Decreasing the Troponin Turnaround Time for Chest Pain Patients in the Emergency Department

Elaine Stevens,JD, RN, NE-BC; Tara-Anne Rogan, MSN, RN, NE-BC; Dana Shapiro, RN, BC-CV; Alexa Clay,MSHI; Lynn Janetschek, MS, MT(ASCP); Donna Rebelo, RN, MS, NE-BC; Laurie Nolan Kelley, DNP, RN, CNL, CEN, TCRN

Project Description

The Emergency Department recognized an increase in troponin turnaround times in Q1 2024, above our internal target and the American College of Cardiology (ACC) benchmark. As the region's leader in cardiac care, and designated HeartCARE Center, St. Francis Hospital & Heart Center strives for continuous improvement in the care and outcomes of patients experiencing chest pain and Acute Coronary Syndrome (ACS) symptoms. An improvement team was formed and areas of opportunity were identified including process changes, equipment additions and staff education. As a result, the time between patient arrival to the ED to troponin result decreased from 79 minutes to 39 minutes (51%) in only 3months.

Impact

Reducing the time from patient arrival to troponin result leads to earlier diagnosis and management of patients experiencing chest pain or ACS symptoms. At SFH, chest pain represents 16% of our patient population in 2023. In addition, the initiative lead to a decreased time to ED disposition which positively affected patient throughput.

Lessons Learned

Monthly monitoring is necessary to identify outliers in as close to real time as possible.
• Collaboration is essential between the Lab, ED and Quality departments
• Dissemination of data is crucial to keep stakeholders engaged

Sustainability

Ongoing education and monthly monitoring will continue. Opportunities are shared through emails and discussed in meetings. A randomly sampled population of chest pain patients is completed on a monthly basis and median times are calculated. Timely troponin completion was added to the LMS for all RNs and PCAs.

Replicability/Scalability

The use of a database to collect and analyze data, process mapping, and interdisciplinary collaboration are crucial to sustained improvement. The processes that were implemented in our ED can be implemented at other facilities accurately and efficiently through the utilization of discrete fields in the EMR and LIS.

Creativity

Workflow changes were made to fully utilize the resources currently available. Instead of adding additional staff, the workflow of the PCAs was changed to prioritize the labs getting drawn following the EKG. To ensure that all PCAs and clinical nursing staff remained aware and engaged, frequent huddles were conducted at the start of each shift by the charge nurse until the process was hard-wired.

Execution Techniques

This quality improvement project followed the Plan-Do-Study-Act (PDSA) model.

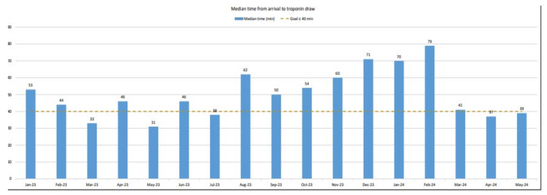
As part of the **Plan** phase, the interdisciplinary team collected baseline data to understand current state in order to set a goal. The process was mapped and time increments were calculated to see where opportunities were. In the existing process, the patient would be seen by a Rapid Assessment Nurse then a Nurse Practitioner (NP) in triage who would order an EKG and blood work. Only the EKG would be done in triage. Patients had to wait to be roomed and then were assigned a nurse and PCA.

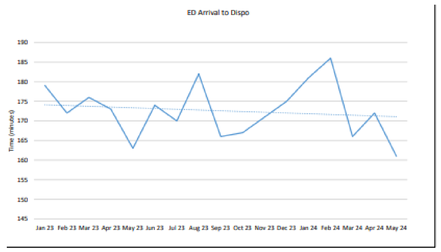
For the **Do** phase, actions were identified including drawing blood in triage and educating the PCAs to draw the blood in triage immediately following obtaining the EKG. A Geri chair was also placed outside of triage where the patient could sit to have the labs drawn. The importance of timely collection of the specimen and the turnaround time goal were discussed and emphasized at staff huddles.

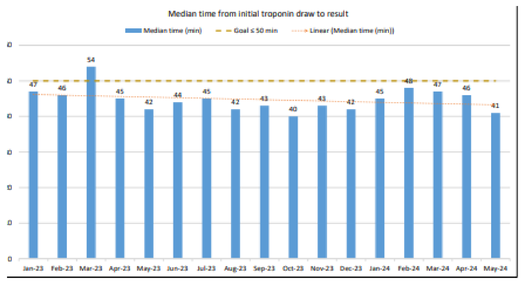
In the **Study** phase, the team analyzed median times in the ACC Accreditation Conformance Database (ACD) of our sampled chest pain patient population on a monthly basis and discussed issues and opportunities at monthly ED PI Meeting and in CPC quarterly meeting. Additionally, the team analyzed troponin order time and specimen received times to identify if there were any trends in the outliers identified. Data was also posted on the learning boards for staff to view our progress towards the goal.

As part of the **Act** phase, the team and key stakeholders will continue to monitor the data monthly and review additional opportunities with the team and utilize staff feedback from huddles to improve overall process from order to result. Outliers are reviewed with the ED and Lab who perform their own investigations from their unique perspectives and share the findings with the team. Early results reveal improved turnaround times and ED disposition times.

Outcomes







References

The American College of Cardiology Guidelines for Troponin Testing: An Evidence Based Approach to Diagnosis and Treatment of the ACS

Patient, (2017)

https://cvquality.acc.org/docs/default-source/accaccreditation/accreditationresources/troponin_brochure_2017.pd