Measuring & Building Quality for STEMI Systems of CARE

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National Director, Mission: Lifeline
Mission: Lifeline Metrics Data Sources

- EMS
  - EMS assessment (NAEMSO and local assessments)
  - ACTION/Get With The Guidelines (GWTG)
  - NEMSIS

- Emergency department
  - ACTION/GWTG “Non-PCI Version”

- STEMI-receiving (PCI-capable) hospitals
  - ACTION/GWTG
  - NCDR CATH/PCI registry

National EMS Information System
What is ACTION Registry®-GWTG?

• **Largest, most comprehensive AMI database through the merger of the nation’s premier ACS registries:**
  - Get With The Guidelines℠-CAD from AHA
  - NCDR ACTION Registry from the American College of Cardiology Foundation® (combination NRMI & CRUSADE Registries)

• **Unified under the combined leadership and support of ACCF and AHA:**
  - Guidelines, performance indicators, and data standards alignment
  - Clinical/technical/contract support
  - Training and orientation
Purpose of ACTION Registry-GWTG

• **National surveillance system for high-risk AMI patients with NSTEMI and STEMI:**
  
  – Assess characteristics, treatments, and outcomes of this patient population
  
  – Optimize outcomes and management of AMI patients through implementation of ACC/AHA evidence-based guideline recommendations
  
  – Facilitate efforts to improve quality and safety of NSTEMI and STEMI patient care; and investigate novel QI methods
STEMI Door-to-Balloon Times –
Median Times for Transfer In and Non-Transfer In Patients

![STEMI Door-to-Balloon Times Graph](image-url)
STEMI – Door to Balloon and Door to Needle Times: Cumulative 12 Month Data

High performing institutions are engaged in QI Monitoring

ACTION Registry-GWTG DATA: January 1 – December 31, 2008

DTB = 1st Door to Balloon for Primary PCI
DTN = Door to Needle for Lytics
Who Should Be Considered for Readiness to Participate in AR-G?

- Current PCI Capable GWTG-CAD Customers **
- Other PCI Capable Hospitals**
- PCI Capable Hospitals Currently Registered in M:L Initiative

** M:L Initiative Participants
### A. DEMOGRAPHICS

<table>
<thead>
<tr>
<th>Last Name</th>
<th>First Name</th>
<th>Middle Name</th>
<th>Birth Date</th>
</tr>
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</table>

<table>
<thead>
<tr>
<th>SSN</th>
<th>Patient ID</th>
<th>Other ID</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Race</th>
<th>Hispanic or Latino Ethnicity</th>
<th>Sex</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>O No ❑ O Yes ✗</td>
<td>O Male ✗ O Female ❑</td>
</tr>
<tr>
<td>Black/African American</td>
<td>❑ O No ❑ O Yes ✗</td>
<td>❑</td>
</tr>
<tr>
<td>Asian</td>
<td>❑ O No ❑ O Yes ✗</td>
<td>❑</td>
</tr>
<tr>
<td>American Indian/Alaskan Native</td>
<td>❑ O No ❑ O Yes ✗</td>
<td>❑</td>
</tr>
<tr>
<td>Native Hawaiian/Pacific Islander</td>
<td>❑ O No ❑ O Yes ✗</td>
<td>❑</td>
</tr>
</tbody>
</table>

### B. ADMISSION

<table>
<thead>
<tr>
<th>Patient Zip Code</th>
<th>Zip Code N/A</th>
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</thead>
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- Means of Transport to First Facility:
  - ❑ Self/Family
  - ❑ Ambulance
  - ❑ Mobile ICU
  - ❑ Air
  - If Ambulance or Mobile ICU or Air, Pre-Arrival 1st Med. Contact Date/Time:
  - ❑ Time Estimated

- Transferred from Outside Facility:
  - ❑ No ❑ Yes ❑ If Yes, Means of Transfer:
  - ❑ Ambulance
  - ❑ Mobile ICU
  - ❑ Air
  - If Yes, Arrival at Outside Facility Date/Time:
  - ❑ Time Estimated
  - If Yes, Transfer from Outside Facility Date/Time:
  - ❑ Time Estimated
  - If Yes, Name of Transferring Facility:

<table>
<thead>
<tr>
<th>Admission Date</th>
<th>Location of First Evaluation</th>
</tr>
</thead>
</table>

- Insurance Payers:
  - ❑ Private Health Insurance
  - ❑ Medicare
  - ❑ Medicaid
  - ❑ Military Health Care
  - ❑ State-Specific Plan (non-Medicaid)
  - ❑ Indian Health Service
  - ❑ Non-US Insurance
  - ❑ None

<table>
<thead>
<tr>
<th>HIC #</th>
<th>Your Facility</th>
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</thead>
</table>

### C. CARDIAC STATUS ON FIRST MEDICAL CONTACT

- Symptom Onset Date/Time:
  - ❑ Time Estimated
  - ❑ Time Not Available

- First ECG Obtained:
  - ❑ Pre-Hospital (e.g. ambulance)
  - ❑ After 1st hosp. arrival
  - First ECG Date/Time:

- STEMI or STEMI Equivalent:
  - ❑ No ❑ Yes ❑ If Yes, ECG Findings:
  - ❑ ST elevation
  - ❑ LBBB (new or presumed new)
  - ❑ Isolated posterior MI
  - If Yes, STEMI or STEMI Equivalent First Noted:
  - ❑ First ECG
  - ❑ Subsequent ECG
  - If Subsequent ECG, Subsequent ECG with STEMI or STEMI Equivalent Date/Time:

- Other ECG Findings (presented within first 24 hours of medical contact):
  - ❑ New or presumed new ST depression
  - ❑ Transient ST elevation lasting < 20 minutes
  - ❑ None

- Heart Failure:
  - ❑ No ❑ Yes

- Cardiogenic Shock:
  - ❑ No ❑ Yes

### D. HISTORY AND RISK FACTORS

<table>
<thead>
<tr>
<th>Height (cm)</th>
<th>Prior MI</th>
</tr>
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<table>
<thead>
<tr>
<th>Weight (kg)</th>
<th>Prior Heart Failure (previous Hx)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Current/Recent Smoker (&lt; 1 year)</th>
<th>Prior PCI</th>
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Limited Form

- The AR-G Short Form is in last stages of sign off.
- Available for data abstraction via short form in January 2010
- Approximately 170 fields, some optional (roughly ½ the size of current DCF fields)
- Available to all ACTION Registry-GWTG participants.
- Strongly encourage participants to use full data set, especially PPCI capable centers.
- The smaller non-PCI centers will be offered STEMI only with short form.
- The form specifications will be made available to all vendors.
- The Short Form will contain all of the elements required to calculate recognition measures. The certification measures are under review.
What Does ACTION Registry – GWTG Measure?

- Monitors emergency & discharge Class I therapies
- Monitors reperfusion process measurements at both the primary PCI and non-PCI facilities
- Monitors patient demographics, provider & facility characteristics
- Monitors adverse event rates
- Monitors compliance with ACC/AHA Clinical Guideline Recommendations
- And more (refer to actual data collection tool)
Services Provided to AR-G Participants

ACC ~

- Access to clinically experienced customer support staff to assist with training, orientation and data coding
- Monthly Registry Site Manager conference calls
- Data Quality Support through national onsite data audit program
- Participant training resources (ie., user manual, access to Cardiosource, etc.)
- Annual “User Group” meeting
- NCDR Support Center
Services Provided to AR-G Participants

AHA ~ QII Staff

- Assist with transition of current GWTG-CAD Customers
- Assist with promotion of program to non-CAD customers (hand-off to ACC to complete enrollment process and training on tool)
- Site visits as appropriate & manageable
- Regional and National Webinars
- Regional Workshops
- Networking opportunities
- Assistance w/data analysis and improvement with achievement measures compliance
- Assistance with quality improvement activities
- Assistance with STEMI Processes/Protocols**

** Staff who provides will be dependent on M:L Structure within affiliate
Additional Resources

- [www.ncdr.com](http://www.ncdr.com)
  - Sample of free data tool
  - Sample hospital reports
  - FAQ

AHA Local QII Directors
What is Missing

- AR-G only collects 3 data elements from pre-hospital
  - Symptom Onset
  - First Medical Contact
  - Pre-Hospital
  - May add 10 “optional elements”

- NEMSIS
  - Currently unable to link EMS data base to AR-G
  - Pilot project- NC OEMS & DCRI RACE attempting to link NC PREMIS data and RACE AR-G data

- Must “Rule-in” for MI
  - No monitoring of “false positives”
• NEMSIS is the national repository that will be used to potentially store EMS data from every state in the nation.

• Many statewide data systems have been created, these EMS systems vary in their ability to collect patient and systems data and allow analysis at a local, state, and national level.

• The NEMSIS project was developed to help states collect more standardized elements and eventually submit the data to a national EMS database.

• Currently, over 75% of states have some type of data system in place at various levels of sophistication.

• Many states are currently working to revise data elements, improve data capture, and ensure compliance with the future NEMSIS dataset.

www.nemsis.org
The NEMSIS project has 3 primary goals & Objectives:

- Implement an electronic EMS documentation system in every local EMS system, which can collect and use data based on the NHTSA Version 2.2.1 dataset standard.

- Implement a state EMS information system in every state and territory, which can receive and use a portion of the local EMS data via the XML standard.

- Implement a national EMS database, which can receive and use a portion of the state and territorial EMS data via the XML standard.
Database will be useful in:

- Developing Nationwide EMS Training Curricula
- Evaluating Patient and EMS System Outcomes
- Facilitating Research Efforts
- Determining National Fee Schedules and Reimbursement Rates
- Addressing Resources for Disaster and Domestic Preparedness
- Providing Valuable Information on Other Issues or Areas of Need Related to EMS Care
AR-G Used for Regional/State STEMI programs

- Currently in use in NC
- When Short form available
  - South Carolina (GWTG-CAD), MN, Kansas, San Antonio, LA, many others
- Considering.....Houston, MO, IA,
Missouri has passed a state law surrounding STEMI & Stroke Care
OTHER States Conducting Stakeholder Groups on the Rise Across the US

North Carolina

- ▲ PPCI
- ○ Transfer for PPCI
- ★ Lytics
- ● Mixed
Regionalization

1) Develop leadership, funding, data structure
2) Establish REGIONAL PCI CENTERS (primary, transfer, rescue, distant transfer-lytic ineligible)
3a) HOSPITAL by hospital establishment of STEMI plan (review, consensus, training)
3b) EMS by EMS establishment of STEMI plan (review, consensus, training)
5) Improve system
RACE-ER Q3 08 - Q2 09
STEMI Volumes By Transfer vs PCI

Preliminary Data
September 2009
RACE-ER

- AR-G all pPCI centers (21 with SOS)
- pPCI individual data
- pPCI data compared to aggregate state data & national QDR data
- pPCI data blinded to all other 20 centers in bar graph- alpha code
- Non-PCI data collected by RN/Paramedic Coordinator from pPCI system
- Cath Lab Activation Registry for “false activations”
Cath Lab Activation Registry

CLAR:

Purpose:
• to use a quality improvement tool to accurately capture patient disposition after implementation of a STEMI emergency response system.

Objective:
• Identify individual facilities and state false activation rates
• Identify opportunities to implement strategies to reduce or maintain an acceptable false activation rate

Definition:
• False Activation is activation of the Cath Lab where the call gets cancelled due to:
  – lack of consensus of ECG interpretation being STEMI,
  – the patient status changes,
  – the patient dies,
  – or we are unable to find the patient information.

Criteria:
• Required that all suspected STEMI and new LBBB patients, where the Cath Team was activated (even if the team gets cancelled) be included in the denominator.
Mission: Lifeline Involvement

- Certification
- Examples
- Recognition
- Examples
- Participation

Improving the System of Care for STEMI Patients