

LOS ANGELES GENERAL MEDICAL CENTER POLICY

Subject: ST- Elevation Myocardial Infarction (STEMI) Receiving Center	Original Issue Date: 11/13/07	Policy # 914
	Supersedes: 11/21/22	Effective Date: 2/8/24
Policy Owner(s): Director, Cardiac Cath Lab Executive Sponsor(s): Chief Medical Officer		
Department(s) and Committee(s) Consulted: Nursing Services Cardiology Emergency Medicine Quality Improvement	Reviewed & approved by: Attending Staff Association Executive Committee Senior Executive Officer	Approved by: Chief Medical Officer
		Chief Executive Officer

PURPOSE
 To ensure appropriate and timely percutaneous coronary interventions consistent with American Heart Association/American College of Cardiology Guidelines and Los Angeles County Emergency Medical Service Agency ST Elevation Myocardial Infarction Receiving Center Standards for patients transported by the 9-1-1 system who exhibit ST elevation myocardial infarctions (STEMIs).

Responsibilities under the STEMI Receiving Center (SRC) also include the non-traumatic out-of-hospital cardiac arrest (OHCA) with or without a return of spontaneous circulation (ROSC) and targeted temperature management (TTM) as outlined in the EMS Agency’s SRC Standards per Ref. No. 320.

POLICY
 Los Angeles General Medical Center Cardiac Catheterization Laboratory (Cath Lab) team, including the interventional cardiologist, are **promptly available** for patients requiring emergent cardiac intervention as identified by in-house physicians, on-call interventional cardiology attending or the Emergency Department (ED) Physician, 24 hours a day, 7 days a week, to achieve a medical contact to device (guidewire, balloon, thrombectomy device, etc.) time of 90 minutes or less or per current standards.

DEFINITIONS

Medical Contact The first assessment a patient receives performed by a healthcare provider. This includes the Paramedic/Prehospital electrocardiogram (ECG) with a software interpretation of *** ST elevation MI *** **or** the manufacturer’s equivalent of a STEMI **or** EMS Provider Impression of Chest Pain-STEMI (CPMI).

GOAL

1. The goal time from medical contact to device (guidewire, balloon, thrombectomy device, etc.) time is 90 minutes or less, with a goal time of 30 minutes or less from medical contact to fibrinolytics.
2. All clinical staff involved are expected to help expedite the care of the STEMI patient.

PROCEDURE

I. IDENTIFICATION OF THE STEMI PATIENT

A. Prehospital/9-1-1 Patients

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STEMI patients may be identified in the prehospital/9-1-1 setting as Provider Impression CPMI **with** an Emergency Department (ED) interpretation of STEMI and transported to the ED at Los Angeles General, if ground transport is 30 minutes or less.

- Identified by physician over-read of a prehospital ECG **or**
- Identified on the first ED ECG within 1 hour of arrival (and prehospital ECG not STEMI) **or**
- Identified on a subsequent ED ECG within 1 hour of arrival

A paramedic (EMS) provider interpretation/impression of STEMI equally holds the same weight to a machine interpretation/identification of STEMI for determining a destination to a SRC (Per Ref. No. 1303 Medical Control Guideline: Cath Lab Activation Algorithm), EMS personnel shall transmit the STEMI ECG to the receiving SRC, make a notification or Base Contact if additional orders are required. The MICN will assure the transmission of the ECG has occurred. MICN will show prehospital ECG and discuss with the ED Attending to determine Code Heart/STEMI activation. Within 10 minutes of the patient's arrival to the ED the patient will receive an immediate physician assessment, and a confirmation ECG, if required.

B. In-house Patients

In-house/admitted STEMI patients will be identified by a 12-lead ECG, with immediate primary physician and Cardiology notification.

STEMI patients in ED will be identified by a 12-lead ECG with immediate ED physician notification.

C. Inter-facility Transfer (IFT) Patients to Cath Lab

An IFT of STEMI patient from a STEMI Referring Facility (SRF) will be identified after decision to accept STEMI patient directly to Cath Lab is made by Interventional Cardiology Attending, followed by Cath Lab notification and "Code Heart/STEMI" team activation.

II. CATH LAB NOTIFICATION

A. ST Elevation MI

The following process will be used to notify the "Code Heart/STEMI" team when the ED is pending the arrival of a prehospital patient requiring emergent PCI, identifies a STEMI patient in the ED or an admitted patient is identified as a STEMI. The "Code Heart/STEMI" team will consist of the on-call interventional cardiology attending, the on-call cardiology fellow, the on-call interventional cardiology fellow, the on-call CICU resident, the In-House Cath Lab Nurse, the on-call cardiovascular (CV) tech, the on-call Cath lab nurse, and the on-call radiology tech.

1. When a STEMI is identified in the field and/or confirmed in the ED upon EMS arrival, it will be the responsibility of the Mobile Intensive Care Nurse (MICN) to notify the ED attending. It is the responsibility of the ED attending to immediately notify the Cardiac Care Unit (CICU) Charge Nurse of a "Code Heart/STEMI" team activation for both prehospital

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STEMI and ED walk-in STEMI patients. The ED attending may use discretion to activate the “Code Heart/STEMI” team based upon clinical information provided from prehospital personnel and/or an electronically transmitted 12 lead ECG. (A tracking system will be in place to evaluate each prehospital STEMI that is determined to be a “false positive” irrespective of the decision to activate the “Code Heart/STEMI” team).

2. The CICU Charge Nurse will initiate the “Code Heart/STEMI” team by activating a designated group page to all members of the “Code Heart/STEMI” team.
3. Each member of the “Code Heart/STEMI” team will respond by contacting the CICU Charge Nurse within 10 minutes of receiving the page acknowledging the arrival of a “Code Heart/STEMI” patient and that they are en route to the ED/Cath Lab with an expected estimated time of arrival of 30 minutes, but *not to exceed 1 hour* for the radiology tech and the CV tech. The CICU charge nurse will update the In-House Cath Lab Nurse regarding the status of the team.
4. If there is a delay in response from any member of the “Code Heart/STEMI” team that is greater than 10 minutes and it is during off hours (evening hours, weekends, holidays), the CICU charge nurse will contact the staff member by alternative numbers, including home or by cell phone, to assure the on-call staff member received the page and is en route to the Medical Center. If the CICU charge nurse is unable to contact designated personnel or designated personnel is unavailable (e.g., ill), backup personnel will be contacted per the on-call alternative list.
5. The In-House Cath Lab Nurse, along with the Cardiology Consult Team (fellow/resident) will go to the Code Heart/STEMI patient’s bedside, assume the care, and transport the patient to the Cath Lab.
6. If the Medical Center is unable to care for additional STEMI and/or non-traumatic OHCA patients because Cardiac Cath Lab personnel are already fully committed to caring for STEMI patients in the Cath Lab or the lab is not functioning due to major equipment failures, the ED attending, and ED charge nurse will be notified immediately.

The Medical Director of the Cardiac Cath lab or his designee will be responsible for contacting the ED Attending and ED charge nurse directly to change the SRC status to diversion. The closure status and the rationale for the temporary SRC diversion shall be communicated via the Reddi-Net system by Cath Lab Staff and/or the ED via the main phone in the Department of Emergency Medicine.

The ED attending or ED charge nurse will relay the change in status to the MICN in the base station who will communicate the hospitals change in status via the Reddi-Net.

ED Base station will follow diversion request per EMS guidelines Ref. No. 503 and Ref. No. 513 to ensure transport of prehospital patient to the most appropriate facility during time of temporary STEMI Diversion in the Medical Center.

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Once the Cath Lab returns to being fully operational the Medical Director of the Cardiac Cath lab or his designee will inform the Emergency Department attending on duty in the main resuscitation area and the ED charge nurse of the change in status.

Note: ED diversion does not prohibit a STEMI patient's transport to an open SRC.

B. **NON-ST ELEVATION MI (NSTEMI) or OTHER EVENTS**

The following process will be followed for all other NSTEMI events:

1. Patients with acute coronary syndromes not classified as STEMI who are transported to the ED or are already of inpatient status will be emergently evaluated by the on-site Cardiology Consult Service. The decision to activate the "Code Heart/STEMI" team will be left to the discretion of the Cardiology Consult Team, which is comprised of a Resident, Cardiology Fellow, Cardiology Attending Physician, and Interventional Cardiology Attending Physician. Patients needing emergent/urgent Cardiac Catheterizations include unstable angina or NSTEMI with hemodynamic or electrical instability, persistent chest pain, or dynamic ECG changes post medical management. The Cardiology Consult Team will contact the CICU Charge Nurse to activate the "Code Heart/STEMI" team via a group page.
2. Each member of the "Code Heart/STEMI" team will respond by contacting the CICU Charge Nurse within 10 minutes of receiving the page, acknowledging the arrival of a "Code Heart/STEMI" patient and that they are en route to the ED/Cath Lab with an expected ETA of 30 minutes but not to exceed 1 hour for the radiology tech and the CV tech.
3. If there is a delay in response greater than 10 minutes from the Cath Lab personnel and it is during off hours, the CICU Charge Nurse will contact the on-call staff member at home or by cell phone to assure the on-call staff member received the page and is en route to the Medical Center. If the CICU charge nurse is unable to contact the designated on-call personnel or the designated on-call personnel is unavailable (e.g., ill), backup personnel will be contacted.

III. **DATA COLLECTION**

Patients meeting SRC criteria, per the SRC data dictionary, shall be entered into the EMS Agency SRC database. Data fields are determined and agreed upon per the SRC QI Advisory Committee and subject to change as the program matures.

Data requirements will be performed and/or submitted per current SRC standards.

IV. **QUALITY IMPROVEMENT**

The board-certified interventional cardiology SRC program Medical Director will be responsible for the Quality Improvement Program and oversight of the following patients meeting SRC criteria:

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- A. SRC cases needing review, including IFT direct to Cath Lab requiring emergent PCI versus not meeting criteria for emergent PCI, will be discussed at least quarterly, by the Division of Cardiovascular Medicine STEMI Quality Improvement Committee and will be reported to the Medical Center Quality Improvement Committee through the Department of Medicine Clinical Council at regularly scheduled quarterly meeting.
- B. Performance measures, care of TTM patients after cardiac arrest with ROSC, deaths, adverse events and IFT direct to Cath Lab per the Standards will be reviewed, tracked, trended, and evaluated for compliance with guidelines, with outcomes and trends reported through the Committee.
- C. The Division of Cardiovascular Medicine STEMI Quality Improvement Committee will include, at a minimum, the following representatives:
 1. SRC Program Medical Director
 2. Intervention and Non-Interventional Cardiologists
 3. ED Physician
 4. Cardiac Cath Lab Clinical Manager
 5. Prehospital Care Coordinator (s)
 6. Prehospital Care Provider(s)
 7. Additional Healthcare Providers as requested
- D. Additionally, ED walk-ins, and in patient care will be reviewed by the same process:
- E. Annual review of the following:
 1. Los Angeles General STEMI and TTM policies by the SRC program directors (with a sign off page) and a committee review annually.

V. OTHER

- A. 100% participation in the SRC Advisory QI Meeting.
- B. Participates in the annual Los Angeles County EMS Agency/AHA countywide Sidewalk CPR education or provides at least one public education class annually.

RESPONSIBILITY

Department of Cardiology
 Department of Medicine
 Department of Quality Improvement
 Medical Administration
 Nursing Services

REFERENCES

American Heart Association Guidelines

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Los Angeles County Emergency Medical Service Agency ST Elevation Myocardial Infarction Receiving Center Standards, Ref. No. 320, Ref. No. 320.1, Ref. No. 320.3, Ref. No. 503, Ref. No. 513, Ref. No. 1302, Ref. No. 1303

REVISION DATES

November 13, 2007; October 20, 2008; February 11, 2014; July 8, 2014; March 23, 2015; April 14, 2015; June 13, 2017, August 16, 2017; September 22, 2017; March 27, 2020; November 21, 2022; February 8, 2024