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.
5-8 million patients present to the ED annually for chest pain

- 20-25% diagnosed with some form of ACS

Source: American Heart Association

Learn and Live

SOCIETY OF CARDIOVASCULAR PATIENT CARE
New Definition of MI:  New Focus

Today’s guidelines are less focused on a separate decision limit for AMI, but more focused on *early detection* of myocardial *injury* along with symptoms of ischemia.

Diagnosis:  UA  
Troponin -  EKG -  

Diagnosis:  NSTEMI  
Troponin +  EKG -  

Diagnosis:  STEMI  
EKG +  Troponin +
Estimated In-hospital Mortality by Door-to-balloon Times

<table>
<thead>
<tr>
<th>Time (min)</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

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

There is no “floor” to the mortality reduction that can be achieved by reducing time to treatment.
Guidelines

Cardiac Biomarkers in Acute Coronary Syndrome Care
• TROPONIN (I or T) = preferred biomarker overall and for each specific category of MI

• Diagnosis of acute MI = detection of a rise and/or fall of the measurements.

• Increased cTn concentration is defined as a value exceeding the 99th percentile of a normal reference population [URL]

This discriminatory 99th percentile is designated as the decision level for the diagnosis of MI and must be determined for each specific assay with appropriate quality control in each laboratory.
### Dec. 2012 IFCC Table: Analytical characteristics of commercial and research Cardiac Troponin I and T assays

<table>
<thead>
<tr>
<th>Commercially available assays - Company/ platform(s)/ assay</th>
<th>LoB a (µg/L)</th>
<th>LoD b (µg/L)</th>
<th>99th % (µg/L)</th>
<th>%CV at 99th %</th>
<th>10% CV (µg/L)</th>
<th>Reference population N: age range (y)</th>
<th>Epitopes recognised by Antibodies</th>
<th>Detection Antibody Tag</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abbott AxSYM ADV</td>
<td>0.02</td>
<td>0.04</td>
<td>14.0</td>
<td>0.16</td>
<td></td>
<td>C: 87-91, D: 24-40</td>
<td>ALP</td>
<td>Acridinium</td>
</tr>
<tr>
<td>Abbott Architect</td>
<td>&lt;0.01</td>
<td>0.028</td>
<td>14.0</td>
<td>0.032</td>
<td></td>
<td>C: 87-91, 24-40, D: 41-49</td>
<td>ALP</td>
<td></td>
</tr>
<tr>
<td>Abbott i-STAT</td>
<td>0.02</td>
<td>0.08</td>
<td>16.5</td>
<td>0.10</td>
<td></td>
<td>C: 41-49, 88-91, D: 28-39, 62-78</td>
<td>ALP</td>
<td></td>
</tr>
<tr>
<td>Akere Triage SOB</td>
<td>0.05</td>
<td>NAD</td>
<td>NA</td>
<td>NA</td>
<td></td>
<td>C: NA, D: 27-40</td>
<td>Fluorophor</td>
<td></td>
</tr>
<tr>
<td>Akere Triage Cardio 3</td>
<td>0.002</td>
<td>0.01</td>
<td>0.02</td>
<td>0.04</td>
<td></td>
<td>C: 27-39, D: 83-93, 190-196</td>
<td>Fluorophor</td>
<td></td>
</tr>
<tr>
<td>Beckman Coulter Access Accu</td>
<td>0.01</td>
<td>0.04</td>
<td>14.0</td>
<td>0.06</td>
<td></td>
<td>C: 41-49, D: 24-40</td>
<td>ALP</td>
<td></td>
</tr>
<tr>
<td>bioMerieux Vidas Ultra</td>
<td>&lt;0.01</td>
<td>0.01</td>
<td>27.7</td>
<td>0.11</td>
<td></td>
<td>C: 41-49, 22-29, D: 87-91, 7B9</td>
<td>ALP</td>
<td></td>
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<tr>
<td>Mitsubishi Chemical PATHFAST</td>
<td>0.002</td>
<td>0.008</td>
<td>5.0</td>
<td>0.014</td>
<td>490: 18 - 78</td>
<td>C: 41-49, D: 71-116, 163-209</td>
<td>ALP</td>
<td></td>
</tr>
<tr>
<td>Ortho VITROS Troponin I ES</td>
<td>0.007</td>
<td>0.012</td>
<td>10.0</td>
<td>0.034</td>
<td></td>
<td>C: 24-40, 41-49, D: 87-91</td>
<td>HRP</td>
<td></td>
</tr>
<tr>
<td>Radiometer AQT90 FLEX TnI</td>
<td>0.0005</td>
<td>0.023</td>
<td>17.7</td>
<td>0.039</td>
<td></td>
<td>C: 41-49, 190-196, D: 137-149</td>
<td>Europium</td>
<td></td>
</tr>
<tr>
<td>Radiometer AQT90 FLEX TnT</td>
<td>0.0080</td>
<td>0.017</td>
<td>15.2</td>
<td>0.026</td>
<td></td>
<td>C: 125-131, D: 136-147</td>
<td>Europium</td>
<td></td>
</tr>
<tr>
<td>Response Biomedical RAMP</td>
<td>0.03</td>
<td>NAD</td>
<td>18.5</td>
<td>0.21</td>
<td></td>
<td>C: 85-92, D: 26-38</td>
<td>Fluorophor</td>
<td></td>
</tr>
<tr>
<td>Roche Cardiac Reader cTnT</td>
<td>0.03</td>
<td>NAD</td>
<td>NA</td>
<td>NA</td>
<td></td>
<td>C: 125-131, D: 136-147</td>
<td>Gold particles</td>
<td></td>
</tr>
<tr>
<td>Roche cobas h 232 TnT</td>
<td>0.05</td>
<td>NAD</td>
<td>NA</td>
<td>NA</td>
<td></td>
<td>C: 125-131, D: 136-147</td>
<td>Gold particles</td>
<td></td>
</tr>
<tr>
<td>Roche E 2010 (cobas e 411 / E 170 / cobas e 601 / 602 TnT(4s gen))</td>
<td>0.01</td>
<td>NAD</td>
<td>NA</td>
<td>0.03</td>
<td>533: 20 - 71 (M: 268; F: 265)</td>
<td>C: 125-131, D: 136-147</td>
<td>Ruthenium</td>
<td></td>
</tr>
<tr>
<td>Roche E 2010 (cobas e 411 / E 170 / cobas e 601 / 602 hsTnT)</td>
<td>0.005</td>
<td>0.014</td>
<td>10.0</td>
<td>0.013</td>
<td></td>
<td>C: 125-131, D: 136-147</td>
<td>Ruthenium</td>
<td></td>
</tr>
<tr>
<td>Roche E 2010 (cobas e 411 / Roche E 170/cobas e 601 / 602 cTnI)</td>
<td>0.16</td>
<td>0.16 c</td>
<td>NA</td>
<td>0.3</td>
<td></td>
<td>C: 87-91, 190-196, D: 23-29, 27-43</td>
<td>Ruthenium</td>
<td></td>
</tr>
<tr>
<td>Siemens ADVIA Centaur Ultra TmT</td>
<td>0.006</td>
<td>0.04</td>
<td>8.8</td>
<td>0.03</td>
<td>684: 17 - 91</td>
<td>C: 41-49, 87-91, D: 27-40</td>
<td>Acridinium</td>
<td></td>
</tr>
<tr>
<td>Siemens Dimension EXL™ TNI</td>
<td>0.010</td>
<td>0.017</td>
<td>10.0</td>
<td>0.05</td>
<td>241</td>
<td>C: 27-32, D: 41-56</td>
<td>Chemiluminescence</td>
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</tr>
<tr>
<td>Siemens Dimension RdL CTNI</td>
<td>0.04 d</td>
<td>0.07</td>
<td>15 - 22</td>
<td>0.14</td>
<td>342: 18 - 83</td>
<td>C: 27-32, D: 41-56</td>
<td>ALP</td>
<td></td>
</tr>
<tr>
<td>Siemens Dimension VISTAa CTNI</td>
<td>0.015</td>
<td>0.045</td>
<td>10.0</td>
<td>0.04</td>
<td>199</td>
<td>C: 27-32, D: 41-56</td>
<td>Chemiluminescence</td>
<td></td>
</tr>
<tr>
<td>Siemens IMMULITE Es 1000 Turboa</td>
<td>0.15</td>
<td>0.30</td>
<td>14</td>
<td>0.59</td>
<td>300</td>
<td>C: 87-91, D: 27-40</td>
<td>ALP</td>
<td></td>
</tr>
<tr>
<td>Siemens IMMULITE Es 1000 Turboe</td>
<td>0.1</td>
<td>0.19</td>
<td>11</td>
<td>0.22</td>
<td>300</td>
<td>C: 87-91, D: 27-40</td>
<td>ALP</td>
<td></td>
</tr>
<tr>
<td>Siemens IMMULITE Es 2000 XPia</td>
<td>0.2</td>
<td>0.29</td>
<td>10.3</td>
<td>0.32</td>
<td>300</td>
<td>C: 87-91, D: 27-40</td>
<td>ALP</td>
<td></td>
</tr>
<tr>
<td>Siemens IMMULITE Es 2500 STAT r</td>
<td>0.1</td>
<td>0.2</td>
<td>NA</td>
<td>0.42</td>
<td>255</td>
<td>C: 87-91, D: 27-40</td>
<td>ALP</td>
<td></td>
</tr>
<tr>
<td>Siemens IMMULITE Es 1000 Turbo r</td>
<td>0.15</td>
<td>NA</td>
<td>NA</td>
<td>0.64</td>
<td></td>
<td>C: 87-91, D: 27-40</td>
<td>ALP</td>
<td></td>
</tr>
<tr>
<td>Siemens Stratus CS cTnl</td>
<td>0.03 d</td>
<td>0.07</td>
<td>10.0</td>
<td>0.06</td>
<td>101</td>
<td>C: 27-32, D: 41-56</td>
<td>ALP</td>
<td></td>
</tr>
<tr>
<td>Tosoh ST AIA-PACK</td>
<td>0.06</td>
<td>0.06 c</td>
<td>8.5</td>
<td>NA</td>
<td></td>
<td>C: 41-49, D: 87-91</td>
<td>ALP</td>
<td></td>
</tr>
</tbody>
</table>
• **Optimal precision** = coefficient of variation (CV) at the 99<sup>th</sup> percentile URL for each assay, should be defined as <10%.

• Better precision (CV<10%) allows for more sensitive assays and facilitates the detection of changing values.

• Use of assays that do not have optimal precision (CV<10% at the 99<sup>th</sup> percentile URL) makes determination of a significant change difficult but does not cause false positive results.

• Assays with CV >20% at the 99<sup>th</sup> percentile URL should not be used.
• Troponin samples should be drawn on first assessment and repeated 3 to 6 hours later.

• To establish the diagnosis of MI, a rise and/or fall in values with at least one value above the decision level is required, coupled with a strong pre-test likelihood.

• Renal Failure or Heart Failure patients can have significant chronic elevations in cTn. These elevations can be marked as seen in patients with MI but they do not change acutely.

• Troponin values may remain elevated for 2 weeks or more following the onset of myocyte necrosis.
Troponin Positivity and **Universal Definition of MI**

**Classification of MI Type**

- **Type 1:** Ischemic myocardial necrosis secondary to plaque rupture (ACS)
- **Type 2:** Ischemic myocardial necrosis not due to ACS (e.g., supply/demand mismatch, coronary spasm, embolism, ↑ or ↓ BP, anemia, arrhythmia)
- **Type 3:** Sudden cardiac death
- **Type 4:** Procedure related
  a) Secondary to PCI
  b) From stent thrombosis
- **Type 5:** CABG related

Clinical Distribution of Elevated Troponin

Troponin Positive

Ischemic

Myocardial Infarction

Non-ACS

Noncoronary

Hypoxia
Global ischemia
Hypoperfusion
CT surgery

Coronary

Increased demand (stable CAD lesion)
Hypertension (small vessel)
Spasm
Embolism
Procedure related
- PCI
- CT surgery
Cocaine/Methamphetamine

ACS

Classic AMI
STEMI
Non-STEMI

Nonischemic

Not an MI

Cardiac

CHF
Infection
- Viral CM
Inflammation
- Myocarditis
- Pericarditis
Trauma
- Surgery
- Electrical shock
Ablation procedures
Malignancy
Stress CM
Infiltrative diseases

Systemic

Direct Myocardial Damage

PE
Toxicity
- Anthracyclines
Trauma
- Blunt chest wall injury
- CHF (volume overload)
Renal Failure
Sepsis
Stroke
Subarachnoid hemorrhage

Analytical

Assay Based
- Poor performance
- Calibration errors

Sample Based
- Heterophile antibody
- Interfering substances
Clinical history

Symptoms indicative of Acute cardiac Ischemia

EKG & Troponin

Normal EKG
- cTn (-) cTn (+)
- Low risk of AMI/Death.
  - Candidate for early dc
  - Reconsider the dx of ACS

ST segment depression
- cTnI(-) cTn(+)
- Intermediate risk of death & AMI
  - Aggressive anti-thrombotic rx.
  - Consider early cardiac cath for those with other risk indicators.

Other EKG changes
- cTn(+)
- cTn(-)
- High risk of death/AMI
  - Aggressive anti-thrombotic rx
  - Urgent cardiac catheterization
- Heterogeneous group of patients
  - Needs further evaluation

Reference: Cardiovascular Biomarkers, Pathophysiology and Disease Management; David A. Morrow, MD, MPH, Humana Press Inc. 2006
Considering Single Marker strategy?

- Preferred marker for myocardial injury/necrosis = Troponin I or T
- Troponin elevations are nearly totally specific for Cardiac Injury
- Troponin is substantially more sensitive than CKMB
- Elevations of CKMB indicative of myocardial injury
- Troponin levels rise 2-3 hours after the onset of chest discomfort
- High sensitive troponin = definitive rule in diagnosis can be made in 2-3 hours
- CKMB less diagnostically sensitive compared with troponin I or T.
- Myoglobin has low diagnostic specificity for myocardial injury

Circulation 2008: Requiem for a Heavyweight, The Demise of Creatine Kinase-MB; Amy Saenger, PhD; Allan Jaffé, MD
Questions for you...
CPC Accreditation Cycle IV

- Lab requirements
- Identified Vulnerabilities
- Opportunities for Improvement
Accreditation Process focus

Quality
- Guideline-driven care
- Outcomes
- Education and Credentialing

Cost
- Economic Stability
- Streamlining the Process

Patient Satisfaction
- Patient Centric Model
- Optimizing Bedside Care
The NSTEMI/UA process clearly defines a method of risk stratification that demonstrates evidence-based practice.

The process for the ACS patient includes baseline troponin, at a minimum, throughout the facility.

The facility has a process in place to monitor the TAT of serial draws for troponin. (minimum 6 months metrics)
SCPC ACCREDITATION & BIOMARKER TESTING:
Key Element 4

KE 4.4.0.0

IF YES

POC in ED?

CUMULATIVE TAT
C-R required

AND

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

IF NO

CUMULATIVE TAT

AND

SECONDARY TAT
SCPC ACCREDITATION & BIOMARKER TESTING: Key Element 4

IF YES

CUMULATIVE TAT
C-R required

AND

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

POC in ED?

IF NO

CUMULATIVE TAT

AND

SECONDARY TAT
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 testing or imaging takes place.

The facility demonstrates a process change that results in improvement in door to biomarker results. (minimum 6 months metrics)

90% of baseline troponin TAT of Order to Result or Collect to Result is within 30 min.
Team Process Improvement
Beyond TAT

**ED [Order to Receive]**

1. Nurse-First: recognition ACS s/s?
2. Pre-Approved Orders (CBM)
3. Protocol-driven care
4. Phlebotomy
5. E order initiation (US/RN/Tech)
6. Transport (sneaker/PTS)

**Lab [Received to Result]**

1. Receiving station –process
2. Centrifugation –Stat spin ?
3. Analysis:
   - POC
   - Lab
4. Resulting
   - Auto Verify/ Release
   - Auto reflex on +
5. Reporting
   - Reference range
   - Cutpoint for positive
   - No gray zone or indeterminate

**Process Improvement: LEAN, PDCA, RCA**

(Quality of care, Cost, Patient Satisfaction)
• All nurses caring for ACS patients complete annual education, competencies, or training related to ACS that includes: **Education on current ACC/AHA ACS guidelines** and **Education on cardiac biomarkers.**

• The facility has in place a membership roster for the chest pain center committee who is **multidisciplinary** with functional areas defined.
Questions for you...
Accreditation
Vulnerabilities & Opportunities

- Defining the Troponin cut point for positive
- Determining serial draw time intervals
- Process Improvement for improving TAT
- Education on Guidelines, protocols and Biomarkers
- Participation of the Lab in the accreditation process
Facility 1

Lab Troponin I serial protocol: 0, 8, 16 hrs
Cut-point used for negative result: \(< \text{ or } = 0.034 \ (99^{\text{th}} \%)\)
Intermediate or gray-zone: 0.035 to 0.120
Decision point used for positive: > 0.120

OPPORTUNITY:

- Serial sample Protocol: 0, 3, 6 Hours
- **One decision limit**, the **99^{\text{th}} percentile (0.034)**, the optimum cutoff
- Results **above** the decision limit = **myocardial injury**
Source: Ability of Minor Elevations of Troponin I and Troponin T to Predict Benefit From an Early Invasive Strategy in Patients with UA and NSTEMI; Morrow, Cannon, Rifai, Frey, Vicari, Lakis, Robertson, Hille, DeLucca, DiBattiste, Demopoulos, Weintraub, Braunwald for the TACTICS - TIMI 18 Investigators

181 Missed + Patients!
Facility 2

50 yr old Female presents with chest pressure & shortness of breath
Hx of HTN, High cholesterol, smoker, obese
Initial EKG : normal
ED POCT cTnI @ presentation: 0.02  Decision point for positive: 0.5
Lab cTnI @ 3 hours: 0.2  Decision point for positive : 0.05

OPPORTUNITY:
• Establish decision limits
• The 99th percentile of the reference population should be the decision limit for myocardial injury
high sensitive Troponin

**Impact on Process of Care Outcomes (VBP)**

**2007 Study at Brigham and Women’s Hospital (Boston)**

Comparison of a high sensitive Troponin (hsTnI) assay to a standard assay (TnI)

Specimens where initially negative, then positive on serial testing

Serial markers drawn at presentation, 6-9 hrs & 12-24 hrs.

*hsTnI showed positive results before TnI in 64% of samples*

**“Time Is Muscle”**

Conclusion: “...reporting (hsTnI) results would allow the diagnosis to be made an average of 9 hours sooner”...

“The ability to provide earlier detection for 50% of confirmed ACS patients has the potential to substantially enhance early triage in the emergency setting and treat high-risk patients as early as possible.”

American Society of Clinical Pathology 2007: 128, 282-286
Outcomes

The Impact of Cardiac Biomarkers in Value-Based Purchasing

Quality of Care, Cost, Patient Satisfaction
ACS Patient Risk Stratification
Impact on Quality, Cost and Patient Satisfaction

<table>
<thead>
<tr>
<th>Criteria</th>
<th>2002 Pre-POCT</th>
<th>2004 Post POCT</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAT (Vein to Brain Time)</td>
<td>90 minutes</td>
<td>&lt;20 minutes</td>
<td>450%</td>
</tr>
<tr>
<td>ED Volume</td>
<td>32,945 patients</td>
<td>36,832 patients</td>
<td>11.8%</td>
</tr>
<tr>
<td>CDU Volume</td>
<td>No CDU</td>
<td>2,366</td>
<td>New added volume</td>
</tr>
<tr>
<td>ALOS DRG 143 (pts)</td>
<td>2.35 days (n=294)</td>
<td>2.16 days (n=132)</td>
<td>(8%)</td>
</tr>
<tr>
<td>ALOS APC 0339(pts)</td>
<td>-----</td>
<td>18 hours (n=712)</td>
<td>-----</td>
</tr>
<tr>
<td>ED STEMI Volume</td>
<td>47</td>
<td>38</td>
<td>(19%)</td>
</tr>
<tr>
<td>ED NSTEMI Volume</td>
<td>21</td>
<td>105</td>
<td>500%</td>
</tr>
<tr>
<td>ED Patient Satisfaction</td>
<td>#123 (out of 167HCA hosp) Q2,</td>
<td>#26 (out of 179HCA hosp) Q2,</td>
<td>59%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2004 CP Classification</th>
<th>Variable Cost</th>
<th>Average Reimbursement</th>
<th>% Margin</th>
<th>Difference</th>
<th>Patient Volume</th>
<th>Financial Outcome</th>
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<tbody>
<tr>
<td>APC0339</td>
<td>$862.00</td>
<td>$1,558.00</td>
<td>58%</td>
<td>$691.00</td>
<td>712</td>
<td>$491,992.00</td>
</tr>
<tr>
<td>Chest Pain NOS</td>
<td>$1,322.00</td>
<td>$2,471.00</td>
<td>54%</td>
<td>$1,149.00</td>
<td>132</td>
<td>$151,668.00</td>
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Cardiac Biomarkers impact on Outcomes

Health system process improvement using LEAN

<table>
<thead>
<tr>
<th>By APR DRG 190</th>
<th>Before Improvements: January 2002 - June 2004</th>
<th>Post Control: October 2004 - July 2007</th>
<th>Rate Percent Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Discharges</td>
<td>508</td>
<td>447</td>
<td></td>
</tr>
<tr>
<td># of Deaths</td>
<td>86</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>Mortality Rate</td>
<td>0.169</td>
<td>0.134</td>
<td>20.61%</td>
</tr>
<tr>
<td>ALOS</td>
<td>6.20</td>
<td>5.55</td>
<td>10.48%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>By APR DRG 190</th>
<th>Baseline: January 2002 - March 2005</th>
<th>Post Control: April 2005 - September 2007</th>
<th>Rate Percent Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Discharges</td>
<td>459</td>
<td>363</td>
<td></td>
</tr>
<tr>
<td># of Deaths</td>
<td>74</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td>Mortality Rate</td>
<td>0.161</td>
<td>0.095</td>
<td>40.99%</td>
</tr>
<tr>
<td>ALOS</td>
<td>7.30</td>
<td>6.70</td>
<td>8.22%</td>
</tr>
</tbody>
</table>
The “Other Cost” of Failure to Diagnose Myocardial Infarction

**Recent Jury Verdicts:**

I. **Case #1** 65 yr old male died of “Heart Attack”
   failed to perform proper diagnostic testing
   Diagnosis: Sepsis
   Total Verdict: $1,538,000 + $10,000 funeral expenses

II. **Case #2** 38 yr old woman presented with Chest Pain,
   pain in left arm and difficulty of breathing
   Diagnosis: ??? (failed to diagnose correctly)
   Total verdict: $1,225,000

III. **Case #3** Patient presented with CP, SOB, pain in right elbow
    Diagnosis: GERD, Hyperlipidemia, Hypertension
    Total Verdict: $1,534,369.00
Summary and Conclusions

- Cardiac troponin is the cornerstone of MI diagnosis.
- Cardiac troponin is a **heart specific** biomarker, **not a disease specific** marker.
- Use of a sensitive cTn assay allows earlier reliable patient assessment.
- Use of 99th percentile cutoff leads to better outcomes.
- Use of an ‘**Absolute**’ increase (ng/mL) more effective than ‘Relative’ increase (%)
- Not all troponin are created equal. Refer to IFCC chart as resource/Packaage Insert
- Avoid patient misclassification, determine the 99th percentile of each analyzer used for troponin.
- Accuracy and quality of troponin result to better outcome.

rchristenson@umn.edu; 16th Congress SCPC
Lab can help impact Outcomes!

~ Lab’s Best Practices

- Leadership in guidelines applied to practice
- Drive quality at all Levels
- Be patient centered and outcome-oriented
- Communicate and collaborate with all disciplines
- Partner with your vendor as a resource to drive best practice
Technologies:
*Emergency cardiac care app can save lives*

**thebesthearthospital app**
*(free download)*

- Enter your location
- Find the closest accredited chest pain center
- Choose to call 9-1-1
Resources:

SCPC

www.scpcp.org

info@scpcp.org

Subject line: SCPC Laboratory Subject-Matter-Expert
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