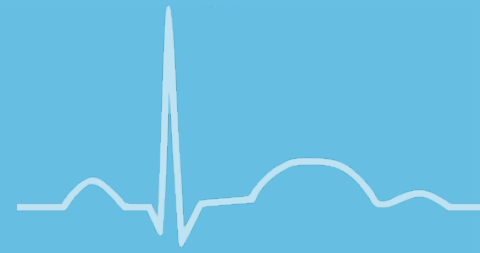


# Society of Cardiovascular Patient Care *2013 Updates: Guidelines and Troponin Turn-Around-Time Documentation Requirements*



SOCIETY OF CARDIOVASCULAR PATIENT CARE

# Speaker Overview



Ruth Cantu, BSN, RN  
Accreditation Review Specialist

There are no disclosures

# Objectives



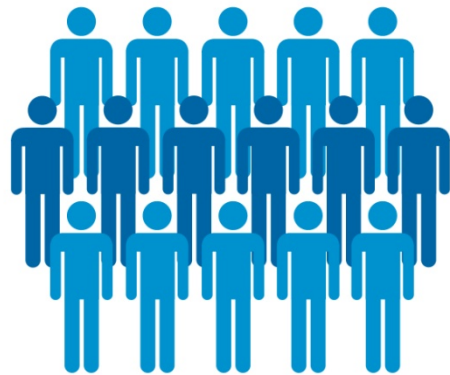
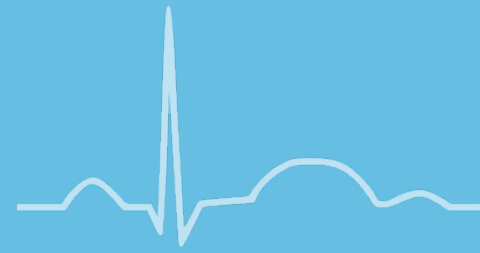
- Overview of Acute Coronary Syndromes (ACS)
- Discuss the new myocardial infarction (MI) and S-T Elevation MI (STEMI) guidelines
- Discuss the Society of Cardiovascular Patient Care (SCPC) Troponin Turn-around-Time (TTAT) documentation requirements for accreditation
- SCPC Site Survey Findings

# What we know

The background of the slide is a blurred photograph. It shows a person's hand holding a pen, poised to write on a document. In the upper part of the image, a white calculator is visible. The overall scene suggests a medical or administrative setting where data is being recorded or analyzed.

Coronary Heart Disease is the  
#1 disease in the United States

# Get the Facts



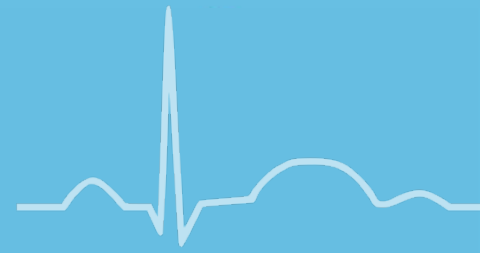
**16.3 million** people over age 20 in the U.S. have some form of **coronary heart disease**

**Cardiovascular disease** is the leading hospital discharge diagnostic group (DRG 390 - 459)





# Get the Facts



**5-8 million** patients present to the  
Emergency Department (ED)  
annually for **chest pain**



to



A person wearing blue scrubs is pushing a white gurney down a hospital hallway. The hallway has light-colored walls and a tiled floor. A sign with a red arrow is visible on the left wall. The person's legs and feet in white sneakers are visible in the foreground.

# Mission & Values:

SCPC was developed to share best practices that improve outcomes of patients with suspected or acute cardiovascular disease through innovative cross-disciplinary processes.

*In short, to bring science to the bedside...*

# Collaboration

SCPC shares with its facilities the goal of early diagnosis of myocardial infarction (MI) and improvement in patient outcomes through education, accreditation and process improvement.

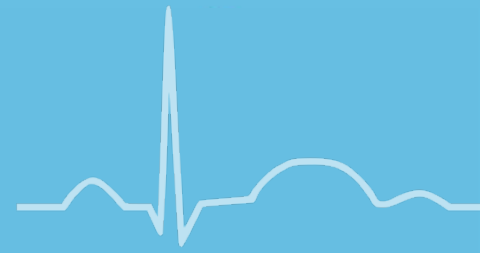
Through the *process of accreditation* we help break down barriers and facilitate communication to achieve successful continuum of care.



SOCIETY OF CARDIOVASCULAR PATIENT CARE

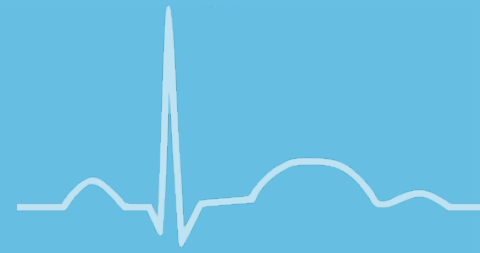


# Accreditation and Certification



*We create communities of excellence that bring science to the bedside.*

# Accreditation Partnerships



**American Heart Association  
ACCREDITATION**

Meets standards for  
**Heart Attack Receiving Center**



**American Heart Association  
ACCREDITATION**

Meets standards for  
**Heart Attack Referring Center**

**MISSION:  
LIFELINE**

*We create communities of excellence that bring science to the bedside.*

# Early Heart Attack Care



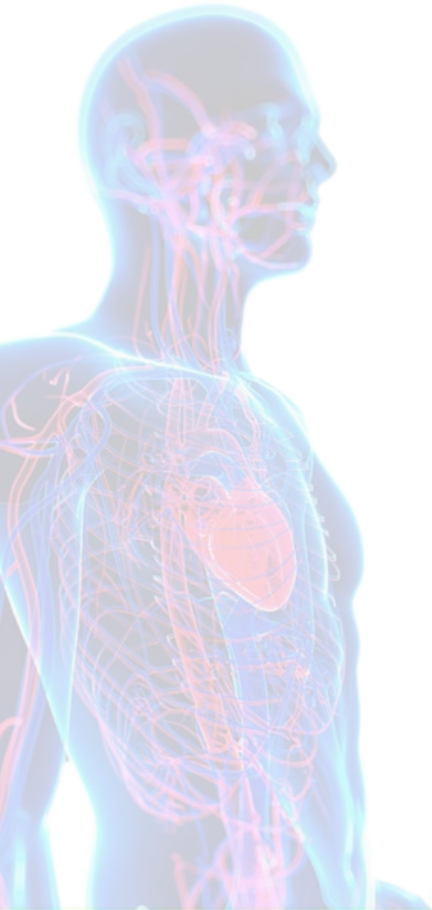
## Heart attacks have beginnings

EHAC (Early Heart Attack Care) shifts the focus from *treating to preventing a heart attack.*

Adults ignore or deny symptoms or complex co-morbidities lead to confusion

- Mild chest pain
- Fatigue
- Shortness of breath
- Stuttering chest discomfort

Which places them in grave danger of heart muscle damage or death

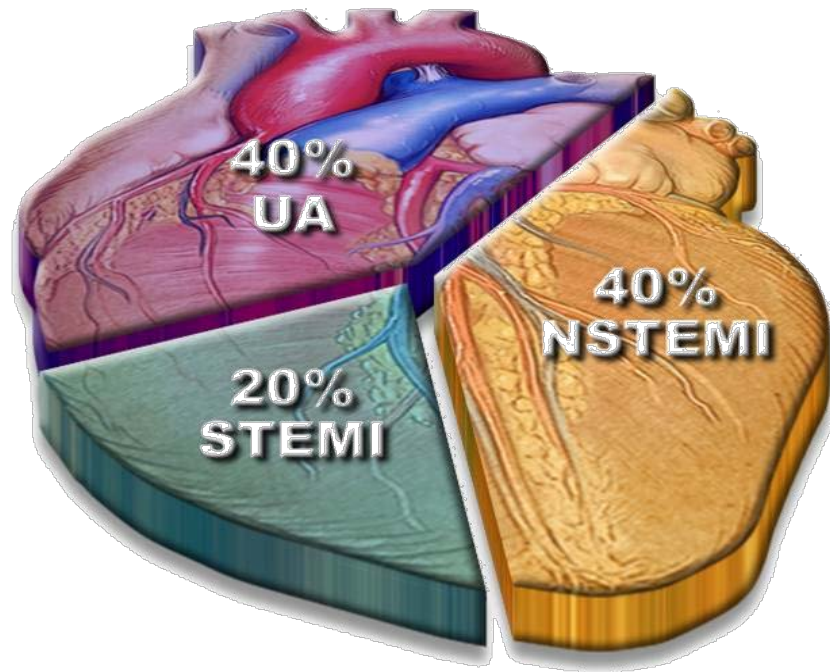



# Acute Coronary Syndrome (ACS)

ACS comprises three conditions: ST-elevation Myocardial Infarction (MI or STEMI); Non-ST-elevation MI (NSTEMI) and Unstable Angina (UA)

**20-25%**  
diagnosed with  
some form of ACS

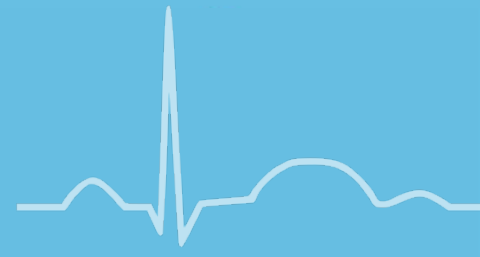
**75-80%**  
have Chest Pain that is  
not ACS



Source: American Heart Association  
  
*Learn and Live*



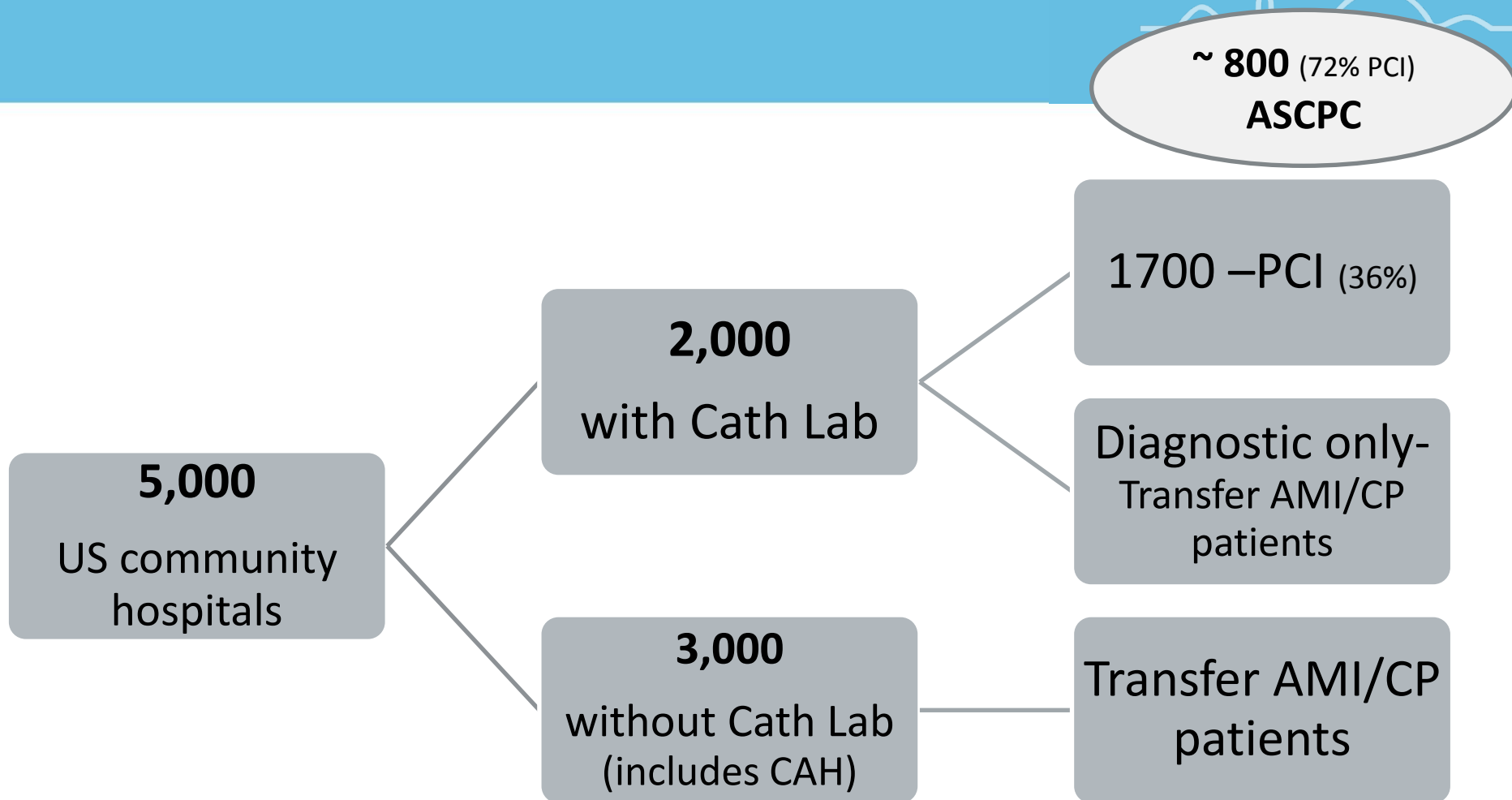
# Definitions for Treating MI - Reperfusion



- **Percutaneous Coronary Intervention (PCI)** - most frequently used invasive method of treating the narrowing, or stenosis, of coronary arteries; performed in cardiac catheterization facilities (cath lab) at acute care hospitals
- **Primary PCI (PPCI)**- also known as (aka) emergency angioplasty, is a life-saving intervention performed during a heart attack (acute ST-segment elevation myocardial infarction aka: STEMI)
- **Non-primary PCI** - aka: elective angioplasty, scheduled intervention to relieve the narrowing of the artery; goal of preventing a heart attack from occurring in the future

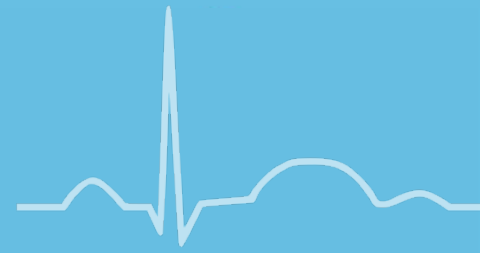
**Key Point: All laboratorians should be very familiar with the protocols and diagnostic capabilities (cath lab, PPCI, lytics, transfer) to address acute cardiac events.**

# Hospital Statistics



Source: American Hospital Association & ACC/NCDR/Cath-PCI

# Estimated In-hospital Mortality by Door-to-Reperfusion Times

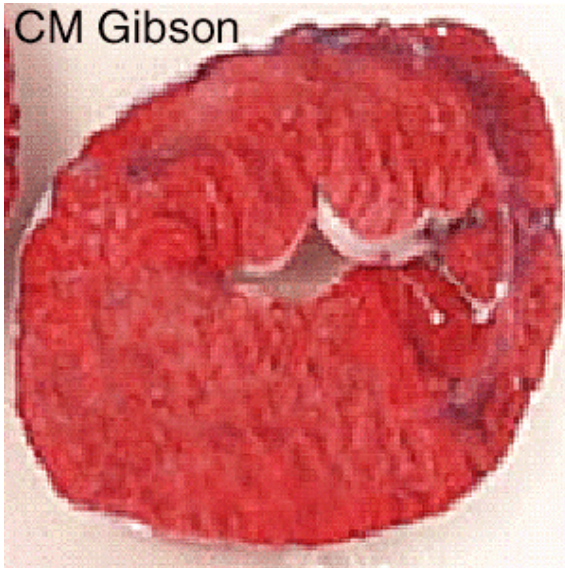


TIME (minutes)

Adjusted Mortality\*

15

CM Gibson



2.9 (2.8-3.1)

30

3.0 (2.9-3.2)

60

3.5 (3.4-3.6)

90

4.3 (4.2--4.4)

120

5.6 (5.4-5.7)

180

8.4 (8.2-8.7)

240

10.3 (10.0-10.7)

There is no *floor* to the *mortality reduction* that can be achieved by *reducing time to treatment*

**and**

Each 30 min. of delay translates into a 7.5% increase in relative risk of 1-yr mortality.

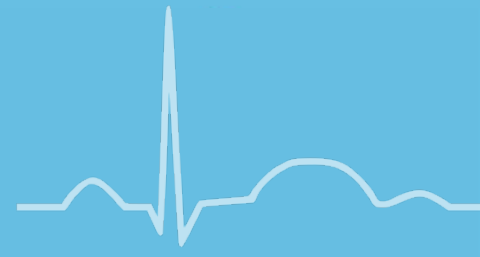
*\*Adjusted for age, sex, race, findings on presentation, medical history, procedural characteristics, angiographic findings, and hospital factors*

Any delay in D2B time associated with increased in-hospital mortality

Rathore SS, et al. *BMJ* 2009; 339:b1807.

Yale University School of Medicine; ACC-NCDR

# New Updated MI Guidelines



## Third Universal Definition of Myocardial Infarction

Kristian Thygesen, Joseph S. Alpert, Allan S. Jaffe, Maarten L. Simoons, Bernard R. Chaitman and Harvey D. White

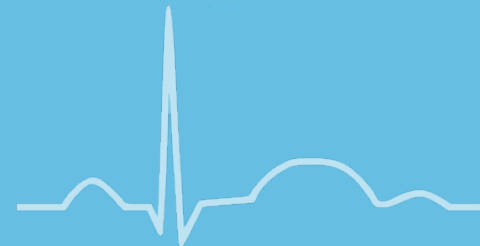
*Circulation*. published online August 24, 2012

### •Key Points:

- Optimal precision, as described by coefficient of variation (CV) at the 99th percentile URL for each assay, should be defined as  $<10\%$
- Assays with CV  $>20\%$  at the 99th percentile URL should not be used
- Blood samples for the measurement of cTn should be drawn on first assessment and repeated 3- 6 h later



# Consensus Document



Journal of the American College of Cardiology  
© 2012 by the American College of Cardiology Foundation  
Published by Elsevier Inc.

Vol. 60, No. 23, 2012  
ISSN 0735-1097/\$36.00  
<http://dx.doi.org/10.1016/j.jacc.2012.08.969>

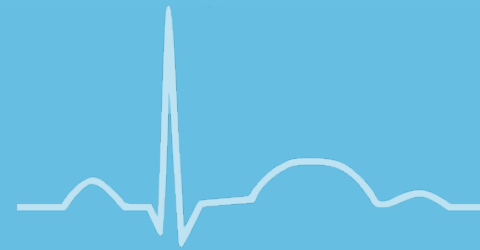
## EXPERT CONSENSUS DOCUMENT

# ACCF 2012 Expert Consensus Document on Practical Clinical Considerations in the Interpretation of Troponin Elevations

A Report of the American College of Cardiology Foundation Task Force on  
Clinical Expert Consensus Documents

*Developed in Collaboration With the American Association for Clinical Chemistry,  
American College of Chest Physicians, American College of Emergency Physicians, American Heart Association,  
and Society for Cardiovascular Angiography and Interventions*

# New Updated MI Guidelines – Follow-up Article



## How to Use High-Sensitivity Cardiac Troponins in Acute Cardiac Care

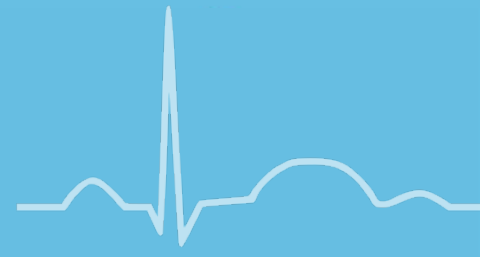
Kristian Thygesen et al

*European Heart Journal* doi:10.1093/eurheart/ehs154 PDF online 2012

### Summary Regarding Use of hsCardiac Troponin in Clinical Routine:

- Use 99<sup>th</sup>ile concentration of the reference population as the cTn URL
- The diagnosis of acute myocardial necrosis requires a significant change with serial testing...a minimum change of >20% in follow-up testing is required
- Additional testing of other early markers of acute myocardial necrosis, such as myoglobin or creatine kinase MB is no longer needed
- Blood sampling in patients with suspicion of AMI should be performed on admission and 3 h later...repeated 6 h after admission in patients of whom the 3 h values are unchanged but...clinical suspicion of AMI is still high

# New Updated STEMI Guidelines



## 2013 ACCF/AHA Guideline for the Management of ST-Elevation Myocardial Infarction

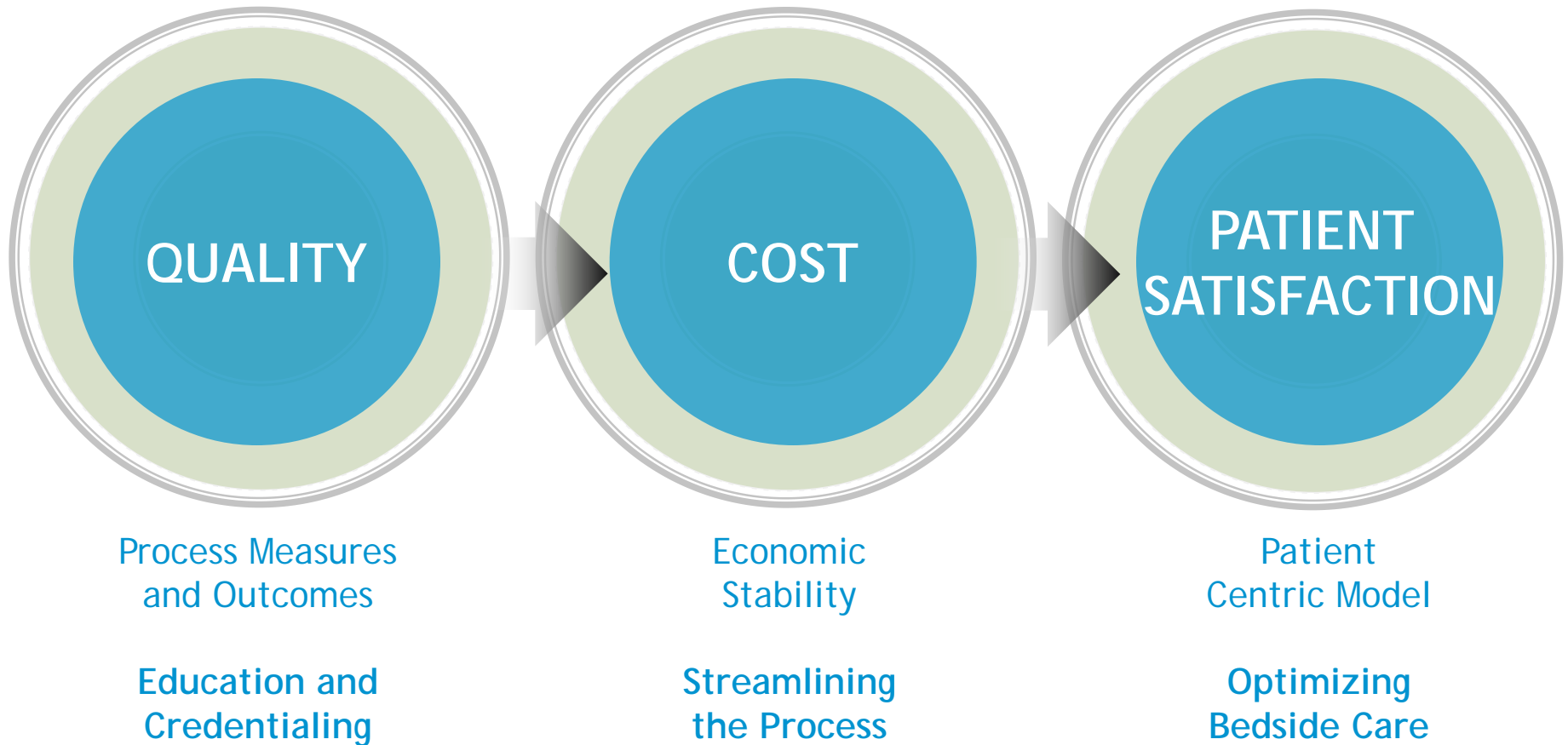
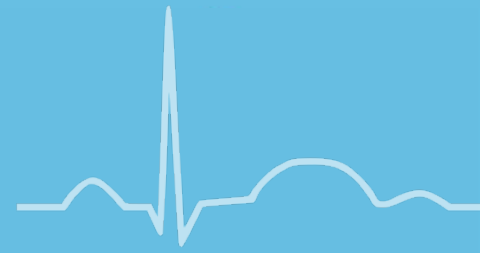
Patrick T. O'Gara et al

*Circulation.* published online December 17, 2012

### •Key Points:

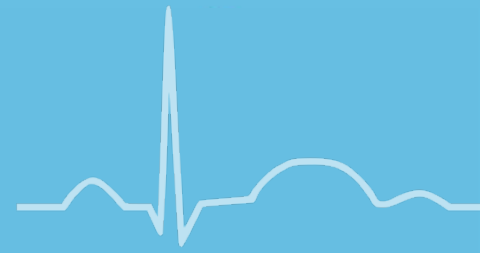
- Major and comprehensive revision of the prior 2004 Guideline
- Concept and terminology changes: "Door to Balloon (Needle)" replaced with "first medical contact (FMC) to device" time
- System goals of EMS-FMC-to-device = 90 minutes or less
- For transfers goals of EMS-FMC-to-device = 120 minutes or less
  - and D1D2R = 90 minutes
- For transfers goals is "Door in-Door out" = 30 minutes or less
  - Fibrinolytic therapy goal = 30 minutes

# Healthcare Today





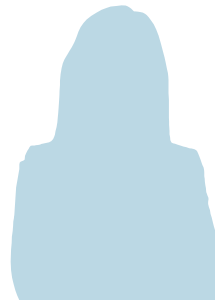
# Value Based Purchasing



1%

Awarded to hospitals

1% of Medicare payments to hospitals will be withheld during FY 2013 and awarded to hospitals that meet a set of quality performance measures.



30%

Patient satisfaction

Patient satisfaction will determine 30% of the incentive payments while...

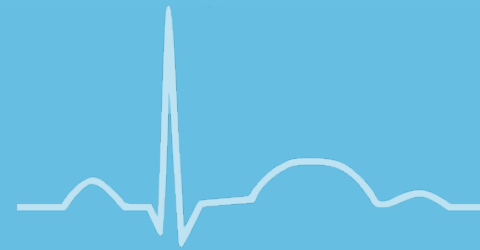


70%

Remaining Incentives

Improved clinical outcomes will determine the remaining 70% of the incentive payments.

# Value Based Purchasing



Two educational articles on VBP: Free CME/CE

**CMS Value-based Purchasing Targets Complications, Readmissions**

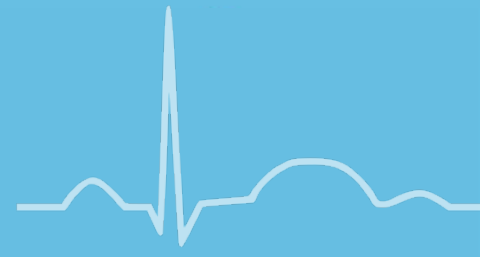
by Jean Moody-Williams, Medscape: Article #763832 (thru 05/29/13)

**Value Based Purchasing:**

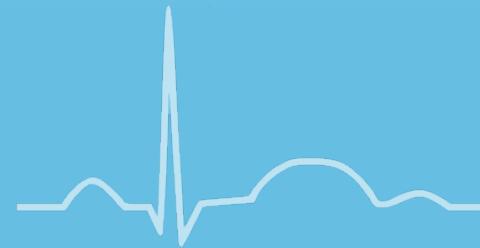
**Excellent care Boosts the Bottom Line**

by Charles F. Bombard, Nurse.com- CE663 (thru 08/10/2015)

# Observation Units and the Lab



# What is Observation Services? Medicare Definition



A well-defined set of specific , clinically appropriate services

- commonly ordered for patients who present to the emergency department (ED)

- require a significant period of treatment or monitoring

Ongoing short term treatment, assessment, and reassessment  
decision for further treatment to...

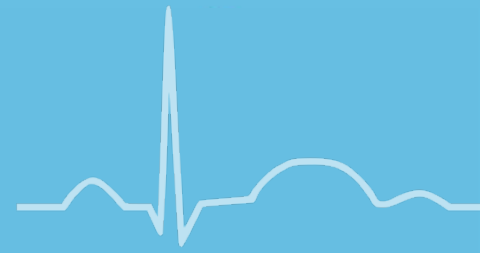
- inpatient

- discharge

Medicare policy manual rev. 137 12-30-10



# Observation Services



In 2003 national survey:

Emergency Department Observation Units (EDOU):

- 19% of US hospitals
- 12% planning a unit

A 2007 subsequent survey: -

- ED OU increased to 36%
- > 1/2 managed by ED MD's

Ross et al. Critical Pathways, 2012 The State of the ART: Emergency Room Observation Units.

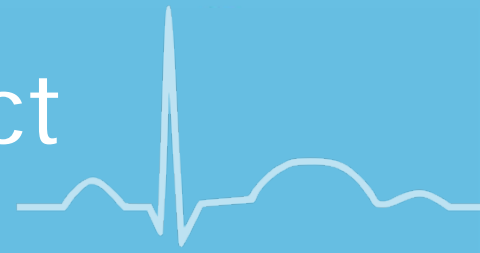
# ACS in Observation = Laboratory Impact



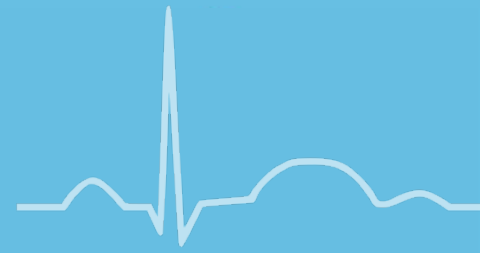
## BENCHMARKS:

- Average length of stay (LOS) in a dedicated OBS ~ 15 hours
  - ~ 70-80% are discharged / inpatient admit rate ~20%
  - Less than 1% of patients staying longer than 48 hours
- ... observation protocols have been shown to decrease unnecessary resource utilization and cost to 50% to 70% of routine inpatient care costs
- Accelerated Diagnostic Protocols (ADP) for serial cardiac biomarkers can help achieve benchmarks

# Readmissions = Laboratory Impact

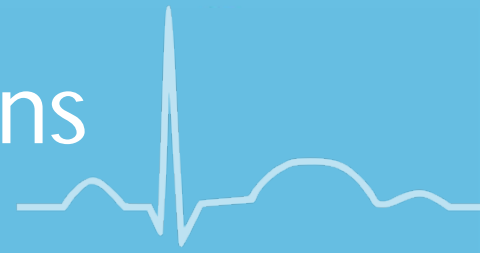


# Healthcare Stats: Readmission



- Hospitals readmit nearly 1 in 5 Medicare patients within one month of discharge (cost = \$17 billion /yr)
- National average for readmissions ~19%
- CMS effort to curb readmissions for three conditions:
  - heart attack, heart failure, pneumonia
    - HF: #1 cause for admission over age 65 and readmissions
- Penalty/fines assessments:
  - 1% - October 2012
  - 2% - October 2013
  - 3% in 2014

# Laboratory Role and Readmissions

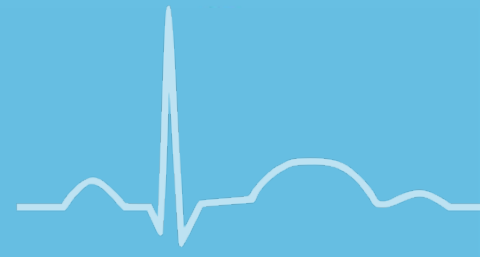


**April 2013 Clinical Laboratory News: Volume 39, Number 4**

**The Race to Reduce Readmissions: *Can Lab Tests Help Predict Who Will Return to the Hospital?***

- Key Points:
  - Simple test combinations used as “risk predictors”
  - Laboratory tests can prevent early discharges leading to increased readmissions
  - Lab based readmission calculators:
    - CORE Readmission Risk Calculator - Yale Medical School
    - Intermountain Risk Score - Intermountain Health

# Laboratory Role Overall: Clinical Support and Expertise





A person wearing a white lab coat is pushing a gurney in a hospital hallway. The gurney has a blue sheet on it. The person is wearing white sneakers. The hallway has a light-colored floor and a white wall with a door in the background.

# Accountability

Changing Perspectives of Turn-Around-Time Tracking: Healthcare Implications

# Changing Perspectives of TAT Tracking: Healthcare Implications



Recent studies and research support the movement towards the following:

- Assessing the “whole process” (ie: arrival)
- Standardizing definitions of turn-around-time (TAT)
- Assessing TAT with patient outcomes and length of stay

# Changing Perspectives of TAT Tracking: Healthcare Implications



Study by Ervasti et al, *Clin Chem Lab Med* 2008

Proposed new concepts for TAT in the diagnostic process:

As a “Patient-oriented” view or the “whole process”

- Diagnostic TAT - arrival to reporting of results (outcomes median 122 min)
- Clinical TAT - arrival to order
- Laboratory TAT - order to report/resulted

# Changing Perspectives of TAT Tracking: Healthcare Implications



In *Academic Emergency Medicine*, 2010:17, Hwang et al noted:

- “Guidelines do not exist delineating times frames for when a troponin test should optimally be resulted in association with improved patient outcomes.”
- “ Prolonged laboratory TAT may delay recognition of conditions in the acutely ill , potentially affecting clinician decision-making and the initiation of timely treatment.”
  - Outcomes median 107 minutes; “ordered to resulted”



# SCPC

## Cardiac Biomarkers and Troponin Turn-Around-Time Requirements

# SCPC Cardiac Biomarker Requirements



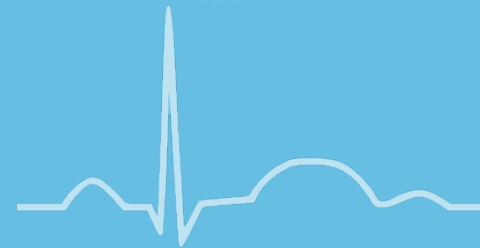
Measuring TAT is a guideline driven recommendation

No previous TAT requirement

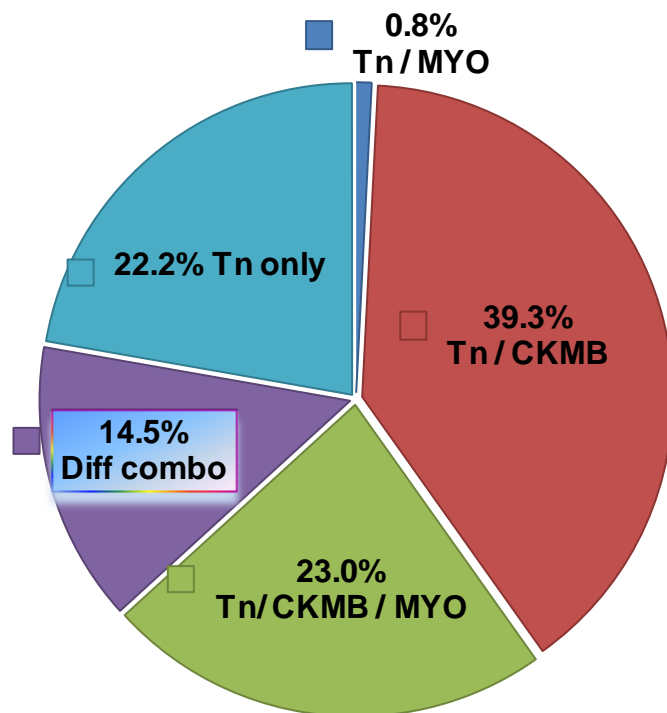
- SCPC requirement starting in 2012
  - Track and demonstrate improvements



# Troponin Measurement



**Which do you measure in your lab/hospital today?**



Troponin TAT only

Gold standard

Standardization

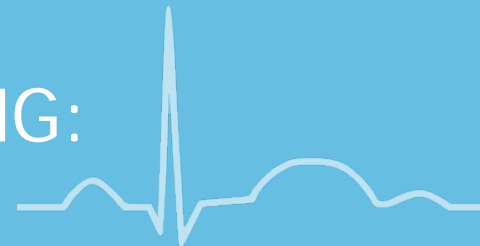
CLN – April 2009, vol 35, no 4

# SCPC Accreditation Tool Example

The facility has a process for reviewing and assessing <b>baseline troponin</b> quality metrics for ED patients. These metrics are tracked and shared between the ED and laboratory at appropriate committee meetings at least quarterly. <b>At least six months of metrics are required AND at least two of the following green Tier III and/or pink Tier IV Items:</b>					4.4.0.0
Yes	No	Item			
		Baseline troponin "turnaround time" (TAT) is broken down into the time segment of ORDER to COLLECT.			4.4.1.0
		Baseline troponin TAT is broken down into the time segment of COLLECT to RECEIVE IN LAB.			4.4.2.0
		Baseline troponin TAT is broken down into the time segment of RECEIVE IN LAB to RESULT.			4.4.3.0
		Baseline troponin TAT is broken down into the time segment of DOOR to RESULT.			4.4.4.0
		Baseline troponin TAT is broken down into the time segment of DOOR to ORDER.			4.4.5.0
		Baseline troponin TAT is broken down into the time segment of ORDER to RESULT.			4.4.6.0
		Baseline troponin TAT is broken down into the time segment of COLLECT to RESULT.			4.4.7.0
		90% of baseline troponin TAT of ORDER TO RESULT or COLLECT to RESULT is within 60 minutes.			4.4.8.0
		Yes	No	Item	
				90% of baseline troponin TAT of ORDER to RESULTS or COLLECT to RESULT is within 30 minutes.	4.4.9.1
Item					
The facility's cardiac biomarker approach includes documentation of an evidenced-based <b>serial troponin</b> strategy that is consistent with the assay used <b>AND at least one of the following green Tier III Items:</b>					4.5.0.0
Yes	No	Item			
		The facility has a process in place to monitor the TAT of serial draws for troponin.			4.5.1.0
		The cardiac biomarker protocol includes a serial troponin from ED arrival up to 6 hours. The protocol may last less than 6 hours if provocative cardiac testing or imaging takes place.			4.5.2.0

# SCPC ACCREDITATION & BIOMARKER TESTING:

## Key Element 4 – 4.4.0.0 overview

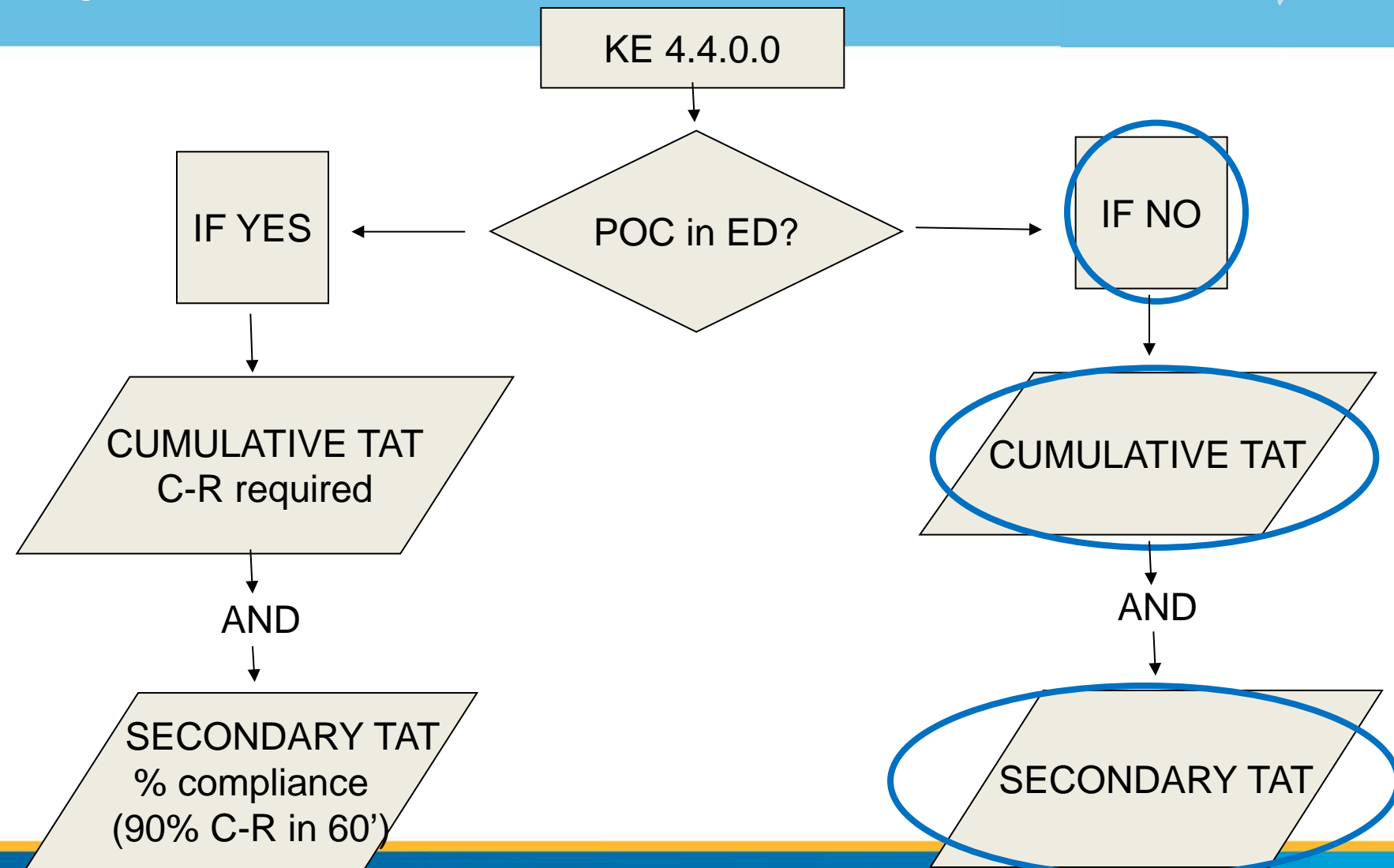
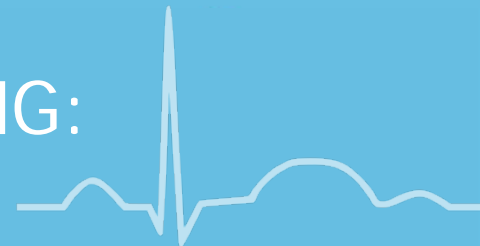


### Demonstrating a process for reviewing and assessing **BASELINE Troponin TAT ED patients**

Documentation requirements:

- **Monthly or quarterly meeting notes - *ARE YOU INVOLVED?***
  - Lab participates as an agenda item - *MUST BE ON CPC TEAM*
  - Metrics, process and action plans discussed
- **Minimum 6 months of data**
- **Goal times**
- **Required to provide TAT metrics: cumulative & secondary**
  - Point-of-Care Testing (POCT) / Central Laboratory Analyzers

# SCPC ACCREDITATION & BIOMARKER TESTING: Key Element 4



# Where does Point-of-Care Testing (POCT) fit in with CP Accreditation?



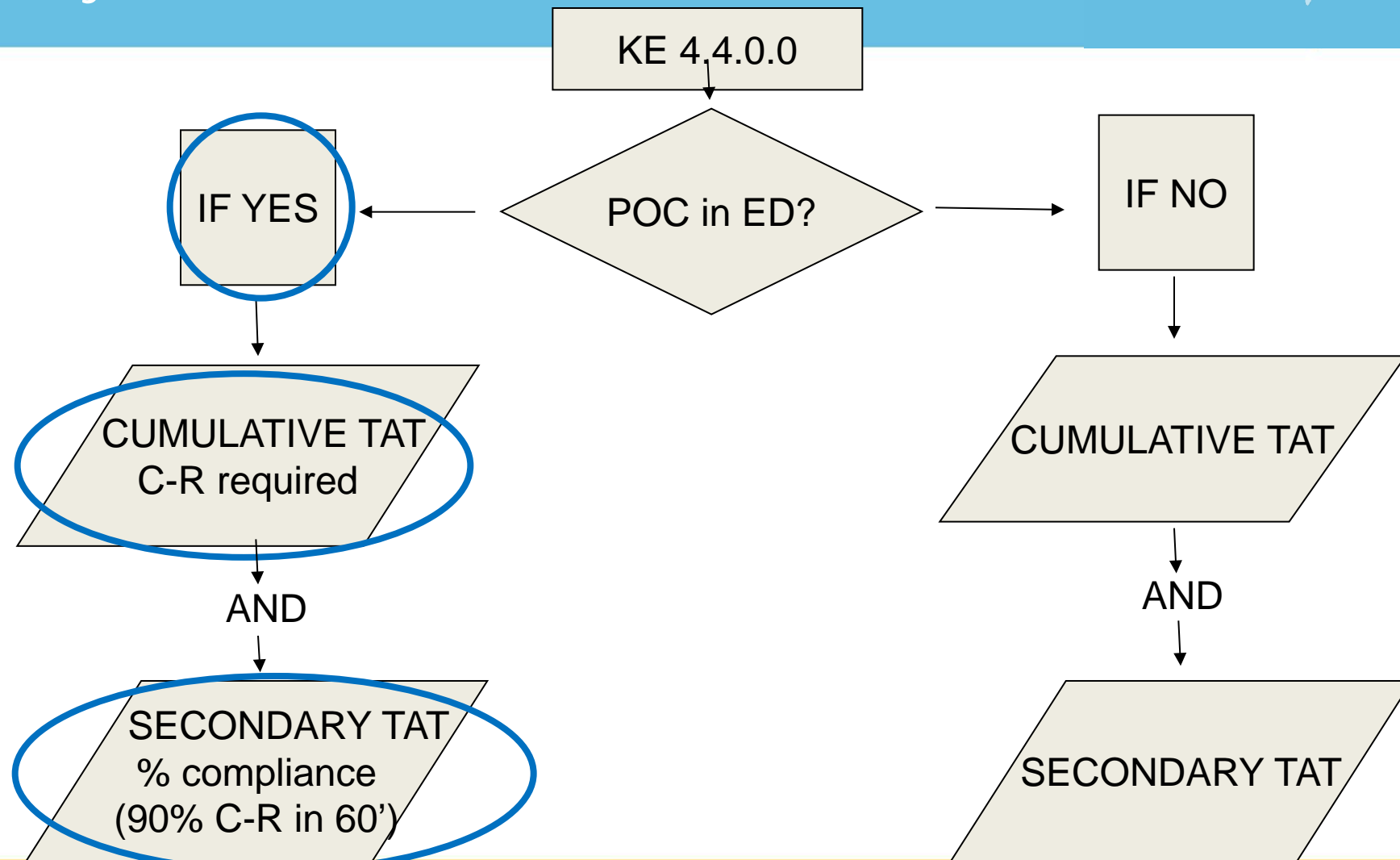
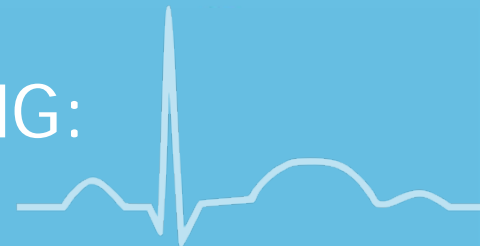
“To the extent that laboratory test TAT is only one factor impacting  
ED length of stay and patient outcomes,  
it is unlikely that POCT alone, in the absence of an  
interdepartmental approach to ED operations,  
will produce measurable improvements in outcomes.”

Lewandrowski, E. et al. Cardiac Marker Testing As Part Of An  
Emergency Department Point-of-Care Satellite Laboratory In A Large  
Academic Medical Center. Practical Issues Concerning Implementation.  
Point of Care. The Journal of Near Patient testing & Technology. Vol. 1,  
No.3, pp. 145-154.



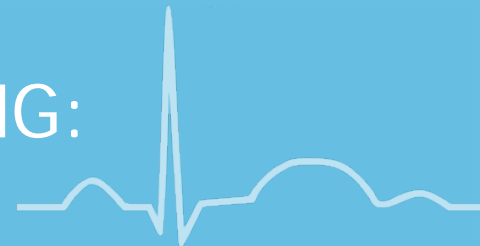
# SCPC ACCREDITATION & BIOMARKER TESTING:

## Key Element 4

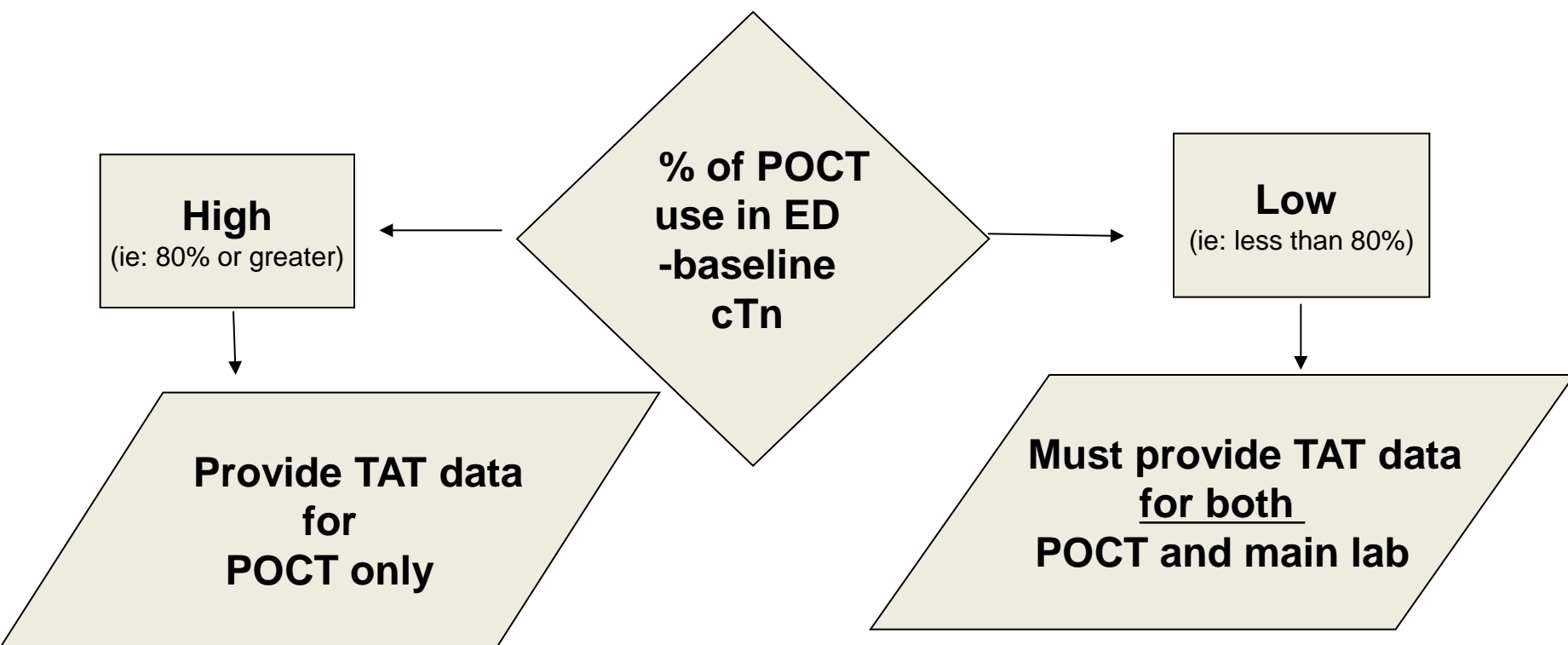


# SCPC ACCREDITATION & BIOMARKER TESTING:

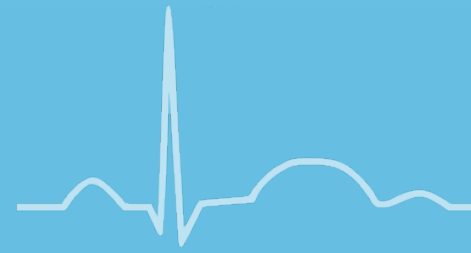
## Key Element 4



**What if scenario:**



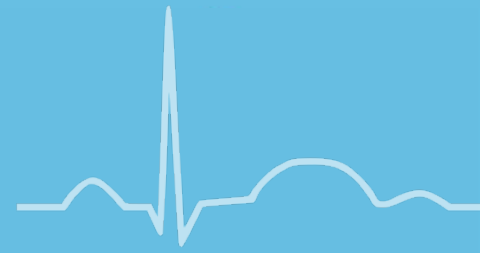
# Example: Troponin TAT



**CBM TAT EXAMPLE COLLECTION TOOL: 90% Goal w/in 60 minutes**

Year:_____	Total (n=ED TnI)	# Collect to Result w/in 60 min	Collect- Result ≤60 min (=C/B)	4.4.7.0 Goal
January	522	479	92%	90%
February	554	453	82%	90%
March	590	522	88%	90%
April	520	477	92%	90%
May	517	468	91%	90%
June	507	471	93%	90%
July	544	514	94%	90%
August	473	440	93%	90%
September	491	452	92%	90%
October	534	484	91%	90%
November	494	435	88%	90%
December	<u>490</u>	<u>463</u>	<u>94%</u>	4.4.8.0 90%
Totals:	6236	5658	<u>91%</u>	90%

# DATA SUBMISSION OPTIONS



## College of American Pathologist (CAP)

### QM1 monitor

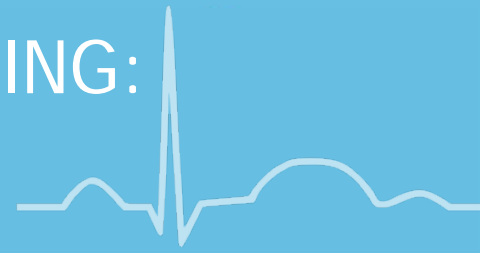
The Society has partnered with the College of American Pathologist who have created a validation tool which collects data to meet the Society requirements for TAT tracking.

Additional benefits are:

- One source collecting data for research to track the “diagnostic TAT” or “door to result’ data through sampling
- Great for facilities with large volumes
- Benchmarking
- Estimates trending of process improvement initiatives

# SCPC ACCREDITATION & BIOMARKER TESTING:

## Key Element 4



*4.5.1.0 – The facility has a process in place to monitor the TAT of serial draws for Troponin*

*Key concept: “Windows of Scheduled Time”*

- Assessment and documentation of serial draw time points*

# SCPC ACCREDITATION & BIOMARKER TESTING: Facility Information Booklet



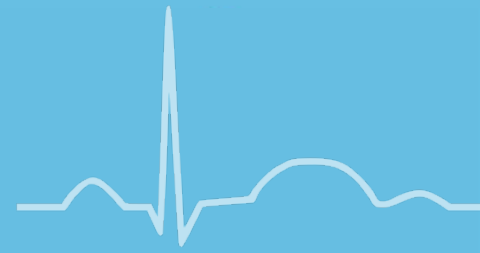
## For both CENTRAL LAB and POC Cardiac Markers

- ▶ Test
- ▶ Manufacturer
- ▶ Analyzer
- ▶ Hours drawn from arrival time (i.e. 0-3-6 hours, 0=Initial)
- ▶ Cut-point used for negative biomarker results
- ▶ Decision point used for positive tests
- ▶ Intermediate or “gray-zone” range (if applicable) for Troponin only
- ▶ **Which ones being used?**
- ▶ **Cannot be > 8 hours from 0 time**
- ▶ **Biggest area of discrepancy between manufacturers recommendations and the decision points being used**



# SCPC GENERAL FINDING

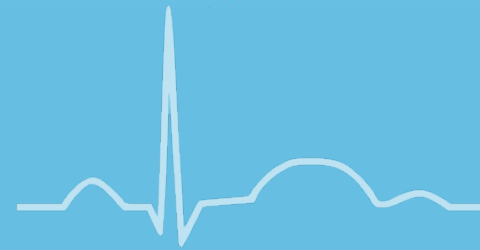
(results for discussion purposes only)



- ▶ Cycle III FIB data estimates: n=700
  - ▶ approximately half using POCT for CBM
  - ▶ 65% using the 99<sup>th</sup> percentile

# Polling results from webinars

(results for discussion purposes only)



**Does your facility have a cath lab that can perform PCI?**

(n ~ 300)

Yes	45%
No	27%
Not sure	28%

**Does your facility transfer chest pain or AMI patients?**

(n ~ 300)

Yes	33%
No	53%
Not sure	12%

**Are you using the 99th %ile?**

(n ~ 220)

Yes	60%
No	9%
Not sure	31%

**Are you using a diagnostic protocol of 0-3-6-?**

(n ~ 220)

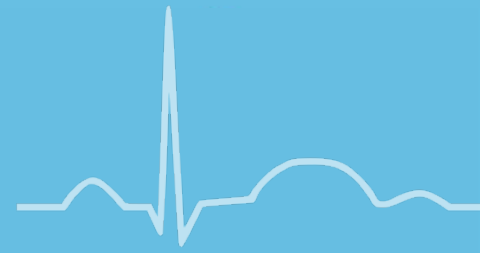
Yes	56%
No	25%
Not sure	19%

**Do you provide education to your physicians?**

(n ~ 200)

Yes	51%
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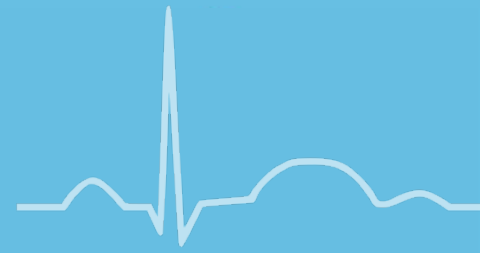
# Accreditation Summary



Expectations and documentation requirements include:

- TAT tracking for POC and/or central lab analyzers
- Laboratory participation -CPC meetings-quarterly
- Metrics by time points; defined starting/end points; goals
- Communicate with the key representatives for the CPC
  - CPC Coordinator – may be dual role with Heart Failure/Stroke
  - CPC Medical Director
  - Director of the Emergency Department
  - Director of Cardiology
  - Administration - Director of Quality

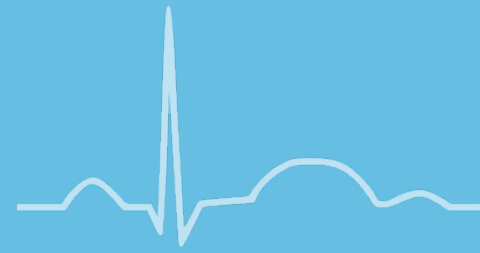
# Accreditation Summary



Overall goal, improving patient throughput and care.

Best demonstrated practices have requirements for defining and tracking cumulative turn-around-time metrics of the whole-process or the patient-centric view.

As such, timeliness of the reporting of Troponin equals timeliness of the diagnosis for the appropriate delivery of care in the Acute Coronary Syndrome patient population.



College of American Pathologists

[www.cap.org](http://www.cap.org)

QM1 Monitor



## SCPC Resources:

[www.scpcp.org](http://www.scpcp.org)

[info@scpcp.org](mailto:info@scpcp.org)

*Subject line:*

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SOCIETY OF CARDIOVASCULAR PATIENT CARE

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