

MISSION: LIFELINE[®]

Prepared by:



Receiving Center Interpretation Manual



**American
Heart
Association[®]**



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INTRODUCTION AND DEFINITIONS

This manual is intended to be used as a reference tool to assist in the interpretation of the Mission: Lifeline[®] Receiving Center Report. The sections described in this manual are:

- Adherence and Performance Composite Scores (page 1 of report)
- Benchmarks
- Risk Adjusted Mortality (page 11 of report)
- Missing Data Values

There are several important definitions that apply throughout the Mission: Lifeline Receiving Center Report and Glossary.

EMS: Emergency Medical Service. Refers only to patients transported to the hospital via ambulance. Other 3rd-party modes of transport (Mobile ICU, Air) are included in specific report line items only where noted.

POV: Personally Operated Vehicle. Refers to patients who transport themselves to the hospital, or who are transported to the hospital by a family member or friend.

FMC: First Medical Contact. In the context of the report, this term is applicable ONLY when a patient is seen by medical personnel prior to hospital arrival.

INDIVIDUAL ADHERENCE AND PERFORMANCE COMPOSITE SCORES

The Mission: Lifeline Receiving Center Report describes your site's quarterly performance on three (3) acute guideline metrics (use of guideline suggested therapies and procedures within the first 24 hours) and five (5) discharge guideline metrics (use or prescription of guideline suggested therapies prior to hospital discharge). These metrics are based on the ACC/AHA Performance Measures for Adults with ST-Elevation (STEMI) and Non-ST-Elevation Myocardial Infarction (NSTEMI). The Mission: Lifeline Receiving Center Report Glossary provides specific definitions and inclusion/exclusion criteria for each of these metrics. Where applicable, these metrics match the ACTION Registry[®]-GWTG[™] measure definitions. The guideline metrics are listed below:

Acute

- Arrival to Primary PCI \leq 90 minutes
- Mission: Lifeline First Medical Contact to Primary PCI \leq 90 minutes
- Aspirin at Arrival

Discharge

- Aspirin at Discharge
- Beta Blocker at Discharge
- Statin at Discharge
- ACE inhibitor/ARB at Discharge in LVSD
- Adult Smoking Cessation Advice

Using data submitted in the previous quarter, these metrics are reported to you in the **Executive Summary** of the report as separate line items and as a "Performance Composite Score" that present a global view of your hospital's performance. The Mission: Lifeline composite score is comprised of the eight (8) individual medication, procedure, and/or secondary prevention guideline metrics.

- **Overall Mission Lifeline Composite:** Overall adherence on nine STEMI acute and discharge guideline metrics

This score, as well as individual metric adherence, is presented as a dashboard with the hospital's performance compared to that of other participating sites, using the following parameters:

- **Number of Eligible admissions:** The number of admissions submitted by your site in the last quarter.
- **Care Opportunities (the denominator) (N):** The total number of treatment opportunities among all eligible patients.
- **Adherence Score ("Correct Care"):** The ratio of total received therapies for all patients at a single site out of the total number of opportunities for all patients at that site.
- **State Adherence Score:** The ratio of total received therapies in the previous quarter for all patients in receiving centers in your state, out of the total number of opportunities for all patients in that state. Note that this benchmark is provided only for states in which six or more receiving centers submitted data for the reporting period. In states where fewer than six centers submitted

data, each hospital must agree to have their data included in a state aggregate in order to present this benchmark. If your hospital is located in such a state, and you are interested in agreeing to inclusion in your state benchmark, please contact your AHA QII representative.

- **Nation Adherence Score:** The ratio of total received therapies in the previous quarter for all patients in receiving centers in the nation, out of the total number of opportunities for all patients in the nation.

The Mission: Lifeline Composite score is accompanied by a distribution graph depicting your hospital’s performance compared with other ACTION Registry-GWTG Receiving Center hospitals. The graph displays the minimum and maximum values reported for the measure, as well as the 25th and 75th percentiles. An arrow indicates where your hospital performance falls in the continuum of scores.

Performance Composite and Example Calculations

Caregivers have up to eight “opportunities” to provide care for each patient as specified by the performance measures (based upon the acute and discharge guideline metrics noted above). Some patients will not be eligible for all eight guideline metrics due to specific medication or procedure contraindication(s), death prior to hospital discharge, or transfer to another facility.

In the example below, we illustrate how the performance composite score is calculated.

- **Performance composite** scores are calculated as the sum of a hospital’s “correct” provided care (i.e., consistent with the performance measures) out of the total number of care “opportunities” encountered by the hospital in treating its STEMI patients.

Performance Composite Example Calculation

Patient XXX		
Guideline Metrics	Patient Eligible?	Therapy Received?
Acute Therapies		
Arrival to Primary PCI ≤ 90 minutes	Yes – Primary PCI	No – received in 120 minutes
Mission: Lifeline First Medical Contact to Primary PCI ≤ 90 minutes	Yes – Primary PCI	No – received in 150 minutes
Aspirin at Arrival	Yes	Yes
Discharge Therapies		
Aspirin at Discharge	Yes	Yes
Beta-blocker at Discharge	No	n/a
Statin at Discharge	Yes	Yes
ACE-I or ARB at Discharge in LVSD	Yes	No
Adult Smoking Cessation Advice	No-non-smoker	n/a

Eligible Admissions: 1
 Total Opportunities: 6
 Total Times “Correct Care” Administered: 3
 Overall Performance Composite: 50% (3/6)

BENCHMARKS

In order to help you to evaluate your site's treatment of STEMI patients, the Mission: Lifeline reports provide several benchmarks. The first and most important benchmark is your site's performance over time. Assuming your system of data collection remains constant, this benchmark enables you to best judge the success of your quality improvement initiatives.

Additionally, we encourage you to compare your hospital results against two external benchmarks provided within the Mission: Lifeline reports, as detailed in the table below. When making comparisons to these external points of reference, it is important to recognize certain caveats.

- First, external benchmarks tend to exhibit less variability over time than your site's results due to their larger sample size.
- Second, we believe that ACTION Registry-GWTG participants generally report accurate information. However, sites may vary in the degree to which they are able to identify certain events – a function of both data collection mechanisms at hospitals and patient record-keeping. To help to ensure the validity of the data, we reiterate the importance of careful and consistent application of the variable definitions provided to you.

External Benchmarks

State:	All data reported by Receiving Centers in your state within the previous 12 months. This benchmark is provided in states with at least six ACTION Registry-GWTG sites submitting data during the reporting period.
Nation:	All data reported by all Receiving Centers during the previous 12 months.

RISK-ADJUSTMENT

When risk-adjustment is used, outcomes are analyzed by accounting for the patient risk factors that could significantly increase the risk of mortality or other adverse events. Unadjusted rates do not reflect differences in patient age or overall comorbid conditions that vary among hospital types. The Mission: Lifeline report uses the ACTION Registry-GWTG risk-adjusted mortality model to calculate risk-adjusted mortality.

For example, smaller hospitals may have fewer cases to enter into ACTION Registry-GWTG, thus making their rates of mortality seem higher than a larger hospital that entered more cases. Some hospitals may have a sicker patient population than others, and thus, have seemingly higher mortality rates. Risk adjustment accounts for such factors and shows you how your site's mortality compares to benchmarks (i.e., the state, the nation) after adjusting for possibly confounding factors, such as patient age and illness.

Similarly, sites with higher risk patients will typically note that their risk-adjusted mortality is lower than their unadjusted mortality. Sites with lower risk patients will typically observe that their risk-adjusted mortality is higher than their unadjusted mortality.

Hierarchical statistical modeling is used for the risk-adjusted mortality in the Mission: Lifeline outcomes reports. This type of modeling takes into account the number of records submitted by your site. These risk-adjusted mortality statistics will approach the national average for the ACTION Registry-GWTG.

Variables included in the ACTION Registry-GWTG risk-adjusted mortality model are as follows:

- Age
- Baseline troponin ratio
- Electrocardiogram (ECG) findings
- Heart failure or cardiogenic shock on admission
- Heart rate on admission
- Initial serum creatinine
- Prior peripheral arterial disease
- Systolic blood pressure

Exclusions from the ACTION Registry-GWTG risk-adjusted mortality model:

- Transferred out patients
- Patients with missing mortality
- Patients with missing age or sex
- Centers with ≤ 40 AMI patients submitted in total for their duration of ACTION Registry-GWTG participation

Due to the statistical methodology, it is possible for your site to have no reported deaths but still have risk-adjusted mortality greater than 0%, because of both the ACTION Registry-GWTG national mortality and the number of records submitted by your hospital. Sites with smaller patient populations are more likely to see this apparent discrepancy, because their rates are more profoundly affected by the ACTION Registry-GWTG national average. For example, a site with a 12 month population of 10 cases may show a risk adjusted rate of 3%, while a site with a 12 month population of 100 cases may show a risk adjusted rate of 2%, despite having similar rates of observed mortality.

MISSING VALUES

In general, missing data is assumed to be “no” in the feedback report calculations. However, missing data will be included in the **denominator** for performance rates, so a large amount of missing data may have an adverse effect on your site’s performance metrics. For example:

10 STEMI patients are entered for Quarter 1, 2010.
All **10** of these patients are eligible to receive acute aspirin.

- 2** of these patients are not given acute aspirin and have acute aspirin = No on DCF
- 8** of these patients are given acute aspirin.
 - **5** of these patients have acute aspirin = Yes on DCF
 - **3** of these patients have no value entered for whether acute aspirin was given

Your performance score for acute aspirin would be reported as:

5 administered/10 eligible = 50% performance

Your actual performance, had the 3 missing fields been completed would be:

8 administered/10 eligible = 80% performance

What is the difference between a hyphen (-) and a 0% on the report?

A hyphen (-) indicates that no patients were included in the eligible population for that particular line item.

A 0% means that patients were eligible, but that no patients met the criteria for that line item.