Organization: Adventist HealthCare Washington Adventist Hospital

Solution Title: Cardiac Biomarker Serial Strategy Compliance

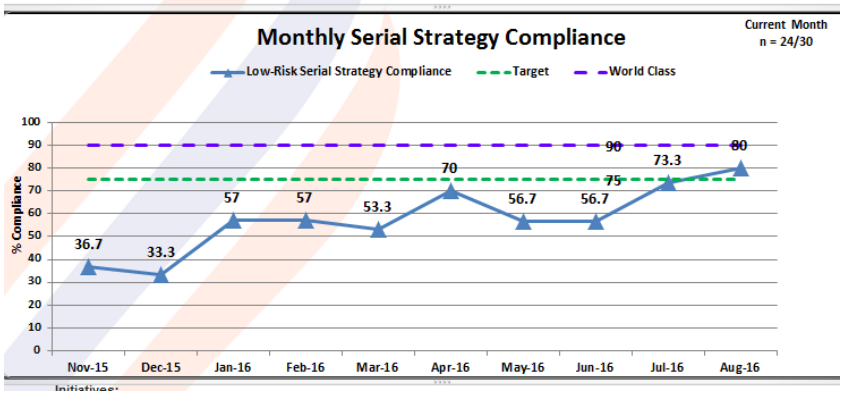
Program/Project Description, including Goals: The purpose of the project was to address cardiac biomarker serial strategy compliance as low-risk chest pain patients transitioned from their point of entry in the Emergency Department to Observation/Inpatient status. When low-risk chest pain patients present to the hospital cardiac biomarkers (CBM) are drawn. Previously, cardiac biomarkers were ordered Q4 or Q6 and generally defined as a cardiac panel including Troponin, CK, CK-MB, and BNP. As technology has advanced, lab equipment has become more sensitive. The diagnostic gold standard is now a Troponin level Q3x3. A deviation from this standard was identified during data abstraction as a trend and then supported with further data review. Baseline data came from abstraction requirements for accreditation. CBMs were tracked through orders and resulted. The goal was to increase from the baseline of 33% monthly compliance to 75% monthly compliance.

Process: The Define, Measure, Analyze, Improve, Control (DMAIC) process was used to identify solutions that provided sustainable improvement.

Solution: Through rigorous analyzing of CBM noncompliance, four primary causes were identified.

- Outdated Emergency Department order sets that did not include CBM serial strategy led to updating order sets across continuum of care
    - Implementation – Evaluated all chest pain order sets, educated providers on changes to order sets, and monitored and re-evaluated
- Change in CBM policy was not initiated in Observation/Inpatient order sets which led to updating order sets across the continuum of care
    - Implementation - Evaluated all chest pain order sets, educated providers on changes to order sets, and monitored and re-evaluated
- Order entry screen in Electronic Medical Record (EMR), as it relates to labs, was not user friendly which led to collaboration with EMR Team
    - Implementation: Recommended functionality based on provider workflow and preferences to Cerner Team, educated providers on “Results Review” availability from CPOE screen, and monitored and re-evaluated “Results Review” screen functionality and use
- Lack of education of the lab personnel on the significance of adhering to the Serial Strategy which led to collaboration with Lab regarding education, performance feedback and logistics
    - Implementation: Identified knowledge deficit vs. noncompliant employees, educated lab staff on serial strategy, troponin assay, response to patients regarding multiple sticks, and monitored process and re-evaluated.

Measurable Outcomes: It is expected that the data trend will increase as compliance increases.



Sustainability: Data will continue to be collected on a monthly basis. Appropriate serial strategy education has been included in facilty-wide nursing annual education. Nurse residents and new hire nurses receive serial strategy education during orientation. To promote ongoing Hospitalist-Chest Pain Center information sharing, a Hospitalist joined the Chest Pain Center Committee. To ensure further sustainability, the Cardiac Data department was cross-trained for data abstraction on this project. If the compliance drops below 75%, a broad reminder notification (annoucements at department meetings, etc) will take place.

Role of Collaboration and Leadership: Teamwork played a significant part in this project and included our Executive Sponsor: Amy Dukovcic, Executive Director of Cardiac and Vascular Services, Team Leader: Katie Byrd, MD, Chest Pain Center Medical Director, Process Owner: Kendra Ziegler, Chest Pain Coordinator, and the entire Chest Pain Center Committee. Multiple disciplines from the medical, nursing, and ancillary services collaborated to identify and implement solutions. This project was discussed monthly at the Chest Pain Center Committee meeting, presented regularly to the Departments of Cardiology and Emergency Medicine, as well as presented to the facility's Quality Council. Also, this project was presented at our accreditation site visit for the Society of Cardiovascular Patient Care earlier this month. We aligned the project with our health system's mission and vision for delivering safe and effective care.

Innovation: The most innovative part of this project was using our Chest Pain Coordinator to address a broad problem across the continuum of care that brought together several provider specialities (ED, Hospitalist, Cardiologist, etc) and facility departments (ED, Observation, Lab, Nursing, etc) establish best practice in the care of our low-risk chest pain patients.

Culture of Safety: This project streghtened an ongoing commitment to patient safety and high-quality care for low-risk chest pain patients.

Patient and Family Integration: This solution improved care to patients by decreasing the time for diagnosis and treatment, decreasing lenth-of-stay, and improving patient experience.

Related Tools and Resources:

Thygesen, K., Alpert, J. S., Jaffe, A. S., Simoons, M. L., Chaitman, B. R., & White, H. D. (2012). Third Universal Definition of Myocardial Infarction. *Circulation*, 126(16), 2020-2035. doi:10.1161/cir.0b013e31826e1058

Love, S., & Apple, F. (2014, May 1). Cardiac Troponin Serial Ordering Recommendations: For Today and Tomorrow. *Clinical Laboratory News*.

Contact Person:

Kendra Ziegler, Chest Pain Coordinator

kziegler@adventisthealthcare.com

301-891-6404

Felicia Benjamin, Director of Quality Services

FBenjami@adventisthealthcare.com

301-891-6186