

## Abstract 9

**Primary Author:** Brandon Allen, MD

**Hospital Affiliation:** UF Health, Gainesville, FL

**Co-Author(s):** Ideen Zeinali, MD; Thomas Payton, MD, MBA; Robert Leverage, MD; David Winchester, MD; J. Adrian Tyndall, MD, MPH

**Title:** Utilization of the HEART Score and a Multidisciplinary Chest Pain Algorithm in the Adult ED: Safely Decreasing Admissions and Resources

### Background:

The chief complaint of chest pain compromises 9-10% of Adult Emergency Department (ED) visits annually. At UF Health, nearly 60% of those patients were being admitted for Acute Coronary Syndrome (ACS) rule out in 2014. The HEART score is an internally and externally validated risk stratification tool used in the ED setting to assess risk of a major adverse cardiac event (MACE) in 30-45 days, and stands for History, ECG, Age, Risk Factors, and Troponin -In April 2015, we introduced an interdisciplinary algorithm in conjunction with the HEART score to standardize practice while evaluating chest pain patients. The goal of this CQI/IRB-approved project is to provide a tool that helps risk stratify patients with chest pain concerning for ACS to a low risk cohort that can be safely discharged OR a group that will need further testing or admission. We hypothesized that incorporating the HEART score tool into the Epic EMR and using it in conjunction with a chest pain algorithm would help safely decrease the number of chest pain admissions.

### Methods:

Upon implementation of an interdisciplinary low-risk chest pain algorithm in April 2015 we asked all providers to utilize this tool coinciding with the HEART score to risk stratify the ED chest pain patient. This data was assessed in aggregate based on monthly percentages of admitted patients with the corresponding ICD-9 codes of chest pain, angina, and/or the spectrum of diagnoses included in acute coronary syndrome. Pre and post implementation data was analyzed with p-values for statistical significance assessed. The principal outcome measures for this CQI project include: 1. Rates of hospital admission for patients with low-risk chest pain 2. Rates of Adult ED discharges with timely follow-up Secondary outcome measures: Track any Major Adverse Cardiac Events (MACEs) that occur in patients in order to evaluate the safety of our implementation of this new standard of care. \*\*There will be two corresponding figures of the low risk chest pain algorithm and the HEART score tool in the EPIC electronic health record (EHR).

### Results:

Average chest pain admissions for the year prior to the HEART score intervention were 59.3% compared to after the implementation at 53.7% with a delta percent change of 5.6%( $P < 0.0001$ ). Zero cases were triggered for peer review (48 hour return, death in ED,

death within 48 hours, or upgrade in level of care after admission) during the post-intervention period with a MACE and a HEART score of 3 or less while utilizing the low-risk chest pain algorithm. \*\*There will be two corresponding figures of bar graphs to view this data.

**Conclusion:**

Since the implementation of the HEART score and the interdisciplinary algorithm, we have decreased ED admissions for chest pain by 5.6% and was found to be statistically significant ( $P < 0.0001$ ) There has been no increase in trigger cases for peer review or known MACE since adoption of the low risk chest pain algorithm. We believe the continued use of this algorithm among all Adult ED providers and its incorporation into the Epic EMR will continue to SAFELY show a decrease in hospital admissions in low risk chest pain patients.