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CAPITAL AREA TRAUMA
REGIONAL ADVISORY COUNCIL

QI SubWorkgroup: Report to the Cardiac Care Workgroup

Ronda Mackey / Louis Gonzales
April 21, 2010

QI SubWorkgroup Members (current)

- ➔ Ronda Mackey, St. David's HC
- ➔ Barbara Borman, Seton MC
- ➔ Peggy Cook, South Aus Hosp
- ➔ Tina Olivarez, UMC Brack
- ➔ Anne Robinson, Seton MC
- ➔ Jennifer Blakeley, Westlake MC
- ➔ Ed Piker, ATCEMS
- ➔ Melissa Johnson, Heart Hosp
- ➔ Karla McKinney, UMC Brack
- ➔ Lauren Brandt, UMC Brack
- ➔ Louis Gonzales, ATCEMS OMD
- ➔ Melissa Juarez, Scott&White RR
- ➔ Kim Johnson, South Aus Hosp
- ➔ Brett Steffen, North Aus MC
- ➔ Patrick Murphy, ATCEMS
- ➔ Stan Lundrigan, Seton Williamson
- ➔ Anna Pechenik, AHA Volunteer
- ➔ Carol Winick, AHA Staff
- ➔ Loni Denne, AHA Staff
- ➔ Furqan Shah, AHA Volunteer

QI Sub-Workgroup Report

➔ Key Findings - Interfacility Transport Baseline Assessments

➔ Data Collection & Reporting

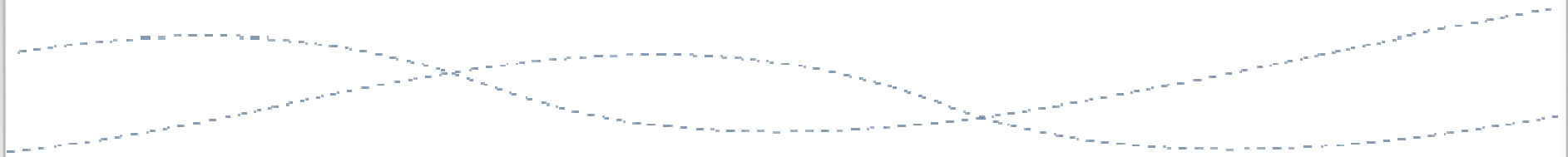
- Defined Data Measures & Data Points
- Challenges
- Potential Solutions

➔ Next Steps



Interfacility Transport Provider Baseline Assessment

Summary & Key Findings



QI Sub-Workgroup Report

- ➔ Summary
- ➔ Key Questions & Responses
- ➔ Key Findings

PCI vs Non-PCI Hospitals in our Region

PCI (11)

St. David's Main Center

SD Round Rock Medical Center

SD North Austin Medical Center

SD South Austin Medical Center

Seton Main

Seton Wilco

Brackenridge

Westlake

Scott & White RR

Heart Hospital

Seton Hays

NON-PCI (12)

Central TX Medical Center San Marcos

Johns Community Hospital Taylor

Lakeside Bastrop

Seton Dell Children's

Seton Edgar Davis Luling

Seton Highland Lakes Burnet

Seton Northwest

Seton Southwest

Smithville Regional Hospital

St. David's Georgetown

St. Marks Medical Center La Grange

Llano Memorial

EMS Transport Services - 25

911 Only (9)

North Blanco

Blanco Vol

Spicewood Vol

City of Lockhart EMS

Wimberley EMS

B & M Ambulance

Lexington Vol EMS

San Saba CO EMS

Thorndale Vol.

911 & Inter-facility Transport (9)

Burnet Fire & EMS

Guardian EMS

Marble Falls Area EMS

Luling EMS

Fayette County EMS

Llano County EMS

Austin-Travis CO EMS

Williamson CO EMS

San Marcos-Hays CO EMS

Inter-facility Transport Only (7)

Star Flight

PHI

AirEvac

Central TX Regional

American Medical Resp.

Acadian EMS

First Medical Response

Summary

Summary

Baseline Assessments Completed

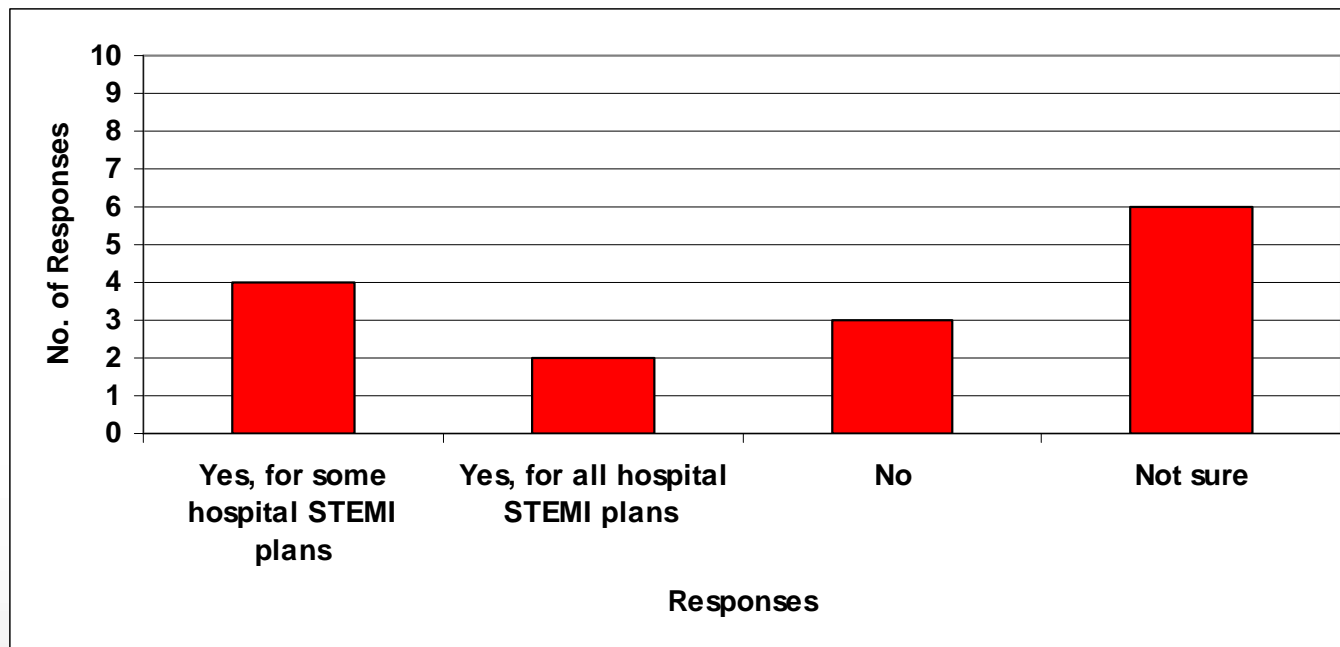
- (15 out of 16) Inter-facility Transport Providers

94%
Response
Rate

Key Questions & Responses

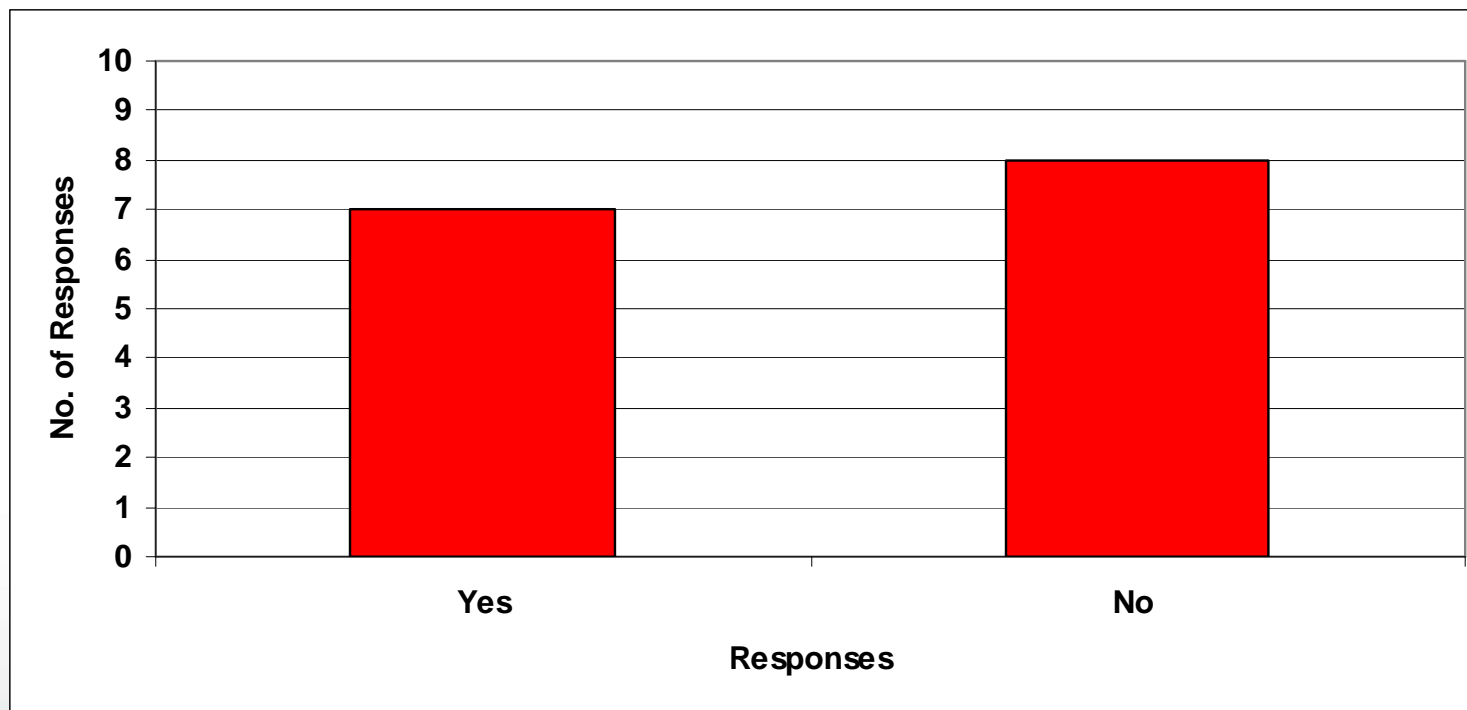
Key Questions & Responses

- ➔ 5. Is your inter-facility transport service included in the written STEMI Care Plans developed by non-PCI hospitals in your transport area?



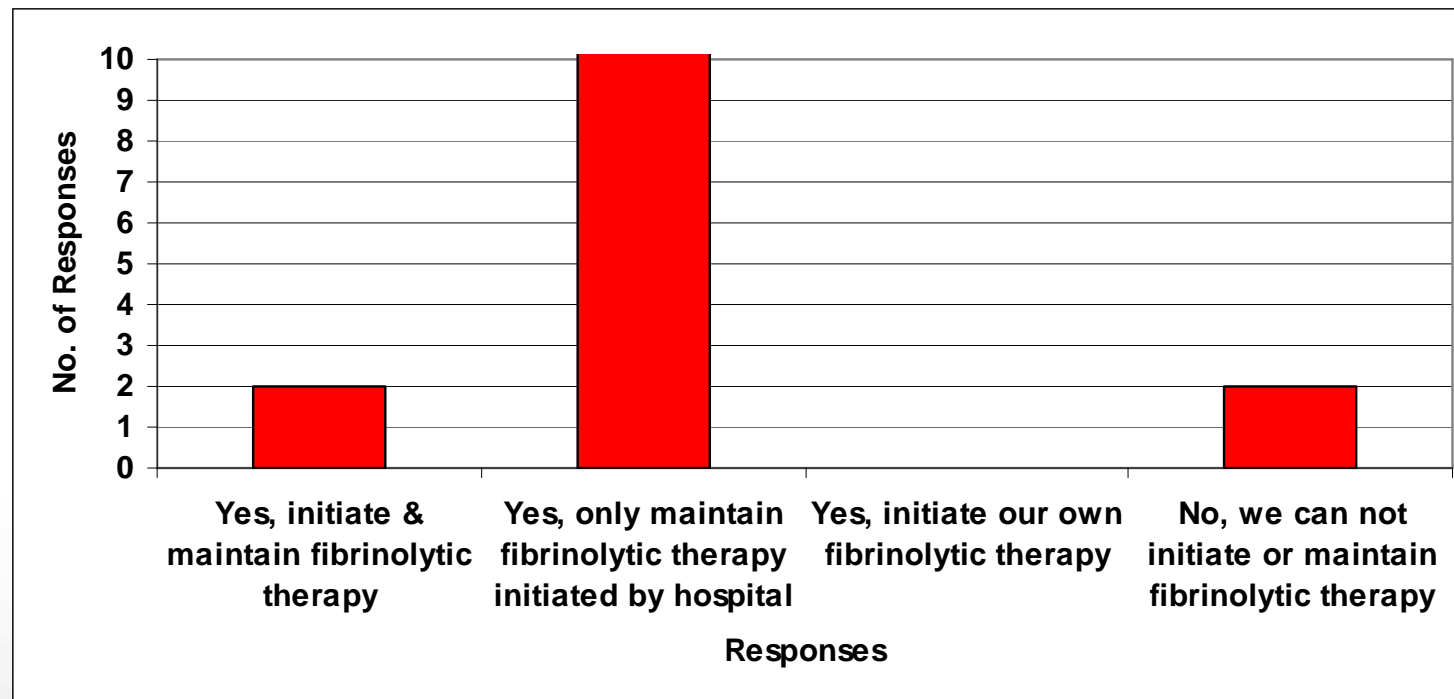
Key Questions & Responses

- ➔ 7. Does your inter-facility transport service have a goal for the maximum total hospital time for STEMI patient being transferred from a non-PCI hospital to a PCI hospital?



Key Questions & Responses

- ➔ 10. Does your service have the capability to provide fibrinolytic therapy and/or continue fibrinolytic therapy during transport?



Key Findings

Key Findings

- ➔ Participation in STEMI Receiving Center QI meetings is uncommon
- ➔ Annual 12 lead ECG education/training is variable & some have no training
- ➔ A small number have no 12 lead ECG capabilities

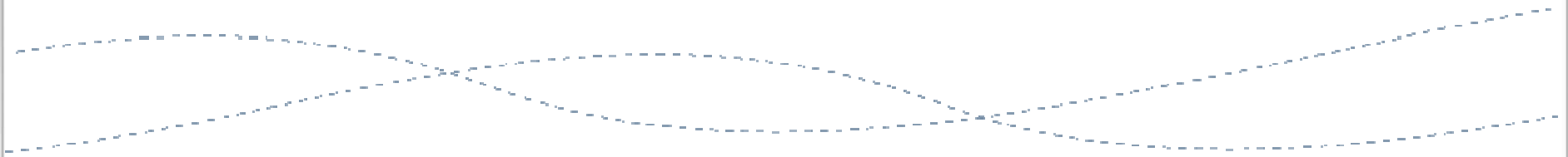
Key Findings

- ➔ Written STEMI Care Plans need to include inter-facility transport service
- ➔ Inter-facility transport services need a goal for the maximum total hospital time for STEMI patient
- ➔ Need a better feedback loop from receiving hospitals



Data Collection & Data Points

Defined Data Measures & Data Points



Defined Data Measures & Data Points

➔ Required for PCI, Non-PCI or EMS Recognition (includes Reporting)

Data
Measures

- 35 Measures
 - Associated data points
 - Potential Storage location/source
 - Potential Barriers
- 6 Measures with Gaps from ARG
 - Difficult to extract measure with current data
 - Missing data points

Defined Data Measures & Data Points

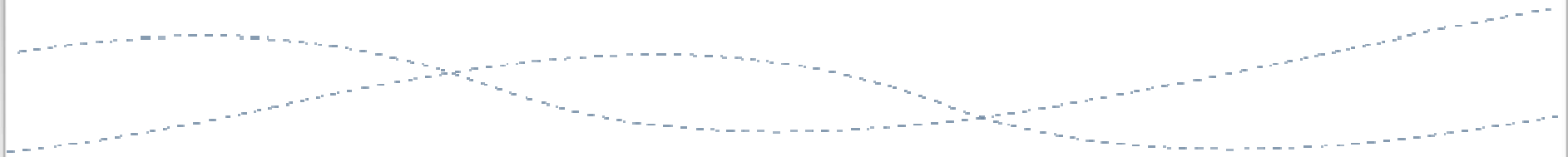
- ➔ Required for PCI, Non-PCI or EMS Recognition (includes Reporting)
- ➔ Added Suggested Regional Measures
 - 38 Measures
 - Associated data points
 - Potential Storage location/source
 - Potential Barriers
 - 9 Measures with Gaps from ARG
 - Difficult to extract or Missing data points

Data
Measures



Data Collection & Data Points

Challenges



Challenges & Potential Barriers

- ➔ Multiple Databases for Entry
- ➔ PCI Centers various stages of ARG implementation
- ➔ Non-PCI Centers not in ARG (1 of 12 w/contract)
- ➔ Processes for receiving data from Non-PCI Centers
- ➔ Basic & Exclusion Criteria definitions
- ➔ Some ML definitions remain unclear
- ➔ Processes for receiving data from EMS

Data
Measures

Challenges & Potential Barriers

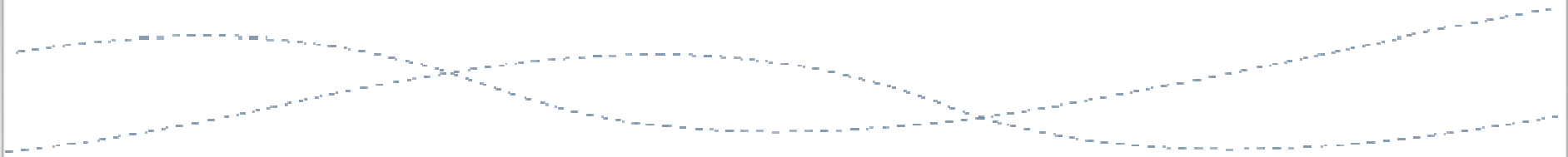
- EMS has no access to their patients' overall data
- EMS data must be entered by PCI hospitals
- EMS ECG Interpretation rate requires overread
- Storage location for data points NOT in ARG
- Some reports may not be generated by ARG
- Ability, Timeliness & Cost of ARG Reports
- Ad Hoc Reporting Capabilities & Costs
- Need Data Sharing Agreements

**Data
Measures**



Data Collection & Data Points

Potential Solutions



Potential Solutions - #1

➔ Use Action Registry GWG Data ONLY (as is)

- STEMI Receiving Center Recognition missing 1 measure
- STEMI Referral Center Recognition missing 1 measure
- EMS Recognition missing 1 measure
 - Plus 2 Reporting measures
- Regional Reporting Measures missing

Potential Solutions - #2

- ➔ **Use ARG Data ONLY (with 5 open Data Points)**
 - At least 11 data elements required for missing EMS Recognition & Reporting measures alone
 - Missing Regional measures
- ➔ **Potential for ARG EMS User Access for Regional Data (per AHA and ACC discussions)**

Potential Solutions - #3

- ➔ **Use ARG Data AND Create EMS database**
 - Could include missing data points
 - Could duplicate some EMS data points
 - Would require some manual calculation of measures
- ➔ **Potential for ARG EMS User Access for Regional Data (per AHA and ACC discussions)**

Potential Solutions - #4

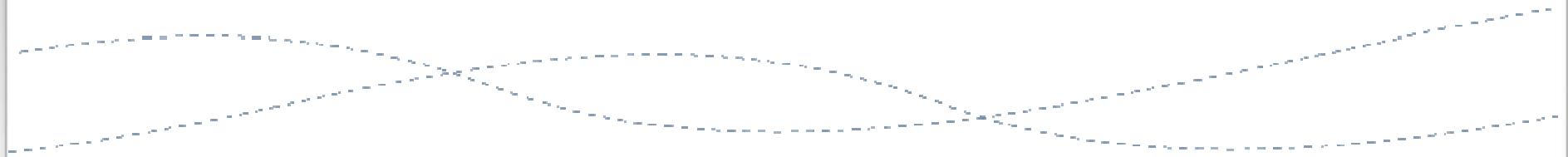
→ Create Regional Database for combined Hospital and EMS data

- Allows all data to be entered by data providers (PCI, Non-PCI, EMS)
- Allows all measures to be reported locally

→ VERY Expensive

- Cost includes maintenance (FTEs plus hardware & software)

Next Steps



Next Steps

- ➔ Complete definitions of data measures and data points
- ➔ Refine solutions for consideration by focused group
- ➔ Convene group of Hospital & EMS Administrators, Technology experts and QI subgroup members
- ➔ Other Ideas??



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**Next QI Subgroup Meeting
May 5, 2010 @ 8:00 am**

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Protocol Sub-group Update

Non-PCI hospital STEMI guidelines

Heart Attack Guidelines for Non-PCI Hospitals



STEMI Criteria:
Signs / Symptoms of Acute Coronary Syndrome (ACS)
 -----AND-----
ST segment elevation of 1 mm or more in two contiguous leads

- If both criteria are met then recommend activating the PCI Hospital
- If ST elevation inconclusive, isolated to V1-V2, or LBBB identified then recommend consultation with physician at PCI Hospital prior to activation

Goal: Patient in the door and out the door < 30 minutes

- ⊖ Record time patient arrives first ED
- ⊖ Acquire 12 lead ECG within 10 minutes
- ⊖ Physician reads ECG within 5 minutes
- ⊖ Activate Code STEMI/STEMI Alert
- ⊖ Contact Transport (EMS or Air Medical)
- ⊖ Call for transfer to PCI Hospital
- ⊖ Oxygen to maintain O2 saturation > 92%
- ⊖ Aspirin 324 mg PO chewable



- ⊖ Consider thrombolytics if anticipated time to Cardiac Cath lab > 90 minutes
- ⊖ Cardiac Monitor & Attach hands-free defibrillator pads
- ⊖ Vital signs and pain scale
- ⊖ Fax ECG to PCI Hospital
- ⊖ Saline Lock #1 large bore needle
- ⊖ Saline Lock #2 if possible, large bore needle
- ⊖ Lab - cardiac markers [CKMB, Trop I], CBC, BMP, PT/INR, PTT, pregnancy serum if childbearing age
- ⊖ NTG 1/150 gr. SL every 5 min PRN for chest pain (hold for SBP < 90)
- ⊖ Analgesia (Morphine sulfate or Fentanyl) IV PRN for pain
- ⊖ STAT portable CXR
- ⊖ Clopidogrel (Plavix) 600 mg PO
- ⊖ Heparin IV loading dose 60 units/kg (7,000 units max)
- ⊖ Consider metoprolol (Lopressor) 25 mg PO x 1 or 5 mg IV every 5 minutes x 3 (hold if SBP < 90, Pulse ox < 92, HR < 60 or active CHF or Asthma)
- ⊖ Record time patient leaves first ED



STEMI Criteria:

Signs / Symptoms of Acute Coronary Syndrome (ACS)

----- AND -----

ST segment elevation of 1 mm or more in two contiguous leads

If both criteria are met then recommend activating the PCI Hospital

If ST elevation inconclusive, isolated to V1-V2, or LBBB identified then recommend consultation with physician at PCI Hospital prior to activation

Goal: Patient in the door and out the door < 30 minutes

Priorities Prior to Transport

Record time patient arrives first ED

Acquire 12 lead ECG within 10 minutes

Physician reads ECG within 5 minutes

Activate Code STEMI/STEMI Alert

Contact Transport (EMS or Air Medical)

Call for transfer to PCI Hospital

Oxygen to maintain O₂ saturation > 92%

Aspirin 324 mg PO chewable

Transport Immediately—No Delays! Once Transport is Ready

Consider thrombolytics if anticipated time to vessel reperfusion in the Cardiac Cath lab > 90 minutes

Cardiac Monitor & Attach hands-free defibrillator pads

Vital signs and pain scale

Fax ECG to PCI Hospital

Saline Lock #1 large bore needle

Saline Lock #2 if possible, large bore needle

Lab - cardiac markers [CKMB, Trop I], CBC, BMP, PT/INR, PTT, pregnancy serum if childbearing age

NTG 1/150 gr. SL every 5 min PRN for chest pain (hold for SBP < 90)

Transport Immediately—No Delays! Once Transport is Ready

Analgesia (Morphine sulfate or Fentanyl) IV PRN for pain

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Clopidogrel (Plavix) 600 mg PO

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**Consider metoprolol (Lopressor) 25 mg PO x 1 or 5 mg
IV every 5 minutes x 3 (hold if SBP < 90, Pulse ox <
92, HR < 60 or active CHF or Asthma)**

Record time patient leaves first ED

Consider metoprolol (Lopressor)

Reads:

(hold if SBP < 90, Pulse ox < 92, HR < 60 or active CHF or Asthma)

Change to:

beta blockers should not be administered to STEMI patients who have any of the following: 1) signs of heart failure, 2) evidence of a low output state, 3) increased risk* for cardiogenic shock, or 4) other relative contraindications to beta blockade (PR interval greater than 0.24 seconds, second- or third-degree heart block, active asthma, or reactive airway disease).

*Risk factors for cardiogenic shock (the greater the number of risk factors present, the higher the risk of developing cardiogenic shock) are age greater than 70 years, systolic blood pressure less than 120 mm Hg, sinus tachycardia greater than 110 bpm or heart rate less than 60 bpm, and increased time since onset of symptoms of STEMI.

2010 Goals - Next Steps:

- ➔ If first medical contact (EMS/non-PCI hospital or PCI hospital) to first device used can be accomplished in under 90 minutes, patient should be directed to STEMI receiving center for reperfusion in the cath lab.
- ➔ If it is determined that first medical contact (EMS/non-PCI hospital or PCI hospital) to first device used will not be possible in under 90 minutes, administer lytics if patient is eligible and then transfer to STEMI receiving center.
- ➔ Written regional transfer protocols for patients who arrive at STEMI referral centers who are primary PCI candidates, are ineligible for fibrinolytic drugs, and/or are in cardiogenic shock.

Next Protocol Sub Group Meeting:

Wednesday May 12, 2010

AHA Office

0800-0930

