OPTIMIZING ACUTE CORONARY SYNDROME EVALUATION FROM THE WAITING ROOM

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Category: Patient Safety

Background
Cardiac-specific troponin levels should be measured at presentation and 3 to 6 hours after symptom onset in all patients who present with symptoms consistent with ACS to identify a rising and/or falling pattern. This has now become a part of accreditation to be a Certified Chest Pain Center. In our Emergency Center, median times for the 2nd and 3rd were 5.57 hours and 10.23 respectively. The 2nd and 3rd troponin labs met the defined door to collection goal 24% and 22% of the time, respectively.

Objectives
The goal is to reduce the 2nd and 3rd door to collection median times to 3.5 to 6.6 hours respectively and to increase the percentage of patients meeting the defined goals of 3 and 6 hours to 60% by April 2018.

Methods
A root cause analysis was performance and revealed three major challenges: Long wait times for Medical Screening Exam (MSE), no process to order 2nd and 3rd troponins within recommended timeframes for patients that had not been roomed, and a lack of defined mechanism to obtain and track troponin labs prior to patients being roomed. Process mapping was completed and workflows were implemented to triage these patients appropriately, create a designated area in the waiting room for these patients, have nursing staff to notify providers of these patients as well as track serial troponins and EKGs performed on these patients.
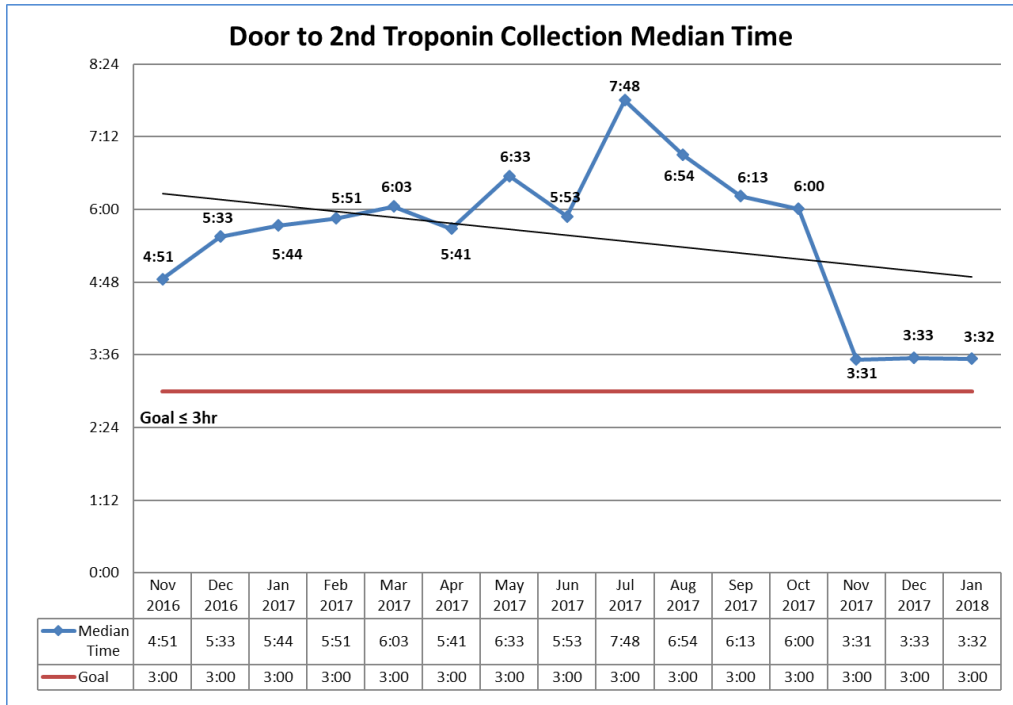
Results
Collaborative effort resulted in the following for the timeframe of three months after implementation:
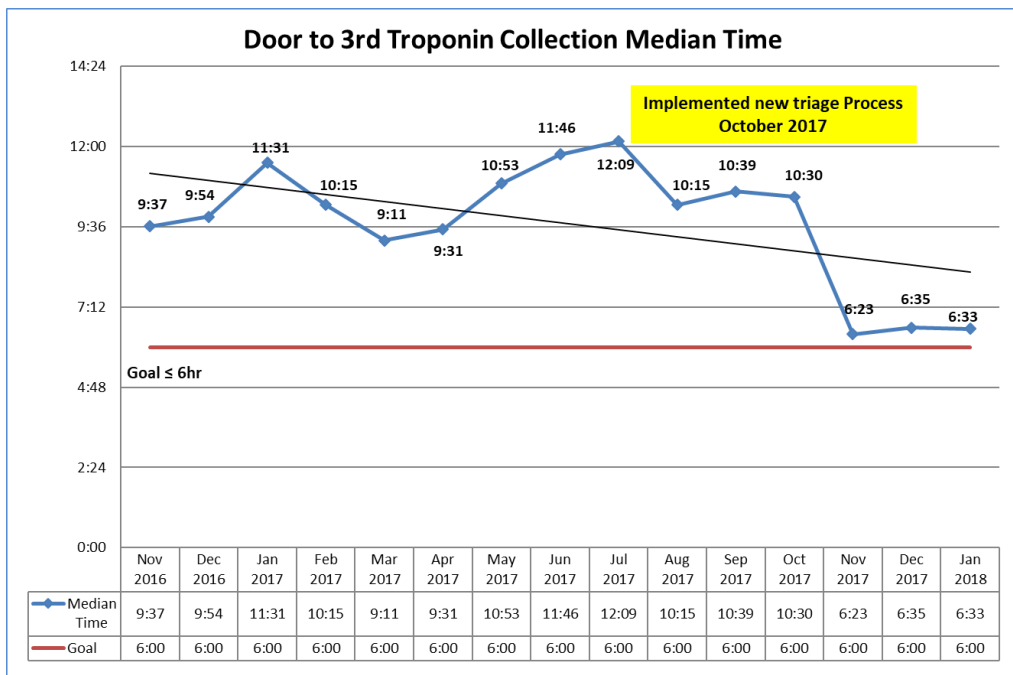40% reduction of the median time for second troponin door to collection time.
38% reduction of the median time for the 3rd troponin door to collection time.
163% increase of the percentage of patients having their second troponin lab drawn within 3 hours of arrival.
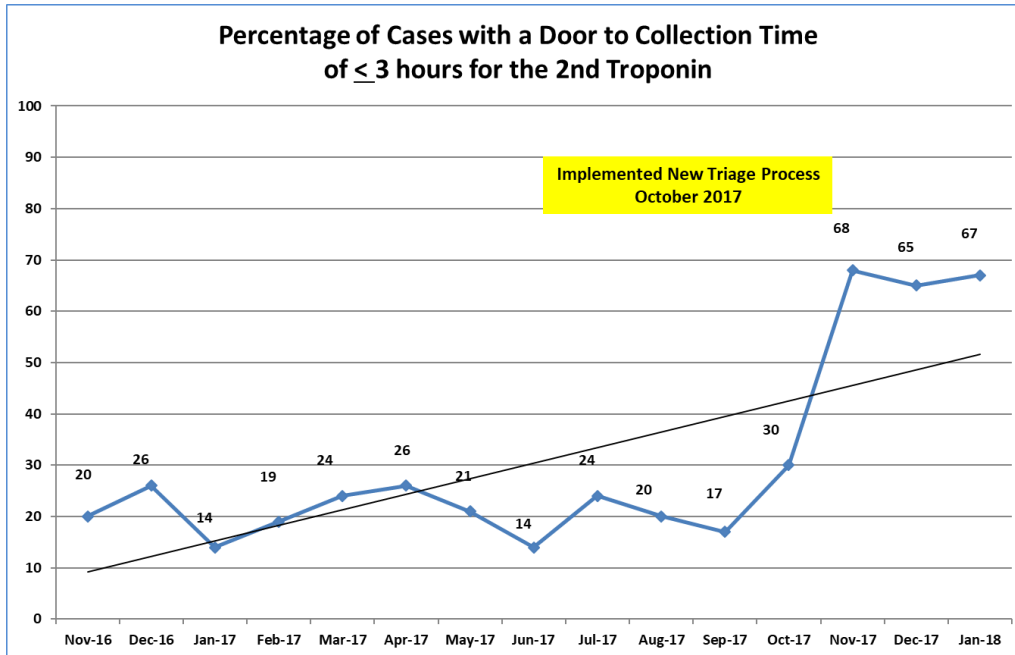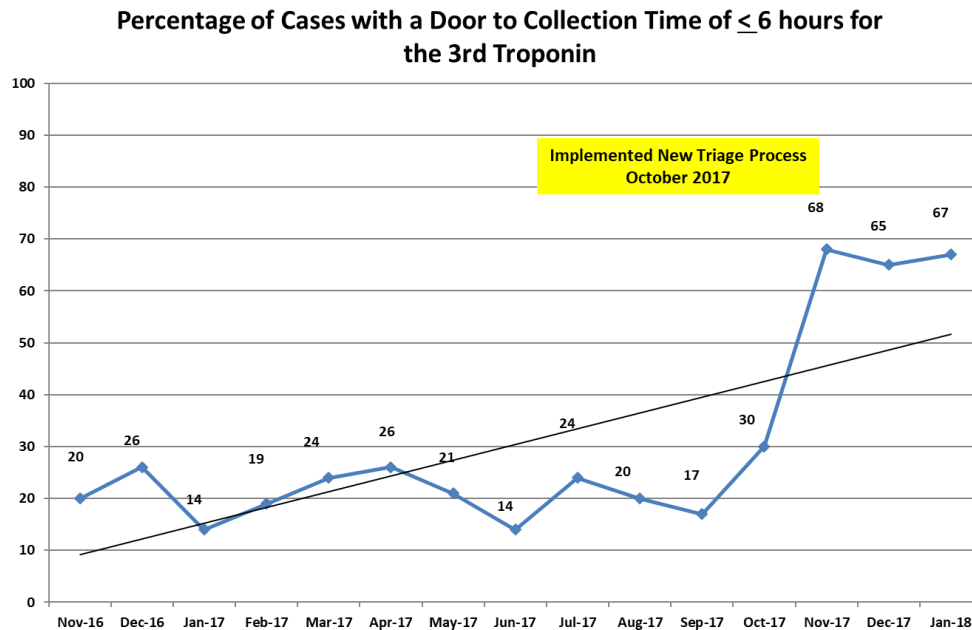205% increase of the percentage of patients having their 3rd troponin lab drawn within 6 hours of arrival.

Door to 2nd Troponin Collection Median Time

	Nov 2016	Dec 2016	Jan 2017	Feb 2017	Mar 2017	Apr 2017	May 2017	Jun 2017	Jul 2017	Aug 2017	Sep 2017	Oct 2017	Nov 2017	Dec 2017	Jan 2018
Median Time	4:51	5:33	5:44	5:51	6:03	5:41	6:33	5:53	7:48	6:54	6:13	6:00	3:31	3:33	3:32
Goal	3:00	3:00	3:00	3:00	3:00	3:00	3:00	3:00	3:00	3:00	3:00	3:00	3:00	3:00	3:00

40% reduction of the median time for second troponin door to collection time.

Door to 3rd Troponin Collection Median Time

Implemented new triage Process October 2017

	Nov 2016	Dec 2016	Jan 2017	Feb 2017	Mar 2017	Apr 2017	May 2017	Jun 2017	Jul 2017	Aug 2017	Sep 2017	Oct 2017	Nov 2017	Dec 2017	Jan 2018
Median Time	9:37	9:54	11:31	10:15	9:11	9:31	10:53	11:46	12:09	10:15	10:39	10:30	6:23	6:35	6:33
Goal	6:00	6:00	6:00	6:00	6:00	6:00	6:00	6:00	6:00	6:00	6:00	6:00	6:00	6:00	6:00

38% reduction of the median time for the 3rd troponin door to collection time.

Percentage of Cases with a Door to Collection Time of ≤ 3 hours for the 2nd Troponin

163% increase of the percentage of patients having their second troponin lab drawn within 3 hours of arrival.

Percentage of Cases with a Door to Collection Time of ≤ 6 hours for the 3rd Troponin

205% increase of the percentage of patients having their 3rd troponin lab drawn within 6 hours of arrival.

Discussion
Providers are committed to providing high-quality emergency care as quickly as possible to all patients, but crowding and boarding jeopardize patient safety while increasing wait times. Chest pain accounts for approximately six million annual visits to US EDs, making chest pain the second most common complaint. Adding in other anginal equivalent presentations makes this one of the most common complaints addressed in EDs. Although there are limitations and further opportunities for improvement, our initial data is promising in evaluating ACS from the moment the patient enters the ED in the era of long wait times.