

# Lab Quality Confab 2016

## Beyond Lean and Process Improvement: Achieving Hospital-Wide Clinical Collaboration to Improve Utilization of Lab Tests and Patient Outcomes

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Clinical Chemist and Director of Clinical Trials

October 19, 2016



# Objectives



- **Discuss the benefits of improving test utilization and clinical effectiveness to reduce expenses and enhance patient outcomes**
- **Describe how the laboratory can contribute to performance driven healthcare**
- **Define how effective communication can be facilitated between the Laboratory and healthcare providers**

# John T Mather Hospital

**Our Mission is to be the Best Community Hospital in New York State**

- 248 Bed Community Hospital established in 1929
- Located North Shore on Long Island in Suffolk County
- Continually changing to meet the needs of the community
- Magnet Status
- U.S. News & World Report's Best Hospital 2016 Rankings  
 Ranked #19 in New York State
- Patient Safety Score "A" from Leapfrog Group, 9 consecutive quarters
- Four Stars from CMS, Aug 2016, the highest on Long Island



# John T Mather Laboratory

## Who Are We?

- JCAHO Accredited
- JCAHO Gold Seal
- 2.4 million tests/year
- Automated Lab since 2001
- 1800 sq. feet of space
- 72 FTEs
- HR Cost- 33%
- Average TAT- <30 minutes



# Invitation to Choosing Wisely



**MATHER**  
John F. Mather Memorial  
**HOSPITAL**

75 NORTH COUNTRY ROAD • PORT JEFFERSON • NEW YORK 11777-2190 • 631-473-1320 • [www.matherhospital.org](http://www.matherhospital.org)

January 6, 2016

RE: Choosing Wisely Committee

Dear Colleagues:

The Choosing Wisely Committee has been chartered by the Mather Medical Board to focus on ways to provide safer, higher-quality care to patients while optimizing the use of healthcare resources.

“Choosing Wisely” is an initiative of the ABIM Foundation and supported by over 26 subspecialty societies. Each society has published a list of guidelines relevant to their subspecialty to provide guidance to physicians and their patients about the appropriate use of tests and procedures. The goal is to help both patients and providers make more effective care choices.

This committee will review these guidelines to stimulate discussion about the need—or lack thereof—for many frequently ordered tests or treatments and to develop tools to reinforce appropriate use at Mather Hospital.

I invite you to join your colleagues (from ID, Radiology, Surgery, Pharmacy, Nursing, etc.) to participate in this committee. We will meet quarterly beginning on Tuesday, February 9, 2016 at 8 am at Mather Hospital in Conference Room A.

If you are interested in knowing more about this initiative, you may visit the Choosing Wisely website at [www.choosingwisely.org](http://www.choosingwisely.org), or call Ryann at Dr. Faro’s office at (631) 476-2866.

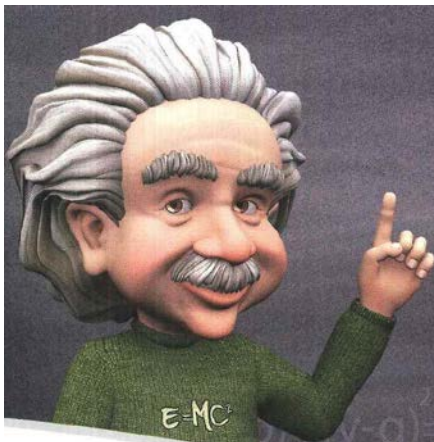
I am looking forward to working with you.

Very truly yours,

Peter F. Bruno, MD, FACC

# Mission Statement

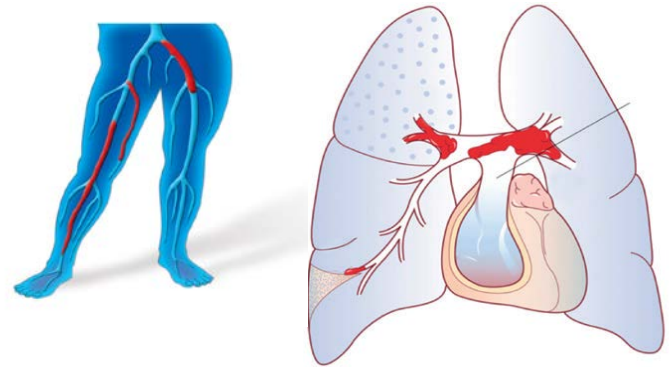
**Propose guidelines for clinical efficiency and effectiveness in the workup and management of common hospital-based conditions to be endorsed by the Medical Board.**





# Key Performance Indicators

- **Challenge/Opportunity**
- **Process and Quality**
- **Patient Benefit**
  - Patient safety and satisfaction
  - Outcomes (LOS, mortality, re-admissions)
  - Avoid unnecessary treatment(s)
  - Appropriate level of care
- **Cost**



# Key Questions to Consider



**Can patient outcomes and satisfaction levels be improved?**

**YES**

**Can we demonstrate measurable outcomes?**

**YES**

**What are the savings potential?**

**YES**

**Can clinical practice be changed?**

**YES**



# Teamwork



## **Choosing Wisely Committee should include:**

**Senior Hospital Leadership**  
**Chief Medical Officer**  
**Chief Information Medical Officer**  
**Hospitalists**  
**Intensivists**  
**Cardiologists**  
**ED Clinicians**  
**Clinical Laboratory**  
**Pharmacists**  
**Nursing Management/Staff**  
**Finance**

# Lab Quality Confab 2016

## Choosing Wisely Case Study

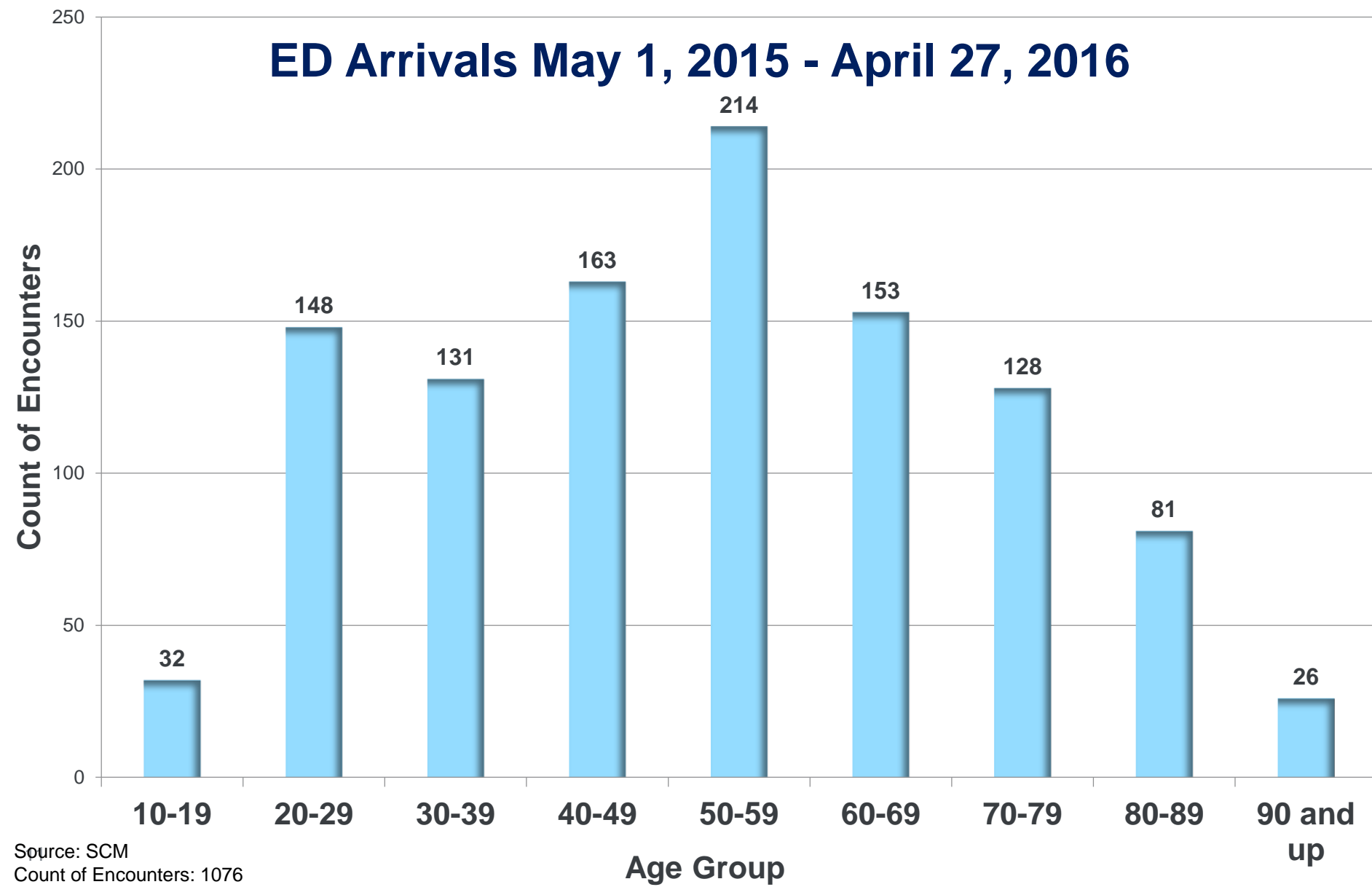


# Objectives



- **Discuss how combining CPTP assessment and D-dimer as a first screen can improve quality and high value patient outcomes**
- **Examine statistics**
- **Measure the direct impact of laboratory test results on organizational performance**
- **Describe how a first screen algorithm can contribute to performance driven healthcare**

# D-dimer and Patient Age



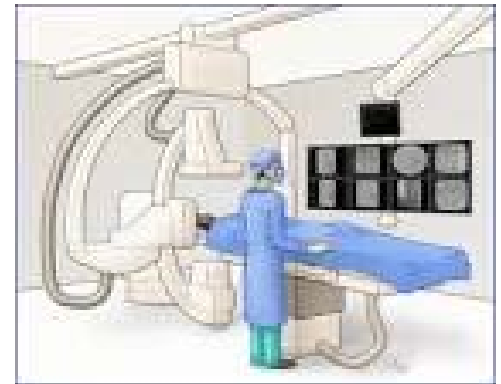
# Statistics

- **99% of ED cases had no documentation of any CPTP assessment**
- **1154- Total Number of D-dimers ordered between May 2015 and April 2016**
  - **919 (85%) D-dimer and no angiography**
  - **157 (15%) D-dimer and angiography**



# Statistics

- **ED- 107 (68%) Positive D-dimer ( $>500\text{ng/mL}$ ) had Angiography**
- **Angiography Results**
  - **101 Negative**
  - **4 Positive**
  - **2 Equivocal**



# Statistics

- **ED- 50 patients (32%) with Negative D-dimer (<500 ng/mL) had Angiography**
- **Angiography Results**
  - **50 Negative**
    - **32 triple CCTA**
    - **2 double**
    - **8 single**
    - **9 V/Q Scan**
- **Average Patient Age- 49.5**





# Not all D-dimer Tests are Created Equal

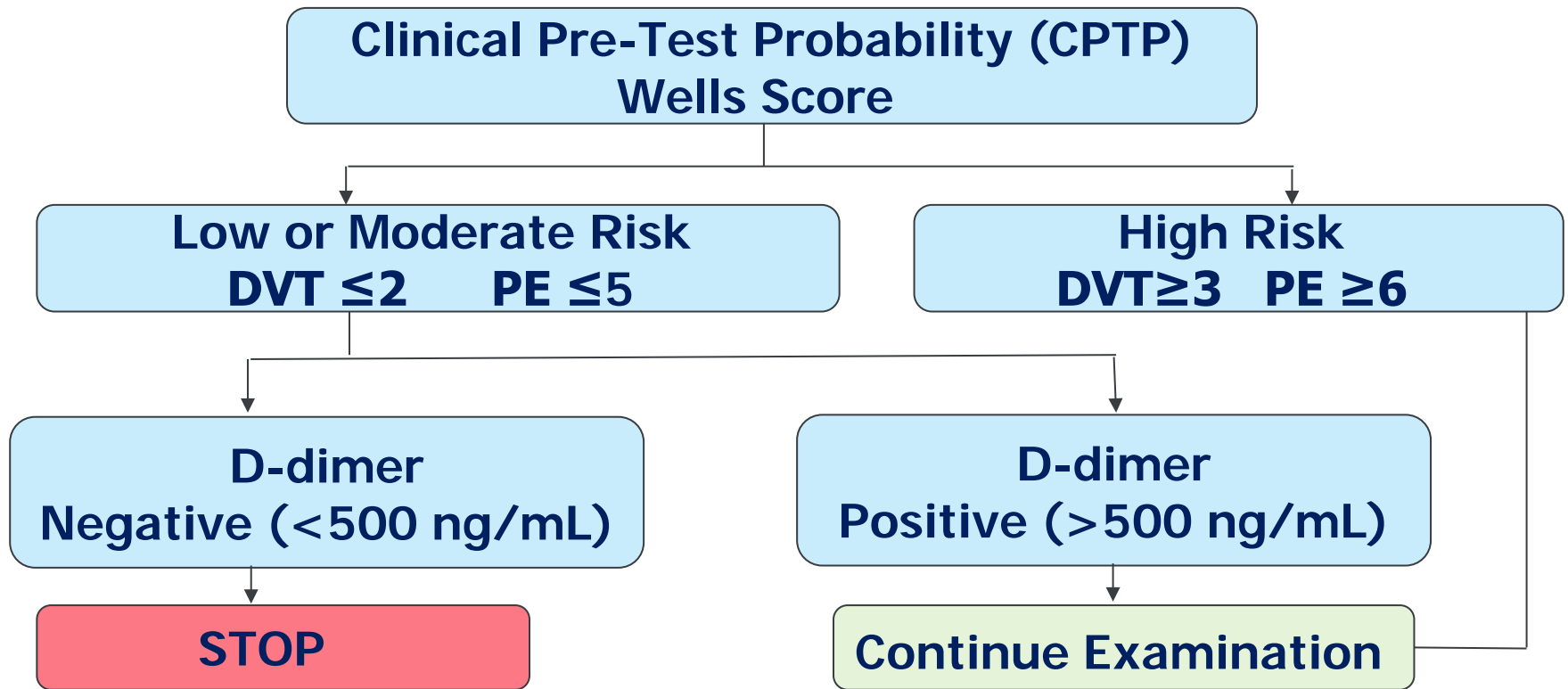


# D-dimer Exclusion II Assay

- FDA cleared for Exclusion of PE and DVT in low and moderate risk outpatients
- Not all D-dimer tests support an exclusion strategy
- Negative Predictive Value- (NPV reflects the ability of a test to rule out the disease)
- NPV > 99% at a cut-off of 500ng/mL
- Method: BioMerieux VIDAS



# DVT/PE Risk Assessment Algorithm



**NPV >99% when CPTP and D-dimer are combined for safe exclusion of VTE in suspected outpatients**

- No further testing
- No anticoagulant treatment
- Improved patient management
- No radiation exposure
- Cost savings

**Follow-up with imaging procedures such as:**

- CCTA/Pulmonary angiography
- V/Q Scan
- Compression ultrasonography (CUS)

**Other investigations for differential diagnosis**

# Positive (>500ng/mL) D-dimer Result

- **Is not an indicator of any specific clinical condition may be elevated in the following conditions:**
  - malignancy
  - infection/inflammation
  - chronic illness
  - pregnancy
  - trauma
  - DIC
  - surgery
  - age >50 years
- **Objective confirmation needed**



# D-dimer Exclusion II Assay Limitations

- **Clinically relevant false negatives** may occur in suspected VTE patients with **high CPTP**;
- **Long duration of symptoms** (more than one week)
  - lower d-dimer due to reduced thrombus burden
- Receiving **anticoagulants**;

**Therefore, under these conditions it is NOT recommended to use D-dimer for VTE exclusion.**

# Cost Savings

- **Cost saving for the hospital**
  - Avoid unnecessary imaging procedures**
    - CCTA- \$1511**
    - Contrast Media/Meds- \$57.82**
    - Contrast Media- \$46.98**
    - Meds- \$10.84**
    - Human Resources**
      - RN and CT Tech- \$60.00**



# Cost Savings

**$\$1628.82/\text{pt} \times 50 = \$81,441$**





# The Value is Unquestionable...

## Saves Lives and Dollars

### D-dimer.....DVT/PE Exclusion strategy when combined with CPTP

- Cost - \$9.00
- Rapid screening in less than 1 hour
- Promotes accurate (NPV >99%) exclusion of VTE in low to moderate risk outpatients
- Improves patient outcomes
- Enhances patient care management by closing the case and avoiding unnecessary diagnostic/imaging testing
- Frees up beds quicker in ED, thereby eliminating bottlenecks and holds



# Recommendations

- **Hardwire Wells Score**
- **D-dimer Lab Report**
  - **Add performance data such as NPV > 99% when negative D-dimer is combined with assessment of CPTP, low to moderate Wells Score**
  - **List test Method**
- **Hardwire CPTP/D-dimer Algorithm**
- **Provide information in the Clinical Support Decision system to assist with inquiries**
- **Provide clinician education**



# D-Dimer Revised Lab Report

**Location:** ER  
**Names:** DOE, JOHN  
**Acct. No.:** 646321234  
**MRN:** 123456  
**DOB** 01/01/1950  
**Physician:** Non, Staff MD

**Laboratory of:**  
**John T. Mather Memorial Hospital**  
**Port Jefferson, NY 11777**  
**Lab Director:** John Chumas, MD

## D-Dimer

**Expected range:** < 500 ng/mL

**The Negative Predictive Value (NPV) is greater than 99% when a patients D-Dimer result is < 500 ng/ml and is used in conjunction with a (low to moderate Probability) Wells score of  $\leq 2$  for Deep Venous Thrombosis and  $\leq 5$  for Pulmonary Embolism in the outpatient population. Additional testing may not be necessary at this time.**

**Method:** BioMerieux Vidas Exclusion II

# Clinician Education

## **Mather & St. Charles** **HEALTH ALLIANCE** TOGETHER - CARING FOR YOU AND YOUR FAMILY

### ***D-Dimer and Evaluation of Pulmonary Embolism***



**Presented by:**  
**Drs. Denise Geiger**  
**& Joseph Ng**  
**Mather Hospital**

**August 26, 2016**  
**7:00am**  
**Mather Hospital**  
**Conference Rooms A&B**

#### **EDUCATIONAL OBJECTIVES:**

*Upon completion of this program, attendees should be able to:*

- *Discuss how combining Clinical Pre-Test Probability (CPTP) assessment and D-dimer as a first screen can improve quality and high value patient outcomes*
- *Examine VTE statistics*
- *Measure the direct impact of laboratory test results on organizational performance*
- *Describe how a first screen algorithm can contribute to performance driven healthcare*

#### **Accreditation Statement:**

The Suffolk Academy of Medicine is accredited by the Medical Society of the State of New York (MSSNY) to provide Continuing Medical Education for physicians.

The Suffolk Academy of Medicine designates this live educational activity for a maximum of 1 AMA PRA Category 1 Credit(s)<sup>™</sup>. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

#### **Disclosure Statement:**

In compliance with the ACCME Standards for Commercial Support,<sup>™</sup> all those in control of the CME content of activities provided by the Suffolk Academy of Medicine are expected to disclose all relevant financial relationships with any commercial interest that may have a direct relationship to the subject matter of their educational activity. All commercial relationships that create a conflict within the faculty's control of content must be resolved before the educational activity occurs.

Dr. Geiger, Dr. Ng, the planners and CME provider have no relevant relationships to disclose with a commercial interest (defined as any entity producing, marketing, re-selling, or distributing healthcare goods or services consumed by, or used on, patients), related to the content of the educational presentation.

# Choosing Wisely Update and What's Next



# Choosing Wisely Update

## D-Dimer

- Grand Rounds Presentation August 26<sup>th</sup>
- Revised Laboratory Report- August 24<sup>th</sup>
- Wells Score documentation



## Troponin Serial Draw Times

- ED and In-house- 0, 3, 6 hours
- HEART Score in ED



## Heart Failure

- BNP- 48 hour order
- Pre-discharge BNP
- NYHA Classification



# Choosing Wisely

What's Next

## Heart Failure

- Iron Deficiency Anemia
  - Reticulocyte Hemoglobin (RET-He)
  - Algorithm for Lab Anemia Testing
- PARADIGM- HF
  - ENTRESTO- BNP vs. NT pro-BNP

## Syncope

- Algorithm for Assessment

## Troponin

- Cut-off at 99<sup>th</sup> percentile
- Move to pg/mL reporting



# Keys for Success.....

- **Demonstrate your knowledge**
- **Network, network, network**
- **Capture the informal opportunities**
- **Capture the formal opportunities**
- **Assemble a team**
- **Attend committee meetings**
- **Become a liaison**
- **Capitalize on existing communication**



# **Choosing Wisely can successful shift us from fee for service to High Value Based Patient Outcomes!**



# There has to be something for everyone!



# Executive Summary

- **The Laboratory can directly contribute to enhanced patient care by implementing advanced technology to support practice guidelines**
- **Choosing Wisely provides a communication forum that fosters Laboratorian/clinician collaborations, enabling initiatives, such as:**
  - **D-dimer NPV algorithm**
  - **Decreased sample draw times for Tnl**
  - **Eliminated assays that do not add value (CK-MB and Myo)**

# Lab Quality Confab 2016

