Do changes to chest pain streaming affect Time to ECG in the Emergency Department

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Background
Patients presenting to the Emergency Department (ED) with chest pain require an ECG to be performed by a nurse and interpreted by a senior doctor within 10 minutes of their arrival. In 2019 streaming practices were changed to speed up the collection of ECG and meet the 10-minute benchmark after investigating an adverse event.

Methodology
All patients diagnosed with possible cardiac chest pain during the pre-intervention period (Oct 2018 – Feb 2019) and post-intervention period (Apr – May 2019) were included in the study. Time to ECG from arrival at triage was collected from the medical record and the post intervention cohort were matched to the pre intervention cohort by propensity scoring based upon bivariable linear regression models that have a significance of p<0.1. Differences in the mean time to ECG between both cohorts was tested using the t-test and changes in the percentages of patients meeting the 10 minute mark were assessed using the chi-squared test.

Results

<table>
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<tr>
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<th>Average Time to ECG (ED patients presenting with chest pain)</th>
<th>% receiving ECG within 10 minutes (ED patients presenting with chest pain)</th>
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<tbody>
<tr>
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<td>Minutes</td>
<td>%</td>
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<td>Pre Intervention</td>
<td>18.06 minutes pre-intervention and 14.37 minutes post intervention (average reduction of 3.69min, 95% CI 1.37 – 6.01, p=0.002)</td>
<td>23.8% pre-intervention and 32.2% post intervention (difference = 8.4% ×2=3.15(1), p=0.076)</td>
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Figure 1: Mean time to ECG was 18.06 minutes pre-intervention and 14.37 minutes post intervention (average reduction of 3.69min, 95% CI 1.37 – 6.01, p=0.002)

Figure 2: Percentage of patients receiving an ECG within ten minutes of arrival was 23.8% pre-intervention and 32.2% post intervention (difference = 8.4% ×2=3.15(1), p=0.076)

Conclusion
Changes to streaming practices have improved time to ECG for patients presenting to ED with chest pain.

However other QI measures need to be taken that enable our system to increase the % of ED patients with chest pain receiving an ECG within 10 minutes.

Continuing Work
1. In service education sessions on current guidelines
2. Limiting delays at Triage and prioritising the ECG over anything else
3. Investigating limitations in delay to ECG
4. Comparing time to ECG at another emergency department

Changes to the streaming of patients presenting with chest pain to the ED decreased the time to ECG by 3.69 minutes and increased the percentage of patients receiving and ECG within 10 minutes by 8.4%