Implementation of an Optimal Care Pathway for Chest Pain at a Multidisciplinary Academic Medical Center

Shruti Nanivadekar, BS, Joshua Duchesne, MD, Joshua Eason, MD, Brian Kauh, MD, Mikiyas Desta, MD, Steve Leung, MD, and Vedant Gupta, MD, FACC
University of Kentucky, Department of Cardiology

Introduction
- Chest pain is the most common reason for ED visit with 8-10 million patient visits annually costing $10-13 billion.
- Less than 10% of patients with chest pain are diagnosed with an acute coronary syndrome (ACS).
- The HEART score condenses patient information into a simple number that can indicate ACS risk and guide early treatment.
- The current reporting of HEART score and strategies to improve the reporting has not been assessed.

Methods
- This is a retrospective cohort study of adult patients presenting to the University of Kentucky Emergency Department (ED) with chest pain between 6/1/2018 to 6/1/2019.
- The Optimal Care Pathway was instituted on 12/11/2018.
- The pathway was implemented using a dedicated multi-level education plan which included attending physicians, resident physicians and cardiology fellows, and a chest pain journal club which discussed data on the HEART score.
- The patients were divided into 3 groups, pre-intervention, early post-intervention (first 3 months after intervention), and late post-intervention (next 3 months).
- The HEART score documented in the electronic health record was collected if reported.
- The electronic health recorded was also reviewed and a HEART score was calculated by trained independent reviewers.
- Rates of reporting was compared between the 3 periods using Chi-square value.

Results
- 3245 patients were seen over the study period, 1717 patients prior to intervention, 737 patients in the early post-intervention period, and 791 patients in the last post-intervention period.
- HEART score documentation was 7.9% in the pre-intervention period.
- Reporting of HEART score increasing by 79% to 14.1% (p<0.001). However, in the late post-intervention period, HEART score reporting decreased by 36% from the early period to 9.4% (p of 0.003) (Fig. 1).
- Of the HEART scores documented, 85% were within 1 point of the expert scoring, with 42% exactly matching the investigators’ scores.
- 28% of emergency department HEART scores were higher than investigators’ scores, and 29% were lower.
- Using cutoffs of ≤3 for low risk, 4-6 for intermediate risk, and ≥7 for high risk, the discordance would reclassify 21% of the patients (Fig. 2).

Discussion
- Reporting of HEART score is fairly low (9.7%) in the overall cohort.
- The initial 79% increase of HEART score documentation in the emergency department in the first 3 months of pathway implementation, followed by a regression, shows that while our educational interventions were temporarily effective, this method is not sustainable enough to ensure adherence long-term.
- Furthermore, while overall accuracy of ED reported HEART scores was good, 21% resulted in risk reclassification. This highlights a need for a more long-term education programs or other systemic interventions for sustainability.

Authors’ Disclosure
Nothing to disclose.

(The Power of) advanced medicine