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Reduction in Healthcare Resource Utilization Associate with a Rapid Rule-Out Protocol for Suspected Acute Coronary Syndrome

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RACE-IT – Rapid Acute Coronary Syndrome Exclusion using the Beckman Coulter Access High-Sensitivity Cardiac Troponin I: a Stepped-Wedge Cluster Randomized Trial

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Background: Cardiovascular disease is the leading cause of mortality in the US. Cardiac biomarkers are the gold standard for detecting acute myocardial infarction (AMI) in the Emergency Department (ED). Current guidelines recommend using high sensitivity cardiac troponin (hs-cTn) to exclude AMI, which can potentially reduce hospital resource utilization and expedite diagnosis. In an attempt to improve the efficiency of diagnosis and triage for patients with possible ACS, we developed a protocol for rapid rule out (RACE-IT).

Methods: A secondary analysis of a stepped-wedge randomized trial of patients evaluated for AMI across 9 ED's in the Henry Ford Health System. Cohorts included the new 0/1-hour accelerated protocol and standard care. Patients were excluded if any hs-cTnI (Beckman Coulter assay) was >18 ng/L within 3 hours of presentation. Outcomes included ED discharge rates, length of stay, and cardiac testing. Analysis included a mixed effect model adjusting for ED site, time, sex, age, and race.

Results: There were 32,609 patients, of whom 57.4% were female. The mean age was 59 years. There was no significant difference in rates of ED discharge with the accelerated protocol. Among patients discharged, there was no difference in length of stay. There was a small decrease in cardiac stress testing under the adjusted protocol and a reduction in heart catheterization.

Conclusions: Implementing the accelerated 0/1-hour protocol to evaluate for MI in the ED was associated with modest reductions in cardiac testing but no difference in ED discharge rates and length of stay.