

**Date:** May 2019

## **QUALITY IMPROVEMENT PROJECT COMPLETION DOCUMENT**

Please include the PROJECT CHARTER and PROJECT UPDATES with submission of this document

### **IMPACT**

*Describe the EVALUATION of the outcomes of the project as they relate to the project's aim and deliverables.*

1. ECG
  - a. The automated interpretation missed 40% of acute coronary occlusions, and labelled 3.5% of them "normal"
  - b. traditional STEMI criteria (ST elevation in two contiguous leads of 1mm, with higher criteria in V2-3 based on age/sex) failed to detect 36% of acute coronary occlusion
  - c. of "STEMI negative" index ECGs, 87% had STEMI-equivalents or subtle signs of occlusion
2. website views
  - a. approximately 1000 views/400 visitors over 4 months, or approximately 60 views/25 visitors per weekly post, in a group of approximately 70 physicians
3. Outcome
  - a. In the first five months of intervention, the average ECG-to-activation time (ETA) for code STEMI with culprit lesions declined from 33 minutes to 15 minutes, and the percentage of cases with ETA>30minutes declined from 30% to 10%
  - b. During this period there was no significant increase in the number of code STEMI without culprit lesions (28 to 29%)

### **MILESTONES**

*Describe the various MILESTONES delineated in your project charter and when/how they were achieved.*

- December: survey
- January: grand rounds
- January: website launch and weekly posts
- May: 5 month evaluation

### **LESSONS**

*Describe the LESSONS, individual or organizational, learned through this project.*

1. The automated interpretation is unreliable
2. Traditional STEMI criteria are limited
3. Evolving literature can add significantly to diagnosis
4. Local feedback and education can significantly reduce diagnostic delay for acute coronary occlusions without increasing the number of STEMI activations without culprit lesions
5. ECG-to-activation (ETA) can be used as a quality metric

### **RECOMMENDATIONS**

*Describe the IMPLICATIONS of this project for patient care or for future projects.*

**Project name:** Sharing and Teaching ECGs to Minimize Infarction (STEMI)

**University Health Network  
Emergency Department**

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1. This confirms that automated interpretations can't be trusted, and that all ECGs (even "normal" ones) should be shown to physicians and interpreted independently
2. This highlights the limits of traditional STEMI criteria and the importance of new literature
3. This demonstrates that feedback and education can reduce diagnostic delay, and should continue
4. This introduces the quality metric of ECG-to-activation (ETA), which can be used to assess diagnostic delay and monitor interventions

#### **DISSEMINATION**

*Describe the completed or planned steps for DISSEMINATION of this project's findings (e.g., presentations, posters, manuscripts, etc).*

1. UHN conference ECG workshop
2. Poster presentation
3. Publication