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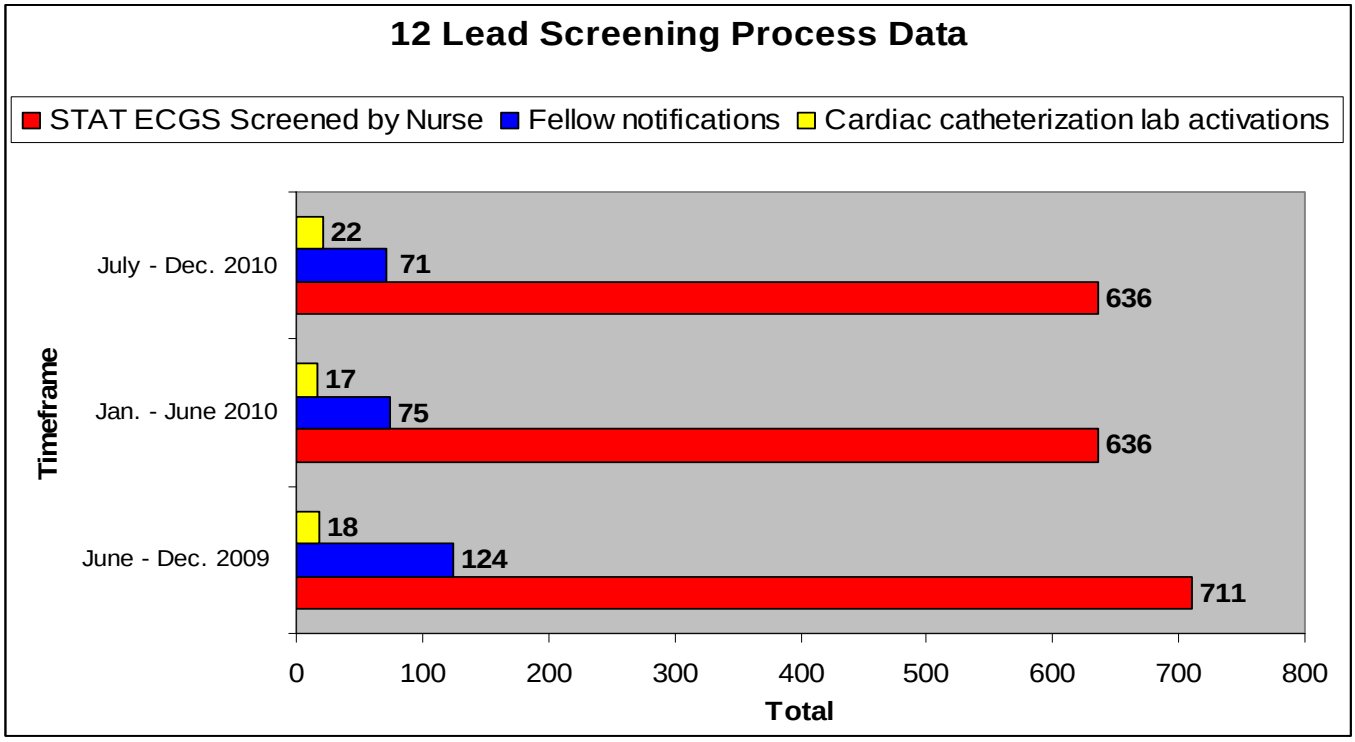
# Time is Muscle:
# Improving In-House STEMI Door to Balloon Time

## Trigger Criteria (derived from American Heart Association Heart Attack warning signs)

- Chest Discomfort (with or without radiation)
- Discomfort in other areas of upper body (including pain or discomfort in one or both arms, back, neck, jaw, or stomach)
- SOB with or w/o chest discomfort
- Blue cart/Code
- Ventricular Arrhythmia
- Symptomatic Hypotension
- Diaphoresis, nausea, syncope, and lightheadedness

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# SUMMARY


**Time Is Muscle: Improving In-House STEMI Door-to-Balloon Times**

**Purpose:** The purpose of this evidence-based performance improvement project was to meet the American College of Cardiology (ACC) goal of ≤90 minutes from time of presentation to intervention for all patients suffering a ST-segment Elevation Myocardial Infarction (STEMI) within the organization.

**Evidence:** The ACC and the American Heart Association (AHA) STEMI guidelines recommend that patients with STEMI should be treated with primary percutaneous coronary intervention (PCI) within 90 minutes of first medical contact (Antman et al, 2008). Our NDCR ® (National Cardiovascular Data Registry) quality metric of proportion of STEMI patients with Door-to-Balloon (DTB) of <90 minutes was only 81.5% for Quarter 3 of 2008. Upon further review, breakdown showed that only 50% of our hospital inpatients who had a STEMI underwent PCI in 90 minutes compared to 88% of STEMI patients who presented to our Emergency Department.

**Changes in Practice:** A multi-disciplinary group met and identified the main barrier in meeting the recommended time frame was a delay in obtaining the 12-lead ECG and activating the cardiac catheterization lab. The group designed a change in practice whereby all adult 12-lead ECGs ordered stat, meeting trigger criteria (derived from AHA heart attack warning signs), are then screened by the Cardiac Medical ICU charge nurse for ST segment elevation. When elevations are identified, then the cardiology fellow reads the ECG. The fellow notifies the patient's primary team and an interventional cardiologist of indications of STEMI. If there are no contraindications to a cardiac catheterization, then the cardiac cath lab team is activated for an emergent cardiac catheterization.

**Strategies:** The project was strongly supported by nursing and the cardiology department. The Cardiac Medical ICU nurses completed education to achieve competency in interpretation of sample ECGs. After appropriate communication, the process was piloted for 4 weeks and then became the expected practice.

**Evaluation:** During the 4-week pilot the revised process produced 2 successful cases, with time to intervention ≤90 minutes and little additional burden on the nurses or fellows. The project received approval to continue. Current (Quarter 2, 2010) data reveals that 95.1% of inpatients with STEMI underwent PCI within 90 minutes.