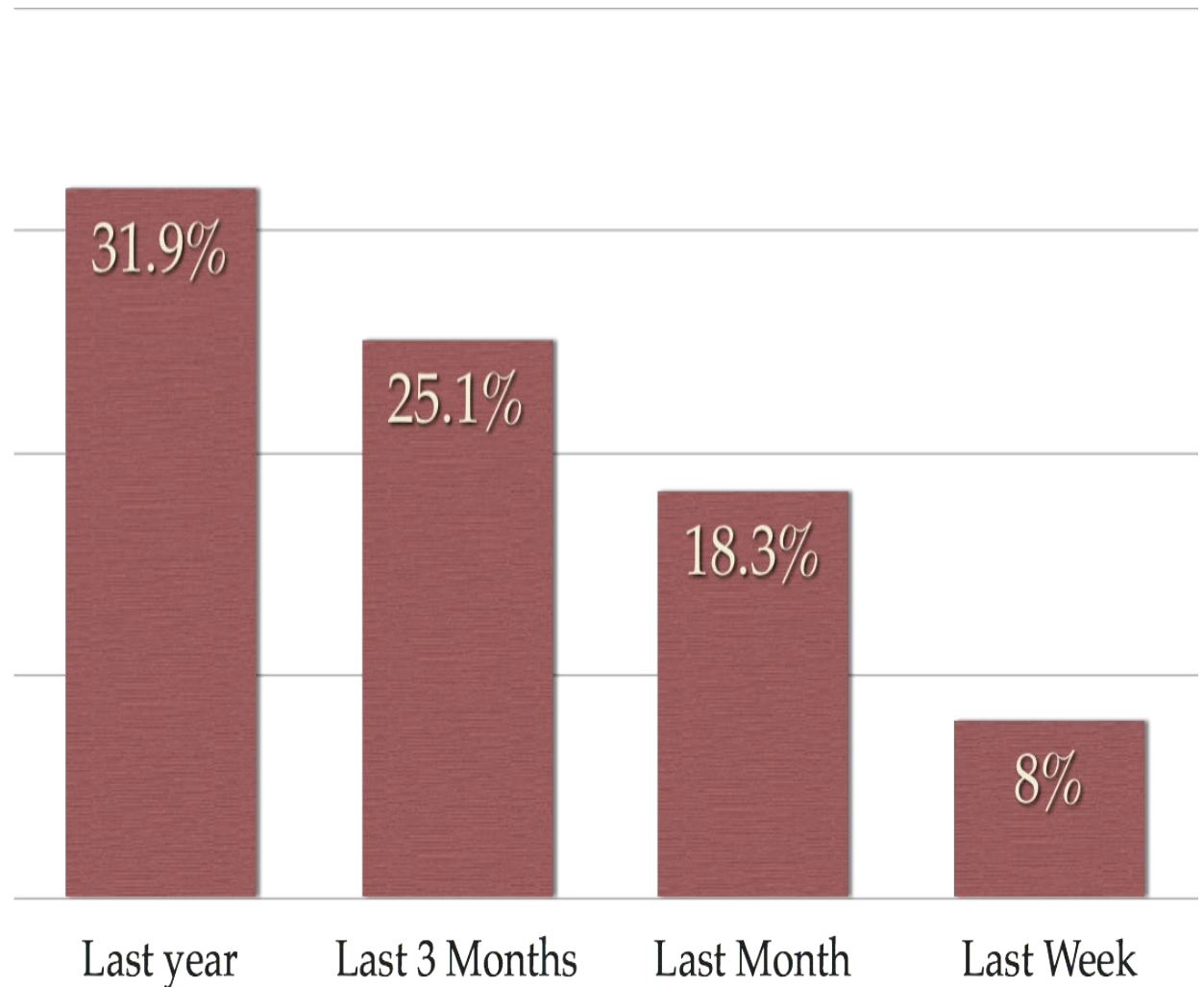
# Silver Tsunami



Source: Cohn Associates 2012 Key Indicators of Wellbeing, Washington, D.C. Federal Interagency Forum on Aging-Related Statistics, 2012



- 1/3 of patients had surgical interventions in last year of life
  - Majority occurred in month before death
- Surgery associated with
  - More admissions
  - Longer LOS
  - Greater ICU LOS



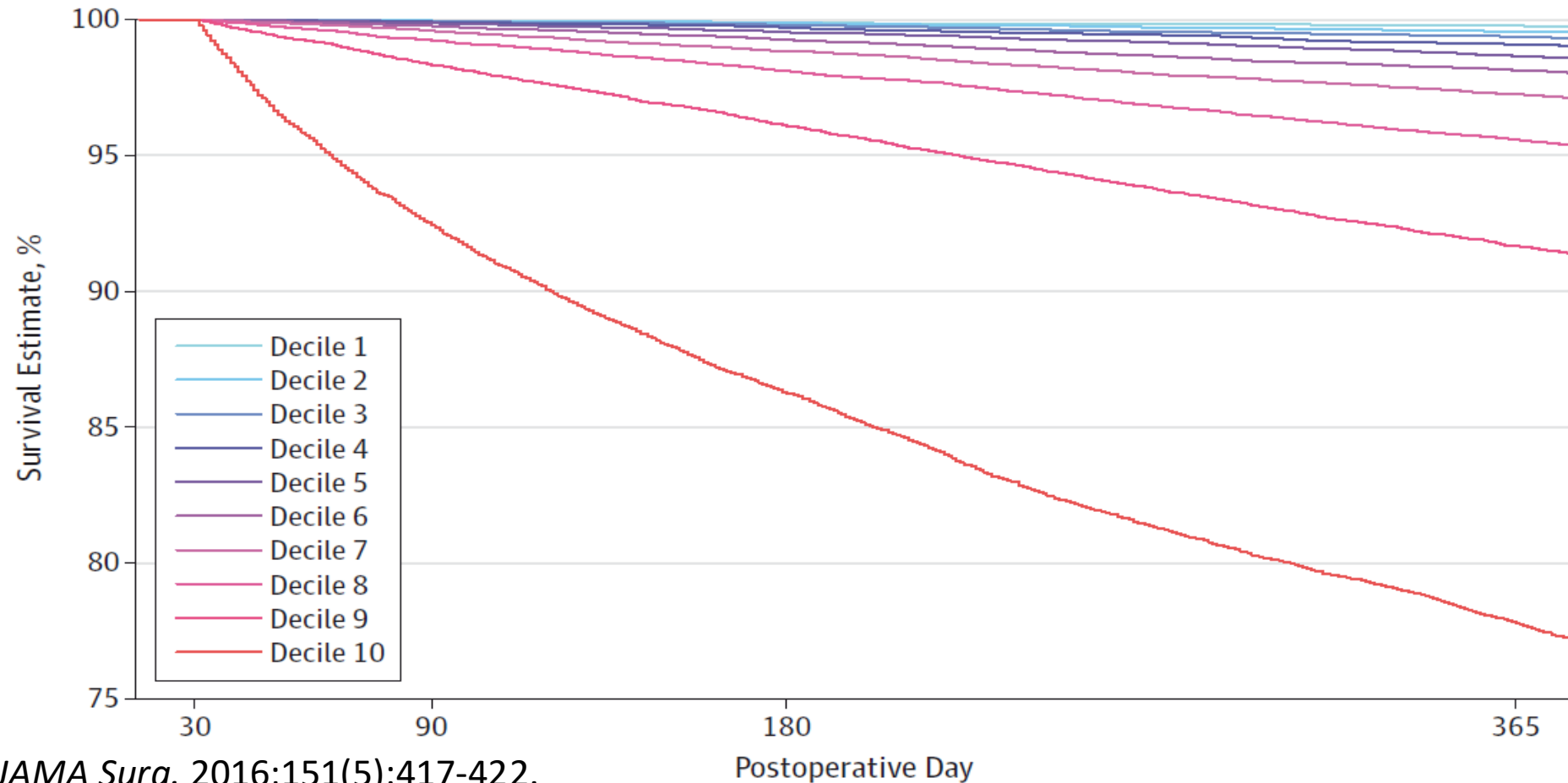
Kwok AC. *Lancet*. 2011;378(9800):1408-1413.





# We know some patients don't do well

Figure 2. Survival Curves for Risk Deciles, Excluding Patient Mortalities Prior to Postoperative Day 30



Smith T, et al., *JAMA Surg.* 2016;151(5):417-422.

Postoperative Day



# Now how accurate is your eyeball?

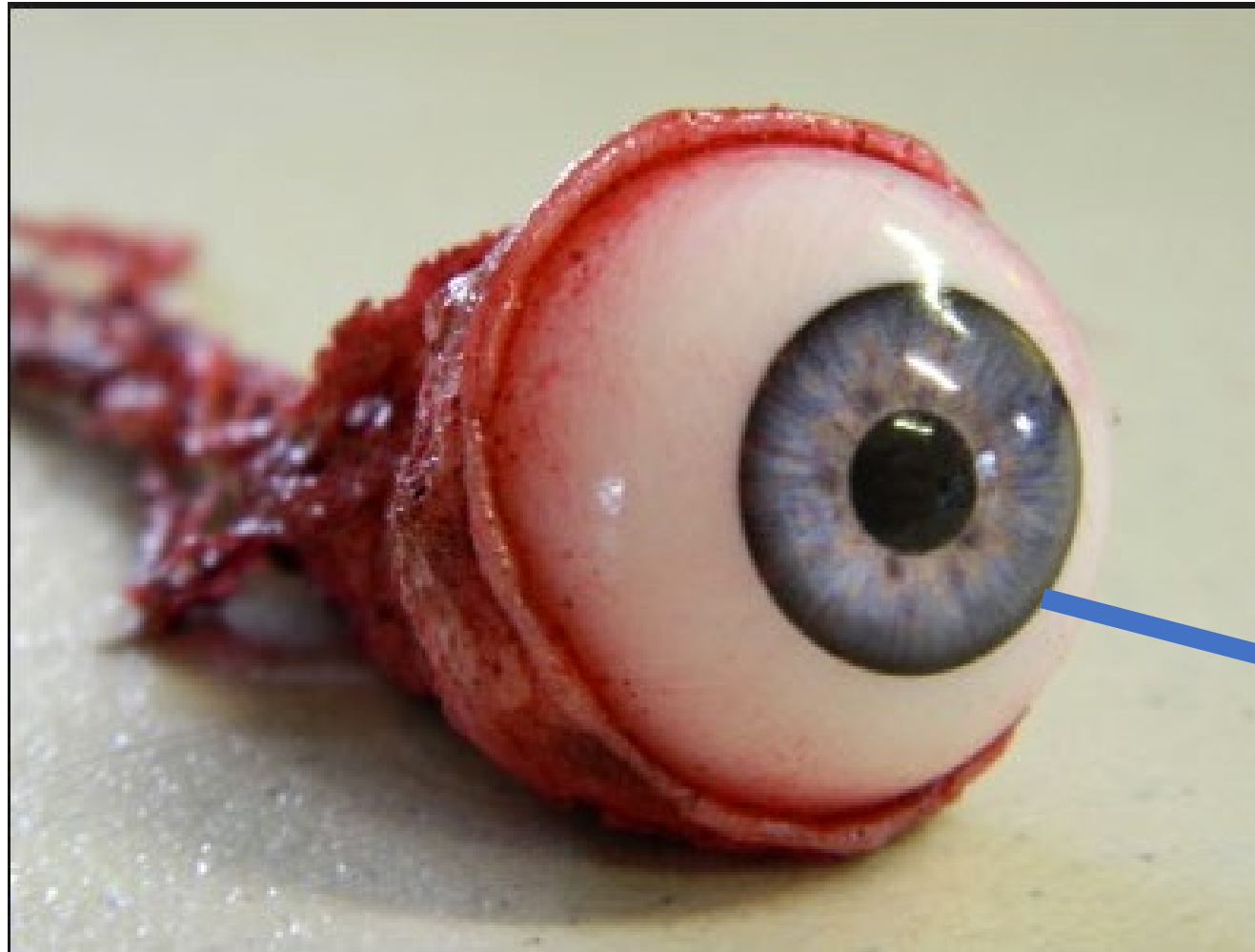
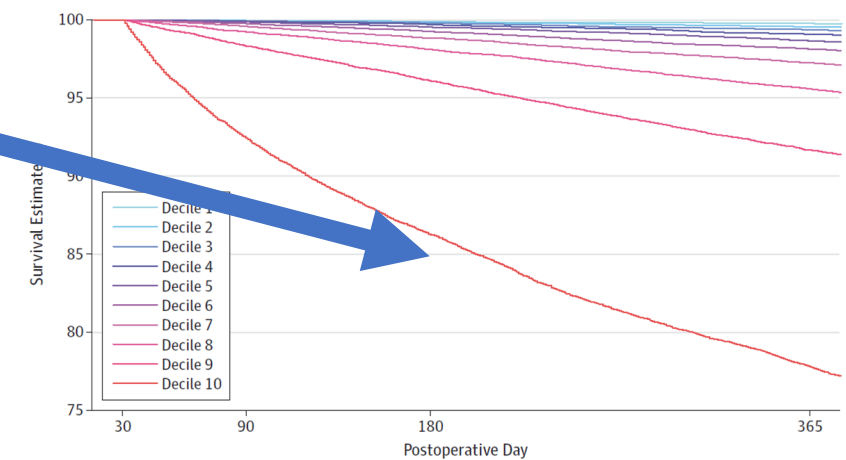
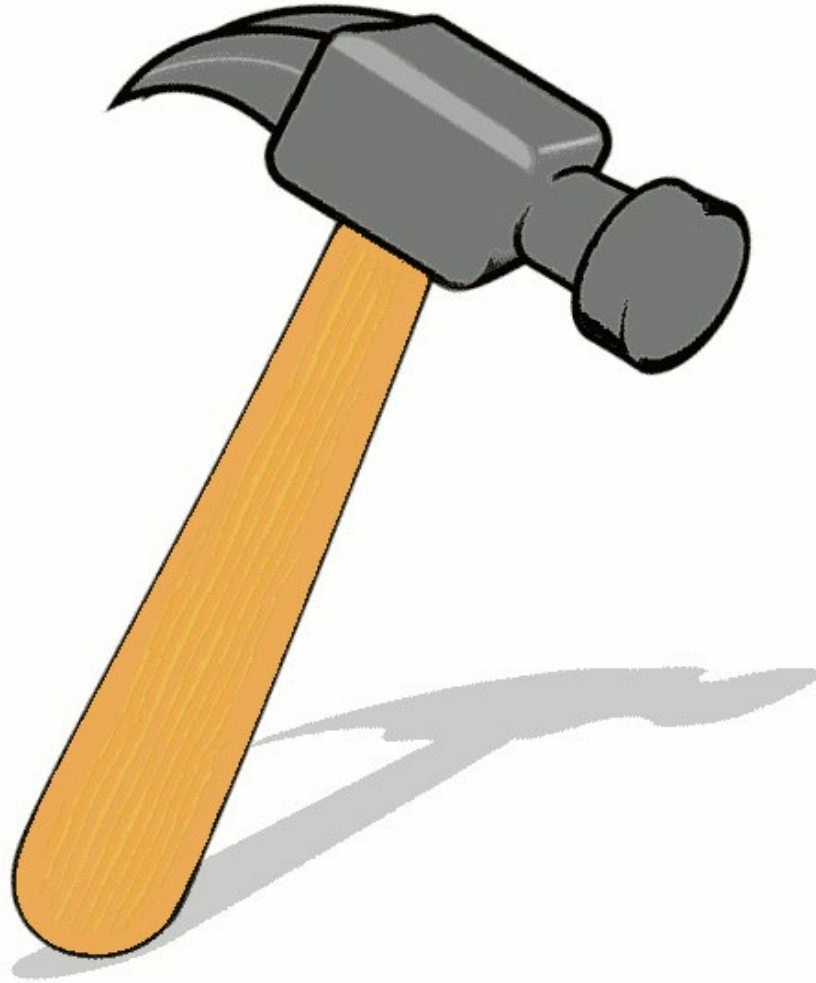


Figure 2. Survival Curves for Risk Deciles, Excluding Patient Mortalities Prior to Postoperative Day 30

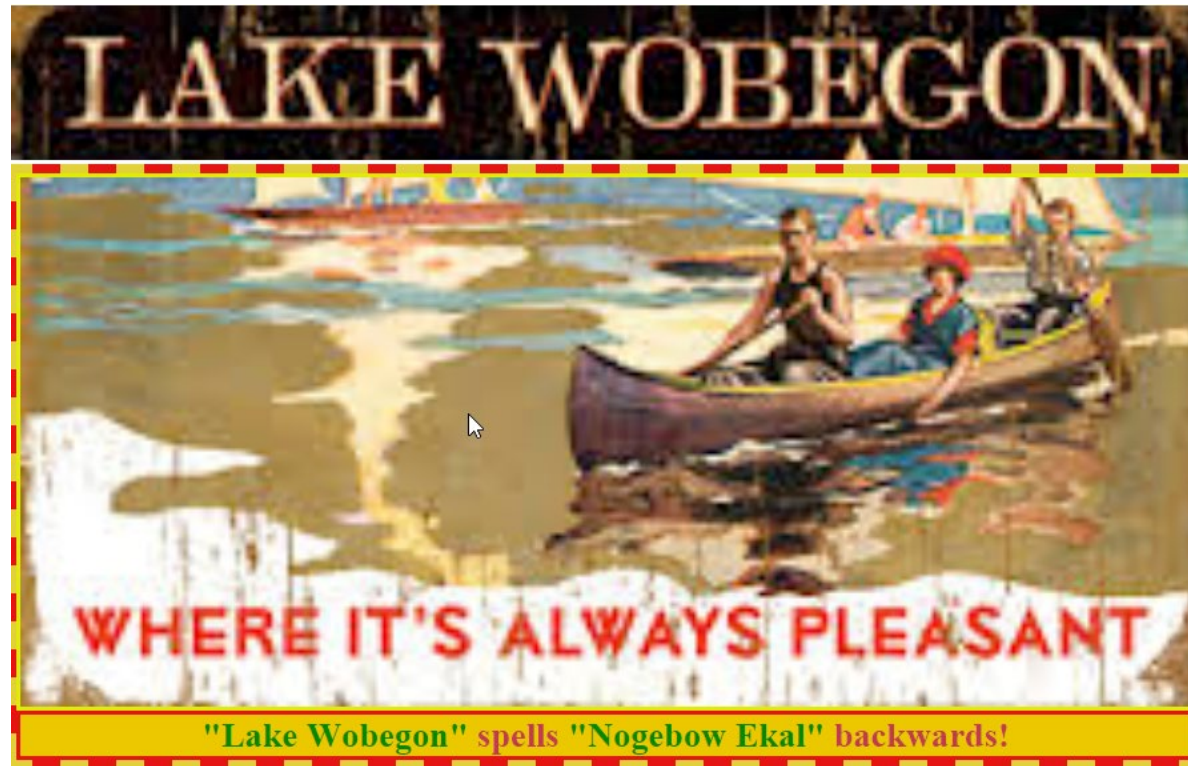


But surgeons are optimists!



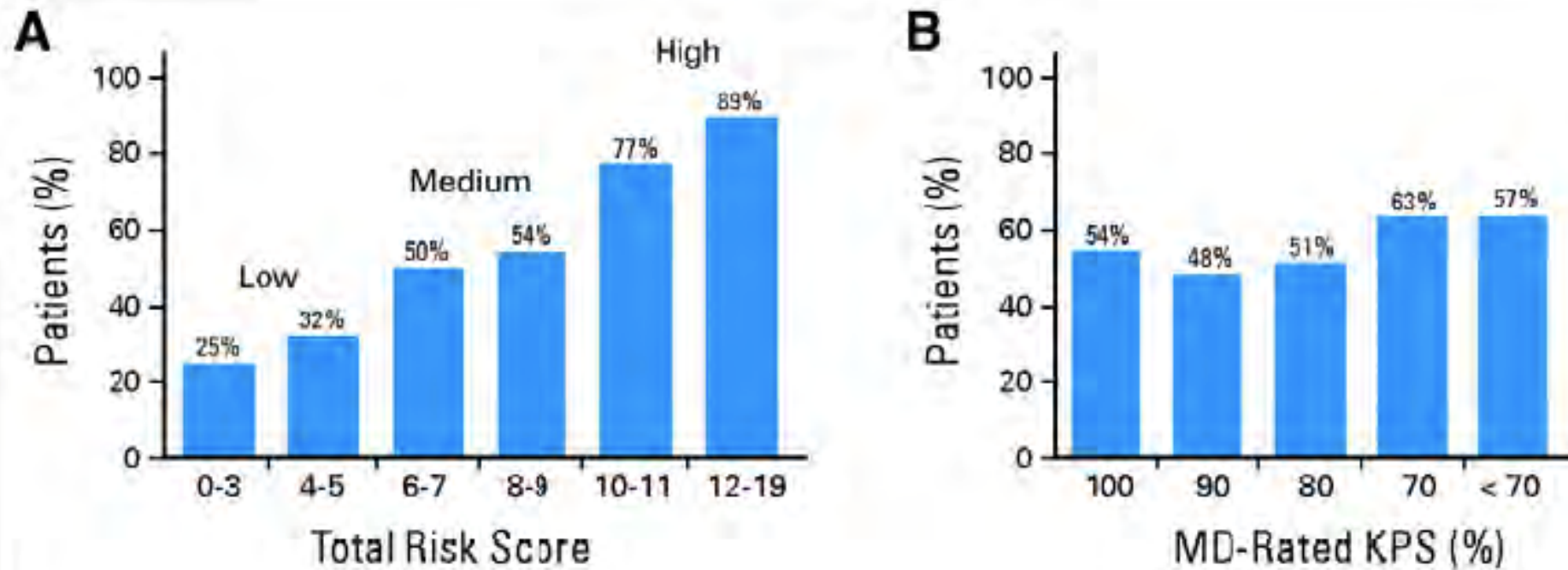
**KEEP  
CALM  
WE  
CAN  
FIX IT**





“Where all the surgeons are strong, all the anesthesiologists are good looking, and all the patients are above average.”

# Risk score versus physician-rated KPS to predict chemotherapy toxicity



Hurria A, JCO 2011;29:3457-3465

©2011 by American Society of Clinical Oncology

JOURNAL OF CLINICAL ONCOLOGY

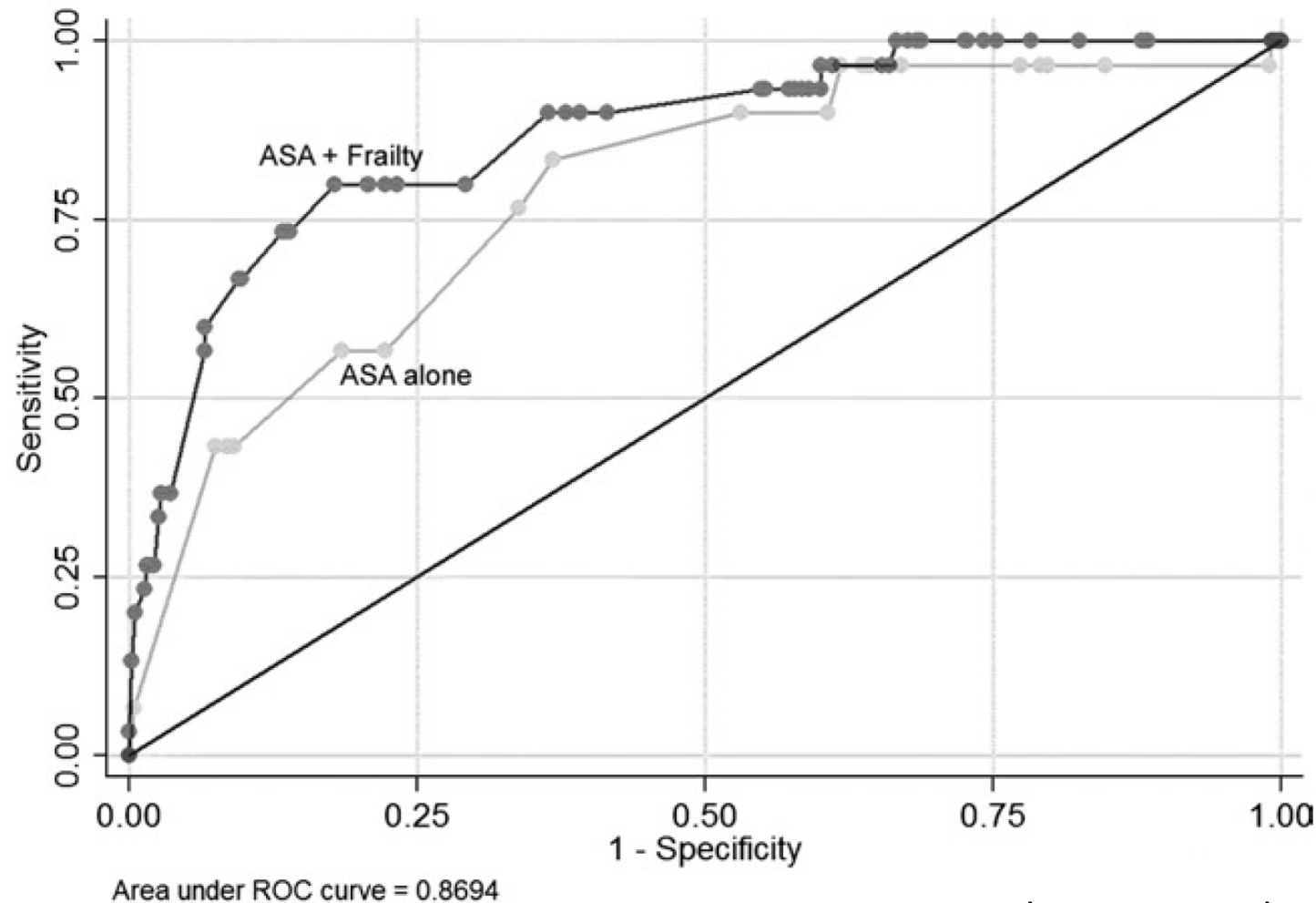


# Systematic, multifactorial, risk assessment

- “Foot of the bed” assessments of cardiac risk not reliable due to disagreement between clinicians.
  - Hii TB, et al. *Heart Lung Circ.* 2015;24(6):551-556.
- Multifactorial tools are superior to single-item assessments.
  - Afilalo J, et al. *Circulation.* 2017;135(21):2025-2027
  - Hurria A, et al. *J Clin Oncol.* 2011;29(25):3457-3465.
  - Fried L, et al. *The Journals of Gerontology: Series A*, 2004; 59(3):M255–M263
- Vascular Surgeons effectively estimate mortality, but underestimate complications and long-term disability compared to multifactorial tool.
  - George EL, et al. *J Surg Res.* 2020;248:38-44.
- Modified Geriatric Assessment (mGA) effectively identifies frailty among patients that oncologists considered non frail (e.g. ↑ sensitivity).
  - Kirkhus, et al. *Br J Cancer* 117, 470–477 (2017)



# Frailty is the Best Predictor of Postoperative Outcomes....



- Mortality
- Complications
- Failure to Rescue
- Length of Stay
- Readmission
- Loss of Independence

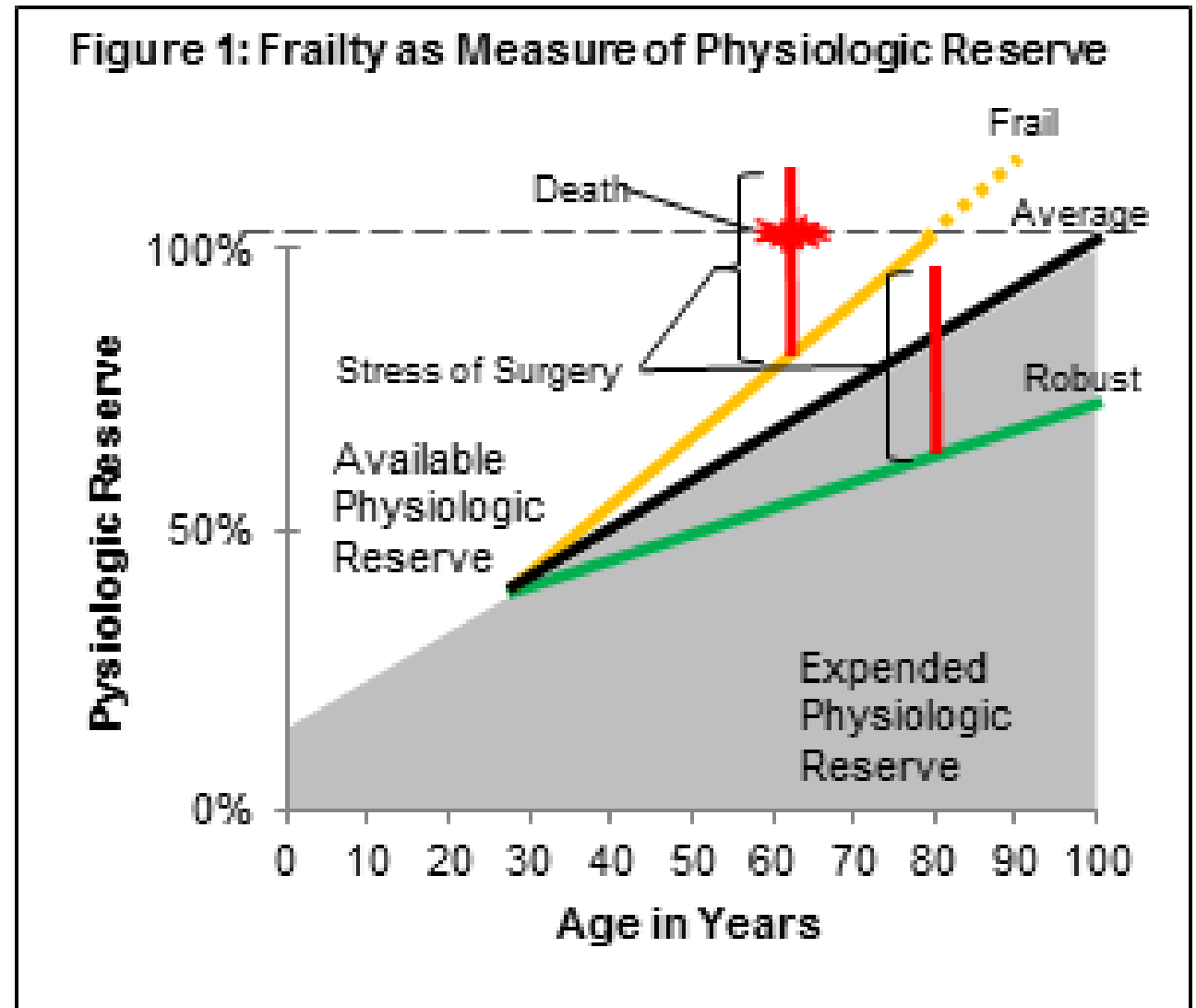
Makary MA, et al., *J Am Coll Surg.* 2010;210(6):901-908



# Why Frailty?

A clinical syndrome of decreased physiological reserve

- process whereby small deficits accumulate in multiple adaptive systems, any one of which might be clinically insignificant, but together they produce significant vulnerability to stress that can lead to catastrophic decompensation.
- multiple causes and contributors
- characterized by diminished strength, endurance, nutrition, and cognitive capacity
- More than just age or the sum of comorbidities (not captured by standard risk stratification tools like ASA or Eagle criteria).

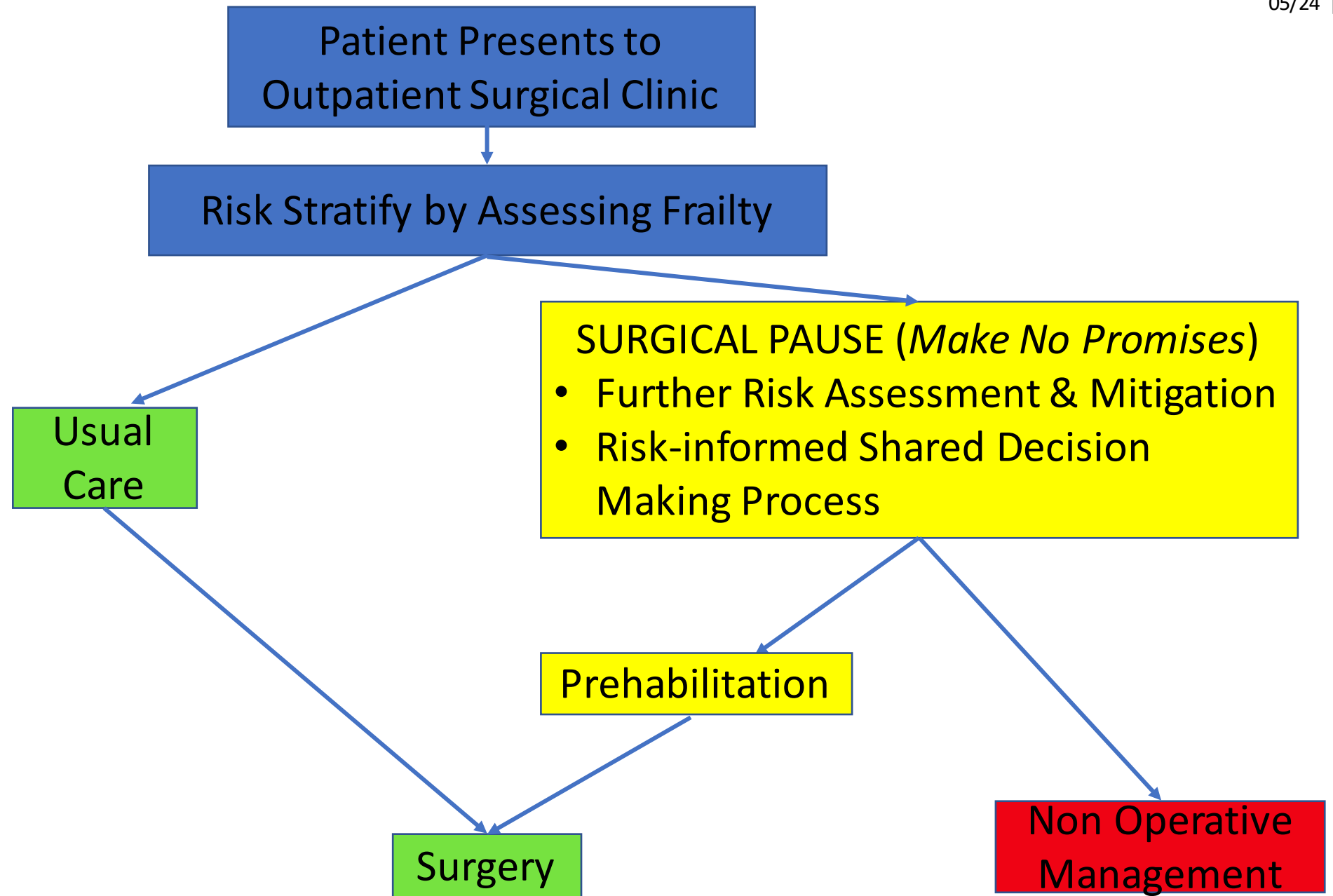
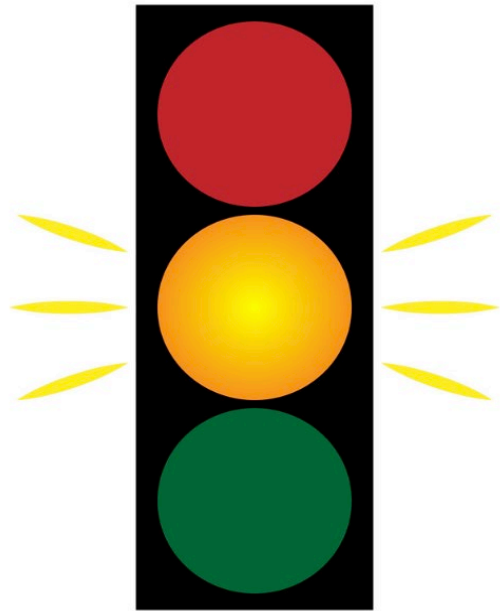


Robert, C. M., & Sean, M. B. (2014). *Physiological Reserve and Frailty in Critical Illness*. Oxford, UK: Oxford University Press.





# The Surgical Pause



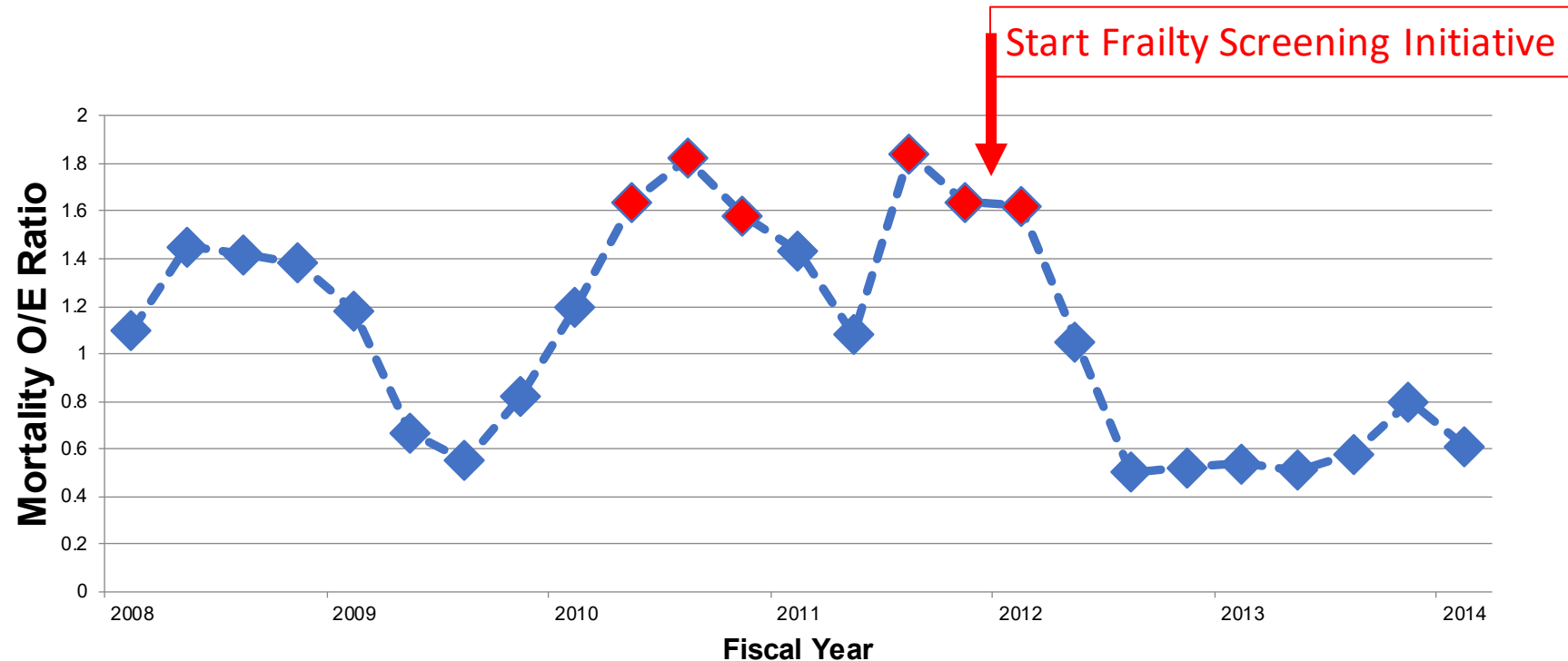
# So what happened in Omaha?

- Modified an existing frailty measure (MMRI) for use in surgery
  - RISK ANALYSIS INDEX (RAI)
  - Made it mandatory to book OR time
- Conducted weekly review of all surgeries scheduled on frail patients.
  - Spoke with surgeon to review operative decision making.
  - Spoke with anesthesiologists to optimize anesthetic plan.
  - Spoke with intensivists to encourage post-operative rescue from near certain complications.
  - Aggressive referral for preoperative palliative care to clarify goals.



# Outcomes: Decreased Mortality

Observed/Expected Mortality at the Omaha VAMC  
(Red points are  $> 90\%$  Confidence Interval)



# Omaha Frailty Screening Initiative (FSI)

- 180-day mortality among frail fell from **23.9%** to **7.7%** ( $p < 0.001$ )
- 3-fold survival advantage after FSI implementation (OR 2.87 [95%CI 1.98-4.16]), controlling for:
  - Age
  - Frailty
  - Predicted mortality based on VA risk-adjustment

Hall, DE. et al. *JAMA Surgery* 152(3) doi:10.1001/jamasurg.2016.4202 (Nov 23).



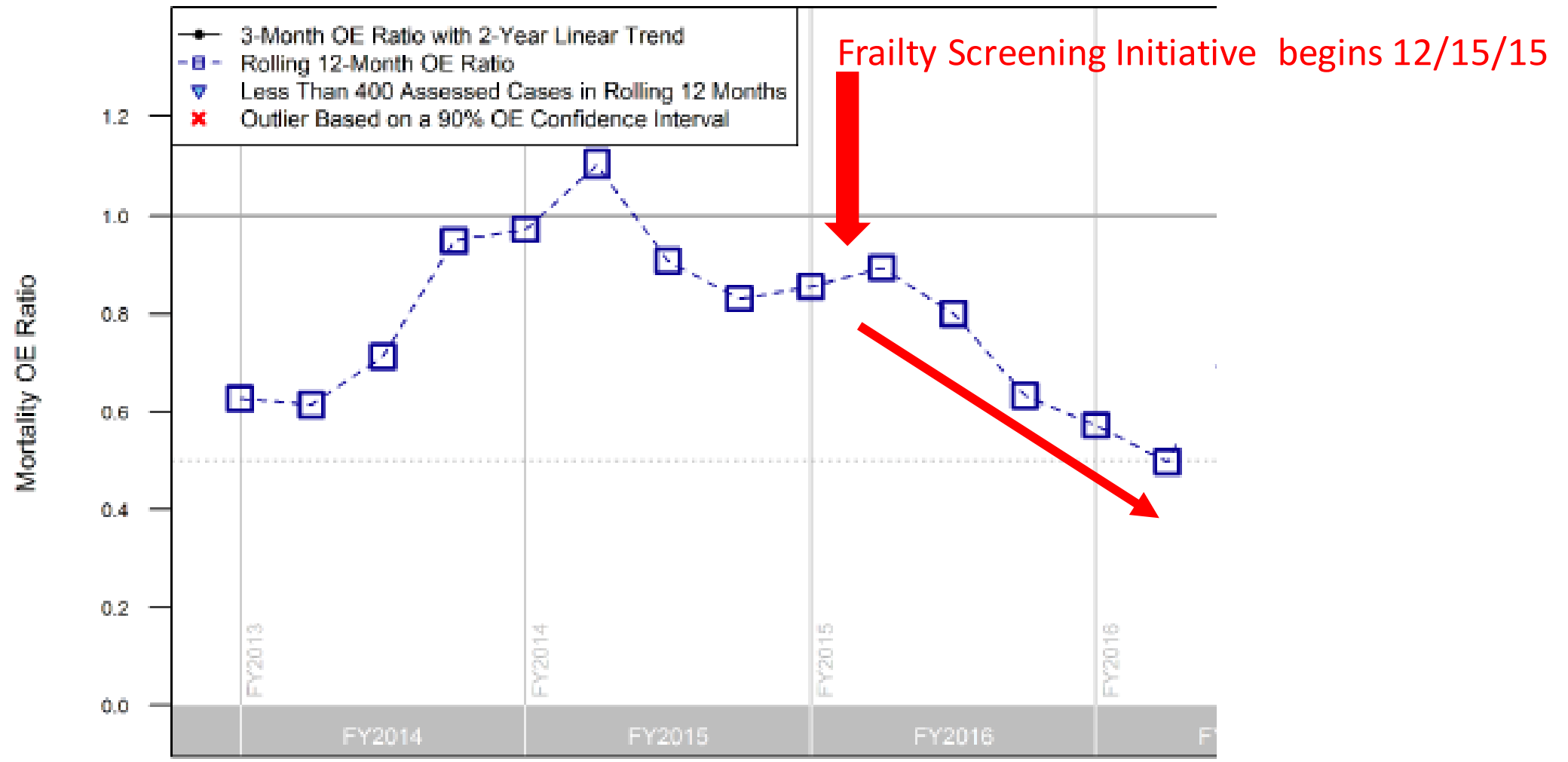
# FSI Changed Perioperative Palliative Care

- Changed Pattern of Perioperative Palliative Care Care Consult
  - *Rate increased* from 32 to 56 per year.
  - More often *ordered by a surgeon* (56.7% vs 24.4%;  $p < 0.05$ ).
  - More often *ordered before surgery* (52.0% vs 26.3%;  $p < 0.05$ ).
- Controlling for age, frailty and *whether the patient had surgery*, Preoperative Palliative Care Consult reduced risk of death when:
  - ordered by a surgeon (AOR 0.50[95% CI 0.30-0.83],  $p=0.007$ ).
  - ordered before surgery (AOR 0.52[95% CI 0.30-0.90],  $p=0.02$ ).
  - ordered by surgeon before surgery (AOR 0.27[95% CI 0.11-0.68],  $p=0.006$ )

Ernst, K. F., et al(2014). *JAMA Surg*, 149(11), 1121-1126.

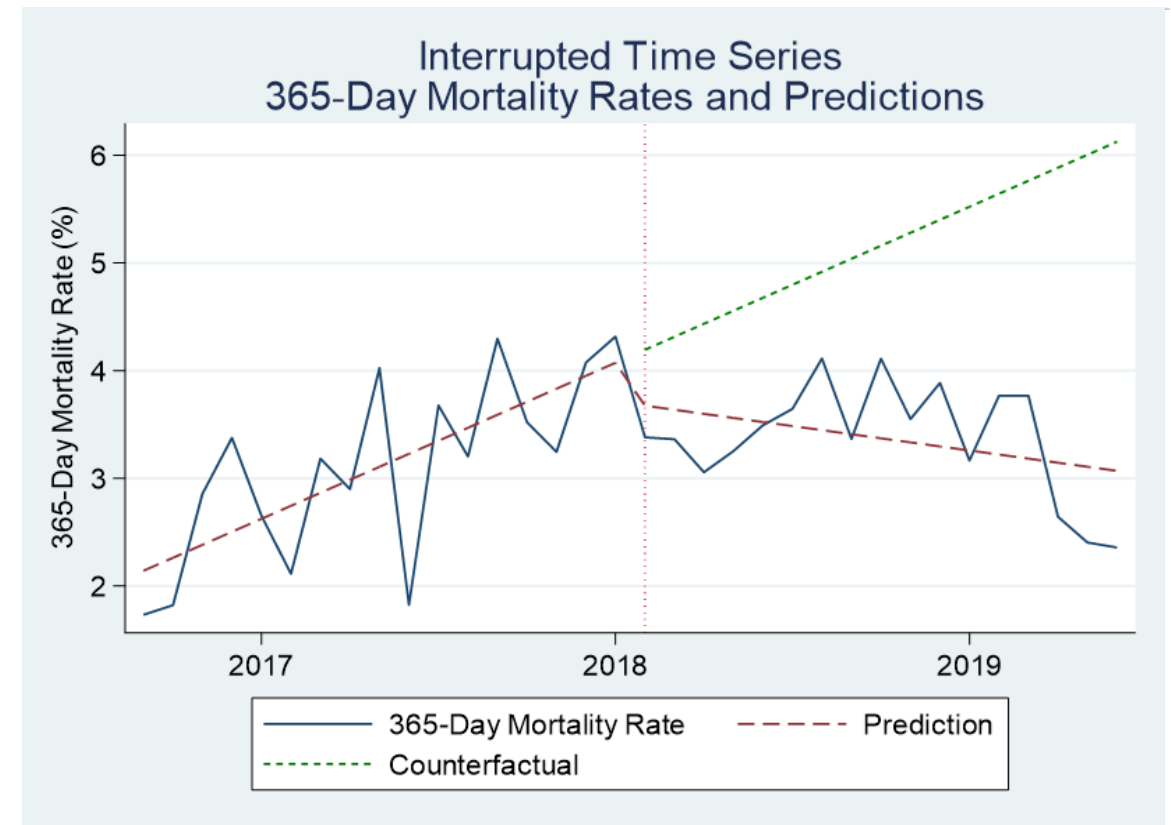


# Decreased Mortality at VA Pittsburgh



# Decreased Mortality at UPMC

- Interrupted Time Sequence Analysis
  - with segmented regression.
- 50,463 patients July 2016-May 2019
  - 22,722 before BPA Implementation
  - 27,741 after BPA Implementation
- Overall 365-day mortality reduction
  - aOR 0.82 [95% CI 0.72-0.92 ]
  - Age, sex, race, ethnicity, BMI, Frailty, RVU, OSS
- Survival advantage greatest among frail.
  - 4.2% (95% CI 2.4-6.0) reduction in adjusted mortality
    - Cut adjusted mortality from 20.2% to 16.0%
- Replication of original findings from Omaha
  - Even more robust confounding control

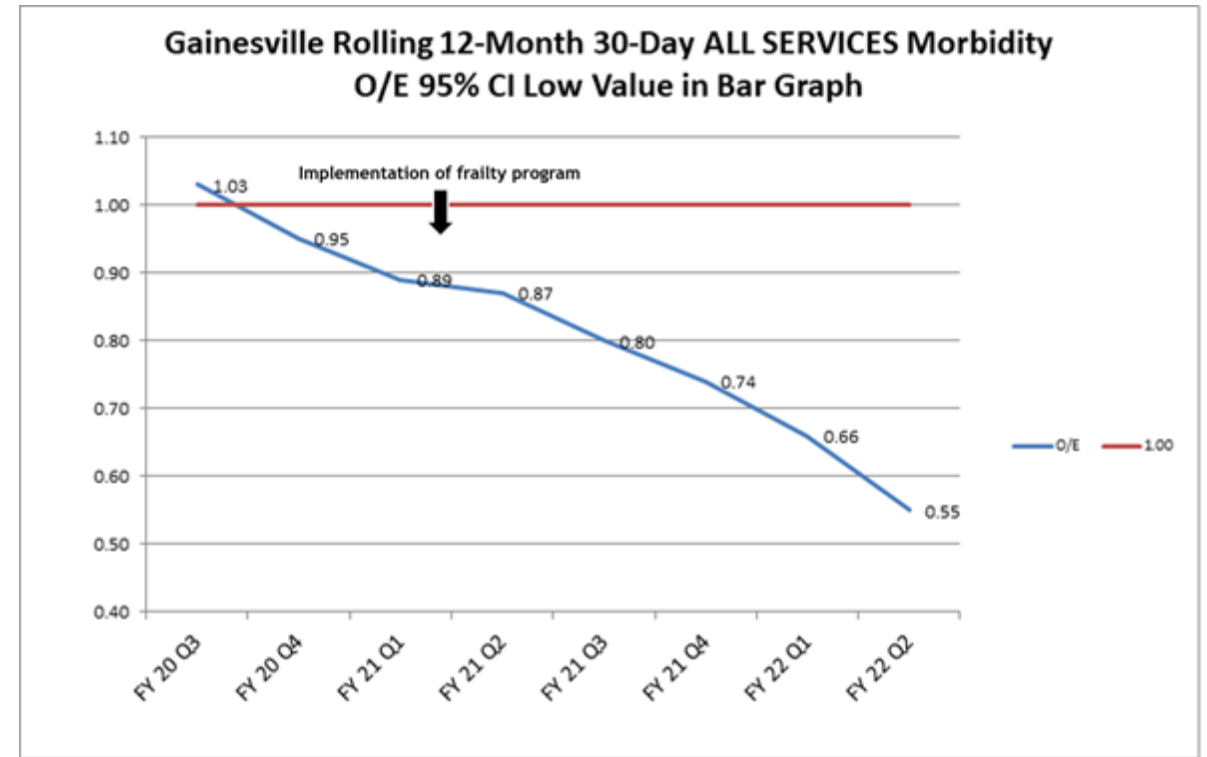
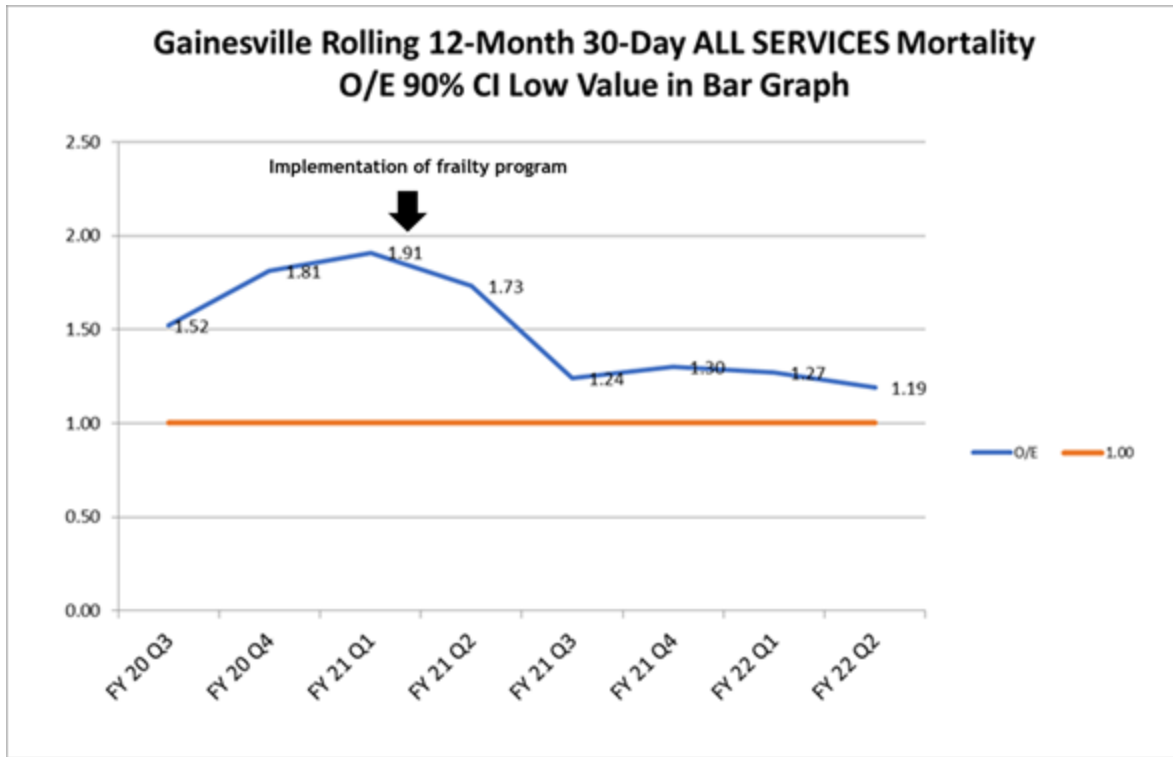


Varley PR, et al Routine Preoperative Frailty Assessment is Associated with a Decrease in One-year Postoperative Mortality. *JAMA Surgery*. 2023

<https://doi.org/10.1001/jamasurg.2022.8341>



# Decreased Mortality & Morbidity at VA Gainesville





# Bottom Line: It works

- High quality, longitudinal data with robust confounding control
- Replicated in multiple sites



# VHA SHARK TANK COMPETITION



Congratulations to the 2019 VHA  
Shark Tank Competition Finalists!



Diffusion of  
**EXCELLENCE**  
Disseminating Practices Across VHA



Montefiore

UPMC  
LIFE CHANGING MEDICINE

UCLA Health

Jonsson Comprehensive  
Cancer Center



Maine Medical Center  
MaineHealth

云南中医药大学

Yunnan University of Chinese Medicine

Ochsner Health

WakeMed

Advent Health

NM THE UNIVERSITY OF  
NEW MEXICO

Epic

VCU Health

Virtua  
Health



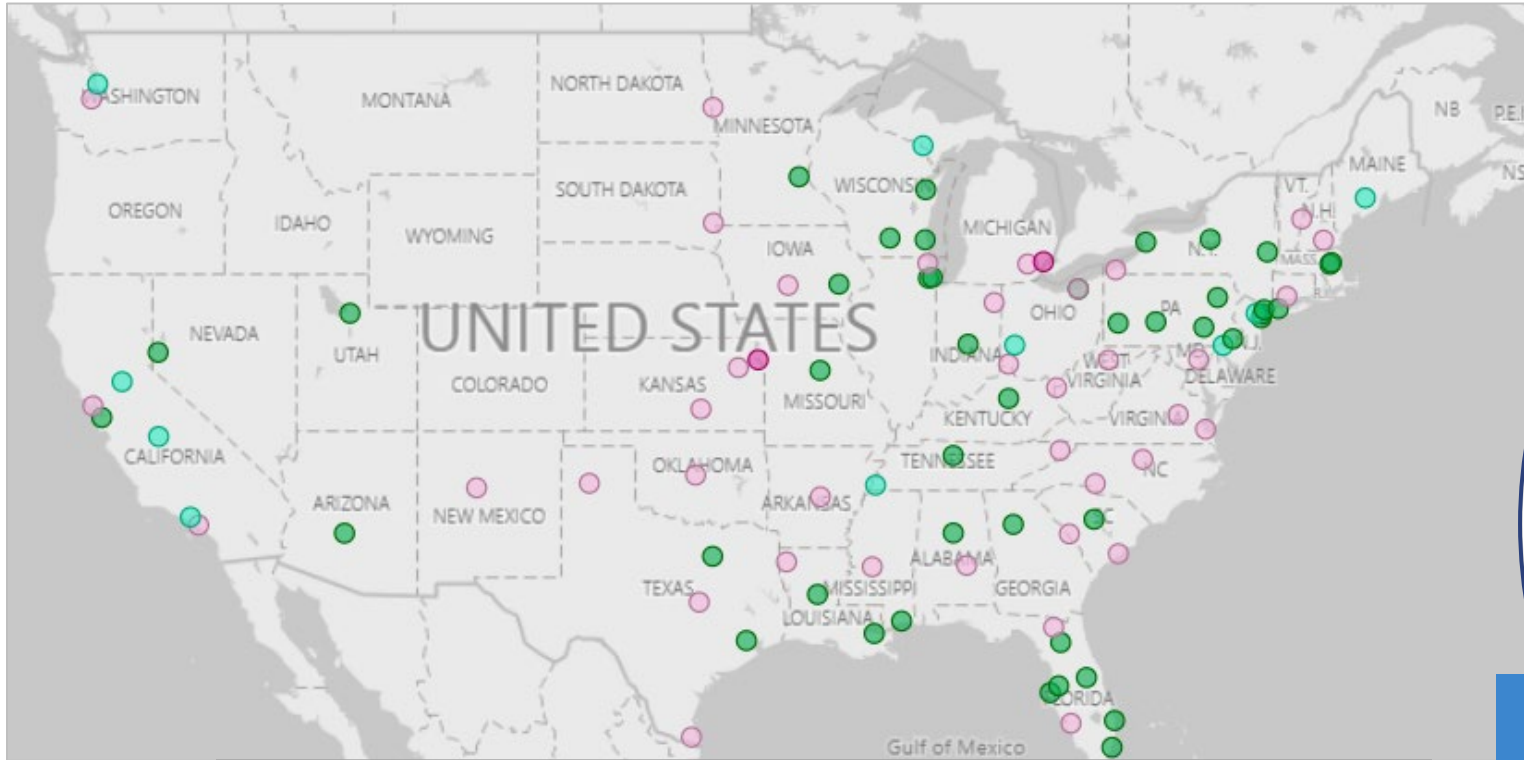
MSQC  
MICHIGAN SURGICAL QUALITY  
COLLABORATIVE

ORACLE Cerner

MPOG  
MULTICENTER PERIOPERATIVE  
OUTCOMES GROUP

IPO PORTO  
INSTITUTO PORTUGUÊS DE  
ONCOLOGIA DO PORTO FG, EPE

# Surgical Pause adopted by VHA National Surgery Office



50 Sites Actively Utilizing RAI

35 Sites Exploring Adoption of RAI

Over 135k Unique Veterans Evaluated

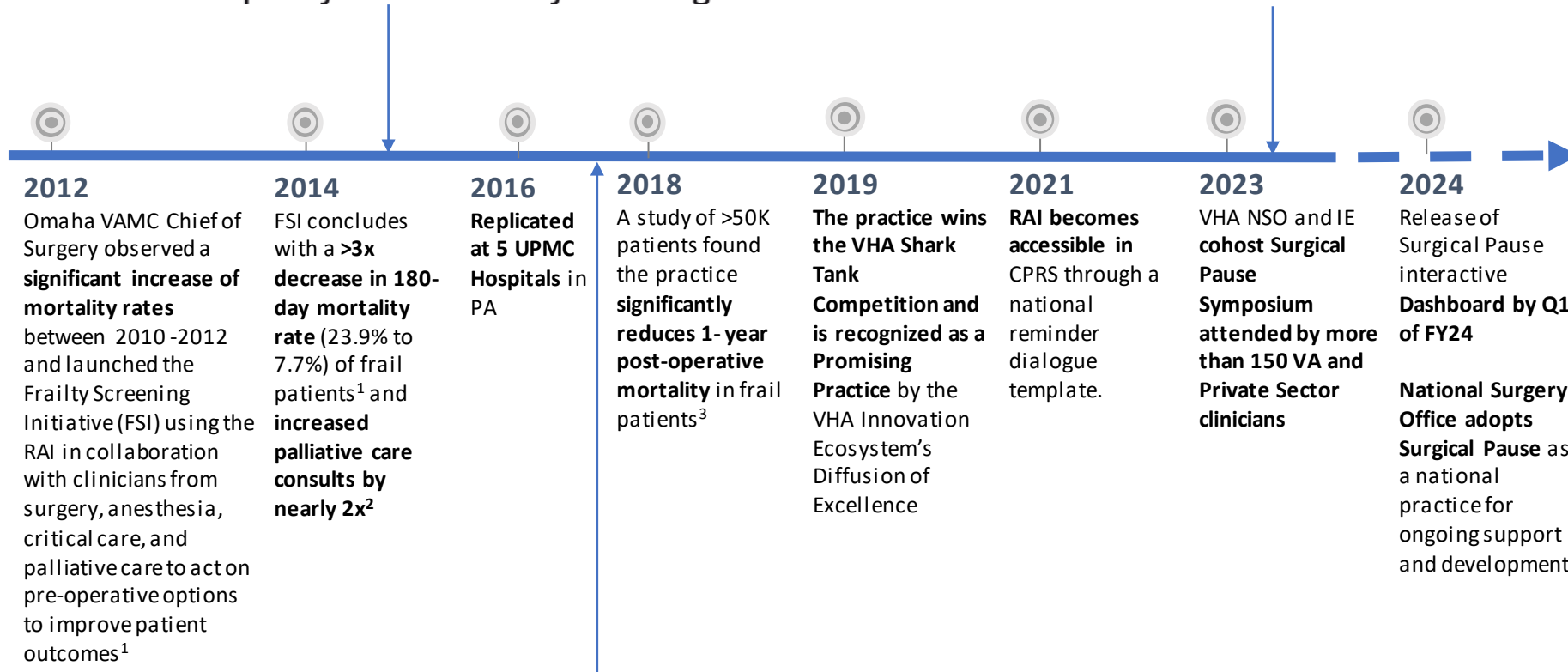
Over 24k Unique Veterans with RAI  $\geq$  37 triggering a "Pause"



# Path to National Implementation

JAMA Surgery | **Original Investigation** | ASSOCIATION OF VA SURGEONS  
Surgical Palliative Care Consultations Over Time  
in Relationship to Systemwide Frailty Screening

JAMA Surgery | **Original Investigation** | ASSOCIATION OF VA SURGEONS  
Association of Routine Preoperative Frailty Assessment  
With 1-Year Postoperative Mortality



JAMA Surgery | **Original Investigation**

Association of a Frailty Screening Initiative With  
Postoperative Survival at 30, 180, and 365 Days



JOHN M. EISENBERG

2023

PATIENT SAFETY AND  
QUALITY AWARDS

National Award Winner

**Veterans Health  
Administration**



**NATIONAL  
QUALITY FORUM**

Driving measurable health  
improvements together



**The Joint Commission**



# Caveat: No randomized trials

- But 2 are pending:
  - SAGE QUERI:
    - Routine, frailty-triggered preoperative goal clarification
    - VA Pittsburgh, Philadelphia, Wilkes-Barre, Lebanon and Wilmington, DE
  - PAUSE Trial (HSR IIR)
    - Routine, frailty-triggered multidisciplinary review & optimization
    - VA Palo Alto, VA Nashville, VA Houston
- ....More Later....



# Measuring Frailty





# No consensus regarding definition of frailty

- Consensus on 6 domains
  - Physical Performance
  - Gait Speed
  - Mobility
  - Nutritional Status
  - Mental Health
  - Cognition
- Proliferation of available measures

Rodriguez-Manas L,. *The journals of gerontology Series A, Biological sciences and medical sciences*. Jan 2013;68(1):62-7. 10.1093/gerona/gls119



# Frailty Conceptualized

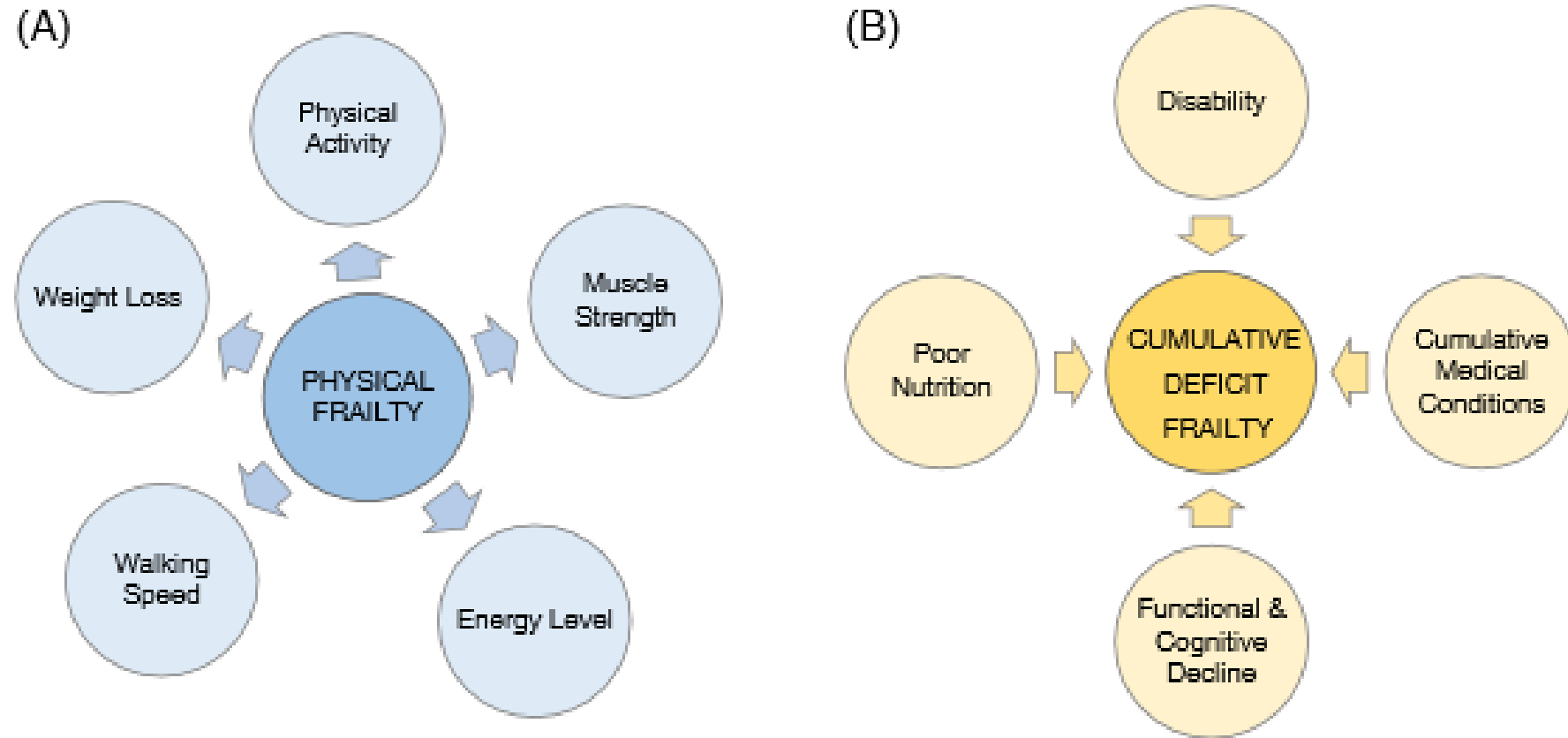


Figure 1. Representation of conceptual framework of two major theories on frailty. (A) Physical frailty, also termed phenotypic or syndromic frailty, is hypothesized to have a specific age-related biological basis that drives the appearance of signs and symptoms (outward pointing arrows). (B) Cumulative deficit frailty is hypothesized to be driven by cumulative nonspecific health, functional, psychological, and cognitive deficits (inward pointing arrows). Both concepts of frailty predict vulnerability to adverse outcomes and have led to multiple derivative frailty detection tools.

Walston J, et al. *J Am Geriatr Soc.* 2019;67(8):1559-1564.

# Which Frailty Index is Best?

- THE ONE YOU HAVE

- At the bedside & ready to inform decision making
- High quality and conceptually sound

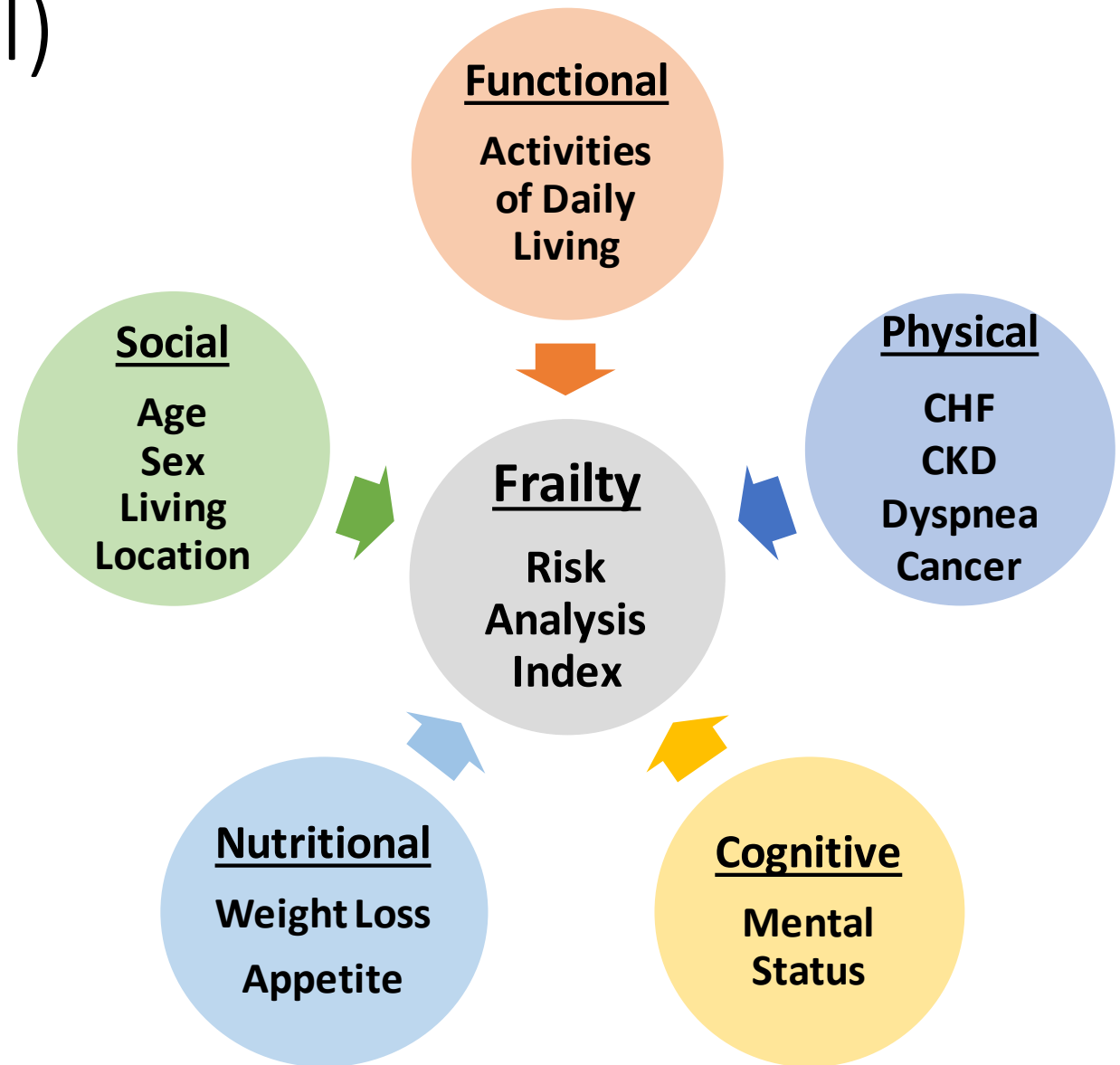
- Introduction to Risk Analysis Index (RAI)

- Conceptually Sound—Deficit Accumulation Model
- Thoroughly Validated
- Proven feasible at the bedside in median 30 seconds
- Available in a suite of tools that operationalize a consistent model
  - Surgical Registry Data (VASQIP/ACS NSQIP)
  - Patient-facing Survey
  - ICD-10 Codes



# Risk Analysis Index (RAI)

- 14 Variables; weighted scale
- Grouped into 4 categories with increasing frailty severity
  - Robust: 0-29
  - Average: 30-36
  - Frail: 37-44
  - Very Frail:  $\geq 45$
- Most thoroughly validated measure of *surgical* frailty, and only shown feasible for point-of-care testing<sup>1</sup>



<sup>1</sup>Arya et al. *Ann Surgery* 2019; Shah, et al, *J Am Geriatrics* 2020; Varley, et al, *Ann Surgery* 2020

# Frailty Screening

## RAI Survey

Instructions: Please answer the following questions to the best of your ability. Your advocate or companion can help you complete this survey.

1. Do you live in place other than your own home?  No  Yes  
 If Yes, circle where: Nursing Home Skilled Nursing Facility Assisted Living Other \_\_\_\_\_  
 When did you begin living in the place you are currently residing? Less than 3 months 3 months to 1 year  
 Greater than one year ago

2. Any kidney failure, kidney not working well, or seeing a kidney doctor (nephrologist)?  No  Yes  
 If yes circle one: was your nephrologist visit for Kidney stones Other Both Kidney Stones and Other problem

3. Any history of chronic (long-term) congestive heart failure (CHF)?  No  Yes

4. Any shortness of breath when resting?  No  Yes  
 Do you have trouble catching your breath when resting or doing minimal activities, like walking to the bathroom?

5. In the past five years, have you been diagnosed with or treated for cancer?  No  Yes  
 Prompt: Please answer "Yes" if the clinic visit today is to discuss the possibility of cancer surgery.

6. Have you lost weight of 10 pounds or more in the past 3 months without trying?  No  Yes  
 Prompt: Are your clothes feeling looser than in the past?

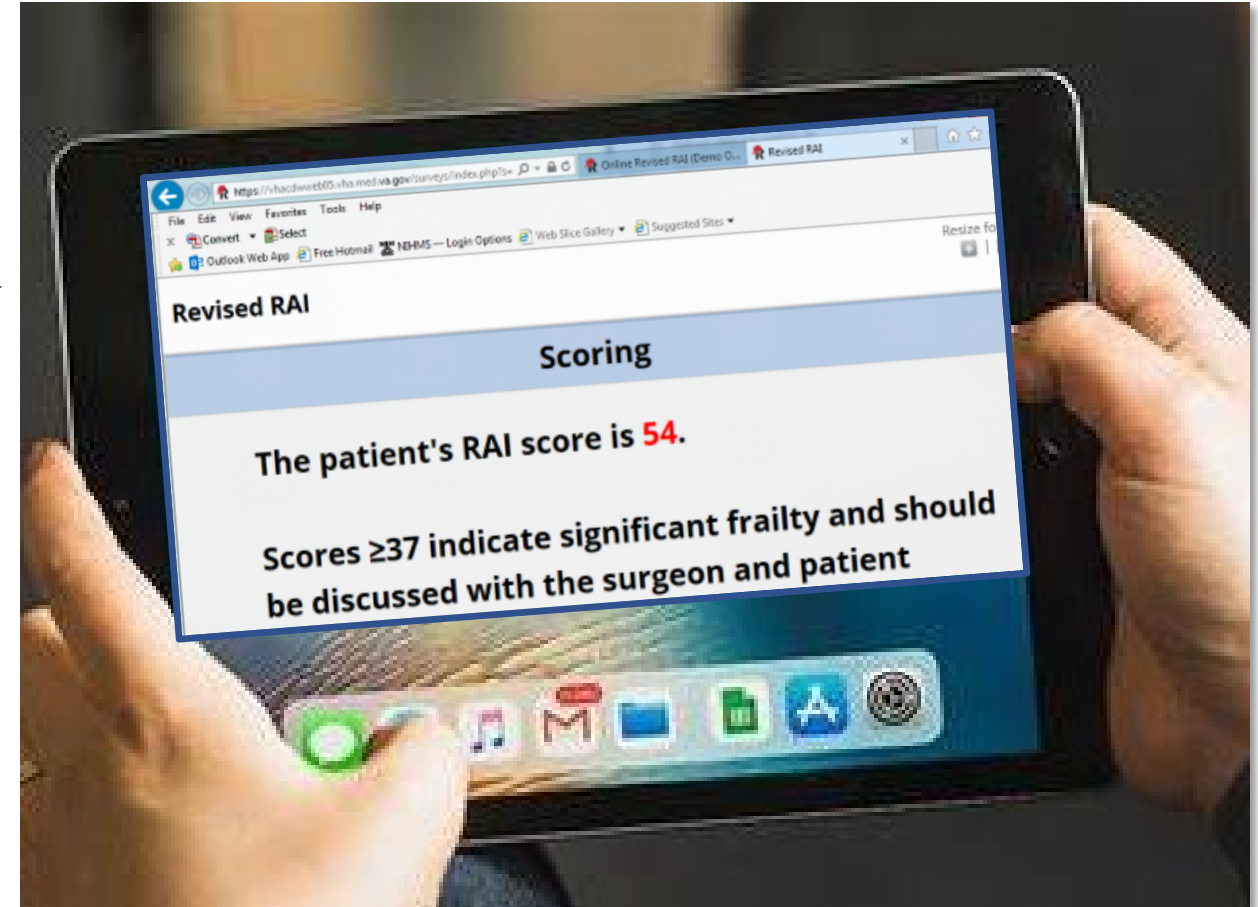
7. Do you have any loss of appetite?  No  Yes  
 Prompt: Do you or your family notice that you are not eating as much?

8. During the last 3 months has it become difficult for you to remember things or organize your thoughts?  No  Yes

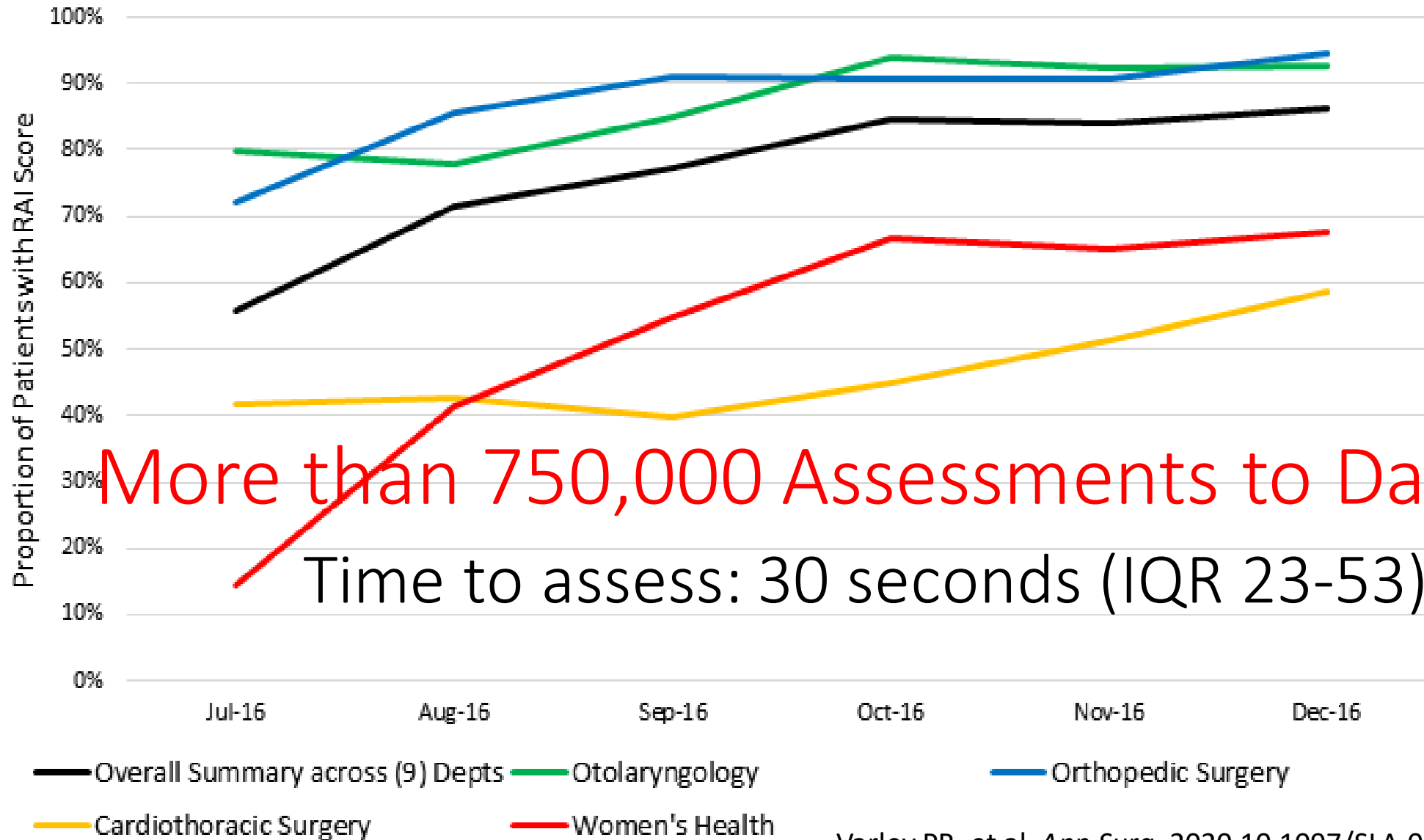
9. Getting around (mobility)	Can get around without any help	Needs help from a cane, walker or scooter	Needs Help from others to get around the house or neighborhood	Needs help getting in or out of a chair	Totally dependent on others to get around
10. Eating	Can plan and prepare own meals	Needs help planning meals	Needs help preparing meals	Needs help eating meals	Totally dependent on others to eat meals
11. Toileting	Can use toilet without help	Needs help getting to or from toilet	Needs help to use toilet paper	Cannot use a standard toilet, with help can use bedpan/urinal	Totally dependent on others for toileting
12. Personal hygiene (bathing, hand washing, changing clothes)	Can shower or bathe without prompt or help	Can shower or bathe without help when prompted	Needs help preparing the tub or shower	Needs some help with some elements of washing	Totally dependent on others to shower or bathe



## Online RAI



# RAI Implementation at UPMC: Feasible



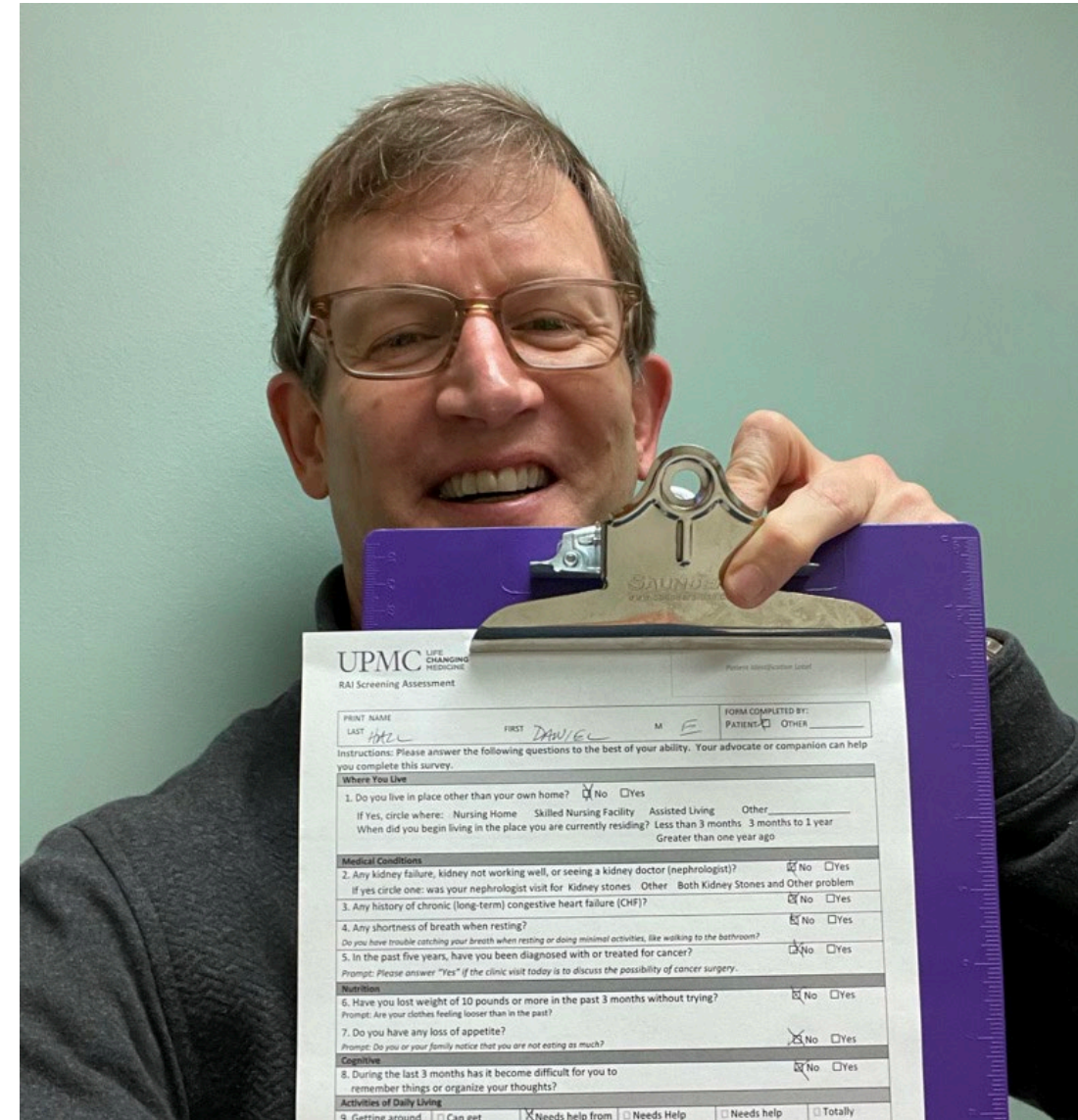
Varley PR, et al *Ann Surg.* 2020 10.1097/SLA.0000000000003808.



Including me!  
5/20/2021

A torn achilles made  
me less mobile than  
the day before...

but not frail yet.



Successfully Integrated into  
multiple EHR platforms

Epic

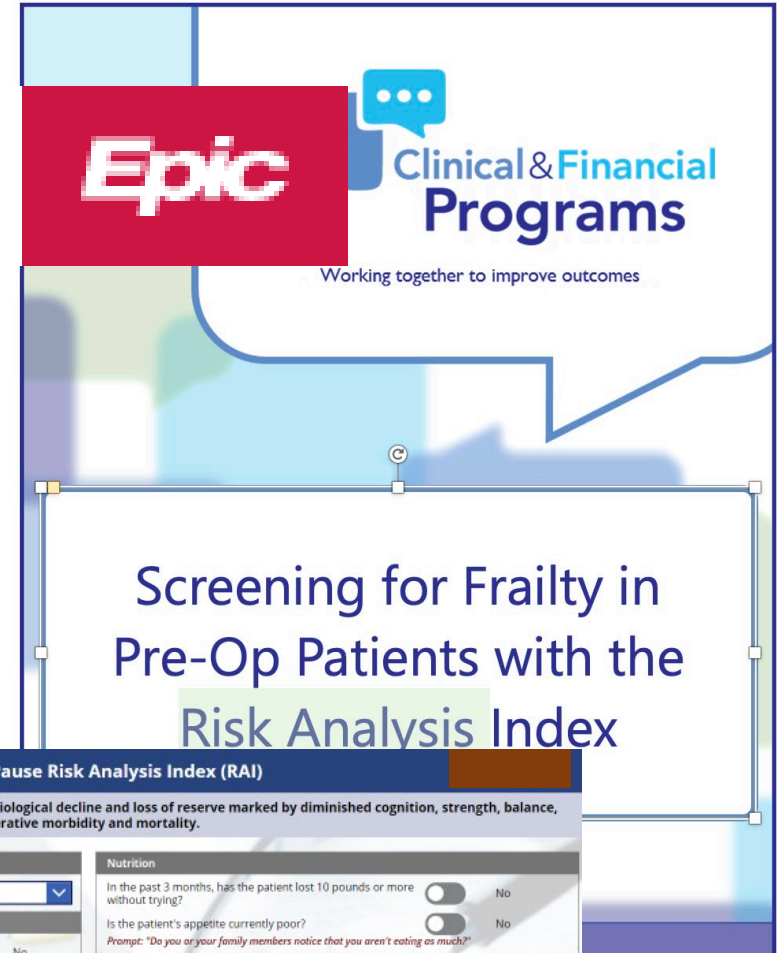
Cerner

CPRS

REDCap



ORACLE Cerner



U.S. Department of Veterans Affairs

### Surgical Pause Risk Analysis Index (RAI)

The RAI is an assessment of frailty—a global syndrome of physiological decline and loss of reserve marked by diminished cognition, strength, balance, and coordination. It can be used to predict the risk of postoperative morbidity and mortality.

Patient Demographics	Nutrition
Age: <input type="text"/> Sex: <input type="text"/>	In the past 3 months, has the patient lost 10 pounds or more without trying? <input type="checkbox"/> No
Social History	Is the patient's appetite currently poor? <input type="checkbox"/> No <i>Prompt: "Do you or your family members notice that you aren't eating as much?"</i>
Medical Conditions	Cognitive
Does the patient live in a nursing home, skilled nursing facility or another assisted living environment? <input type="checkbox"/> No	During the last 3 months has it become difficult for you to remember things or organize your thoughts? <input type="checkbox"/> No
Has the patient ever seen a nephrologist (kidney doctor) or have a history of kidney problems? <input type="checkbox"/> No	Activities of Daily Living
Does the patient have chronic (long-term) congestive heart failure (CHF)? <input type="checkbox"/> No	Mobility <input type="text"/>
Does the patient currently have shortness of breath while resting or with minimal activity? <input type="checkbox"/> No <i>Prompt: "Do you have trouble catching your breath when you are resting or doing minimal activities? For example: walking to the bathroom or mailbox."</i>	Eating <input type="text"/>
In the past 5 years, has the patient been diagnosed with or treated for cancer? <input type="checkbox"/> No	Toileting <input type="text"/>
	Personal Hygiene <input type="text"/>





*Step 1:*  
Measure Frailty

You can do this tomorrow

Every Patient. Every Time

If you've scheduled (or even offered) surgery, it's too late  
Hard to get that horse back in the barn



*Step 1:*  
Measure Frailty

# You should do this tomorrow ...because $RAI \geq 37$ :

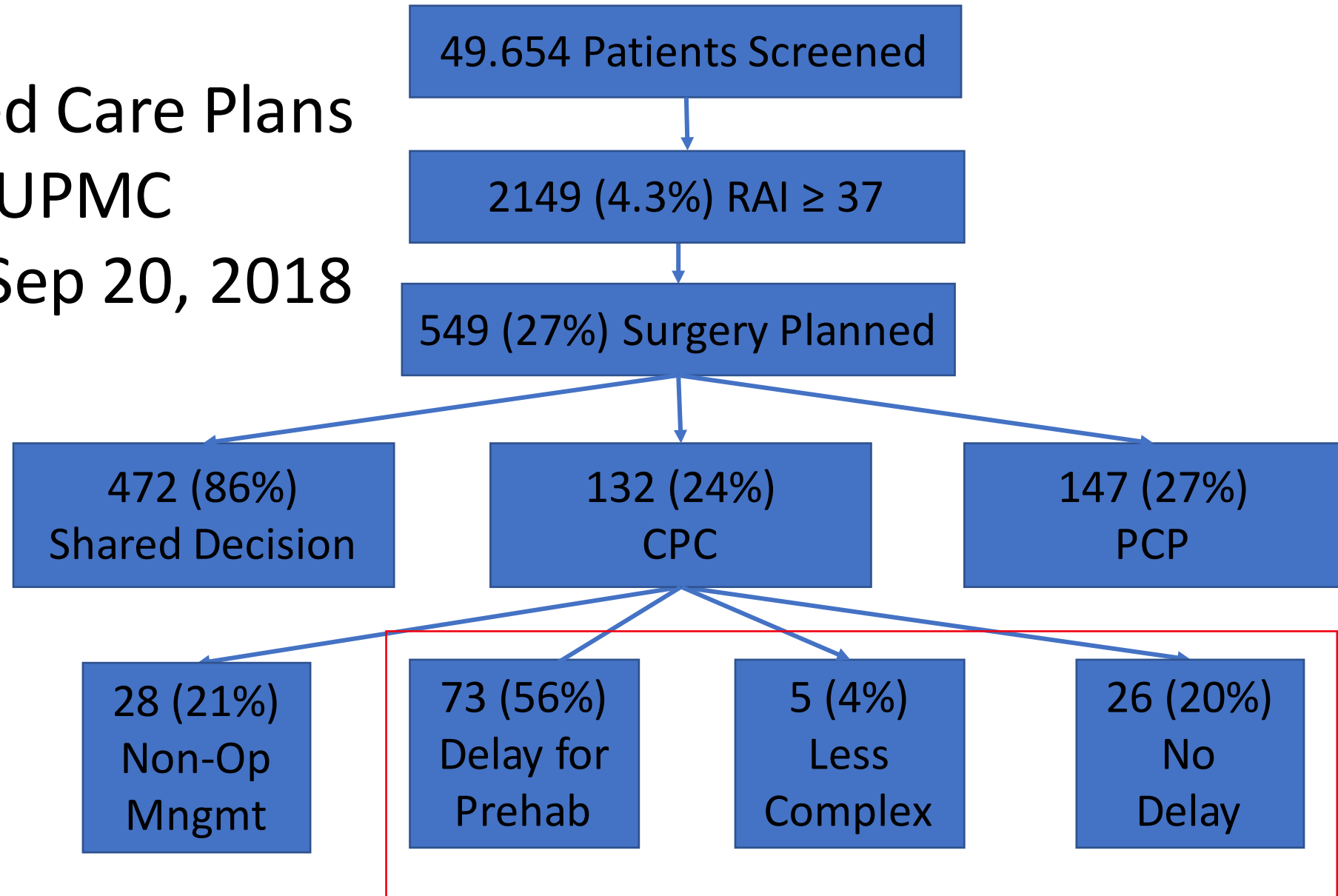
- Riskiest 10% of population;
- At least twice the average 6-month mortality
  - 12% vs 6%
- Twice the rate of 30- and 90-day readmission
  - 22% vs 12%
- Twice the rate of long term ICU stay  $\geq 5$  days
  - 6% vs. 3%



# Step 2: Do Something About It



# Changed Care Plans UPMC Feb 1- Sep 20, 2018



~ 1 Day Reduction in LOS compared to historical controls



# Baseline to Day of Surgery

## Significant Changes in Physical Performance

Measure	Baseline Mean (SD)	Day of Surgery Mean (SD)	Mean Difference (Standard Error)	P value	Minimum Clinically Important Difference
Extended TUG (seconds)	N=42 21.9 (12.5)	N=33 17.8 (4.6)	-2.3 (0.5)	<0.001	2.4s
Gait Speed (meters/second)	N=42 1.11 (0.32)	N=33 1.24 (0.30)	+0.1 (0.03)	0.002	0.1m/s
5 Chair Rise (seconds)	N=38 13.3 (5.7)	N=33 11.8 (4.6)	-1.6 (0.6)	0.007	2.3s
Six Minute Walk Test (meters)	N=40 348.6 (109.1)	N=30 380.6 (102.2)	+29.3 (15.6)	0.060	30m
SPPB Score	N=41 10.2 (1.9)	N=33 10.8 (1.1)	+0.6 (0.3)	0.068	1 unit



# RAI & Cost: Direct and Net Hospital Costs

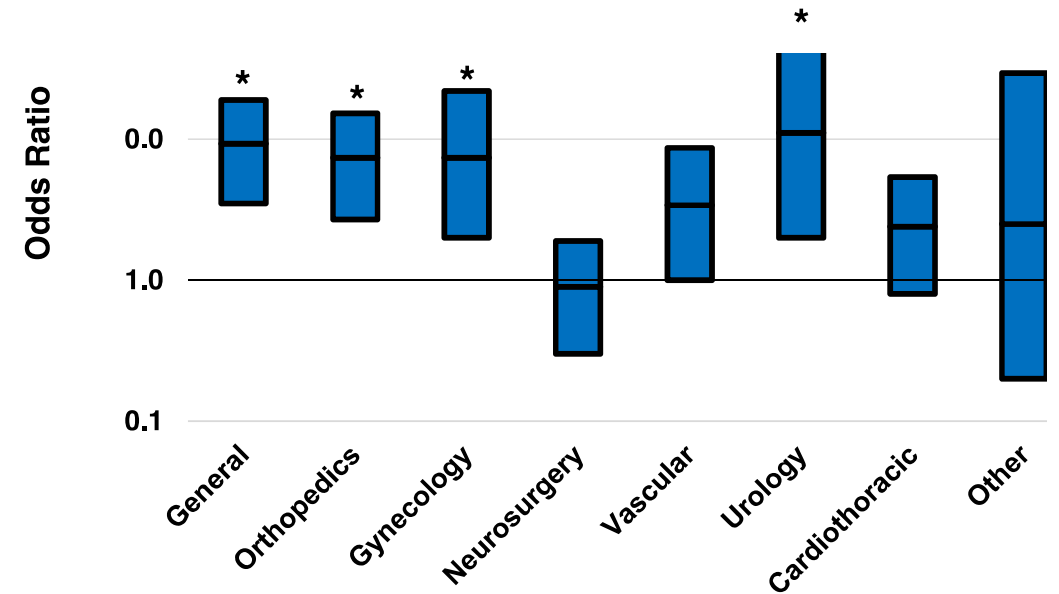
## Univariate Analysis:

- ↑ length of stay (0.8 v. 2.1 days)
- ↑ total cost (\$6,934 v. \$13,319)
- ↓ net hospital income (\$5,447 v. \$3,129)

## Multivariate analysis:

- ↑ direct cost (OR 2.2)
  - ↑ indirect cost (OR 1.9)
  - ↑ total cost (OR 2.2)
  - ↓ net income (OR 0.8)
- (all  $p < 0.001$ )

Wilkes JG, et al. *J Am Coll Surg*. 2019;228(6):861-870.



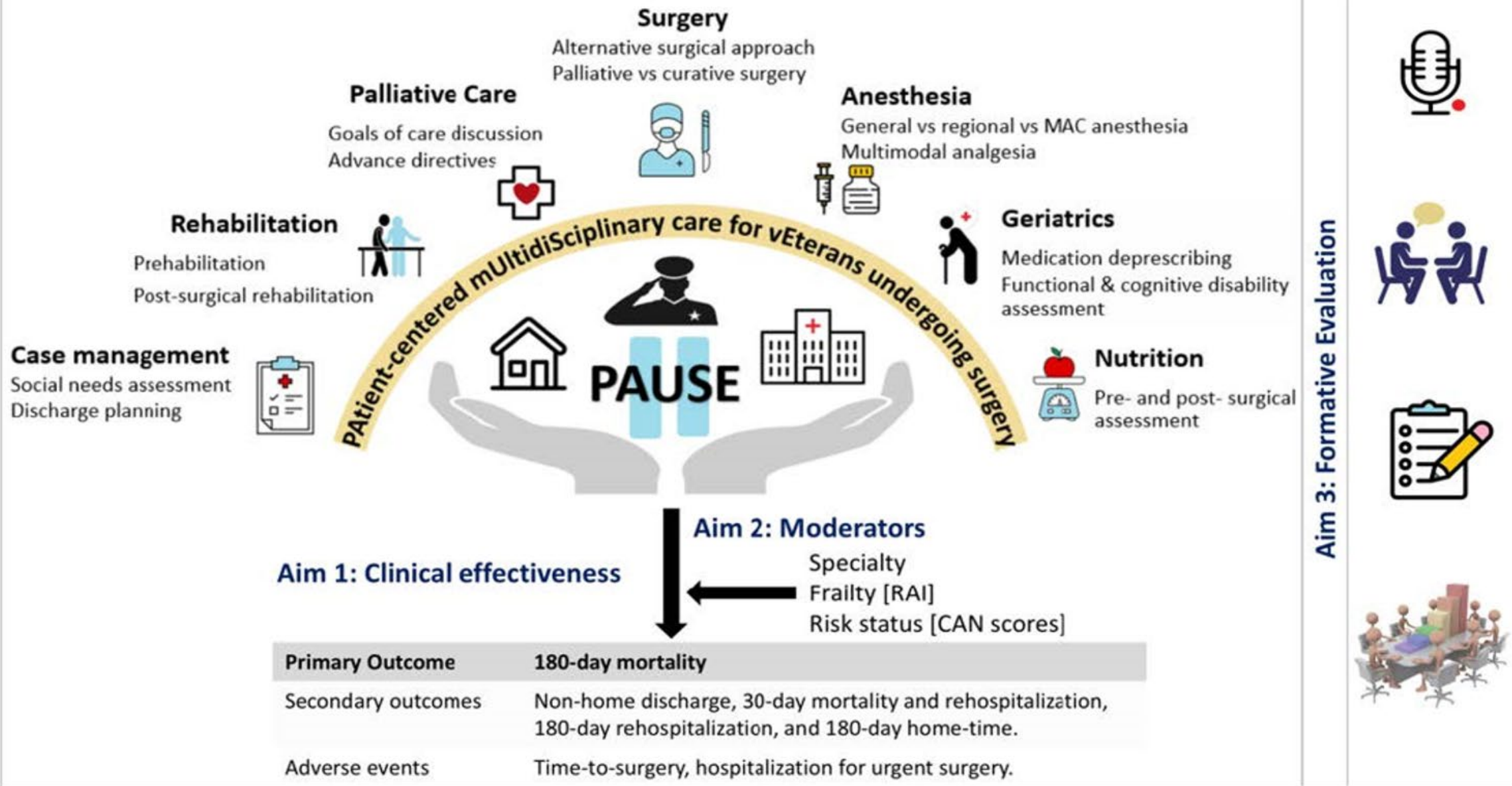
Total cost odds ratio (with 95% CI, as demonstrated by box plot) on logarithmic scale. Calculated as odds of significantly frail patients costing greater than the median cost for inpatient elective operations stratified by service and Risk Analysis Index with unfrail patients (not depicted) as the reference value (\* $p < 0.05$ ).



# UPMC Benefit Amounts normalized to 'Normal 30-36' total

		Robust ≤29	Normal 30 to 36	Frail 37 to 44	Very frail ≥45
Inpatient	Inpatient Surgical DRG	0.34	0.34	0.35	0.34
	ER to Inpatient Surgical DRG	0.03	0.05	0.07	0.08
	Inpatient Medical DRG, General, Specialist and Observation	0.06	0.11	0.14	0.19
	Inpatient Rehabilitation	0.00	0.00	0.01	0.01
	Inpatient Behavioral Health	0.00	0.00	0.00	0.00
	Ambulance from Facility to Facility	0.00	0.00	0.00	0.00
	Subtotal Inpatient Charges	0.43	0.51	0.57	0.62
Outpatient	Outpatient Surgery	0.04	0.07	0.05	0.06
	Outpatient Hospital and Specialized Facility	0.09	0.28	0.21	0.24
	Outpatient Office, PCP and Other	0.01	0.02	0.02	0.03
	Therapy Service (Is this like Outpatient Rehab/PT?)	0.01	0.00	0.00	0.00
	Outpatient Behavioral Health	0.00	0.00	0.00	0.00
	ER Discharged to Home	0.01	0.01	0.01	0.01
	Observation, from ER or Office	0.01	0.01	0.01	0.01
Subtotal Outpatient Charges	0.17	0.39	0.32	0.36	
Post Acute	Nursing, Skilled and General	0.01	0.02	0.05	0.07
	Home Care	0.03	0.05	0.06	0.07
	Subtotal Post Acute Charges	0.04	0.08	0.11	0.14
Other	Other (e.g., Lab, OB/GYN, Maternity, Urgent Care)	0.00	0.01	0.01	0.00
	Shock Claims	0.04	0.01	0.05	0.04
	Subtotal Other Charges	0.04	0.02	0.05	0.04
<u>Total Charge</u>		0.69	1.00	1.05	1.17



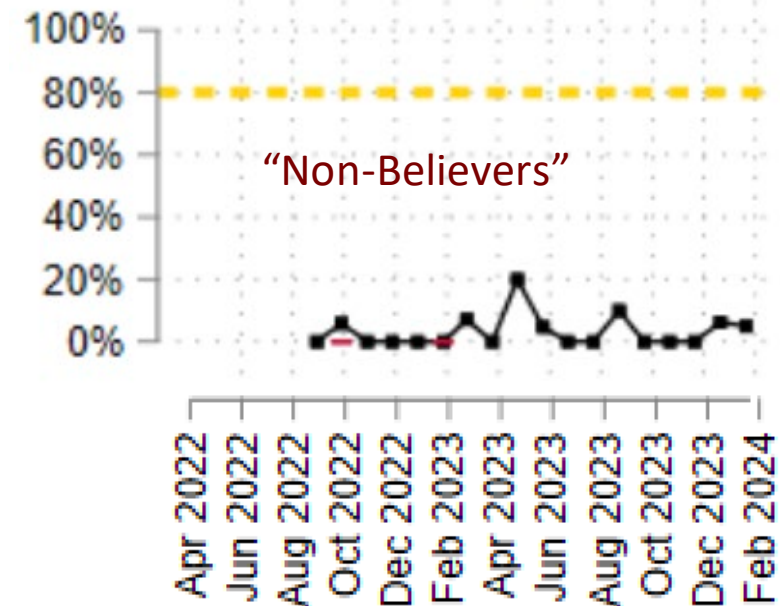
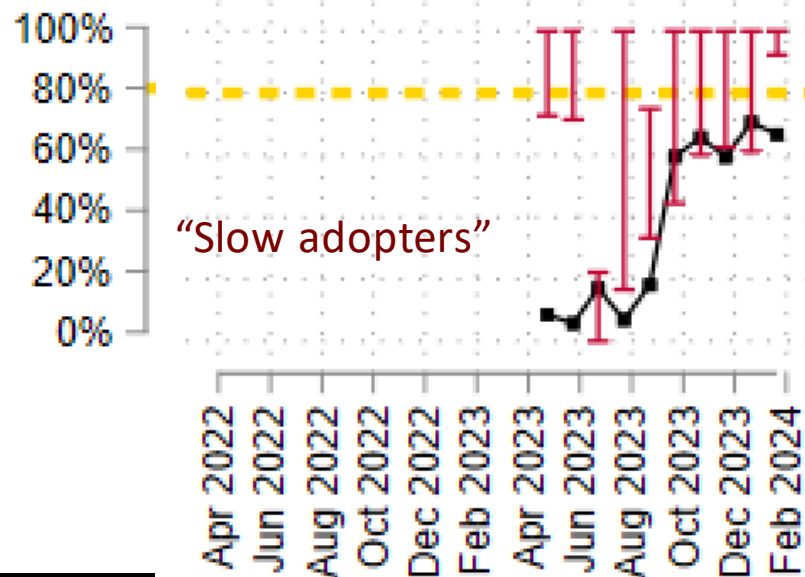
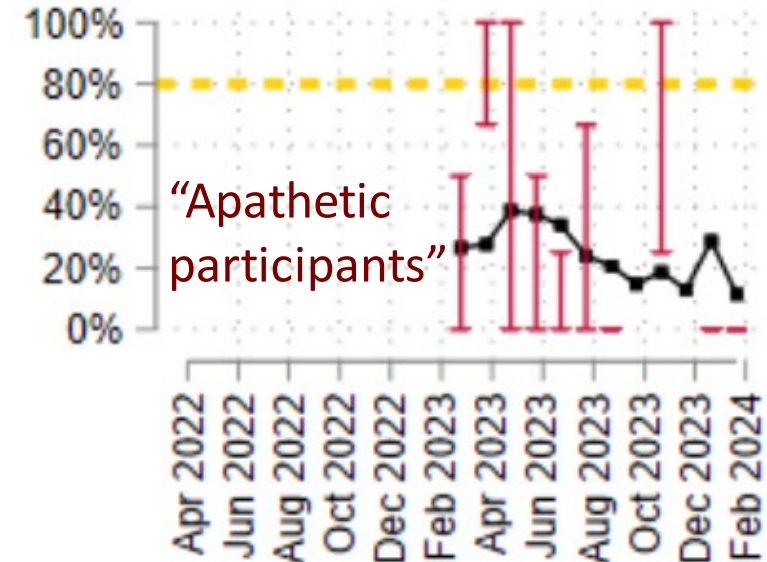
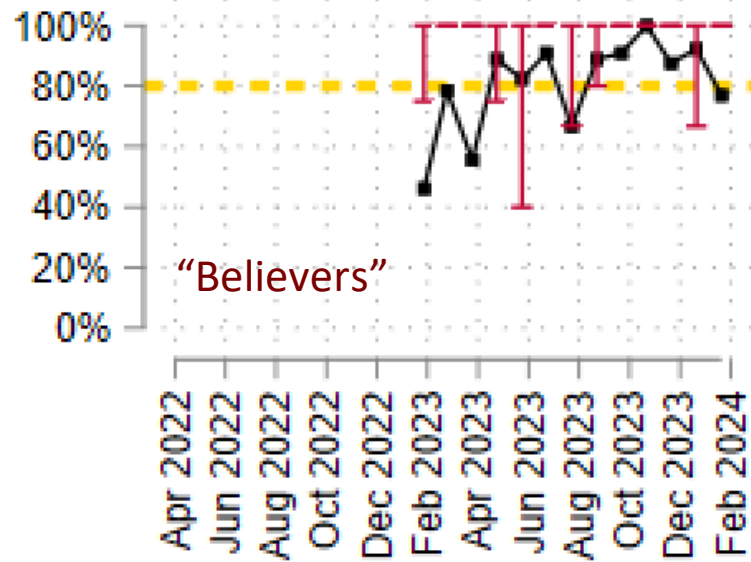


VA HSR&D IIR 20-077: PATient-centered mUltidiSciplinary care for vEterans undergoing surgery (PAUSE): a hybrid 1 clinical effectiveness-implementation intervention trial. PI: Dr. Shipra Arya





# Implementation and Progress focused FE





# SAGE QUERI

P R O G R A M

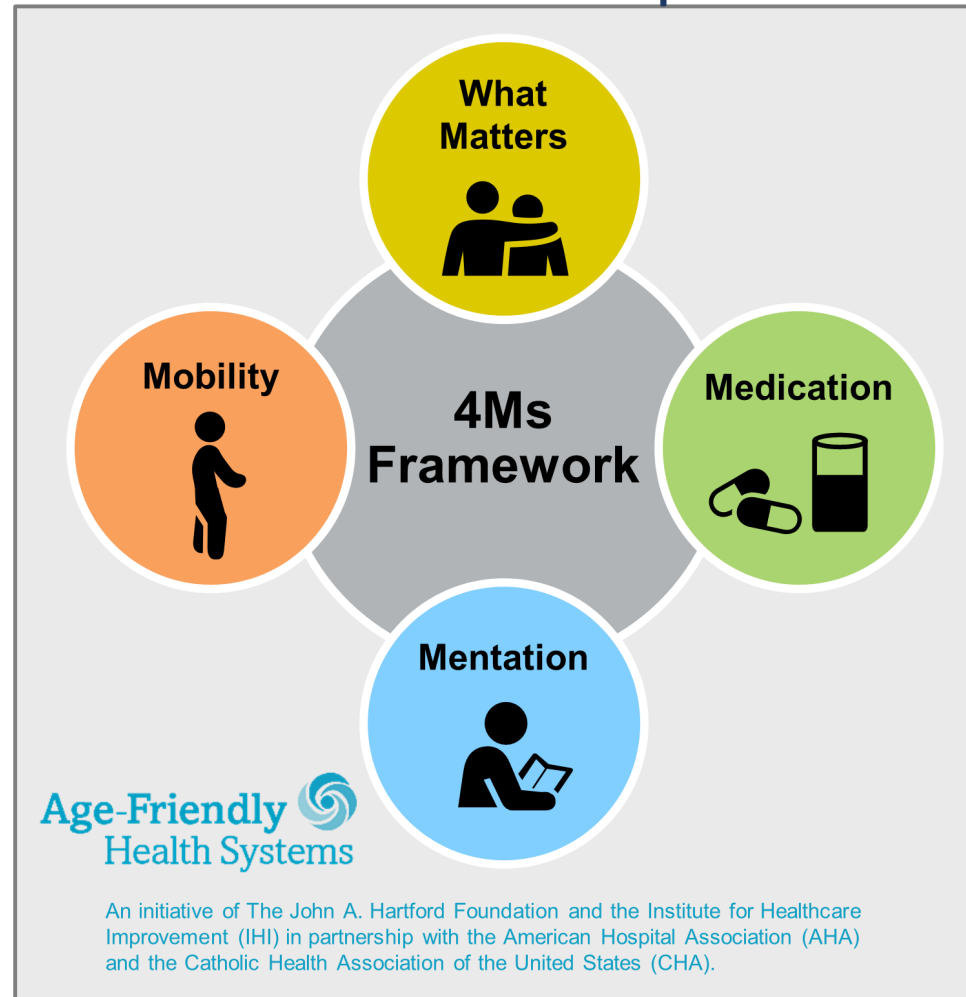
Safer Aging Through Geriatrics-  
Informed Evidence-Based Practices



# SAGE QUERI's Objective

## Type III Hybrid Effectiveness-Implementation Trial

Ensure VISN 4's older Veterans age safely in their homes for as long as possible by implementing practices of an Age-Friendly Health System (AFHS)



### What Matters

Know and align care with each older adult's specific health outcome goals and care preferences including, but not limited to, end-of-life care, and across settings of care.

### Medication

If medication is necessary, use Age-Friendly medication that does not interfere with What Matters to the older adult, Mobility, or Mentation across settings of care.

### Mentation

Prevent, identify, treat, and manage dementia, depression, and delirium across settings of care.

### Mobility

Ensure that older adults move safely every day in order to maintain function and do What Matters.

For related work, this graphic may be used in its entirety without requesting permission.  
Graphic files and guidance at [ihi.org/AgeFriendly](http://ihi.org/AgeFriendly)



## Surgical Pause

*What Matters*



Preoperative risk assessment program capturing what matters most to the patient to increase shared decision-making between patient and care team

## CAPABLE

*Mobility*



Veteran-centered, home-based intervention to increase mobility, functionality, and capacity to age safely at home through goal setting and home modifications

## TAP

*Mentation*



Home-based program that engages Veterans with dementia in activities that are individualized to their interests and abilities to decrease behavioral symptoms and reduce caregiver burden

## EMPOWER

*Medication*



Eliminating medications through patient ownership of end results, de-implementation of high-risk medications in older Veterans



# Why Clarify Goals?

“Fix my hernia”

Or

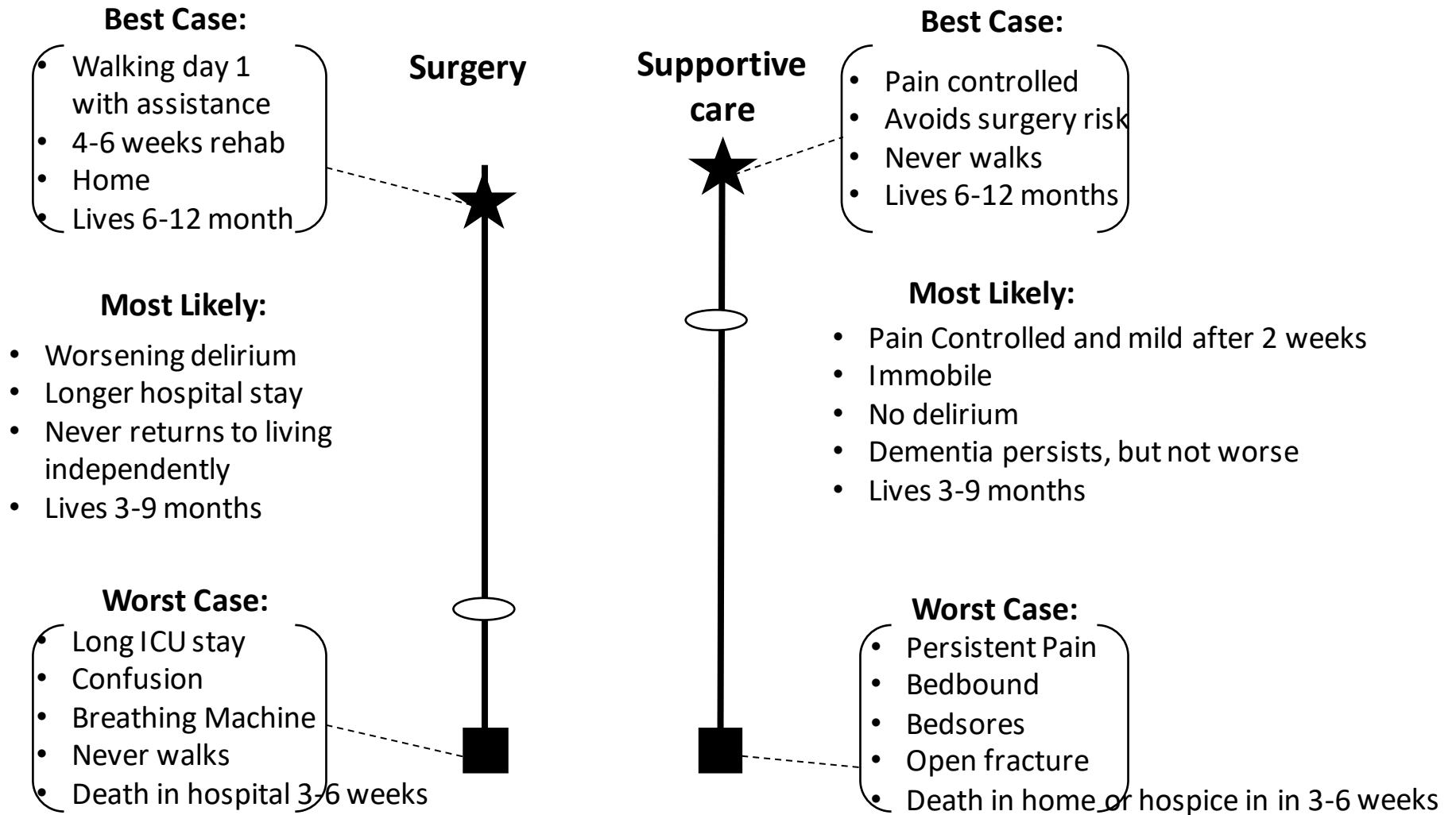
“Stabilize my fracture”

is....

not enough information



# Best Case/Worst Case Scenario Planning



Given what I've told you about these options....

**WHAT IS IMPORTANT TO YOU (YOUR LOVED ONE) NOW?**



# Veterans' Experience with Surgical Pause

"[Palliative Care Physician] **put it in a way in which I could make up my mind...** I made my own decision whether I wanted the surgery or not. I optioned not to..."

*(Philadelphia Veteran 501)*

"One thing that came up was, what are my goals, what do I expect to accomplish, what were my expectations. **And that was the first time I'd ever been asked that question...**"

*(Pittsburgh Veteran 301)*



# Providers' Experience with Surgical Pause

“[Veterans] have said to me, **if I had known, if somebody had told me, I wouldn't have done this.** I think we're preventing that.”

*(Philadelphia Provider 44)*

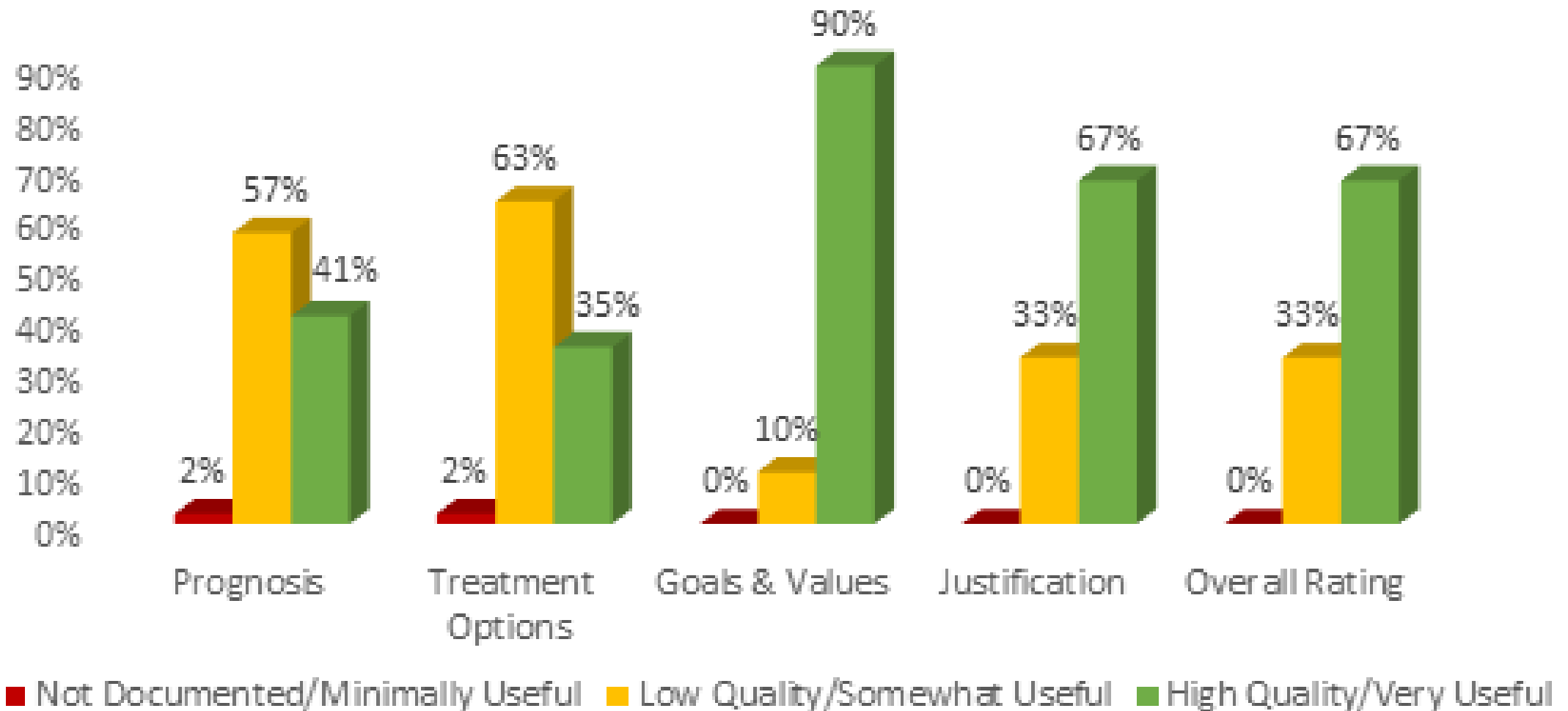
"I think it's very valuable, and I think the patients deserve to have this pause, so that **they can hear other options,** not just the surgical management of their problem.”

*(Pittsburgh Provider 39)*





# Documenting Goals of Care



# Provider perspectives on assessing older patients' priorities in pre-operative clinics (pre-implementation)

- Support for having goal clarification discussions with high-risk older adults considering elective surgery
  - 44% positive attitude, 26% negative, 30% mixed
- Lack of consistency in how these discussions happen or are documented
- Barriers
  - “Fix it” mental model in surgical clinics
  - Clinicians' concerns about overwhelming patients with too much information
  - Time constraints
- Facilitators
  - Leveraging performance metrics
  - Designing effective documentation and referral systems
  - Additional training



# Provider perspectives on the impact of SP (post-implementation)

- RAI quantifies risk
  - *And I really love the fact that this is centered on a validated tool. So rather than saying, “oh, he doesn’t look good [for surgery],” we’re able to say, “well, the validated tool says that they’re at high risk and this is why.” So that’s very helpful. Because then you come at it with a perspective of evidence into the conversation. – Palliative Care MD*
- Value of the pause for providers to take time and consider the Veteran’s whole situation (beyond immediate surgical consideration)
  - *Our surgeons love to operate, so they’re ready to offer a surgery to anybody who walks in that door. [Surgical Pause has] made us more cognizant of the fact that although we want to operate and we think that this may provide a benefit to the veteran, does that benefit really outweigh the risks of them undergoing the surgery? So it has made us stop and think and maybe take a close look at things as a whole, rather than just the surgical process or the condition that we’re looking at to treat with surgery. – Physician Assistant*
- Helps set realistic expectations for Veterans to make an informed decision
  - *[Surgical Pause is] showing them, okay, so they might think that they want to have this surgery done or whatever, but just kind of giving them a moment to think about, okay, so if I’m on crutches – I’m already starting out and I can’t really get around that well, or I can’t make my own meals and then I’m adding crutches and I’m not able to put weight on my foot... it probably tells them, too, like, okay, maybe I need to at least – I don’t know – get some resources at home before I even think about [having surgery]. – Podiatry Surgeon*
- An opportunity for Veterans to establish a relationship with palliative care
  - *I also think that if things don’t go well and the patient really wants to go through [with surgery], they kind of get to know palliative care, even if it’s just that one touch point. And we can always follow up with them if there’s issues later and they need a palliative care consult. – Palliative Care NP*

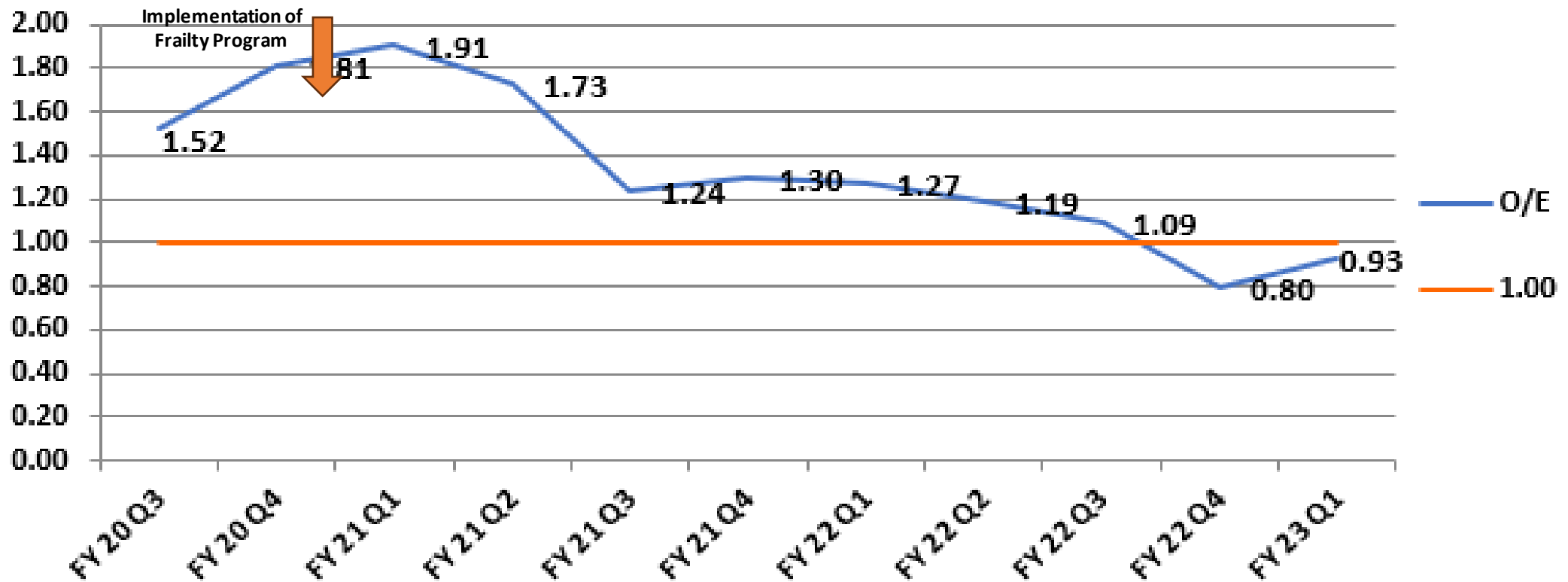


# QUERI Rapid Response Project



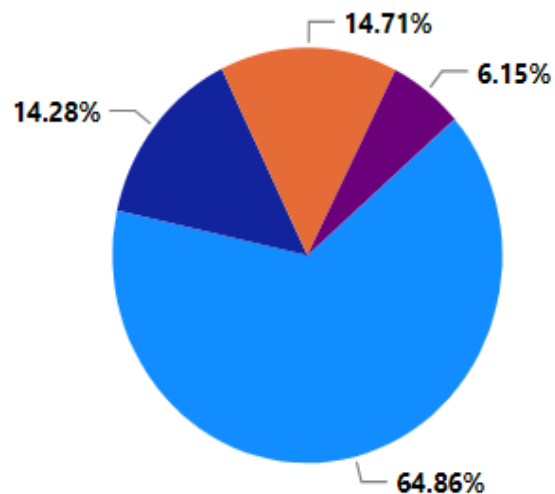
# Gainesville Rolling 12-Month 30-Day ALL SERVICES Mortality

## O/E 90% CI Low Value in Bar Graph



# VISN-8 Data

Frailty Groups



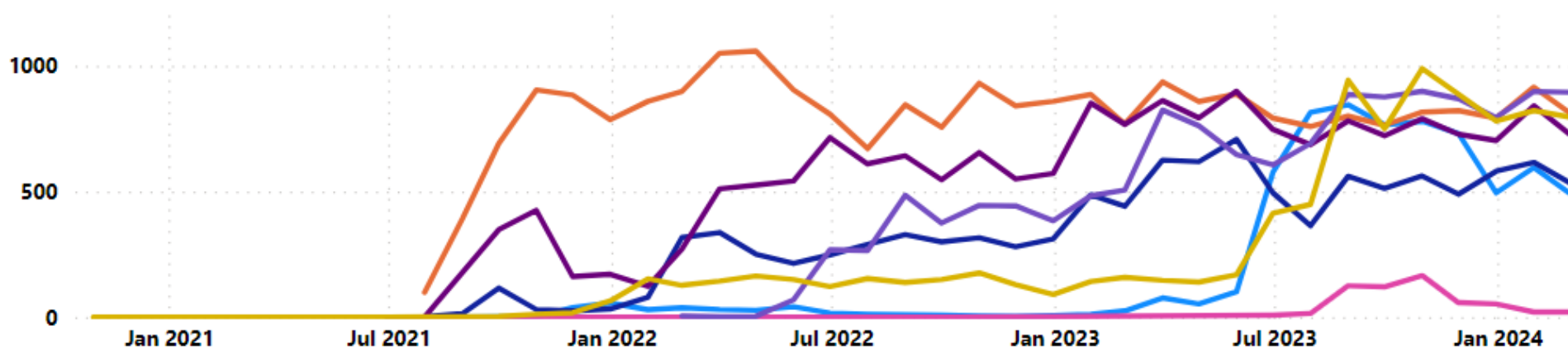
## 85,268 new consults screened

- Robust (<=29)
- Average (30-36)
- Frail (37-44)
- Very Frail (=> 45)



Count of Scores

- BAY
- MIA
- NFSG
- ORL
- SAN
- TAM
- WPB



# Surgical Risk Analysis Index (RAI) Report



VISN, Facility, Sta6a: 4 (VISN) + (646) Pittsburgh HCS (Pitts...)

Location Name: Multiple selections

RAI > 36:  Y

RAI w/out > 36:  Y

Primary Stop Code: All

CHAR4, CHAR4 Description: All

NSO Complexity: All

Surgical Stop:  Y

Back to Terms & Conditions

9/1/2021 - 2/1/2024 Visit Date

VISN	Facility	Division	Patient	Visit Date	Primary Stop Code	RAI Score	RAI Score Without Cancer	Location Name
4	(646) Pittsburgh HCS (Pittsburgh PA)	646		1/29/2024	401-GENERAL SURGERY	29		UNV VVC SSL KIDNEY TX
4	(646) Pittsburgh HCS (Pittsburgh PA)	646		1/29/2024	401-GENERAL SURGERY	29		UNV SSL KIDNEY PRE TX MK
4	(646) Pittsburgh HCS (Pittsburgh PA)	646		1/29/2024	401-GENERAL SURGERY	24		UNV SSL KIDNEY PRE TX MK
4	(646) Pittsburgh HCS (Pittsburgh PA)	646		1/23/2024	401-GENERAL SURGERY	29		UNV SSL KIDNEY PRE TX TU
4	(646) Pittsburgh HCS (Pittsburgh PA)	646		1/23/2024	401-GENERAL SURGERY	49		UNV SSL KIDNEY PRE TX TU
4	(646) Pittsburgh HCS (Pittsburgh PA)	646		1/23/2024	401-GENERAL SURGERY	30		UNV SSL KIDNEY PRE TX TU
4	(646) Pittsburgh HCS (Pittsburgh PA)	646		1/22/2024	401-GENERAL SURGERY	34		UNV SSL KIDNEY PRE TX MK
4	(646) Pittsburgh HCS (Pittsburgh PA)	646		1/22/2024	401-GENERAL SURGERY	38		UNV SSL KIDNEY PRE TX MK
4	(646) Pittsburgh HCS (Pittsburgh PA)	646		1/16/2024	401-GENERAL SURGERY	33		UNV SSL KIDNEY PRE TX TU
4	(646) Pittsburgh HCS (Pittsburgh PA)	646		1/16/2024	401-GENERAL SURGERY	25		UNV SSL KIDNEY PRE TX TU
4	(646) Pittsburgh HCS (Pittsburgh PA)	646		1/16/2024	401-GENERAL SURGERY	35		UNV SSL KIDNEY PRE TX TU
4	(646) Pittsburgh HCS (Pittsburgh PA)	646		1/12/2024	401-GENERAL SURGERY	25		UNV SSL LIVER CLINIC
4	(646) Pittsburgh HCS (Pittsburgh PA)	646		1/12/2024	401-GENERAL SURGERY	38	24	UNV SSL LIVER CLINIC
4	(646) Pittsburgh HCS (Pittsburgh PA)	646		1/12/2024	401-GENERAL SURGERY	24		UNV SSL LIVER CLINIC

Visits w/ RAI Score: **331**

Uniques w/ RAI Score: **326**

Visits w/ RAI > 36: **85**

Uniques w/ RAI Score > 36: **84**

Visits w/ RAI w/o C > 36: **8**

Uniques w/ RAI w/o C > 36: **8**

Urban: 240 | Rural: 63 | H. Rural: 4

## [Surgical Pause Dashboard - Power BI \(powerbigov.us\)](https://powerbigov.us)

# Lessons Learned

- It's not a math problem
  - Maximizing c-statistics is a distraction
  - No algorithm can determine what we should/should not do
  - RAI signals need to shift from fast to slow thinking
- It's about insight not technique
  - Shared decision making is really challenging, but it is the next frontier
  - Focusing on all-cause mortality creates opportunity
- The RAI works because it is simple, fast, and guides intervention
  - Phenotypical frailty may be more “pure” but not feasible for wide screening
  - Don't try to triage the triage tool
- Light, flexible touch—not too much structure
  - With a gentle nudge, surgeons step up
  - So adapt to your site's requirements
  - 1-2 hours/week of surgical champion





# Many thanks to growing Research network.

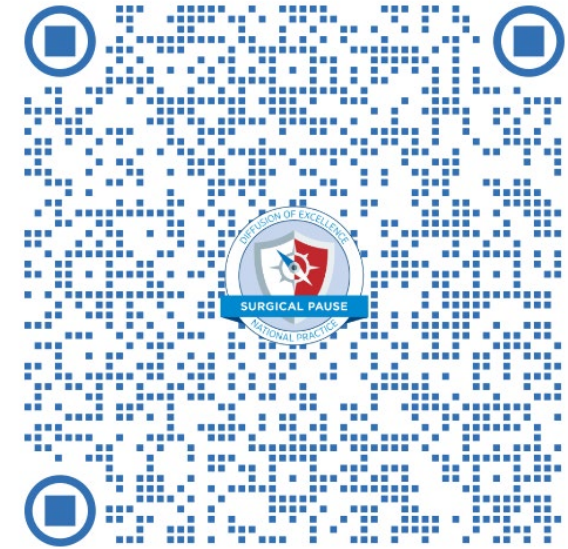
- Health Systems with RAI
  - Atlanta-Emory/VA
  - Nashville-Vanderbilt
  - Phoenix-VA
  - Pittsburgh-UPMC/VA
  - Palo Alto-Stanford/VA
  - Omaha-UNMC/VA
  - Richmond-VA
  - Houston-Baylor/VA
  - Salt Lake-Utah/VA
  - San Antonio-UTH/VA
  - Indiana-University
  - University of New Mexico
- RAI Workgroup
  - Jason, Dan, Shipra
  - Ricky Shinall
  - Nader Massarweh
  - Rupen Shah
- VQI workgroup
  - Philip Goodney
  - Matthew Mell
  - Benjamin Brooke
  - Larry Kraiss
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  - Andrew Bilderback
  - Jacob Hodges
  - Jeff Borreback
  - Mary K Wisniewski
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  - Bob Arnold
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  - Mary Hawn
  - Ronald Dalman
  - Paula Tucker
  - Luke Brewster
  - Theodore Johnson
  - Jason Hockenberry
- Team Johanning/ UNMC/NWICHHS/ VISN 23
  - Tom Lynch
  - Kendra Schmid
  - Kaeli Samson
  - Georgia Lyles
  - Krishna Chaitanya
  - Karen Taylor
  - Tom Edes
  - Richard Allman
  - Scott Shreve
  - Jahnigen Scholars
  - Health and Aging Policy Fellowship



# Risk Analysis Index (RAI) and the Surgical Pause Changes Lives

Surgeon Quote: “This brings the [patient] into it [the decision-making] more than anything I’ve ever seen. It makes me feel like it gives the [patient] power, regardless of how they use it.”

Veteran Quote: “If I had known; if somebody had told me [I could choose nonoperative management], I wouldn’t have done this [surgery].”



# Thank you!

[hallde@upmc.edu](mailto:hallde@upmc.edu)



THANK YOU!  
Questions?



# CONTACT INFORMATION

**Daniel E Hall**

Staff Surgeon and Core Investigator

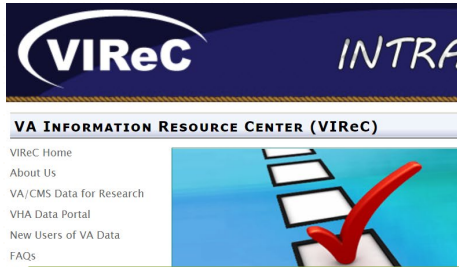
[Daniel.Hall2@va.gov](mailto:Daniel.Hall2@va.gov)

[hallde@upmc.edu](mailto:hallde@upmc.edu)

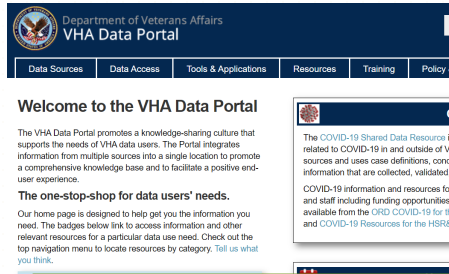


# Resources for VA Data Users

Select image to visit page



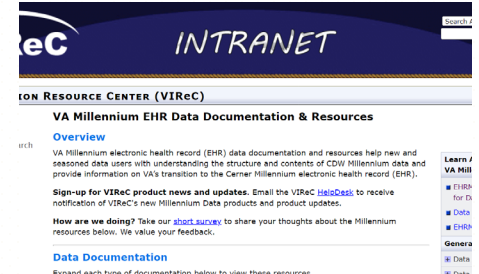
VA Information Resource Center (VIREC) (VA Intranet)



VHA Data Portal (VA Intranet)



VIREC Cyberseminars



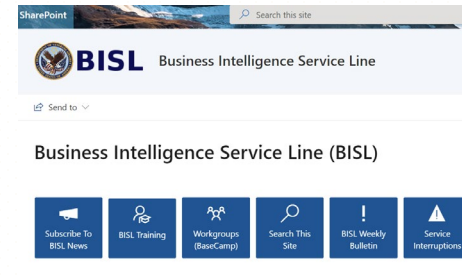
VA Millennium EHR Data Documentation (VA Intranet)



Quick Guide: Resources for Using VA Data (VA Intranet)



VA Informatics and Computing Infrastructure (VINCI) (VA Intranet)



BISL/CDW (VA Intranet)



Health Economics Resource Center (HERC) (VA Intranet)





## Questions about using VA Data?

### HSRData Listserv

- Community knowledge sharing
- ~1,800 VA data users
- Researchers, operations, data stewards, managers
- Subscribe by visiting  
[vaww.virec.research.va.gov/Support/HSRData-L.htm](http://vaww.virec.research.va.gov/Support/HSRData-L.htm) (VA Intranet)

### VIREC HelpDesk

- Individualized support
- Request Form:  
[varedcap.rcp.vaec.va.gov/redcap/surveys/?s=KXMEN77LXK](http://varedcap.rcp.vaec.va.gov/redcap/surveys/?s=KXMEN77LXK) (VA Intranet)

