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**Enhancing Learning Outcomes in Electrocardiogram Interpretation: A Quality Improvement Initiative using an Online Interactive Tool**

**Background**:
ECG interpretation is a vital skill for cardiology fellows, yet exposure to complex ECGs during clinical rotations may be insufficient. To address this, we developed ECGschool.com, an online tool providing challenging ECG cases with detailed feedback across 25 key areas, including QRS morphology, atrioventricular conduction, ventricular arrhythmias, and clinical scenarios. Fellows received automated feedback on their progress and were invited to provide anonymous feedback via a survey.

**Methods**:
Twenty cardiology fellows accessed the website in unsupervised practice sessions. Their de-identified results were analyzed to evaluate proficiency in ECG interpretation, response times, and accuracy across different ECG categories. A self-assessment survey was used to measure confidence levels before and after using the tool, perceived usefulness of the feedback, and overall satisfaction.

**Results**:
Sixteen fellows actively used the tool, with five completing the survey. On average, users answered 53 out of 100 questions, with a response time of 229 seconds per question. The highest accuracy was in QRS morphology (100%), ventricular arrhythmias (90%), and ischemia/injury (88%). Weaker areas were regularity (69%) and pacemaker interpretation (70%). Survey data revealed that 80% of respondents encountered complex ECGs weekly, and confidence increased from an average of 5/10 to 8/10 after using the tool. Moreover, 80% of respondents noted an improvement in their ECG interpretation accuracy, and 60% found the ECG cases challenging. All respondents (100%) reported that the feedback helped them identify areas for improvement.

**Conclusions**:
This pilot study shows that ECGschool.com improves confidence and accuracy in ECG interpretation among cardiology fellows. Future plans include expanding the tool to medical students and residents, with a stratified curriculum for varying experience levels. An adaptive learning algorithm will tailor content based on performance, and features like leaderboards, milestones, and badges will be introduced to enhance engagement.

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