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Sustained Long Term Reduction in Reporting Error by Means of a Structured E-learning Module in Treadmill Stress Testing

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PURPOSE

Treadmill stress test (TMX) reporting in our institution is performed by a junior doctor prior to subsequent vetting by a specialist, sometimes over a week later. Inaccurate provisional reporting could potentially lead to delays in treatment. Well-designed e-learning modules have significant impact in TMX reporting, promoting patient's safety and improve healthcare resource management.

METHODS

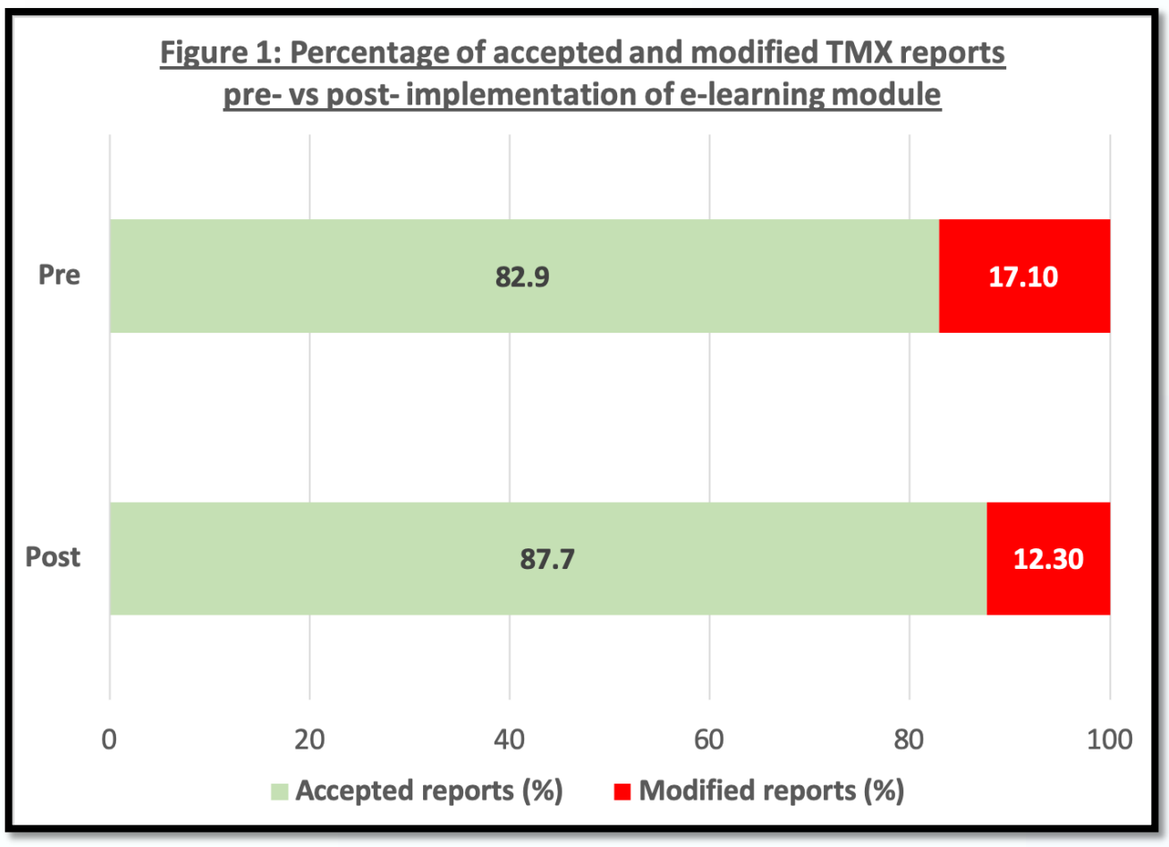
In October 2013, we introduced a comprehensive TMX e-learning module comprising formative quizzes and slide presentations for all junior doctors. The reporting error rate, defined as the percentage of provisional junior doctor reports requiring subsequent modification by a specialist, was reviewed 3 months before and after implementation. There was a statistically significant 2.8% reduction in error rate after implementation.

In order to assess if this positive effect is sustainable, we reviewed TMX reports from electronic records between January 2011 and December 2018. The error rate was compared before ("pre") and after ("post") October 2013.

RESULTS

A total of 14,055 and 56,561 TMX reports were reviewed in the pre and post groups, respectively. Compared to the pre group, there was a lower error rate in the post group (17.1% vs 12.3%, $p<0.001$), as shown in Figure 1 below.

Figure 1: Percentage of accepted and modified TMX reports pre- vs post- implementation of e-learning module



Amongst reports provisionally reported as negative, there was a lower error rate in the post group (16.8% vs 12.2%, $p<0.001$).

Amongst reports provisionally reported as positive, there was no difference in error rate (16.8% vs 16.5%,$p=0.916$).

CONCLUSION

The standardization of junior doctor training in TMX reporting through our online e- learning module led to a statistically significant 4.8% reduction in erroneous reporting.

The reduction in error rate amongst provisionally negative reports can be interpreted as a reduction in junior doctor false negative reporting, which is important for patient safety as it reduces delay in treatment. Improvements to the module targeted at reducing junior doctor false positive reporting could potentially save unnecessary healthcare costs by reducing over- treatment of patients.

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