Improving the System of Care for STEMI Patients
Today’s Presentation

1. History of Mission: Lifeline
2. The “Ideal” State of Mission: Lifeline
3. Overview of national Mission: Lifeline initiatives

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Reperfusion Recommendations

- STEMI patients presenting to a hospital with PCI capability should be treated with primary PCI within 90 minutes of first medical contact.

- STEMI patients presenting to a hospital without PCI capability and who cannot be transferred to a PCI center for intervention within 90 minutes of first medical contact should be treated with fibrinolytic therapy within 30 minutes of hospital presentation, unless contraindicated.

ACC/AHA 2007 STEMI Focused Update
*Circulation* 2007; on line, December 10.
Each community should develop a STEMI system of care following the standards developed for *Mission Lifeline (AHA)* including:

- Ongoing multidisciplinary team meetings with EMS, non-PCI & PCI centers
- A process for prehosp identification and activation
- Destination protocols for PCI centers
- Transfer protocols for non-PCI centers for appropriate patients

**NEW Recommendation**

ACCA/AHA 2009 Joint STEMI/PCI Guidelines Focused Update JACC 2009
Barriers to Timely Reperfusion

- **The patient**
  - Failure to promptly recognize symptoms
  - Hesitation to seek medical attention

- **Time to transport**
  - Mandated delivery to the closest hospital, regardless of PCI capabilities
  - Long transport in rural areas

- **Decision process on arrival**
  - Clot-busting drugs vs. PCI
  - Off hours
  - Transfer to PCI facility

- **Time to implement treatment strategy**
  - Procedural factors
  - Team assembly
The Reality of Today’s Patients

Not all STEMI patients call 9-1-1

- 50% of STEMI patients present to their local emergency department (ED)

“Walk-in” patients hinder:

- Registration
- Quick triage to electrocardiograms (ECG) for diagnosis
- ECG privacy
- Advance warning to activate hospital staff to prepare for reperfusion
How do we increase the number of patients with timely access to reperfusion therapy?
A Life-Saving Initiative

- National, community-based initiative

- Goals
  - Improve quality of care and outcomes in heart attack patients
  - Improve health care system readiness and response
Mission: Lifeline’s Guiding Principles

The initiative values:

- Patient-centered care as the #1 priority
- High-quality care that is safe, effective and timely
- Stakeholder consensus
- Increased operational efficiencies
- Appropriate incentives for quality
- Measureable patient outcomes
- An evaluation mechanism
- A role for local community hospitals
- A reduction in disparities of healthcare delivery
The Uniqueness of Mission: Lifeline

**Mission: Lifeline will:**

- Promote the ideal STEMI systems of care
- Help STEMI patients get the life-saving care they need in time
- Bring together healthcare resources into an efficient, synergistic system
- Improve overall quality of care

**The initiative is unique in that it:**

- Addresses the continuum of care for STEMI patients
- Preserves a role for the local STEMI-referral hospital
- Understands the issues specific to rural communities
- Promotes different solutions/protocols for rural vs. urban/suburban areas
- Recognizes there is no “one-size-fits-all” solution
- Knows the issues of implementing national recommendations on a community level
History
2004-2006

May 2004
- AHA recruited an Advisory Working Group (AWG)

June 2005
- Price Waterhouse Coopers presents its market research to AWG

March 2006
- AWG Consensus Statement appears in Circulation
- Stakeholders called to action
- AWG develops a set of guiding principles
- AHA held a conference of multidisciplinary groups involved in STEMI patient care

Circulation 2006;113:2152-2163.

AHA Consensus Statement

Recommendation to Develop Strategies to Increase the Number of ST-Segment-Elevation Myocardial Infarction Patients With Timely Access to Primary Percutaneous Coronary Intervention

The American Heart Association’s Acute Myocardial Infarction (AMI) Advisory Working Group

Alice K. Jacobs, MD, FAHA, Chair; Elliott M. Antman, MD, FAHA; Gray Elliot, MD; David P. Faxon, MD, FAHA; Tammy Gregory; George A. Mensah, MD, FAHA; Peter Moyer, MD; Joseph Ornato, MD, FAHA; Eric D. Peterson, MD, FAHA; Larry Sadwin; Sidney C. Smith, MD, FAHA
History
2007-Present

Early 2007
- Drafts of STEMI Systems of Care manuscripts are finalized
- Action items for the AHA begin to take shape

April 2007
- A cross-functional team was recruited to spearhead Mission: Lifeline

May 2007
- Eleven manuscripts are published in Circulation
- Mission: Lifeline was formally launched

July 2008
- Affiliate Staff Kick-Off was held
Implementation Plan

Please visit www.americanheart.org/missionlifeline

For each component of the system, Mission: Lifeline will:

• Define the ideal practice
• Recommend strategies to achieve the ideal practice
• Provide resources/tools to achieve the ideal practice
• Recommend metrics for structure, process and outcomes
• Recommend criteria for recognition and certification
The Ideal STEMI System of Care

- **patient**
- **public**
- **ambulance/EMS**
- **call 911**
- **payers**
- **health agencies**
- **policymakers**

**STEMI-referral hospital (non PCI-capable)**

**STEMI-receiving hospital (PCI-capable)**
The Ideal Patient

Patients and the public:

- Recognize the symptoms of STEMI
- Realize the importance of:
  - Activating emergency medical services (EMS) via 9-1-1 promptly
  - Getting treatment quickly
- Are familiar with their local hospital’s role in STEMI care
- Understand the implications of inter-hospital transfer for PCI

The ideal system:

- Promotes culturally competent education efforts
- Includes patient representatives on community planning coalitions
- Provides coordinated and patient-centered care
In an ideal system:

- Ambulances are equipped with 12-lead ECG machines
- EMS providers are trained to:
  - Use and transmit 12-lead ECGs
  - Care for STEMI patients
  - Provide feedback on performance and compliance with guidelines
- Standardized point-of-entry (POE) protocols define patient transport rules
- When there is STEMI, the cath lab is activated promptly
- Patients transported to a STEMI-referral hospital remain on the stretcher with EMS present pending a transport decision
- When “walk-in” patients present to a STEMI-referral hospital and require primary PCI, activation of EMS occurs
- Hospitals close the communication gap with EMS
The Ideal STEMI-Referral Hospital

In an ideal system:

- Standardized POE protocols dictate transport of STEMI patients directly to a STEMI-receiving hospital based on:
  - Specific criteria for risk
  - Contraindications to fibrinolysis
  - The proximity of the nearest PCI service

- Patients presenting to a STEMI-referral hospital are treated according to standardized triage and transfer protocols

- Incentives are provided to rapidly:
  - Treat STEMI patients in accordance with ACC/AHA guidelines
  - Transfer to a STEMI-receiving hospital for primary PCI using:
    - Reperfusion checklists
    - Standard pharmacological regimens and order sets
    - Clinical pathways

- There is rapid and efficient data transfer, data collection and feedback

- Integrated plans for return of the patient to the community for care are provided
Role of the Referring Hospital is based on science

Association of Door-In to Door-Out (DIDO) Time With Reperfusion Delays and Outcomes Among Patients Transferred for Primary Percutaneous Coronary Intervention


• Retrospective cohort of 14,821 patients with STEMI transferred to 298 STEMI receiving centers for primary PCI in the ACTION Registry-Get With the Guidelines between January 2007 and March 2010.
The Ideal STEMI-Receiving Hospital

In an ideal system:

- Pre-hospital ECG diagnosis of STEMI, ED notification and cath lab activation occurs according to standard algorithms
- Algorithms facilitate:
  - A short ED stay for the STEMI patient
  - Transport directly from the field to the cath lab
- Single-call systems from STEMI-referral hospitals immediately activate the cath lab
- Primary PCI is provided as routine treatment for STEMI 24, 7
- STEMI-receiving hospital’s administration puts their support in writing
- A multidisciplinary team meets regularly to identify and solve problems
- A continuing education program is designed and instituted
- A mechanism for monitoring performance, process measures and patient outcomes is established
POE Protocol

Onset of symptoms of STEMI
9-1-1 EMS dispatch
EMS on-scene
- Encourage 12-lead ECGs
- Consider prehospital fibrinolytic if capable and EMS-to-needle within 30 min
EMS transport
Prehospital fibrinolysis: EMS-to-needle within 30 min
EMS to-ballooon within 90 min
Patient self-transport: Hospital door-to-balloon within 90 min

GOALS†
- Patient: 5 min after symptom onset
- Dispatch: 1 min
- EMS on scene: within 8 min
- EMS transport: within 30 min

Total ischemic time: Within 120 min*

* Golden Hour = First 60 minutes

Hospital fibrinolysis: Door-to-needle within 30 min
STEMI-referral hospital (non PCI-capable)
Inter-hospital transfer
EMS Triage Plan
STEMI-receiving hospital (PCI-capable)
Coordinated Actions

- Assess and improve the EMS system
- Evaluate existing STEMI system models
- Establish local initiatives
- Explore the possibility of developing a national STEMI-certification program and/or criteria
- Launch Mission: Lifeline awareness campaigns
- Create system resources
- Engage strategic alliances
Partners for Success

- Patients and care givers
- EMS providers
- Physicians, nurses and other providers
- STEMI-referral (non-PCI) hospitals
- STEMI-receiving (PCI-capable) hospitals
- Health systems
- Departments of health
- EMS regulatory authority / office of EMS
- Rural health associations
- Quality improvement organizations
- Third-party payers
- State and local policymakers
STEMI System Evaluation & Registration

Online questionnaire

- Is accessible from the Mission: Lifeline web site
- Examines local and regional STEMI system models
  - Locale
  - Processes of care
  - Financial considerations
  - Resource allocation

Benefits

- Input can help Mission: Lifeline target system issues where improvements will yield the greatest results

www.ahasurveys.com/se.ashx?s=0B87B7ED7A3B4136
HAVE YOU REGISTERED YOUR STEMI SYSTEM WITH MISSION: LIFELINE?

Each year, many patients with ST-elevation myocardial infarction (STEMI) fail to receive critical reperfusion therapy for their infarct artery in a timely fashion. Even worse, nearly 30% of patients with STEMI do not receive any reperfusion treatment. Mission: Lifeline, a national, community-based initiative to improve systems of care for STEMI patients, was created by the American Heart Association in response to these missed opportunities. Our first step is to gather vital information and for that we need you. Please take a few minutes to complete an online survey at americanheart.org/missionlifeline and help us close the gaps in STEMI care.
Mission: Lifeline STEMI System Coverage

Mission: Lifeline data as of August 2011 (576 Systems; 58.9% Population Coverage)

Registered STEMI System Coverage Area

STEMI Coverage Area

Population Data Source: ESRI 2010; Mission: Lifeline data as of 8/18/11
What is happening in other parts of the country?

The American Heart Association is:

- Convening a task force at state and local levels
- Helping identify ways to implement national recommendations for STEMI systems in local communities
- Registering STEMI systems with the Mission: Lifeline directory
Regional Systems of Care Demonstration Project: 
Mission: Lifeline™ STEMI Systems Accelerator program

- The Duke Clinical Research Institute’s Center For Educational Excellence is excited to announce a call for regional STEMI System Conferences.

- A push to reform systems of care for the ST elevation myocardial infarction patient by engaging multiple systems that provide emergency medical care and reperfusion therapy within the same geographical region.

- Bring together leading health care providers and institutions in a collaborative fashion facilitated by professional organizations, national experts in the organization of regional systems, local key thought leaders in cardiology and emergency medicine, and leading emergency cardiac care businesses.

- Identify and establish regional leadership in emergency cardiac care that includes prominent physicians and administrators in hospitals, emergency medicine, and cardiology.
How will we measure our impact?
Mission: Lifeline Metrics Data Sources

EMS
- EMS assessment
- ACTION/Get With The Guidelines (GWTG)
- NEMSIS

Emergency department
- ACTION/GWTG

STEMI-receiving (PCI-capable) hospitals
- ACTION/GWTG
Research and Publications

CathPCI
- 64 Manuscripts
- 164 Abstracts

ICD
- 19 Manuscripts
- 26 Abstracts

ACTION-GWTG
- 22 Manuscripts
- 41 Abstracts

CARE
- 4 Manuscripts
- 9 Abstracts

IMPACT
- 1 Manuscripts
- 2 Abstracts

PINNACLE
- 4 Manuscripts
- 21 Abstracts
Get With The Guidelines® & ACTION Registry®—GWTG™

Unique hospitals implementing one or more modules as of 10/21/10
(Count: 1829; Market Penetration: 40.6%)
<table>
<thead>
<tr>
<th>Measure Metric</th>
<th>Care Opportunities</th>
<th>Adherence Score</th>
<th>State Adh. Score</th>
<th>Nation Adh. Score</th>
<th>Distribution of Site Composite Scores</th>
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</thead>
<tbody>
<tr>
<td>Overall Mission Lifeline Composite Score</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>94.7%</td>
<td></td>
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<tr>
<td>Time to Primary PCI &lt;= 90 min</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>93.0%</td>
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<tr>
<td>Mission: Lifeline First Medical Contact to Primary PCI &lt;= 90 min</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>61.1%</td>
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<tr>
<td>Reperfusion Therapy</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>92.3%</td>
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<tr>
<td>Aspirin at Arrival</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>98.7%</td>
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<tr>
<td>Aspirin at Discharge</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>98.6%</td>
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<tr>
<td>Beta Blocker at Discharge</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>97.2%</td>
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<td>Statin at Discharge</td>
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<td>-</td>
<td>-</td>
<td>98.8%</td>
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<tr>
<td>ACE-I or ARB for LVSD at Discharge</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>90.4%</td>
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<tr>
<td>Adult Smoking Cessation Advice</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>98.7%</td>
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1ACTION Registry-GWTG™ Mission: Lifeline receiving center patients have 9 Achievement Measures for which they may be eligible
2Number of total guideline opportunities among eligible patients within the reporting timeframe: previous quarter
3Number of times care matches guideline recommendations / Number of guideline opportunities
4Among all admissions from receiving hospitals in site’s state. Eligible states must have at least 6 receiving hospitals in ACTION Registry-GWTG™
5Among all admissions from receiving hospitals in ACTION Registry-GWTG™
Achievement Measures STEMI Referral Center

- Percentage of STEMI patients with a door-to-first ECG time <10 minutes
- Percentage of reperfusion-eligible patients receiving any reperfusion (PCI or fibrinolysis) therapy
- Percentage of reperfusion-eligible patients with door-to-needle time within 30 minutes
- Percentage of reperfusion-eligible patients transferred to PCI center with door-in- to door-out time within 45 minutes

* Facility goal to make first door-to-balloon (first device used) time within 90 minutes (taking into consideration transport time)

- Percentage of STEMI patients receiving aspirin within 24 hours
- Percentage of STEMI patients on aspirin at discharge
- Percentage of STEMI patients on Beta Blocker at discharge
- Percentage of STEMI patients with LDL>100 who receive stains or lipid lowering drugs
- Percentage of STEMI patients with LVSD on ACEI/ARB at discharge
- Percentage of STEMI patients that smoke with smoking cessation counseling at discharge
STEMI Accreditation & Recognition

The American Heart Association has:

- Developed a partnership with the Society of Chest Pain Centers for Mission: Lifeline Accreditation
- Developed a recognition program to:
  - Salute health care teams who comply with guidelines
  - Commend STEMI systems for raising quality of care
  - Help compliant hospitals differentiate themselves
  - Motivate more health care providers to embrace the Mission: Lifeline standards
Mission: Lifeline Involvement

PARTICIPATION
- ML Hospital Registration
- ML System Registration
- Memorandum of Understanding
- Quality Improvement/Data Analysis
- Mission: Lifeline Reports

RECOGNITION

ACCREDITATION

1/3/2012 ©2011, American Heart Association
Recognition Criteria

_used achievement measures to determine award status_

_divided into four areas_

- EMS
- STEMI-referral hospitals (non-PCI)
- STEMI-receiving hospitals (PCI)
- STEMI systems
### Mission: Lifeline Recognition

<table>
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<tr>
<th>Level</th>
<th>Requirement</th>
<th>Yearly Receiving Capacity</th>
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<tbody>
<tr>
<td>BRONZE</td>
<td>1 calendar quarter/90 consecutive days</td>
<td>May receive 3rd year consecutively for 2012</td>
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<tr>
<td>SILVER</td>
<td>4 calendar quarters/12 consecutive months</td>
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</tr>
<tr>
<td>GOLD</td>
<td>8 consecutive quarters/24+ consecutive months</td>
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Best Practices/Recognition
2009-Present

**SPRING 2009**
Completion of a national EMS Assessment for STEMI Systems represents 91% of US population

**FALL 2009**
Accreditation requirements for STEMI Systems, hospitals and EMS Agencies are released

**2010**
Hospital recognition program and reports are released

**2011**
AHA collaborates with SCPC and hospital accreditation program released
Improving the System of Care for STEMI Patients

Society of Chest Pain Centers

Contract Signed and relationship announced in May 2012

• Co-branded Product Offerings:
  ° Stand-alone Mission: Lifeline STEMI Receiving Center or Referral Center Accreditation
  ° Existing Chest Pain Centers (cycle III) opportunity to add off-cycle Mission: Lifeline STEMI Receiving or Referral Center accreditation
  ° Beginning in Jan 2012: Offer new hospitals seeking Chest Pain Center accreditation (cycle IV) opportunity to add Mission: Lifeline STEMI Receiving Center or Referral Center Accreditation
Guidelines will be published in the December 6, 2011 issues of:

- *Journal of the American College of Cardiology,*
- *Circulation: Journal of the American Heart Association*
- *Catheterization and Cardiovascular Interventions*