RISTRA Chest Pain/Acute Coronary Syndrome (ACS) FAQs

1. **Which patients are appropriate for the RISTRA-ACS module?**

   Any adult patient with chest pain or chest discomfort in whom you are PRIMARILY concerned about possible ACS and who has a troponin test resulted (i.e. you are wondering about pursuing further cardiac-specific testing beyond troponin and ECGs).

2. **Why should I use the RISTRA-ACS module?**

   The decision tool is meant to help you identify which of these patients might benefit from further cardiac testing, as well as offer a recommended timeframe to complete that testing, when indicated, based on their predicted risk.

3. **If I get signout from a provider who previously started the RISTRA-ACS module for a patient with pending troponin(s), do I have to start it over?**

   Not at all! The application will save all information (and a placeholder for the last page visited) from the prior provider – all you need to do is relaunch RISTRA-ACS to get the final recommendations once further data (e.g. troponin) is available.

4. **How does the RISTRA-ACS app generate a risk estimate?**

   First, the app ensures that a guideline-compliant workup has been completed in terms of troponin testing and timing. Then, based on the imputed data, the app calculates both a modified HEART and an EDACS score and incorporates absolute troponin values to generate an estimated risk of a near-term major adverse cardiac event. This information is based on an internal validation study of 118,822 KPNC ED patients: Mark DG, et al. Performance of Coronary Risk Scores Among Patients with Chest Pain in the Emergency Department *J Am Coll Cardiol*, 2018, 13;71:606-616. https://www.ncbi.nlm.nih.gov/pubmed/29420956

5. **Why does the app make such a big deal about troponins that are between 0.02 and 0.04, but technically "normal" according to our laboratory?**

   Based on several external studies, the "normal" troponin value for a population free of downstream cardiac events is < 0.02 ng/ml using our current assay. Our reference "normal" cut-off of 0.04 ng/ml is based on a general KPNC patient population, and accordingly lacks sufficient negative predictive value to "rule-out" ischemic cardiac disease. However, these mildly elevated troponin levels lack sufficient positive predictive value to "rule-in" ACS (many are due to underlying chronic cardiovascular disease and/or age). As such, these "indeterminate" range troponins should prompt further clinical scrutiny to investigate possible ACS or alternative causes, acute or chronic (remember, an elevated troponin level does not always = ACS).

6. **How do I determine "onset of maximal pain episode"?**

   This variable is used to calculate the time between pain onset and troponin testing to ensure guideline compliance. This is the most conservative definition for this time point. As such, **it is reasonable to apply clinical judgement in assigning the onset of pain as the earliest time at which symptoms became concerning enough**, in both intensity and duration (i.e. > 15-20

minutes), to potentially cause myocardial ischemia/infarction and a corresponding release of troponin into the bloodstream. **Of note, selection of "uncertain" will assign the time of pain onset to the time of ED arrival, as per AHA guidelines. Selection of ≥ 6 hours will assign the time of onset to 6 hours prior to ED arrival.**

7. **How does RISTRA determine the appropriate timing of troponin testing?**

   AHA guidelines recommend that troponins be checked at a minimum of 3 to 6 hours from the time of chest pain onset to effectively exclude a diagnosis of AMI. RISTRA app asks you to adhere to that recommendation on the short end of the spectrum (at least 3 hours) for the low risk subset of patients, and on the higher end of that timeframe (at least 4.5 hours) for non-low risk patients.

8. **I got a negative troponin beyond the timeframes set out above. Why is it asking me to get another troponin?**

   If the troponin is between 0.02 and 0.04, it is not necessarily "negative" in terms of negative predictive value (see #4 above). Also note that typical ED-tested pathways (HEART pathway, EDACS-ADP) all used serial troponin testing at 2 or 3 hour intervals, regardless of time of onset – in contrast, we are only asking for a repeat if the troponin is detectable (i.e. 0.02 or higher) or the initial troponin is under the AHA endorsed minimal rule out times (from pain onset).

9. **Which kind of stress test should I order?**

   This decision is dependent on local resources and availability as well as clinical appropriateness. Facility E-consult pages have referral guidelines for any given test, and cardiologists can always be consulted to help. As the availability of CT coronary angiography expands, we hope to add an algorithm for preferred tests.

10. **The app is asking me to get a stress test on someone who just had one last month. Is that really necessary?**

    The recommendations are unable to account for past workups, since there is no clearly accepted "warranty" for any given cardiac test. That being said, you should always apply your clinical judgement in deciding to pursue further testing, given the clinical context. In the future, we will be incorporating a concise summary of prior functional and anatomic cardiac tests to assist with this decision.

11. **What if I don't think the recommendation made by RISTRA is the best course of action?**

    As with other RISTRA applications, the recommendations are based on large population data and cannot account for all patient-specific nuances. RISTRA is designed to inform and support your decision-making, but not to replace your clinical judgement.

12. **What if our cardiologists at our facility do not agree with the recommendations made by RISTRA?**

    We have made every effort to bring along the cardiologists to support our RISTRA work. The recommendation of your cardiologist may supersede any recommendations made by RISTRA, especially if there are local reasons why the recommendation is imprudent or infeasible.

13. **Hey, I am new here and this my first RISTRA enrollment. What's this I hear about a gift card?**

    Yes, we do support our clinicians with shows of gratitude in the form of gift cards! In slight contrast to our prior studies, given the large volume of eligible patients for this project, we will be distributing gift cards on a per- patient basis for a limited run-in period, and thereafter will award the top-performing enrollers on a monthly basis.

14. **Where can I find more information about the research undergirding these recommendations?**

    You can click on the "i" links in the tool that will link to the studies on which this tool is based. You can also contact the lead CREST investigators listed at the end of the tool.