Electronic Decision Support Safely Reduces Objective Cardiac Testing among Emergency Department Patients with Chest Pain at Low Risk of Major Adverse Cardiac Events

Dustin Mark, MD; Jie Huang, PhD; Mamata Kene MD, MPH; Dana Sax, MD, MPH; Dale Cotton, MD; James Lin, MD; Sean Bouvet, MD; Uli Chettipally, MD, MPH; Megan Anderson, MD; Ian McLachlan, MD; Laura Simon, BA; Judy Shan, BS; Adina Rauchwerger, MPH; David Vinson, MD; Dustin Ballard, MD, MBE; Mary Reed, DrPH for the KP CREST Network Investigators

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| Challenge | **Objective cardiac testing is common after emergency department (ED) visits for low-risk chest pain, with notable interfacility variation, but have not been associated with improved outcomes. Opportunities exist to better standardize evaluation performance to risk status.** |
| Existing Evidence | Guidelines recommend objective cardiac testing following ED visits for possible cardiac chest pain, regardless of absolute estimated risk of major adverse cardiac events (MACE). Observational studies have repeatedly failed to find associated improvements in downstream outcomes among patients at low risk for adverse events with this practice.  |
| Target Population | Adult patients presenting to the KPNC EDs with chest pain |
| Intervention or Exposure | Electronic decision support (RISTRA-ACS) coupled with physician education at 13 KPNC EDs compared to 7 control KPNC EDs. Comparison made in 2018-2019 (post-intervention) compared to 2016-2017 (pre-intervention) among low-risk patients **(< 2% predicted risk of 60-day MACE)** |
| **Outcomes/Key Findings** | **Electronic decision support coupled with physician education was associated with *decreased cardiac testing among low-risk chest patients* within 30 days following ED visits (absolute and relative decrease 2% and 8%, p = 0.02; Control sites vs. RISTRA-ACS) and *increased cardiac testing among higher risk patients* (absolute and relative increase 2.5% and 6.5%, p = 0.03; respectively).**  There was no change in adverse events (60-day MACE incidence) among low-risk patients (absolute decrease 0.2%, p = 0.28) and no net change in the overall study population (absolute decrease 0.6%, p = 0.37). |
| **Resulting Action/Change** | **Discussions with stakeholders (cardiology, HBS, EM) surrounding dissemination and implementation of RISTRA-ACS are currently on hold given pandemic response priorities. Manuscript of findings is in final stages of preparation.**  |
| Additional Recommendations | Operational leaders can consider dissemination and implementation of RISTRA-ACS at all 21 KPNC EDs. |
| Implementation Tools  | Existing RISTRA web portal within KPHC  |
| Implementation Measurement | Tracked use of RISTRA-ACS electronic decision support during potentially eligible ED encounters (chief complaint of chest pain or chest discomfort with troponin measurement) and use of objective cardiac testing in low and high risk patients. |
| Reference |  |
| In carrying out this project, what problems or barriers did you encounter? (50 words or less) |  |
| In your experience with this project, what was the most positive or constructive aspect? (50 words or less) |  |
| Dissemination -- did your project lead to a presentation, report or publication?  | [ ]  No, please describe barriers, if any.[ ]  Yes, please list. |
| Did you or others learn something else from your project?  | [ ]  Formed a new relationship [ ]  Learned that the right data aren’t currently available [ ]  Identified unanticipated barriers to improving clinical practice [ ]  Other learnings |