STRAC educational materials reinforcing the importance of administration of fibrinolytics in STEMI patients prior to transport for emergent PCI

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Associate Professor of Emergency Health Sciences
UT Health San Antonio
Multi Step Approach

• Established regional cardiac process improvement
  • Stakeholders – EMS, Emergency Department, Cath Lab, Interventionalist, RAC, hospital C’s

• Measurement
  • All hospitals involved in ACTION Registry and Mission Lifeline
  • Unblinded regional data

• Consensus on process for regional “lytics drip and ship” process

• Regional Clinical Guideline

• Interfacility Transport Packet

• Educational Road Show

• Measurement
  • RAC Data Collaborative
    • Global blinding, regional unblinding
Established regional cardiac process improvement

Heart Alert Criteria

1. Patients with signs and symptoms of an Acute Coronary Syndrome (ACS)*
   ___________________________  ___________________________
   AND

2. ST segment Elevation of 1mm or more in 2 contiguous leads

If your patient does not meet Criteria 1 AND 2, a consult should be done with the receiving ED physician prior to declaring a Heart Alert

*ACS Symptoms include but are not limited to chest pain/tightness; radiation to back, abdomen, arm(s), neck, jaw or any combination; dyspnea; diaphoresis; nausea/vomiting; fatigue; weakness; palpitations; indigestion; syncope; pulmonary edema

**Heart Alert Criteria are regionally approved clinical and analytical findings which result in early activation of Interventional Cardiology services. The criteria identify a sub-group of cardiac patients who benefit from these time sensitive treatments. The criteria do not identify, or address other cardiac disorders/diseases that may require Emergency Department admission, evaluation and treatment.

STRAC
Southwest Texas Regional Advisory Council

Regional Cardiac Systems Committee Quarterly Cardiac Dinner

What:  Regional Cardiac Systems Committee Quarterly Cardiac Dinner
When:  Thursday, May 31st, 2018
       6:00 pm – 6:30 pm Reception/Dinner
       6:30 pm – 8:00 pm Meeting
Where:  Omni Colonnade – Grand Ballroom
        9821 Colonnade Blvd.
        San Antonio, TX 78230
RSVP:  angela.lopez@strac.org
       (210) 233-4850

Save the Date!
STRAC Regional Cardiac Systems Committee Quarterly Dinner:
31-May, 2018

Target Audience:
- Cardiologists
- Emergency Physicians
- Cath Lab & Cardiac Support Staff
- Emergency Department Staff
- Hospital Administration
- Data Abstractors
- EMS Leaders

www.strac.org
Development of a Regional STEMI Management Guideline

Introduction
- The benefit of timely reperfusion in patients with acute ST-segment elevation myocardial infarction (STEMI) has been well documented.
- Primary percutaneous coronary intervention, which has proven mortality benefit over fibrinolysis in clinical trials, is the preferred reperfusion strategy.
- A substantial proportion of patients with STEMI cannot be transported directly to PCI due to geographic distance.

Goal
- The goal of this study was to determine the significance and limitations of implementing a consensus driven regional guideline for thrombolytic therapy and urgent transport to PCI in STEMI patients transported to STEMI referral centers.

Methods
- We utilized the Mission Lifeline STRAC Regional Reports from 2nd quarter 2014 and compared it to 2nd quarter 2016. These dates were selected to represent before and after development of the guidelines.
- We compared median time to reperfusion and method of reperfusion between the two time periods.

Results
- No difference in median time to reperfusion for direct to PCI between 2014 and 2016.
- 30% reduction in time to reperfusion for patients receiving lytics before emergent transfer to PCI.
- 3 fold increase in the percentage of STEMI patients receiving lytics prior to Transfer for emergent PCI.

Limitations
- This data set includes only patients meeting all inclusion criteria for the Action Registry and Mission Lifeline Report. Not all regional STEMI patients are represented.
- This includes only STEMI patients transferred to a PCI center reporting to Action Registry.
- STRAC has developed the education materials, and is just now starting the education campaign for “Drip and Ship” Guidelines.

Conclusion
During the second quarter of 2016, dramatically more STEMI patients received fibrinolytic therapy prior to transfer to PCI than in 2016.
Consensus on process for regional “lytics drip and ship” process
Regional Clinical Guideline

STRAC Regional Cardiac Systems Committee
STEMI Management Guidelines

Craig Cooley, MD, MPH, EMT-P; David Wampler, PhD, LP; Brandi Wright, BA, CSTR; Preston Love, RN, ME;
Dudley Wait, BA, EMT-P; Jorge Alvarez, MD

Introduction:
The STRAC Regional Cardiac Systems Committee meets to provide an open, consensus-driven environment across all relevant disciplines in the development of regional guidelines, processes and educational opportunities to facilitate efficient and appropriate pre-hospital and hospital care of patients who are suffering acute cardiac events.

The benefit of timely reperfusion in patients with acute ST-segment elevation myocardial infarction (STEMI) has been well documented. Primary percutaneous coronary intervention, which has proven mortality benefit over fibrinolysis in clinical trials, is the preferred reperfusion strategy. A substantial proportion of patients with STEMI cannot be transported directly to PCI due to geographic distance.

An objective of the STRAC Cardiac Systems Committee is to focus on the cohort of patients for whom fibrinolytic therapy or should be initiated based on estimated inter-hospital drive times.

EMS Commitment
- 12-Lead Acquisition/Interpret/Transmission
- Adherence to Heart Alert Criteria
- < 20 minute Scene time
- < 45 minute 911 to PCI Center time
- Data submission
- Active Participation in PI Process

PCI Center Commitment
- ED Physician Activates the Cath Lab based on EMS Report of “Heart Alert”
- One Call Activation of Cath Lab
- < 25 minute ED Time
- < 60 minute D2B
- Data Submission to include self presenters and IFT’s
- Encourage Physician (EM and Cardiology) involvement in PI Process

Goal 1: Direct to PCI Transport by EMS
911 to PCI Center <45 minutes and early notification with ECG transmission
- EMS obtains and transmits 12 ECG to PCI Center
- Early PCI center notification of the Heart Alert
- Emergency Physician activation of Cath Lab upon EMS notification of “Heart Alert”
- EMS Aginin Administration
- Pain management (opioids and nitrates)

Goal 2: Interfacility Transfer
Door to Thrombolytic in < 30 minutes and urgent transfer to PCI

Heart Alert Criteria
- 1. Patients with signs and symptoms of an Acute Coronary Syndrome (ACS)
- 2. ST-segment Deviation of >1 mm in 2 contiguous leads

Deployment Plan:
- Flyers to facilities
- Local and regional education sessions
- Case review through Cardiac PI Committee
- Pitfalls:
  - Facility turnover leading to lack of knowledge with protocol
  - Hesitation to give thrombolytics based on unfamiliarity
Regional Clinical Guideline

Interfacility Transfer

- Goal 2: Interfacility Transfer
- Door to Thrombolytic in < 30 minutes and urgent transfer to PCI
- Confirmed STEMI
  - Begin thrombolytic contraindications checklist immediately (EMS)
  - Onset of symptoms < 12 hours: administer full dose thrombolytic followed by urgent PCI
  - Onset of symptoms > 12 hours: consider thrombolytic and contact receiving facility for further input.

IFT PCI Center Commitment

- Auto accept*
- Rapid evaluation of need for cath lab upon arrival
  - < 25 minute ED Time
  - < 60 minute D2B
- Data Submission to include self presenters and IFT’s
- Feedback to transferring facilities

12-Lead EKG Transmission Project

Step 1: EMS Performs 12-Lead EKG
Step 2: EMS Determines 12-Lead is STEMI
Step 3: EMS takes picture of 12-Lead w/ iPhone or Android
Step 4: EMS texts image to MEDCOM
Step 5: EMS calls report to receiving PCI Center

Go LIVE Date: December 4th, 2017 at 0700

MEDCOM forwards EKG by text to the receiving PCI Center ER iPAD prior to EMS arrival

Include in text: Agency, Unit #, & Receiving Hospital
Example: SAFD M31 to UHS
No PHI on EKG

Receiving ER already has EKG on ER iPAD sent by MEDCOM
ER iPAD has security Software to prevent misuse
ER can share with Cardiology

MEDCOM stores the EKG image for historical data

MEDCOM 24/7 Dispatch: (210) 233-5815; EKG Transmission (210) 417-7016
STRAC Helpdesk (24/7): (210) 233-5888 or support@strac.org
# Interfacility Transport Packet

## Regional Documents for Interfacility Transfer

### Patient Sticker

- **Cardiac**
  - EKG (as applicable to diagnosis)
  - Troponin Level (TNI)
  - If thrombolysis administered:
    - Time/Route Lytic Administration
    - Radiology Images Preferred (CMR)

### Reference Documents:
- STEMI Management Guidelines for Interfacility Transfers

### Cardiac

- Completed/signed Memorandum of Transfer
- Face Sheet (demographics)
- ED Physician Record (including H&P)
- ED Nursing Record (including vitals sign)
- EKG (as applicable to diagnosis)
- Lab Results
- Radiology reports (as applicable)

### Trauma

- Completed MEDCOM/Rec/Blue Trauma Criteria for Transfer (Adult or Pediatric applicable)
- Radiology Images preferred* (Head CT)
  - *If completed, recommendation to not delay transfer for imaging.

### Reference Documents:
- MEDCOM Transfer Request Form
- SIS/TEEN Transfer Guidelines
- Regional Burn Transfer Guidelines
- Hand Algorithm

## STRAC
- Southwest Texas Regional Advisory Council

### ALL TRANSFERS
- Completed/signed Memorandum of Transfer
- Face Sheet (demographics)
- ED Physician Record (including H&P)
- ED Nursing Record (including vitals sign)
- EKG (as applicable to diagnosis)
- Lab Results
- Radiology reports (as applicable)

### Reference Documents:
- Critical Transport by Ground MOU

## STROKE

- **Primary/Comprehensive Stroke**:
  - Baptist Health System
  - (210) 207-3471
  - Methodist Healthcare System
  - (210) 575-2368
  - SAAMC*
  - (210) 211-0445
  - Southwest General
  - (210) 507-4810
  - University Hospital
  - (210) 743-3100

### TRAUMA

- **Primary Stroke**:
  - Baptist Health System
  - (210) 207-3471
  - Methodist Healthcare System
  - (210) 575-2368
  - SAAMC*
  - (210) 211-0445
  - Southwest General
  - (210) 507-4810
  - University Hospital
  - (210) 743-3100

### STROKE

- Regional Neurological Abbreviated Assessment tool for Transfer; include:
  - Last Known Well Time (LKWT)
  - NIHSS on arrival (to transferring hospital)
  - Time/Dose of Alteplase Bolus
  - Time Alteplase Infused Infusion
  - Time Alteplase Completed

### Reference Documents:
- Regional Neuro Assessment Tool
- Transfer Guidelines of Patients on Alteplase

### Trauma

- Completed MEDCOM/Rec/Blue Trauma Criteria for Transfer (Adult or Pediatric applicable)
- Radiology Images preferred* (Head CT)
  - *If completed, recommendation to not delay transfer for imaging.

### Reference Documents:
- MEDCOM Transfer Request Form
- SIS/TEEN Transfer Guidelines
- Regional Burn Transfer Guidelines
- Hand Algorithm

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### One Call Centers for Patient Placement

#### ALL TRANSFERS

- Axel Murphy VA: (210) 617-5300
  - Baptist Health System: (210) 297-2471
  - Christus Santa Rosa Health System: (210) 704-3292
  - Methodist Healthcare System: (210) 221-0445
  - SAAMC*: (210) 211-0445
  - Southwest General: (210) 507-4810
  - University Hospital: (210) 743-3100

#### CARDIAC

- PCC:
  - Baptist Health System: (210) 297-2411
  - Christus Santa Rosa Health System: (210) 704-3292
  - Methodist Healthcare System: (210) 221-0445
  - SAAMC*: (210) 211-0445
  - Southwest General: (210) 507-4810
  - University Hospital: (210) 743-3100

#### TRAUMA

- For Priority-1 Trauma Transfers, contact MEDCOM: (210) 233-5815
Interfacility Transport

MEMORANDUM OF UNDERSTANDING
between
AIR MEDICAL PROVIDERS, EMS PROVIDERS and HEALTHCARE FACILITIES
for
AIR MEDICAL SUPPORT OF CRITICAL CARE GROUND TRANSPORT

1. PARTIES

The Parties to this Memorandum of Understanding are the Air Medical Providers listed below, participating Healthcare Facilities within the STRAC region and licensed EMS Providers who have signed this Memorandum.

<table>
<thead>
<tr>
<th>Air Medical Provider Program Name</th>
<th>Corporation / Part 135 Certificate Holder</th>
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<tbody>
<tr>
<td>Air Evac Lifeflight</td>
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<tr>
<td>San Antonio AirLIFE</td>
<td>Air Methods Corporation</td>
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Educational Road Show

STRAC LYTIC MAP

Objectives

- STEMI Care Review
  - History
  - Current
- ED Thrombolytics
  - Indications
  - Contraindications
    - Aortic Dissection
- STRAC Regional Guidelines
  - PCI vs Non-PCI
    - Lytic Map
# Measurement

## Table 1. Quarterly demographics as reported by ACTION Registry®.

<table>
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<tr>
<th>Presented Direct to PCI</th>
<th>Before Lytics CPG (10 quarters)</th>
<th>After Lytics CPG (7 quarters)</th>
<th>p=</th>
<th>Presented to Referral Centers</th>
<th>Number of patients presenting</th>
<th>After Lytics CPG (10 quarters)</th>
<th>p=</th>
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<tbody>
<tr>
<td>Mean number of patients presenting per quarter</td>
<td>139 ± 28</td>
<td>172 ± 13</td>
<td>.012</td>
<td>Mean Age (years)</td>
<td>61 ± 3</td>
<td>62 ± 1</td>
<td>.67</td>
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<tr>
<td>Mean Age (years)</td>
<td>61 ± 3</td>
<td>62 ± 1</td>
<td>.67</td>
<td>% Female</td>
<td>30 % ± 5%</td>
<td>25% ± 4%</td>
<td>.015</td>
</tr>
<tr>
<td>% Female</td>
<td>30 % ± 5%</td>
<td>25% ± 4%</td>
<td>.015</td>
<td>Mean Age (years)</td>
<td>63 ± 2</td>
<td>61 ± 3</td>
<td>.17</td>
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<tr>
<td>% Female</td>
<td>27% ± 9%</td>
<td>24% ± 4%</td>
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</table>
Questions?

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