

A Clinical Nurse Specialist-Led Initiative to Improve STEMI Activation and Door to Balloon Times Utilizing an Evidence-Based Algorithm and Rapid Response Notification.

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Background

2013 AHA guidelines:

- Door-to-balloon (D2BT) time of less than 90 minutes ST elevated myocardial infarctions (STEMIs).
- Symptom onset to completion and interpretation of EKG to be 10 minutes

** D2BT for inpatients = time from electrocardiogram (EKG) to first device crossing.

Supporting Literature:

- D2BT delays increase mortality and cardiac events.
- Delay in care caused by constraint of resources, institutional protocols, lack of awareness of immediate treatment, delay in diagnosis and treatment, and difficult care collaboration.
- Reduction attributed to use of a standardized algorithm

Current State

- One of three inpatient STEMIs in the last nine months met the recommended standard D2BT.
- Zero of the three met the EKG standard.

Baseline Data		
D2BT (mins)	Symptom to EKG completion (mins)	Rapid Called (mins)
130	11	Yes
80	54	No
144	11	Yes

Design

Sample Size:

- 357-bed Midwest community hospital.
- Inclusion Criteria: Inpatients with new or worsening chest pain
- Exclusion Criteria: Chest pain management interventions previously ordered and in place.

Interventions:

- Update STEMI activation policy
- Online education with pre-test and post-test
- Interdisciplinary practice flyer
- Unit rounding with the RN educator team.
- PDSA cycle identified the need for in the moment feedback and follow up with the CNS

Analysis Methods:

- Nursing pre and post-test education data
- Retrospective chart review of STEMI and Rapid Response data.

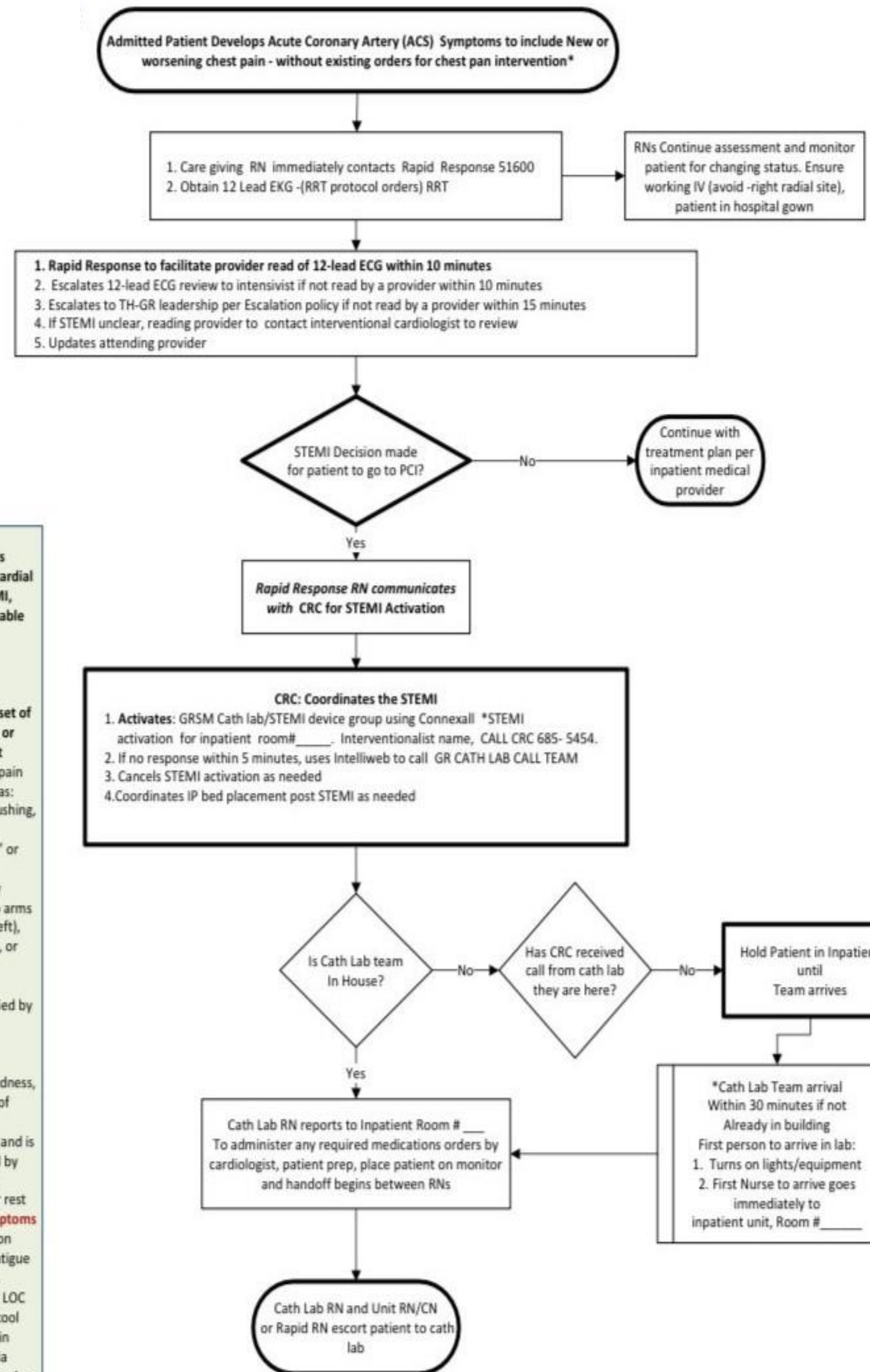
***ACS Symptoms represent Myocardial Infarction (STEMI, NSTEMI or Unstable Angina)**

Classic ACS Symptoms

- Abrupt onset of chest pain or discomfort
- Quality of pain described as: Severe, crushing, heavy, "bandlike," or pressure
- Commonly radiates to arms (typically left), back, neck, or jaw
- May be accompanied by nausea, vomiting, lightheadedness, shortness of breath
- Prolonged and is unaffected by breathing, position or rest

Additional Symptoms

- Hypotension
- Extreme fatigue
- Confusion, changes in LOC
- Cyanosis, cool clammy skin
- Tachycardia
- Decreased urine output
- Sense of impending doom

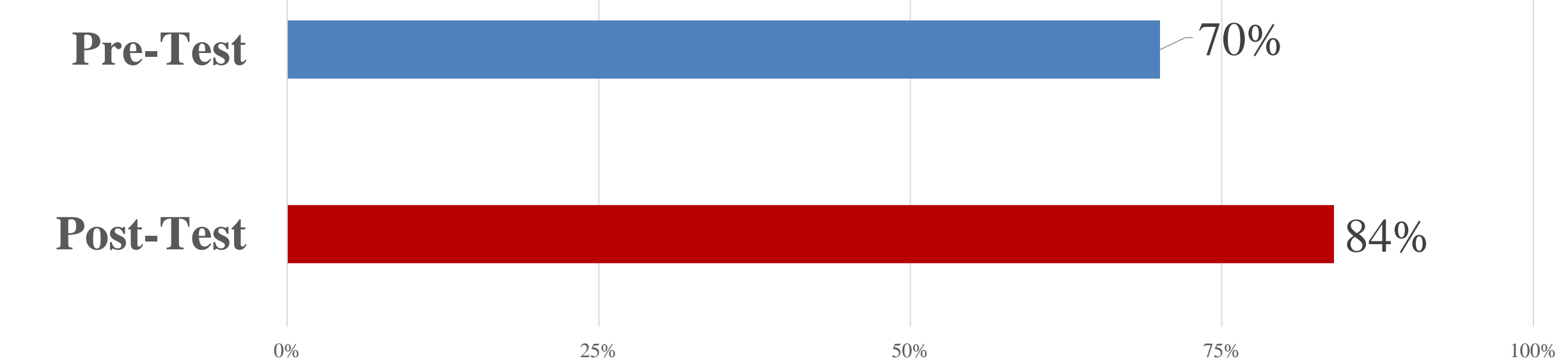


Outcome Measures

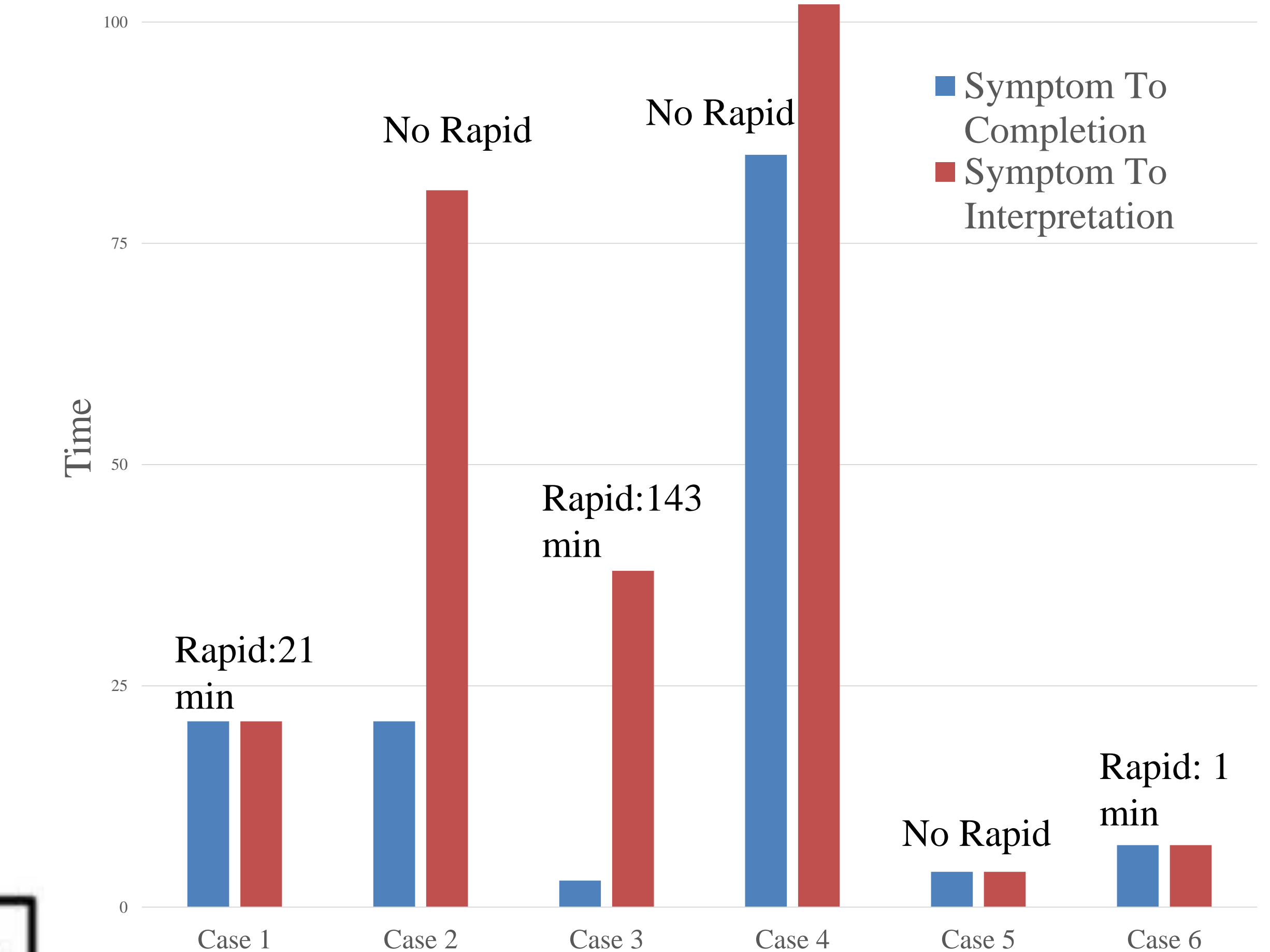
- RNs complete education with post-test > 80%
- 80% utilization of rapid response
- 80% of EKGs completed and read within 10 minutes of symptom onset.

Results

Nursing Education Scores



EKG Standard Results



Discussion

- Education exceeded 80% goal
- Rapid not utilized in all cases < 80% due to RN paging MD instead of calling rapid
- 50% of EKGs completed within 10 min, less than goal due to RN process of paging physician
- 33% of EKGs interpreted within 10 minutes due to physician page response delay
- Replication of findings needed to confirm value of algorithm in inpatient setting

Limitations:

- No inpatient STEMIs occurred during PDSA
- Small population size, no randomization
- Four weeks of implementation and data
- Limited baseline data
- Education N size limited due to technology issue

References

*****Available upon request*****