

STUDY TITLE: Evaluating the Impact of Implementing HEAR(T) for Urgent Care Encounters with Patients Suspected for Acute Coronary Syndrome

PRINCIPAL INVESTIGATOR: Adam L. Sharp MD, MSc

REGIONAL/CLINICAL COLLABORATOR:

Regional Chief of EM- Dr. Matt Smith

Regional UC Physician Lead- Dr. Jarlath Ryan

Regional lab leaders – Dr. Darryl Palmer-Toy, Dr. Heidi Shafi & Dr. Jeon Kim

Regional HC/Clinical Content- Dr. Kenneth Robinson, Dr. Molly Jancis and Dr. Nitin Dhamija

SUMMARY STATEMENT

The goal of this proposal is to improve clinical outcomes, quality and efficiency associated with the urgent care (UC) evaluation of patients suspected of acute coronary syndrome (ACS). Recently, the HEAR(T) score, an evidence-based risk stratification tool with a recommended clinical reference has been implemented into routine UC practice. The intervention is intended to assist UC physicians and providers to risk stratify patients presenting with symptoms suspicious of acute coronary syndrome, like chest pain. Our study proposes to assess the impact of implementing the HEAR(T) score into routine clinical practice.

Chest Pain is the second most common reason for emergency room department use and accounts for more than 7 million emergency department (ED) visits annually.¹ Chest pain is a symptom that often triggers an evaluation for acute coronary syndrome (ACS), which includes acute myocardial infarction (AMI) and unstable ischemic heart disease, and accounts for up to \$10 billion in hospital costs each year.² The workup for ACS relies on electrocardiogram (ECG) and troponin testing commonly requiring an ED visit. Evidence is limited on the benefits of early non-invasive testing and hospital evaluation.^{3,4} In addition, only 1-4% of ED encounters for chest pain will result in acute MI diagnosis.⁵⁻⁷ Very little is known about the management, outcomes and impact of ED developed risk tools in UC centers.

The HEAR score consists of the first four elements of the HEART score (History, Electrocardiogram, Age Risk factors) and has been modified to be easily adaptable to settings without, or who have difficulties with, troponin testing. It is intended to assist providers with patients presenting with chest pain who need to be evaluated for further testing for suspected acute coronary syndrome. Using and implementing HEART for KPSC patients has been successful in improving the quality of care delivered to patients by optimizing outcomes, and improving affordability by reducing low value care (hospital admission and non-invasive cardiac testing).^{7,8} Recently, research with KPSC patients has supported the use of HEAR for patients at risk of suspected acute coronary syndrome.⁹ The study showed that for patients with a low-risk CARE score, the risk of experiencing AMI or death was lower than 0.3% at 30-day follow up. The 30-day follow up period is consistent with the ED ACS research guidelines. This suggests only a limited number of patients need to be sent to the ED and the others can avoid unnecessary troponin testing, all while maintaining high quality outcomes and not compromising patient safety. Therefore, the implementation of the HEAR(T) pathway is expected to lead to improved quality, affordability, and patient outcomes.

PROJECT AIM(S)

1. Describe the 30-day outcomes for patients with a HEAR(T) score in our KPSC UC centers
2. Determine the impact of implementing the HEAR score on troponin testing for chest pain encounters evaluated in the Urgent Care
3. Evaluate the impact of implementing the HEAR score on ED transfers, hospitalization/observation and non-invasive cardiac testing among encounters evaluated in the Urgent Care

CLINICAL IMPLICATIONS/IMPACT

This project builds upon the work accomplished in the last few years in the EDs related to risk stratification using the HEART score pathway. That project changed care, optimized patient outcomes and decreased hospitalizations and non-invasive cardiac testing. Now that we are implementing a new risk tool in the urgent care setting, we hope to build upon our past success for more efficient care and continue to work on improving the management of our patients with symptoms suspicious of acute coronary syndrome.

1. CDC. *National Hospital Ambulatory Medical Care Survey: 2013 Emergency Department Summary Tables*. National Center for Health Statistics 2013.
2. Vedanthan R, Seligman B, Fuster V. Global perspective on acute coronary syndrome: a burden on the young and poor. *Circ Res*. 2014;114(12):1959-1975.
3. Kawatkar AA, Sharp AL, Baecker AS, et al. Early Noninvasive Cardiac Testing After Emergency Department Evaluation for Suspected Acute Coronary Syndrome. *JAMA Intern Med*. 2020.
4. Sharp AL, Kawatkar AA, Baecker AS, et al. Does Hospital Admission/Observation for Chest Pain Improve Patient Outcomes after Emergency Department Evaluation for Suspected Acute Coronary Syndrome? *J Gen Intern Med*. 2021.
5. Shah ASV SY, Noaman A, et al. . Patient selection for high sensitivity cardiac troponin testing and diagnosis of myocardial infarction: prospective cohort study. 2018;360:k495.
6. Thygesen K, Alpert JS, Jaffe AS, et al. Fourth Universal Definition of Myocardial Infarction (2018). *Circulation*. 2018;138(20):e618-e651.
7. Sharp AL, Wu YL, Shen E, et al. The HEART Score for Suspected Acute Coronary Syndrome in U.S. Emergency Departments. *J Am Coll Cardiol*. 2018;72(15):1875-1877.
8. Sharp AL, Baecker AS, Shen E, et al. Effect of a HEART Care Pathway on Chest Pain Management Within an Integrated Health System. *Ann Emerg Med*. 2019;74(2):171-180.
9. Mounneh T, Richard-Jourjon V, Friou E, et al. Reliability of the CARE rule and the HEART score to rule out an acute coronary syndrome in non-traumatic chest pain patients. *Intern Emerg Med*. 2018;13(7):1111-1119.