

## **Cardiac Catheterization Lab Quality Improvement: Integrating Evidence Based Guidelines to Reduce Door to Balloon Times in ST-Segment Elevation Myocardial Infarction**

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**Problem:** Coronary heart disease is the leading cause of death in the United States, with myocardial infarction (MI) a common manifestation of this disease (AHA 2007). Approximately 1.2 million Americans sustained a myocardial infarction (MI) in 2006. Of all patients having a myocardial infarction, 25 to 35% will die before receiving medical attention, most often from ventricular fibrillation (Keely and Hellis (2007). Prompt percutaneous coronary intervention (PCI) for patients with ST- segment MI (STEMI) significantly reduces morbidity and mortality.

**Evidence:** Prompt reperfusion treatment is critical for patients who have myocardial infarction with ST-segment elevation. The American Heart Association (AHA) and the American College of Cardiology (ACC) established guidelines to reduce door to inflation time to less than 90 minutes. One year mortality is decreased by saving heart muscle, reducing infarct size due to rapid reperfusion in patients presenting with STEMI.

**Strategy:** A multidisciplinary team was assembled to implement a quality improvement initiative to improve door to balloon times in patients with a STEMI.

**Practice Change:** The evidence supports the use of the following strategies: prioritizing electrocardiogram recognition by EMS and emergency department (ED), advanced patient preparation in the ED prior to the cath lab to reduce DBT, use of STEMI emergency boxes, standardized order sets, cardiac catheterization team activation, and extended hours of operation in the cath lab.

**Evaluation:** Outcomes are measured monthly and communicated to the STEMI team, cardiac lab and ED staff.

**Results:** Significant improvement in the care processes occurred over a 12 month period after an investment in staff and community outreach education and monitoring of quality assurance structures.

**Recommendations:** Achieving the recommended best practices requires organizational commitment, extensive multidisciplinary collaboration and effective strategies for over coming barriers to practice change.

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## **Bibliography**

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