

Clinical Question

In Emergency Department (ED) patients that arrive with complaints of signs and symptoms of Acute Coronary Syndrome (ACS), will a change in workflow/process guarantee that an electrocardiogram (EKG) will be completed within 10 minutes of arrival- to be compliant with the national standard?

Background/Significance

The American Heart Association (AHA) recommends that EKG's be obtained on all potential ACS patients within 10 minutes of ED arrival. (1) This recommendation was not being met in Sanford USD Medical Center ED. Sanford was also due for the Society of Chest Pain Centers accreditation in 2012. Literature reviews and process observations were completed to determine opportunities to decrease door-to-EKG times. As a result, a new process was developed, and a nurse driven protocol was written and implemented.

Literature Reviews

- * Rapid identification of ST segment elevation myocardial infarction (STEMI) is critical for best patient outcomes, especially if reperfusion is to be initiated quickly, in compliance with the American College of Cardiology/American Heart Association Guidelines. (2)
- * Multiple studies have shown that protocol-driven evaluation of patients with STEMI improves the time to EKG, and therefore, treatment. (3)
- * The EKG is the most important initial diagnostic tool for patients with suspected ACS- it is inexpensive, readily available, and non-invasive. (4)
- * Suggestions found to improve EKG times included: standing orders for EKGs, housing the ECG machines in the ED, and having EKG technicians available within 5 minutes of paging. One outcome of improving door-to-EKG times is to improve Door-to-Balloon (DTB) time, with DTB goal of 90 minutes or less. (5)
- * All ED nursing and unlicensed personnel should be trained and maintain annual competency in performing 12-lead EKGs. The person performing the EKG must hand carry it to an attending physician who does rapid evaluation/interpretation of the EKG. (6)

Saving Hearts One Minute at a Time: Reducing Emergency Department Door to EKG Times

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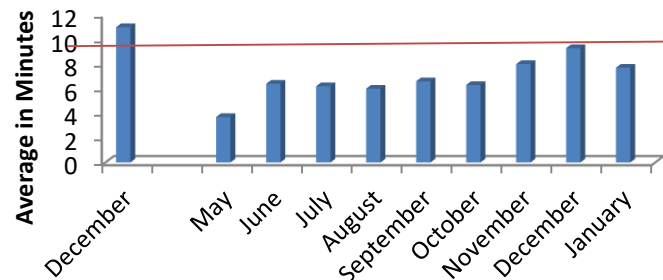
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Practice Change and Implementation

- A new protocol/process was developed based on recommendations from evidence. The changes were presented to ER staff in unit meetings to increase awareness and importance of Door-to EKG times.
- The new process was implemented in May, 2012 with a two week trial. Dedicated facilitators were on the unit 24/7 to lead rapid-process change and ensure team compliance. Real time data was collected and feedback given to staff to motivate and encourage them to continue with the process. Data collected included patient demographics, method of arrival, chief complaint, and door-to-EKG time. Patient privacy was protected.

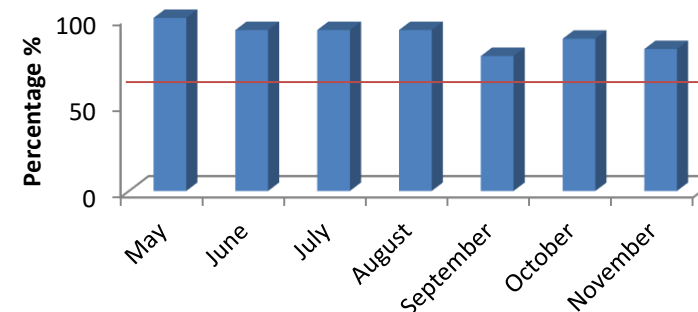
Changes Implemented:

1. New RN-driven protocol for ordering EKG's-approved by Chief of Emergency Medicine
2. Placed EKG machine purposefully for easy access
3. EKG order place by triage RN
4. Immediate bedding of patients with s/s of ACS
5. Phone call made to patient care tech (PCT) that an EKG is needed
6. Use of timers during the trial period – started on patient arrival-followed patient to their room
7. Ensuring EKG completion prior to visitor entry
8. All licensed and unlicensed personnel trained in performing EKGs



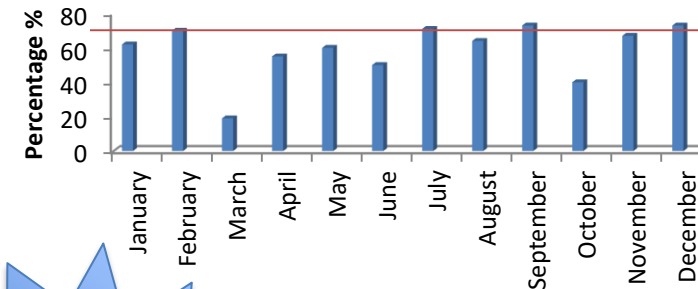
Month 2011-2013

Percentage of EKG's Completed Within 10 minutes



Month 2012

Percentage of EKG's Completed Within 10 Minutes



Month 2011

70% of EKGs have to be completed within 10 minutes to maintain Chest Pain Accreditation

Outcomes/Conclusions

- Innovations implemented that were key to the success of the project included: dedicated facilitators and use of timers.
- Door-to-EKG times were dramatically reduced which also positively impacted DTB times.
 - December 2011- average door-to-EKG time: 11 minutes
 - August 2012- average door-to-EKG time: 6 minutes
- Chest Pain Center accreditation received and 70% benchmark met with 100% compliance.
- Door-to-EKG time monitored and reported as a nurse sensitive indicator for the ED as a performance/quality improvement measure.

References

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Sanford USD Medical Center received Magnet status for nursing excellence

