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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

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
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.
Accreditation and Certification

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

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

5,000 US community hospitals

2,000 with Cath Lab

3,000 without Cath Lab (includes CAH)

1700 – PCI (36%)

Diagnostic only- Transfer AMI/CP patients

Transfer AMI/CP patients

~ 800 (72% PCI)

ASCPC

Source: American Hospital Association & ACC/NCDR/Cath-PCI
Estimated In-hospital Mortality by Door-to-Reperfusion Times

<table>
<thead>
<tr>
<th>TIME (minutes)</th>
<th>Adjusted Mortality*</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>2.9 (2.8–3.1)</td>
</tr>
<tr>
<td>30</td>
<td>3.0 (2.9–3.2)</td>
</tr>
<tr>
<td>60</td>
<td>3.5 (3.4–3.6)</td>
</tr>
<tr>
<td>90</td>
<td>4.3 (4.2–4.4)</td>
</tr>
<tr>
<td>120</td>
<td>5.6 (5.4–5.7)</td>
</tr>
<tr>
<td>180</td>
<td>8.4 (8.2–8.7)</td>
</tr>
<tr>
<td>240</td>
<td>10.3 (10.0–10.7)</td>
</tr>
</tbody>
</table>

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

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.

Any delay in D2B time associated with increased in-hospital mortality
Yale University School of Medicine; ACC-NCDR
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
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
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 99th%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
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

QUALITY
- Process Measures and Outcomes
- Education and Credentialing

COST
- Economic Stability
- Streamlining the Process

PATIENT SATISFACTION
- Patient Centric Model
- Optimizing Bedside Care
Value Based Purchasing

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

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

Improved clinical outcomes will determine the remaining 70% of the incentive payments.
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
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
In 2003 national survey:

Emergency Department Observation Units (EDOUs):

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

A 2007 subsequent survey:

- EDOU increased to 36%
- > ½ managed by ED MD’s

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

This will just take a minute! What test do I use...
Accountability
Changing Perspectives of Turn-Around-Time 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
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”
Cardiac Biomarkers and Troponin Turn-Around-Time Requirements
Measuring TAT is a guideline driven recommendation

No previous TAT requirement

• SCPC requirement starting in 2012
  • Track and demonstrate improvements
Which do you measure in your lab/hospital today?

- Troponin (Tn) and Myoglobin: 0.8%
- Troponin and CK: 22.2%
- Troponin, CK- MB and Myoglobin: 39.3%
- A different combination of markers: 14.5%
- Troponin only: 23.0%
- Diff combo: 100% - other options

Gold standard: Troponin TAT only

Standardization: CLN – April 2009, vol 35, no 4
The facility has a process for reviewing and assessing **baseline troponin** quality metrics for ED patients. These metrics are tracked and shared between the ED and laboratory at appropriate committee meetings at least quarterly. At least six months of metrics are required AND at least two of the following green Tier III and/or pink Tier IV Items:

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Baseline troponin “turnaround time” (TAT) is broken down into the time segment of ORDER to COLLECT.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Baseline troponin TAT is broken down into the time segment of COLLECT to RECEIVE IN LAB.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Baseline troponin TAT is broken down into the time segment of RECEIVE IN LAB to RESULT.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Baseline troponin TAT is broken down into the time segment of DOOR to RESULT.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Baseline troponin TAT is broken down into the time segment of DOOR to ORDER.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Baseline troponin TAT is broken down into the time segment of ORDER to RESULT.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Baseline troponin TAT is broken down into the time segment of COLLECT to RESULT.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>90% of baseline troponin TAT of ORDER TO RESULT or COLLECT to RESULT is within 60 minutes.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>90% of baseline troponin TAT of ORDER TO RESULT or COLLECT to RESULT is within 30 minutes.</td>
</tr>
</tbody>
</table>

The facility's cardiac biomarker approach includes documentation of an evidenced-based **serial troponin** strategy that is consistent with the assay used AND at least one of the following green Tier III Items:

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>The facility has a process in place to monitor the TAT of serial draws for troponin.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>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.</td>
</tr>
</tbody>
</table>
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

KE 4.4.0.0

POC in ED?

IF NO

CUMULATIVE TAT
AND
SECONDARY TAT

% compliance (90% C-R in 60’)
C-R required

IF YES

CUMULATIVE TAT
AND
SECONDARY TAT
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.”

SCPC ACCREDITATION & BIOMARKER TESTING: Key Element 4

KE 4.4.0.0

POC in ED?

IF YES

CUMULATIVE TAT
C-R required

AND

SECONDARY TAT
% compliance (90% C-R in 60’)

IF NO

CUMULATIVE TAT

AND

SECONDARY TAT
What if scenario:

% of POCT use in ED
- baseline cTn

High
(ie: 80% or greater)

Provide TAT data for POCT only

Low
(ie: less than 80%)

Must provide TAT data for both POCT and main lab
Example: Troponin TAT

<table>
<thead>
<tr>
<th>Year</th>
<th>Total (n=ED TnI)</th>
<th># Collect to Result w/in 60 min</th>
<th>Collect-Result &lt;=60 min (=C/B)</th>
<th>Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>522</td>
<td>479</td>
<td>92%</td>
<td>90%</td>
</tr>
<tr>
<td>February</td>
<td>554</td>
<td>453</td>
<td>82%</td>
<td>90%</td>
</tr>
<tr>
<td>March</td>
<td>590</td>
<td>522</td>
<td>88%</td>
<td>90%</td>
</tr>
<tr>
<td>April</td>
<td>520</td>
<td>477</td>
<td>92%</td>
<td>90%</td>
</tr>
<tr>
<td>May</td>
<td>517</td>
<td>468</td>
<td>91%</td>
<td>90%</td>
</tr>
<tr>
<td>June</td>
<td>507</td>
<td>471</td>
<td>93%</td>
<td>90%</td>
</tr>
<tr>
<td>July</td>
<td>544</td>
<td>514</td>
<td>94%</td>
<td>90%</td>
</tr>
<tr>
<td>August</td>
<td>473</td>
<td>440</td>
<td>93%</td>
<td>90%</td>
</tr>
<tr>
<td>September</td>
<td>491</td>
<td>452</td>
<td>92%</td>
<td>90%</td>
</tr>
<tr>
<td>October</td>
<td>534</td>
<td>484</td>
<td>91%</td>
<td>90%</td>
</tr>
<tr>
<td>November</td>
<td>494</td>
<td>435</td>
<td>88%</td>
<td>90%</td>
</tr>
<tr>
<td>December</td>
<td>490</td>
<td>463</td>
<td>94%</td>
<td>90%</td>
</tr>
<tr>
<td>Totals:</td>
<td>6236</td>
<td>5658</td>
<td>91%</td>
<td>90%</td>
</tr>
</tbody>
</table>
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
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
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 99th percentile
## Polling results from webinars
(results for discussion purposes only)

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>Not sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does your facility have a cath lab that can perform PCI?</td>
<td>45%</td>
<td>27%</td>
<td>28%</td>
</tr>
<tr>
<td>(n ~ 300)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does your facility transfer chest pain or AMI patients?</td>
<td>33%</td>
<td>53%</td>
<td>12%</td>
</tr>
<tr>
<td>(n ~ 300)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are you using the 99th %ile?</td>
<td>60%</td>
<td>9%</td>
<td>31%</td>
</tr>
<tr>
<td>(n ~ 220)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are you using a diagnostic protocol of 0-3-6-?</td>
<td>56%</td>
<td>25%</td>
<td>19%</td>
</tr>
<tr>
<td>(n ~ 220)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you provide education to your physicians?</td>
<td>51%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(n ~ 200)</td>
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</tbody>
</table>
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
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.
Validation Tool Resource

College of American Pathologists

www.cap.org

QM1 Monitor
SCPC Resources:

www.scpcp.org

info@scpcp.org

Subject line:

SCPC Laboratory Subject-Matter-Expert : Ruth Cantu
Contact:

Ruth Cantu
rcantu@scpcp.org