Flipping a CPD Class: Lessons Learned from Repackaging an ECG Interpretation Course for Physicians

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Background

University of Calgary CME&Pd and Cardiac Sciences previously ran a two-day ECG Interpretation Course, providing a review of basic 12-lead ECG interpretation skills required for family physicians and hospitalists.

The target audience for the course:
- Family physicians and others wishing to upgrade their ECG interpretation skills
- ECG-certified family physicians and hospitalists looking for a refresher
- Family physicians preparing to write the CPSA ECG Interpretation Examination

Face-to-Face ECG Course 2015

Day 1
- Lecture
- Group Case Discussion
- Short Snappers

Day 2
- Lecture
- Group Case Discussion
- Lecture
- Group Case Discussion

The challenges with the stand-alone face-to-face workshop included:
- Participants’ baseline knowledge varied; lack of time to absorb information from lectures before immediately applying it during ECG cases.
- Time and effort between pre-course and in-class learning activities must be balanced

Learning Objectives

- Determine rate, rhythm and axis
- Determine the presence of left/right ventricular hypertrophy and bundle branch block
- Identify changes suggesting myocardial ischemia and infarction
- Distinguish among various tachyarrhythmias
- Identify bradycardia and the effects of pacemakers or pacemaker malfunctions
- Identify ST-segment and T-wave changes secondary to drug therapy or other conditions

Pre-course Activity & Workshop 2018

The ECG Interpretation Course utilized the flipped classroom strategy to:
- Promote material relevance
- Augment knowledge acquisition and retention
- Facilitate in-depth active learning
- Provide insight into the impact of skill competence

Learning Assessments

- Under each podcast, there are real ECGs followed by a series of diagnostic questions
- There is built-in, instant faculty feedback for the answers of the practice questions

Pre-course Activity: Self-learning Online Modules

- Each workshop topic has a corresponding module in the pre-course content
- Modules consist of podcasts, handouts, and practice questions
- Comment boxes at the end of each module allow participant immediate feedback and/or question on the content
- Participants engage with the content; experts observe the self-learning

Demographics

For the 2018 course, participants included:
- 36 Physicians
- 2 Nurse Practitioners

"I enjoyed the [face to face] small group sessions and I like that the [pre-course] modules could be done at home before hand. It broke it up a bit and allowed more time for the material to sink in. Also the cardiologists teaching the sessions were wonderful, respectful and very knowledgeable."

- 2018 course participant feedback

What We Learned & Conclusion

The ECG interpretation course now consists of two sets of activities:
- Online pre-course: self-learning podcasts with related online ECG interpretation exercises
- Face-to-face: a workshop with short lectures and small group case-based discussions

Through course re-development, we learned:
1. Formative feedback mechanisms must be built into the pre-course activities and coherently linked to in-class activities
2. Time and effort between pre-course and in-class learning activities must be balanced

What’s Next in 2019

Changes to the pre-course activity:
- Pre and post tests have been added for the purpose of tracking learning gains
- An additional module has been added containing the short snapper topics from 2018
- Participants will now upload challenging ECGs as part of the pre-course needs assessment

Changes to the face-to-face workshop:
- The Short Snapper block has been replaced with a Large Group Case Discussion block
- Faculty members will review the participant ECG submissions for the large group case discussion

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discussion
question
activities analysis
briefing
participants discussion

Face-to-face: a workshop with short lectures and small group case-based discussions

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