Data-Driven Quality Improvement: Using Quality Measure Performance to Reduce Venous Thromboembolism

The 2017 Illinois Healthcare Quality Conference

Illinois Association of Healthcare Quality Annual Meeting

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Disclosures

- Supported by grant funding from American College of Surgeons, AHRQ, Health Care Services Corporation/Blue Cross Blue Shield of Illinois

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Overview

- "Better Measures"
  - Discuss the tension between process and outcome measures for QI in healthcare
- "Better Levers"
  - Describe the ISQIC model for collaborative QI projects
- Collaborative Quality Improvement Project (CQIP)
  - Describe the ISQIC QI experience with a novel VTE quality measure for data-driven QI

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BETTER MEASURES

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Better Measures

Process or Outcome?

Process or Outcome?

- Outcome Measures:
  - Reflect the impact of a health care service or intervention on the health status of patients (e.g., mortality, SSI rates, CLABSI)
- Process Measures:
  - Indicate what a *provider does* to maintain or improve health for patients
  - Typically reflect generally accepted recommendations for clinical practice (e.g., % of breast surgery specimens oriented by surgeon, % patients presented at multidisciplinary conference)

Outcome Measures

- Reflect the impact of a health care service or intervention on the health status of patients (e.g., mortality, SSI rates, CLABSI)
- Clinically tangible, but...
  - low event rates
  - difficulties with risk-adjustment
  - long time-horizon necessary to measure and to affect change

Process Measures

- Generally require a shorter time-frame for assessment
- Can identify specific targets for improvement
- Under greater control by clinicians
- Usually evidence-based guidelines
- Can demonstrate improvement more rapidly than outcomes
- *Risk adjustment not necessary*
- But…
  - limited to what is measurable
  - what is measurable is not always what is important

Regardless of the Measures You Choose

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BETTER LEVERS

Better Levers: Facilitating Improvement

- Learning collaboratives

- MSQC (Michigan), SCOAP (Washington)

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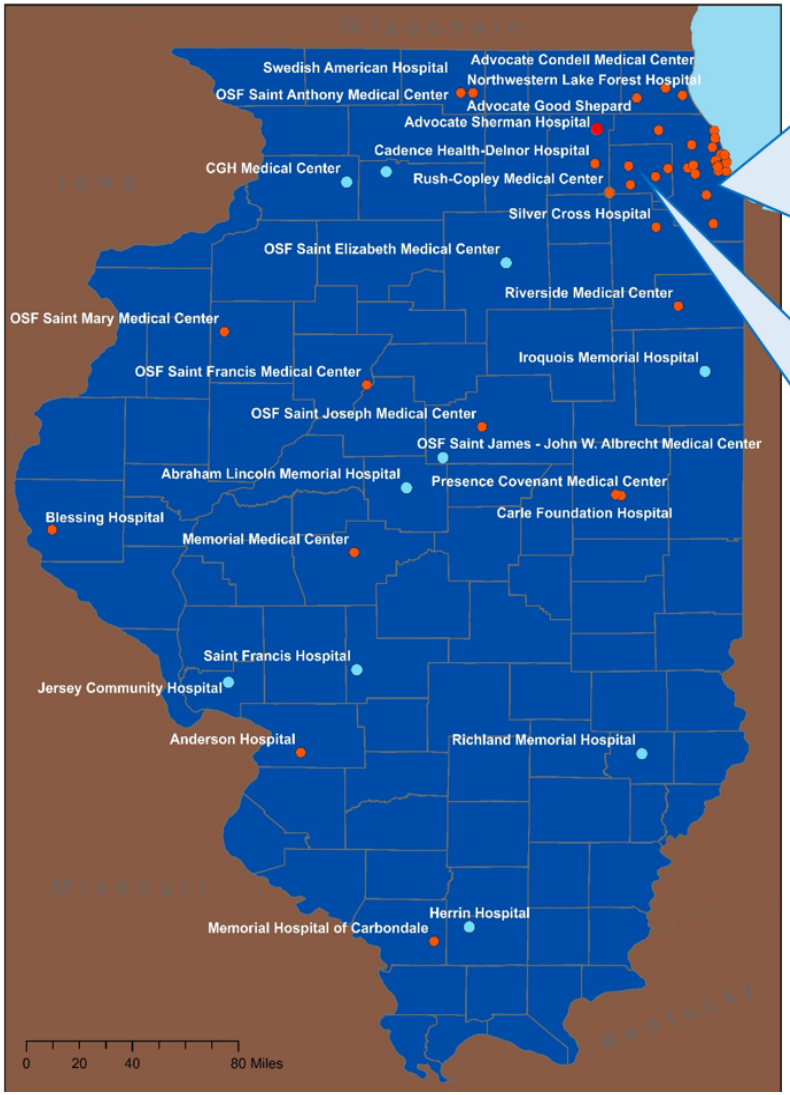
- To facilitate hospitals working together to improve the quality of surgical care in Illinois



Cook County Hospitals

Advocate Christ Medical Center
Advocate Illinois Masonic Medical Center
Advocate South Suburban Hospital
Ann & Robert H. Lurie Children's Hospital of Chicago
John H. Stroger Jr. Hospital of Cook County
Loyola University Health System
MacNeal Hospital
Mercy Hospital and Medical Center
Mount Sinai Hospital
Northshore University Health System (Evanston)
Northwest Community Hospital
Northwestern Memorial Hospital
Presence Resurrection Medical Center
Presence Saint Francis Hospital
Presence Saint Joseph Hospital
Presence Saint Mary and Elizabeth Medical Center
Rush Oak Park Hospital
Rush University Medical Center
Swedish Covenant Hospital
University of Chicago Medical Center
The University of Chicago Medicine- Comer Children's Hospital
University of IL. Hospital and Health Sciences System

DuPage County Hospitals

Advocate Good Samaritan Hospital
Cadence Health-Central DuPage Hospital
Edward Hospital
Elmhurst Memorial Hospital

Large Hospital
Small Rural Hospital

ISQIC's 21 Strategies to Accelerate and Enhance Quality Improvement

- **Guided Implementation**
  - Surgeon Mentor
  - Process improvement coach
  - Coordinating Center
  - Site Visits
- **Education**
  - Formal QI/PI Training
  - Leadership engagement plan
  - Semiannual collaborative meetings
- **Networking**
  - Opportunities to get advice and share experiences
- **Comparative reports**
- **Collaborative projects**
  - Structured local and statewide QI initiatives
- **Funding**
  - Support local program
  - Pilot grants
  - Bonus for improvement

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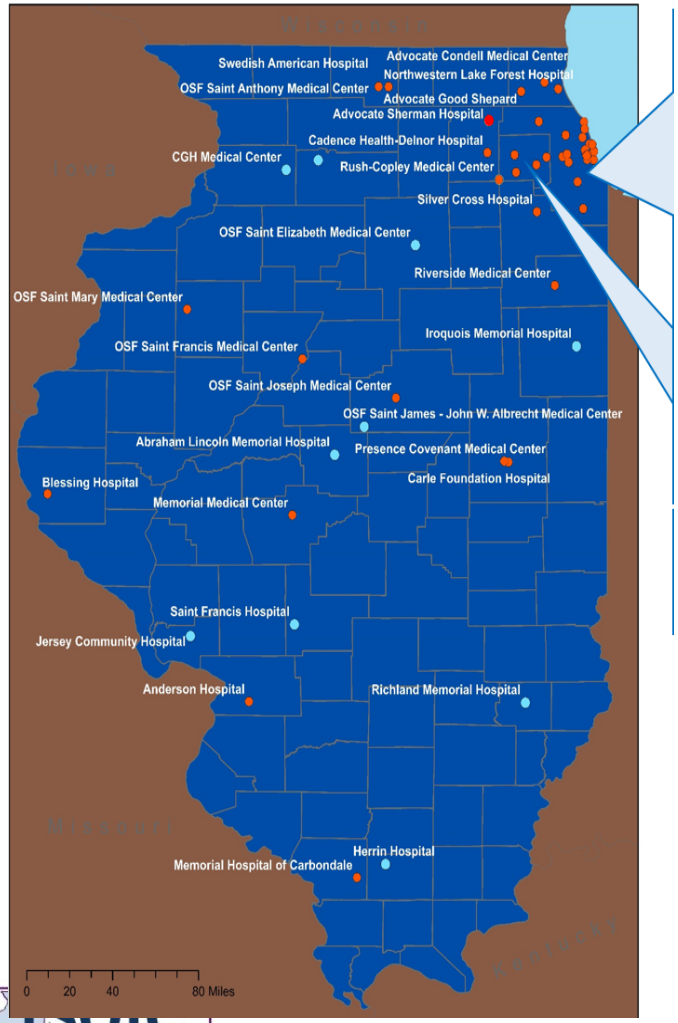
Collaborative Projects – CQIP



- Annual Collaborative Quality Improvement Project (CQIP)

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FACILITATING IMPROVEMENT WITH THE CQIP MODEL

Collaborative Quality Improvement Project (CQIP) Development Process

- Stepwise process for implementation of a multi-hospital QI project:
  1. Identify common target for improvement
     - Target for improvement selected by ISQIC Advisory Committee based on thorough assessment of collaborative needs
  2. Develop customized, actionable process-of-care measure
  3. Provide guidance and support to hospitals throughout project lifecycle

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Develop Actionable Process Measure

- Customized process measure:
  - Facilitates standard data collection state-wide
  - Identifies *actionable* failures in providing optimal care
  - Allows hospitals to track performance
  - Permits collaborative-wide benchmarking and provides comparative performance data

Guided Implementation

- CQIP-specific support as resources allow:
  - Abstraction guides/worksheets
  - WebEx presentations
  - Case studies
  - Toolkit
  - Coaching
  - Mentoring
  - In-person exercises at meetings
  - Direct support from ISQIC Coordinating Center

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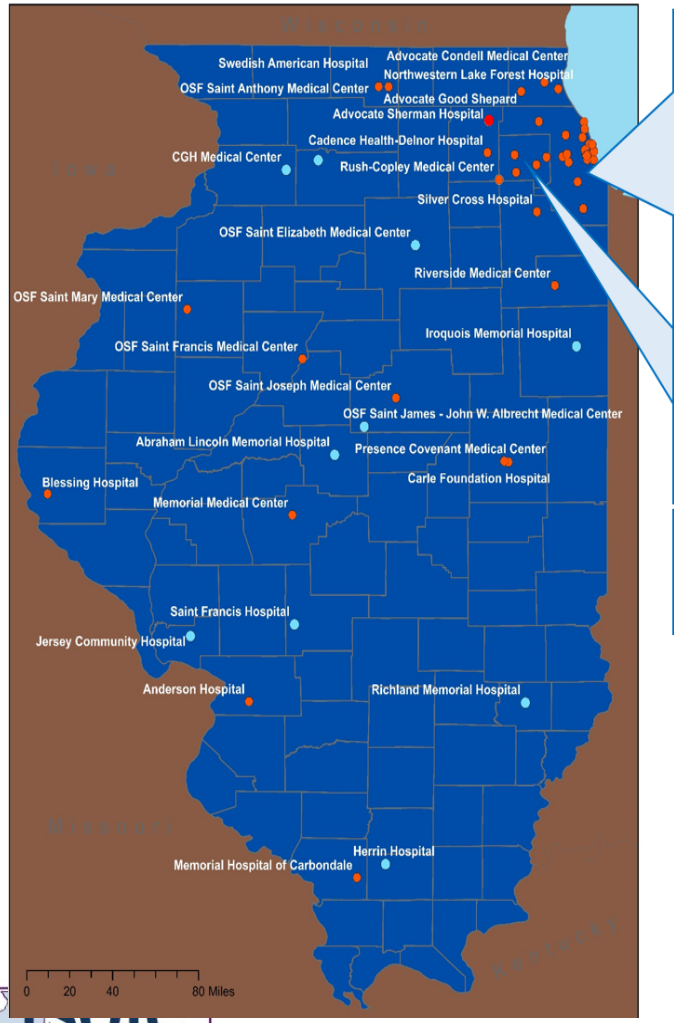
Collaborative Projects – CQIP



- Annual Collaborative Quality Improvement Project (CQIP)
- Current projects:
  - Large Hospitals:
    - Improving Postoperative VTE Prophylaxis
    - Surgical Site Infection Reduction
    - Coming: ERAS, Opioid Reduction
  - Small-Rural Hospitals:
    - Perioperative Glycemic Control
    - Improving Quality of Colonoscopy
  - Pediatric Hospitals:
    - Appropriateness of Blood Transfusions
    - Common Appendectomy Perioperative Care Protocol

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USE OF THE CQIP MODEL TO PROVIDE OPTIMAL POSTOPERATIVE VTE PROPHYLAXIS: A CASE STUDY FROM ISQIC

Current VTE Metrics

- Outcome
  - PSI 12: Risk-adjusted VTE rate after surgery
- Process
  - SCIP-VTE-2: VTE prophylaxis administration

Outcome Measure Affected by Surveillance Bias

- Variation in outcomes reflects variation in screening and detection
- “The more you look, the more you find”

Yang & Bilimoria, JAMA 2016

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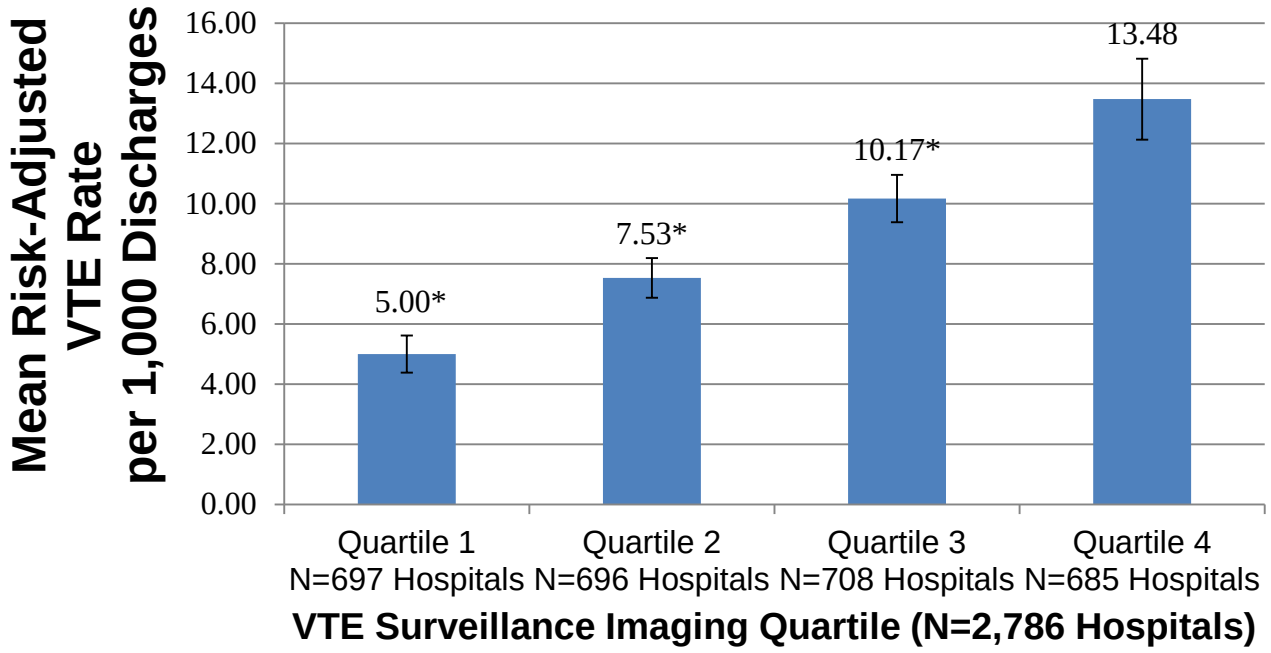
VTE Rate by Imaging Frequency



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Current Process Measure is Neither Informative or Comprehensive

SCIP-VTE-2	IL Hospital A	IL Hospital B	IL Hospital C	ILLINOIS AVERAGE	NATIONAL AVERAGE
Patients who got treatment at the right time (within 24 hours before or after surgery) to help prevent blood clots after certain types of surgery *Higher percentages are better*	100%	99%	99%	98%	98%

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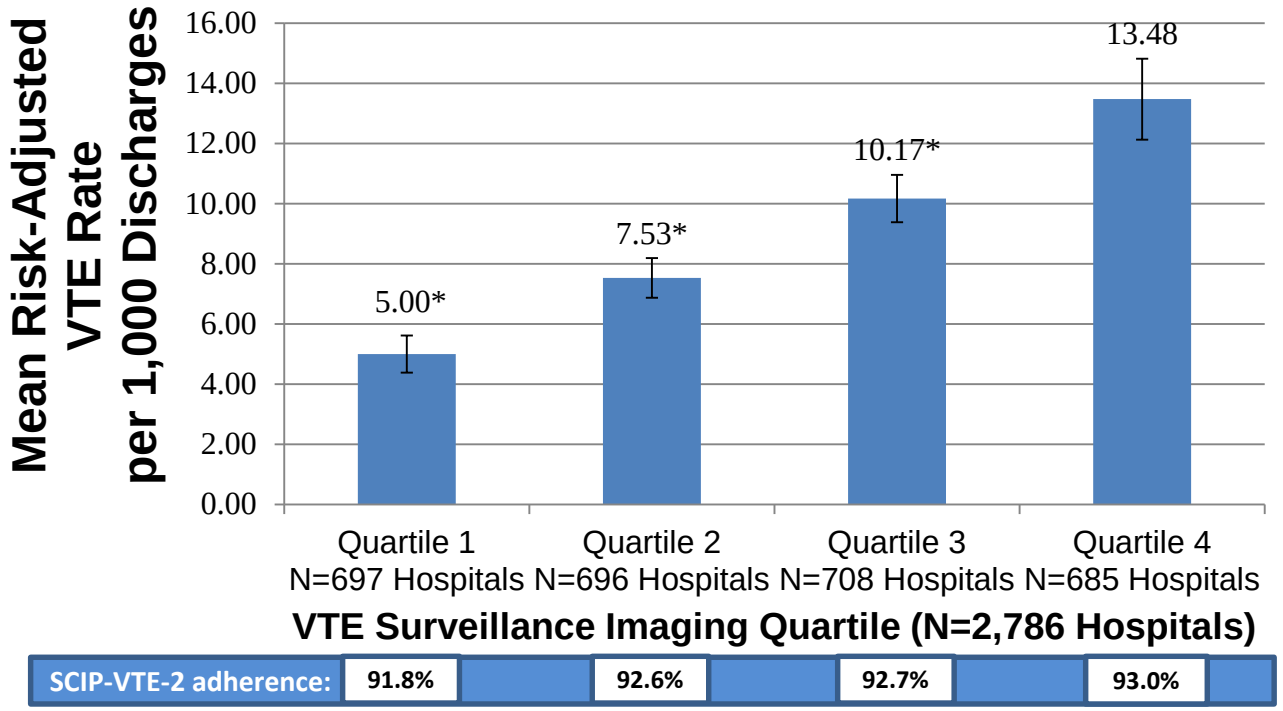
VTE Rate by Imaging Frequency



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VTE Outcome Measure No Longer Utilized for Hospital Quality Measurement

?

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Current VTE Process Measure No Longer Utilized for Hospital Quality Measurement

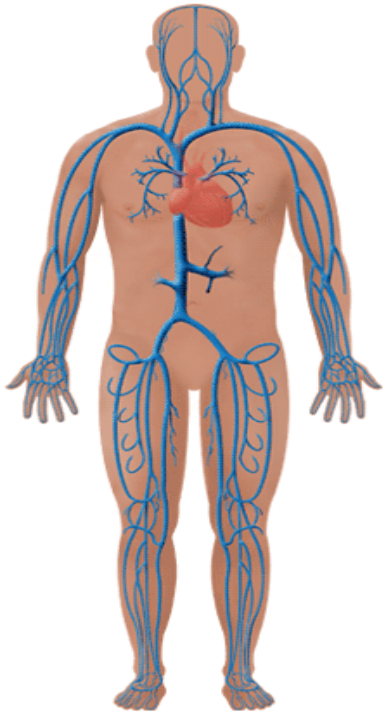
Development of Customized Process Measure

THE VTE PROPHYLAXIS COMPOSITE MEASURE

PRACTICAL, MEASURABLE, ACTIONABLE

Choice of Common QI Topic: VTE Prophylaxis

- Clinically important and relevant to most Illinois hospitals
- State rates of VTE are high
- Publicly reported
- Problems with current process (SCIP-VTE-2) and outcome (PSI-12) measures
- ISQIC Advisory Committee selection



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Ideal VTE Prophylaxis

1. **Early Ambulation**
   - Ordered
   - Ambulation occurs

2. **Mechanical Prophylaxis (SCDs)**
   - Ordered
   - Applied
   - Working

3. **Chemoprophylaxis**
   - **Ordered**
   - **Correct dose**
   - **Correct frequency**
   - **No missed doses**

1. Kinnier, et al; Medical Care, 2016.
2. Haut, et al; JAMA Surgery, 2015
3. ACCP Guidelines, 9th Ed; Chest, 2012

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VTE Prophylaxis Composite Measure

- Customized process measure based on overall adherence to all 3 components of best-practice VTE prophylaxis ("composite")
- Clear, clinically relevant definitions
- Appropriate exceptions
- Designed to identify *actionable* failures based on the 3 components

Questions			
1. Is there documentation in the medical record that SCDs were on the patient at least once and working, within 24 hours of the patient's OR out of room time or PACU time?	☐ Yes ☐ No	If "YES" STOP. *Case Passed SCD Measure.*	If "NO" continue to question 2.
2. Were SCDs ordered?	☐ Yes ☐ No	Continue to question 3.	
3. Does the patient have a specified exception for the SCD measure?	☐ Yes ☐ No	If "YES", continue to question 4.	If "NO" STOP. *Case failed SCD measure*
4. Which exceptions apply? Pick all applicable exceptions.	☐ Lower Extremity Wound or Fracture ☐ Lower Extremity Ischemia ☐ Lower Extremity Bypass Grafting ☐ Lower Extremity Amputation ☐ Mobility Impairment due to Anatomic Difference ☐ Lower Extremity DVT ☐ Palliative Care or Clinical Study	Once completed, STOP. *Case Passed SCD Measure by Exception.*	

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Our Approach: Careful Case Selection

- Any patient undergoing surgery requiring *inpatient admission*
  - Almost all patients have Caprini Score ≥ 3
  - ***Eliminates need for risk assessment***
    - Maintains current workflow
    - Less intensive EMR build
- **Eases stakeholder buy-in and implementation**

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Customized Data Entry Platform

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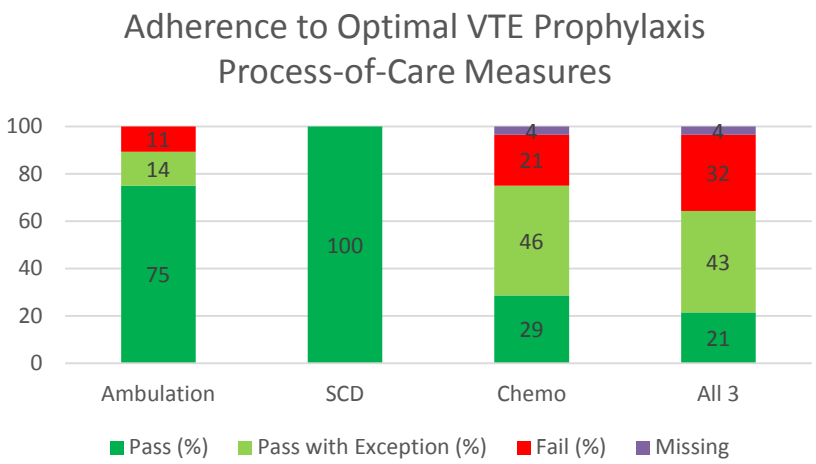
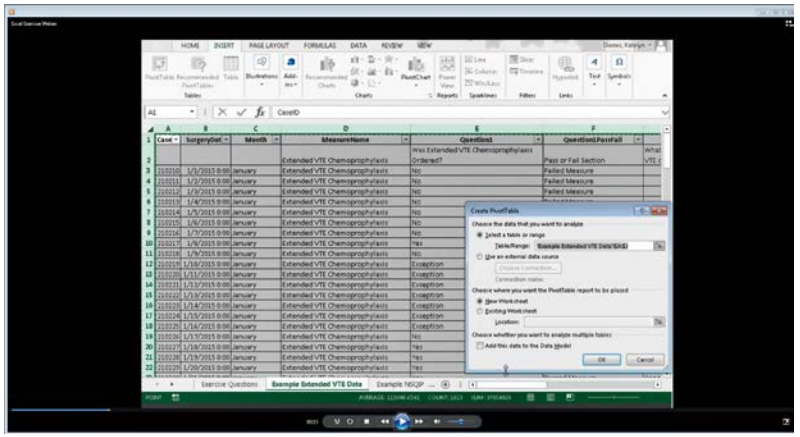
Real Time, Actionable Data



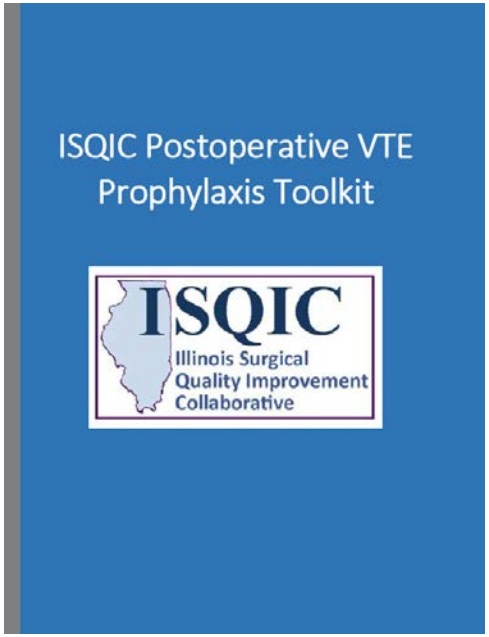
	Reasons for Failure
Ambulation	Not attempted (n=3, 100%)
SCD	No failures
Chemoprophylaxis	1. Patient refusal (n=4, 67%)
	2. Other (n=2, 33%)

	Ambulation	SCD	Chemo	All 3
Pass (%)	75	100	29	21
Pass with Exception (%)	14	0	46	43
Fail (%)	11	0	21	32
Missing	0	0	4	4
Total (%)	100	100	100	100



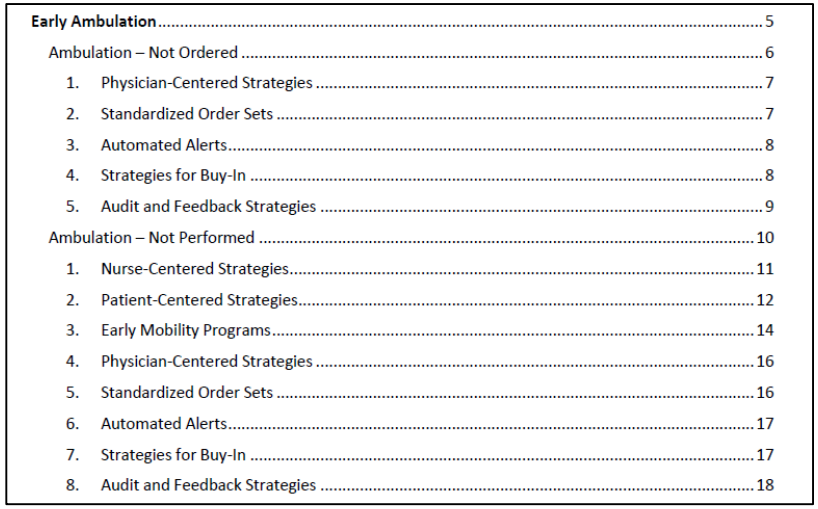
Attacking Actionable Failures: The ISQIC Postoperative VTE Prophylaxis Toolkit

- *Implement* specific *intervention(s) to improve postop VTE prophylaxis based on* specific *failures identified by the VTE Prophylaxis Composite Measure*



ISQIC VTE Prophylaxis Toolkit Format

- VTE Toolkit sections mirror the possible failure modes for each of the three components of the composite measure



- **Early Ambulation**
  - Not ordered
  - Not performed
- **SCDs**
  - Not ordered
  - Not on
  - Not working
- **Chemoprophylaxis**
  - Not ordered
  - Ordered incorrectly
  - Not administered

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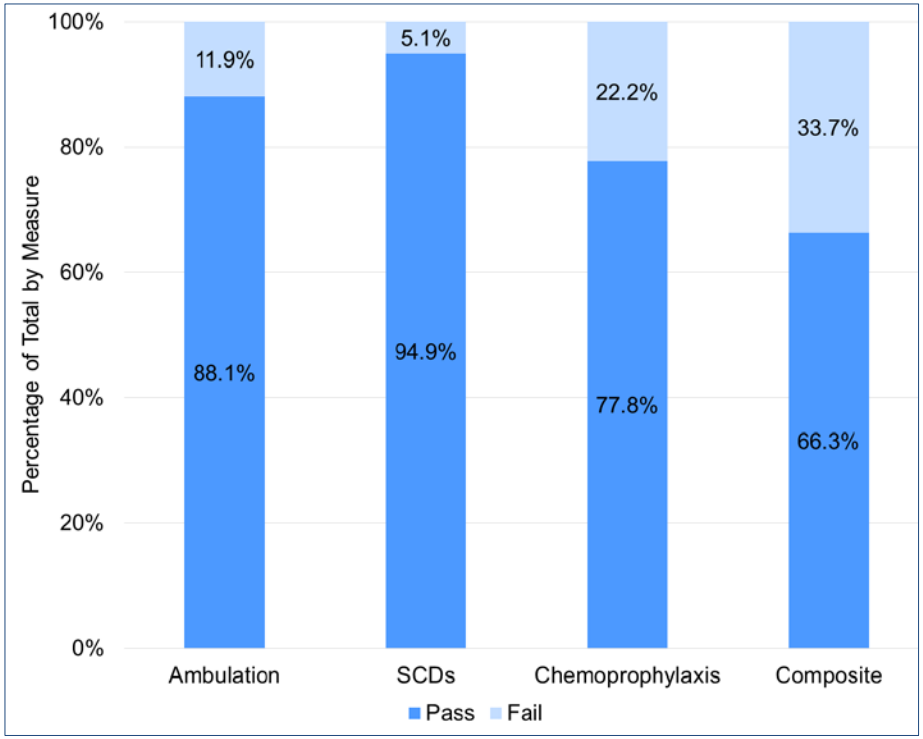
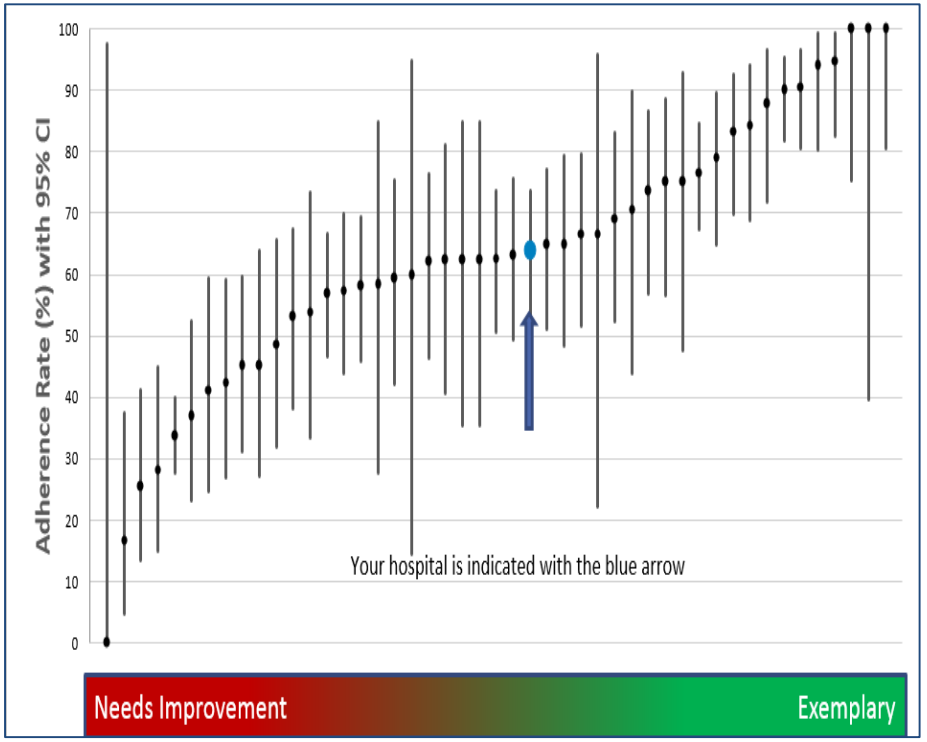
Benchmarked Performance Reports





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Feedback from Hospitals

	Agree
The CQIP will improve VTE care at my hospital	**94%**

*"The VTE audit has **brought to light** some improvements we can make in documentation."*

*"Data abstraction has **highlighted areas of non-compliance**. Removing these barriers could result in improvements."*

*"Although our hospital has been focused on improving VTE care for the past 2 years, we anticipate **using some of the tools** and **techniques** provided in the VTE toolkit, particularly around staff and patient education."*

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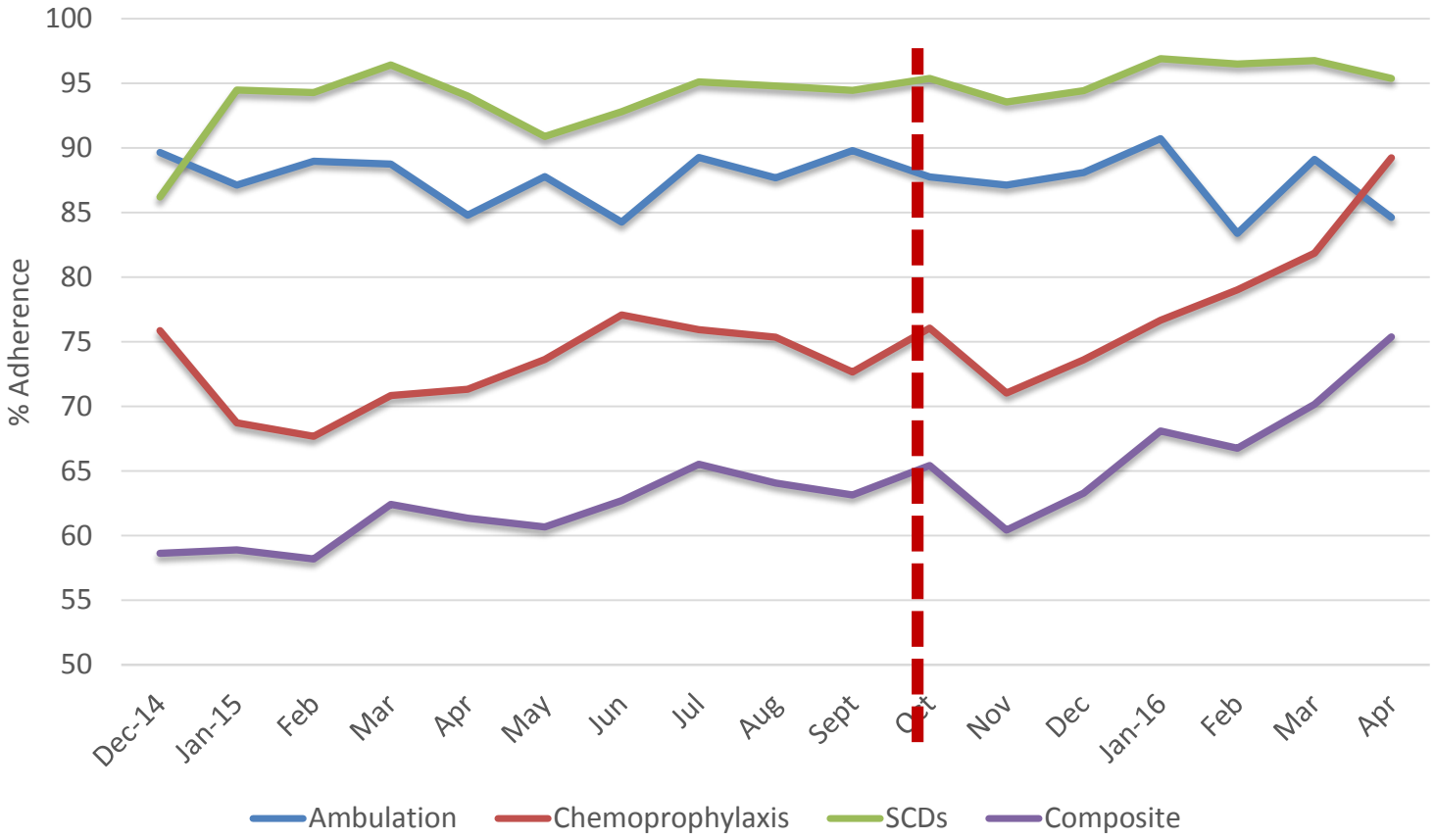
COLLABORATIVE-WIDE IMPROVEMENTS IN ADHERENCE TO BEST PRACTICES

Collaborative-Wide Composite VTE Measure Adherence Over Time



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EARLY COLLABORATIVE-WIDE IMPROVEMENTS IN OUTCOMES

Statewide Decrease in VTE!

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Conclusions

- Current publicly reported VTE quality measures are problematic
  - Difficult to find actionable ways to improve
- VTE Prophylaxis Composite Measure is one way to address VTE QI
  - Easy to use
  - Clinically applicable
  - ***Actionable***
- The VTE Prophylaxis Composite Measure has led to improved patient care in Illinois

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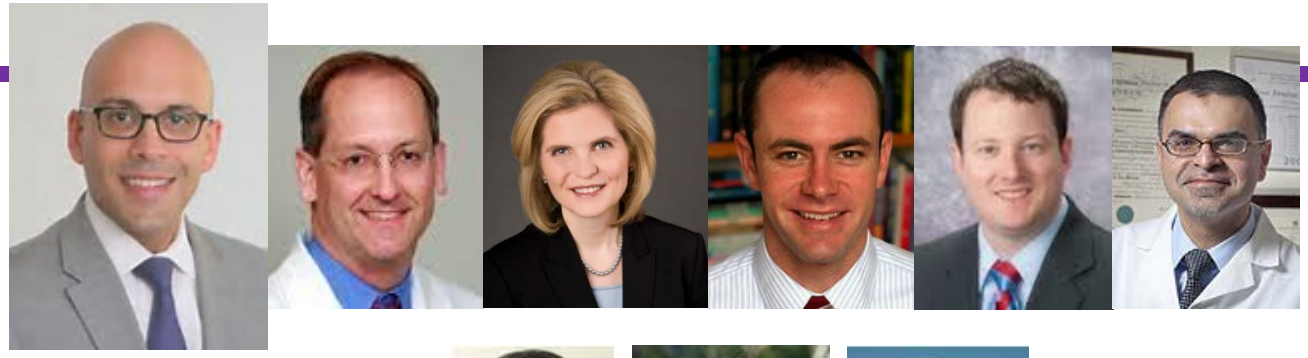
Conclusions

- The CQIP model with customized process measures offers a way to identify data-driven, actionable failures in care not previously recognized through current quality measures
- These measures are relatively easy to initiate and utilize for QI as evidenced by successful rollout in a statewide collaborative QI project

The Team



- Surgeons
  - 7 surgeons

- Health Services Researchers
  - 3 PhDs

- 20+ staff
  - Statisticians, analysts, programmers, project coordinators, grants, PI leaders

- 8 Research fellows

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