Title: Streamlining STEMI Process to Improve Door to Balloon Times

Quality Improvement Initiative

Authors:

Sara Belajonas, MSN, RN, APN-C, CCRN, CCCC
Ocean Medical Center, Brick, NJ

Pam Egnatovich, MSN, RN, CEN
Ocean Medical Center, Brick, NJ

Jeanne Jacobus, MSN, RN
Ocean Medical Center, Brick, NJ

Theresa Lenehan, MSN, RN, CEN
Ocean Medical Center, Brick, NJ

Summative Statement:

In 2016, Ocean Medical Center implemented a multidisciplinary quality improvement initiative to decrease the median Door to Balloon (D2B) time for patients who presented to the Emergency Department with ST elevation myocardial infarction (STEMI). The American College of Cardiology and the American Heart Association both endorse a D2B time of 90 minutes or less and have assigned it a Class 1 recommendation. The National Cardiovascular Data Registry (NCDR®) ACTION Registry®-GWTG™ reported a national median door to balloon of less then 60 minutes for several years. Our facility has been battling the demands of increasing numbers of patients presenting with ST elevation myocardial infarction while trying to reach this 60 minute goal. In 2015 Q4, the NCDR ACTION Registry Metric #16 noted our median times in minutes to primary PCI for STEMI patients to be 71. Given this result, there was a need for an aggressive action plan.

Background/Objectives:

Ocean Medical Center (OMC) is a 333 bed community hospital in Ocean County, New Jersey. It is a member of the Hackensack Meridian Health system which includes 13 hospitals in northern, central and southern New Jersey. OMC is an Accredited Chest Pain Center with PCI by the American College of Cardiology Accreditation Services since 2006 and has participated in the National Cardiovascular Data Registry (NCDR®) ACTION Registry®-GWTG™ since 2012. The Acute Coronary Syndrome (ACS) Committee is an interdisciplinary committee who review multiple processes as well as NCDR® metrics relating to the care of the Acute Myocardial Infarction patient.
In the beginning of 2016, the ACS committee initiated an action plan to identify targeted measures which could be implemented to expedite the emergent care of the STEMI patient from the prehospital phase of care through the ED to the cardiac catheterization lab. We began with a site visit to a community hospital within our health care system which had been able to accomplish a D2B time of less than 60 minutes shortly after obtaining licensure to perform primary PCI. Our goal was to identify novel strategies which they used to reduce overall D2B times. We identified several different measures which could be initiated or improved upon within our facility:

- Establishment of a single call to a central page for STEMI team activation
- Involvement of additional staff to assist in process (example nursing supervisor, security)
- Designated medication box for STEMI patients
- Utilization of ED pause during weekday hours for all Code STEMI patients preactivated by EMS prior to hospital arrival (pause for ED physician evaluation only, then direct to Cath lab)
- STEMI checklist

A key component which was necessary to facilitate the entire process was a communication form which could be shared with all members of the team in timely manner. Utilizing the ACC recommendations to improve door to device times, the committee developed a STEMI Feedback Form to track all performance and quality measures endorsed by the ACC as well as a time stamp of the STEMI process. Listed below are a few of the metrics captured for each Code STEMI Activation:

- Time from prehospital ECG to diagnose of STEMI
- Time of notification by prehospital provider of STEMI
- Time from ED physician confirmation of STEMI to activation of STEMI team
- Time of Single call to a central page operator to activate the PCI team
- Time from PCI team activation to arrival to the Cath lab and timely data feedback to members of the STEMI team.

The STEMI Feedback form is completed and shared with the Emergency Department, Cardiology, Cardiac Cath Lab, EMS and hospital administrators with a target turnaround time of 48 hours. Each form is reviewed at the monthly ACS meetings and undue delays are discussed.

**Methods**

After the site visit, a detailed report with recommendations was shared with the ACS committee. Barriers to the utilization of ED pause were reviewed and discussed. Prehospital reports were reviewed with the providers and delays or failures to preactivate STEMI protocols were analyzed. The medical director of the Emergency Department was contacted to further support ED physicians preactivating from the field. A series of multidisciplinary team meetings were scheduled for the initiation of the single call to central page system. This process was designed to be implemented in a two-step process. Phase 1 was launched in July 2016 and included the Cardiac Cath lab staff. Phase 2 was launched February 2017 and included the interventional cardiologist, respiratory therapist, Cardiovascular NP, and
nursing supervisor. During this time, the initiation of the single call page was also moved from the operator to the ED secretary.

Nursing supervisors were reeducated in STEMI process and time saving strategies. Security was contacted to respond to STEMI activations to hold elevators and direct visitors. In 2017, the ED expanded the role of the Stroke resource nurse to include STEMI. The STEMI ED Resource Nurse is assigned daily to improve compliance with meeting goal times and to expedite safe, comprehensive and efficient care of the STEMI patient. The Cath lab team endorsed a four point strategy for patient prep which included appropriate EKG lead placement, utilizing snapless patient gowns, groin clip, and consent. Utilization of the patient prep protocol proved to decrease the time from patient arrival in the cath to case start time.

Pharmacy designed STEMI medication boxes for the ED and Cath Lab. All medications used during a Code STEMI are stocked in the box and include P2Y12 inhibitors, aspirin, beta blockers and high intensity statins.

Results:

In 2016 Q4, the NCDR ACTION Registry Metric #16 reported our median D2B had decreased to 64 minutes. In 2017 Q2, the NCDR ACTION registry reported our D2B continued to decrease to 63 minutes successfully moving towards our 60 min goal.

Conclusions:

Improving D2B times at Ocean Medical Center has been a collaborative team approach. The single most important initiative implemented to reduce D2B time was the single call to a central page operator to activate the PCI team. This impact was evident by the D2B times following phase 2 implementation in February 2017. OMC was able to reach its goal of median D2B time under 60 minutes from March to May of 2017. All STEMI cases continue to be reviewed with debriefing to EMS and the STEMI team. Our facility continues to look for innovative approaches to safely decrease D2B to ultimately improve patient outcomes and decrease risk of complications.