

Regional STEMI Triage Plan

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Table of Contents

<u>Executive Summary</u>	3
<u>STEMI Field Triage</u>	4
<u>Acute STEMI Patient Transport Considerations</u>	4
SPECIAL NOTES:	4
<u>PCI-Capable Hospitals-Definition</u>	5
<u>Interhospital Triage Considerations</u>	5
<u>STEMI Triage Performance Monitoring</u>	5
APPENDIX A Cover Page	6
• STEMI PCI-Capable Centers.....	7

Executive Summary

Under the direction of the Peninsulas EMS Council Medical Advisory Committee, the Peninsulas EMS Council has been charged with the responsibility of maintaining a region-wide ST-Elevated Myocardial Infarction (STEMI) Plan which incorporates the region's geographic variations, STEMI care capabilities and resources, including PCI and non-PCI capable hospitals.

The Regional STEMI Plan shall establish a uniform set of criteria for the pre-hospital triage and transport of acute STEMI patients. For the purposes of this document, an acute STEMI shall be defined as “any patient meeting at least one of the following criteria:

Cardiac symptoms and:

- **12-Lead ECG criteria of 1 mm (or more) ST elevation in 2 (or more) contiguous leads OR**
- **12-Lead ECG interpretation with an “ACUTE MI” statement**

The evolution of scientific evidence has proven that successful management of acute STEMI patients is optimized when rapid interventional reperfusion occurs within minutes of hospital arrival. Therefore, the primary goal of the PEMS Regional STEMI Plan is:

To develop a STEMI emergency care system that will result in decreased cardiac mortality and morbidity in the PEMS Region. To accomplish this goal, the following specific processes are essential:

1. The ability to rapidly and accurately identify patients experiencing STEMI.
2. The provision of immediate and comprehensive assessment, resuscitation, intervention, and definitive care at a facility capable of performing PCI.
3. The Peninsulas EMS Council will provide continuous and effective region-wide coordination of prehospital and hospital care; establish and maintain a method of tracking the care of STEMI patients and ensure quality oversight of the process.
4. All hospitals in the region may participate and have the ability to receive STEMI patients if they are willing to meet the system and operational criteria established by this plan.
5. The provision of quality EMS and patient care to citizens and visitors within the PEMS region.
6. The continuous evaluation of the EMS system based on established and current EMS performance measures for STEMI.

STEMI Field Triage

The PEMS STEMI Field Triage decision scheme is located in the Administrative Policies section of the Regional Patient Care Protocols, Policies and Procedures.

Acute STEMI Patient Transport Considerations

MODE OF TRANSPORTATION: Each of the three PEMS sub-regions is unique in its availability of EMS and STEMI care resources. Consideration should be given to hospitals available to the region and the resources they have available to STEMI patients.

RAPID TRANSPORTATION: STEMI is a time sensitive emergency, with the current standard of care being First Medical Contact (FMC) to Balloon of 90 minutes or less. EMS providers *are* the first medical providers to out-of-hospital patients. All patients suspected of having a STEMI should be transported to the **closest appropriate PCI-capable hospital** within a 30-minute ground transport time. If transport time is greater than or equal to 45 minutes, then extend the EMS FMC to Balloon time of 120 minutes or less.

Consideration should also be given to prehospital resources available at the time of the incident, including use of helicopter EMS (HEMS), and other conditions such as transport time, road and weather conditions.

The use of **HEMS** (Helicopter EMS) may facilitate STEMI patients reaching a PCI-capable hospital in a timeframe that allows for acute treatment interventions when ground transport cannot. Therefore, suspected STEMI patients, *outside* the 30-minute ground transport time to a PCI-capable hospital should be considered for HEMS transport. If the helicopter is *not* available the patient should be transported to the closest available hospital.

Field transports of acute STEMI patients by helicopter as defined in this plan:

1. Should significantly lessen the time from scene to a PCI-capable hospital compared to ground transport.
2. Should be utilized to achieve the goal of having STEMI patients expeditiously transported to a PCI-capable hospital.
3. Should transport to the closest PCI-capable hospital with surgical capabilities. Transport to a PCI-capable hospital *without* surgical capabilities may occur in *very* unusual circumstances, following consultation with on-line medical control. In general, if a HEMS resource is used, the patient will be transported directly to a PCI-capable hospital that also has surgical capabilities.

SPECIAL NOTES:

- Any patient with a compromised airway or impending circulatory collapse should be transported to the closest hospital Emergency Department.
- The “Rapid Transportation” directive is used to shift provider focus onto reducing *scene* times in order to meet the standard of care. (Ideally <10 minutes) It does not relieve the vehicle operator from exercising due regard for the safety of patient, crew and public at all times.
- Complete information on the use of Helicopter EMS is located in the Administrative Policies Section of the PEMS Regional Patient Care Protocols, Policies and Procedures.

PCI-Capable Hospitals-Definition

A PCI-Capable hospital has the staff, expertise and equipment to perform immediate PCI intervention for the STEMI patient. PCI-Capable hospitals continuously ensure they can receive and provide care for the STEMI patient at all times. Patients suspected of having an acute STEMI should be rapidly transported to the closest hospital with PCI-capability.

A current list of all STEMI receiving facilities in the region can be found as part of this plan under Appendix A: Guidance Materials.

Interhospital Triage Considerations

Non-PCI capable hospitals within the PEMS region should develop guidelines and agreements for the expeditious and appropriate management and transport of acute STEMI patients.

Per the Virginia Heart Attack Coalition (VHAC), “patients with ST-elevation myocardial infarction (STEMI) requiring inter-hospital transfer for primary percutaneous coronary intervention (PCI) often have prolonged overall door-to-balloon (DTB) times from first hospital presentation to second hospital PCI. Door-in to door-out (DIDO) time (time from arrival to discharge at the STEMI referral hospital), is the clinical performance measure used by Medicare/CMS, with a DIDO time of ≤ 30 minutes recommended to expedite reperfusion care (although Mission: Lifeline uses a DIDO goal of ≤ 45 min for quality metrics).”

STEMI Triage Performance Monitoring

As outlined in the PEMS Performance Improvement Plan, the Performance Improvement Committee in collaboration with the PEMS Regional STEMI Committee will perform quality monitoring and data collection associated with STEMI care as it relates to EMS and will include the following:

- Over and under triage to PCI-capable hospitals as compared to non-PCI capable hospitals.
- Interfacility transfers that do not meet criteria for transfer to a PCI-capable hospital.
- HEMS utilization.

The Peninsulas EMS Council, Inc. will participate with the Virginia Heart Attack Coalition-Eastern Region in order to stay abreast of national and statewide trends in STEMI care, as well as to improve our local and regional STEMI practices.

Appendix A: **Guidance Materials**

Appendix A: STEMI PCI-Capable Centers

This is the most current list of PCI Centers that can be reached from within the PEMS region via ground or HEMS with minimal delay.

(*) Indicates a PCI with Surgical Capabilities

Bon Secours Maryview (*)	Portsmouth	Mary Washington Hospital (*)	Fredericksburg
Bon Secours Mary Immaculate Hospital	Newport News	Riverside Regional Medical Center (*)	Newport News
Bon Secours Memorial Regional Hospital (*)	Mechanicsville	Sentara Careplex Hospital	Hampton
Bon Secours St. Mary's Hospital (*)	Richmond	Sentara Williamsburg Regional Medical Center	Williamsburg
HCA-Johnston Willis	Richmond	Sentara Heart Hospital (*)	Norfolk
CJW Chippenham (*)	Richmond	Spotsylvania RMC	Spotsylvania
Henrico Doctor's Hospital (*)	Richmond	VCU Health Systems (*)	Richmond

The following hospitals are not PCI capable, but may be appropriate for transporting patients who cannot be transported to one of the other centers in a “closest hospital” scenario.

- Bon Secours Rappahannock General Hospital - Kilmarnock
- VCU Tappahannock Hospital - Tappahannock
- Riverside Walter Reed Hospital - Gloucester
- Riverside Doctors Hospital - Williamsburg