A “flipped” approach to electroencephalography (EEG) education in neurology residency

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OBJECTIVE

To support the learning of foundational principles of EEG interpretation using a “flipped” learning model.

BACKGROUND

Accurate interpretation of EEG is essential to the care of patients with epilepsy and related disorders, and misinterpretation of EEG can lead to harm1. Challenges in both faculty and resident scheduling limit the time available for one-on-one EEG teaching. As a result, residents are spending EEG reading time becoming acquainted with basic concepts, and do not have time to engage more deeply in practicing EEG interpretation.

Prober and Khan have proposed a “reimagination” of medical education in which “foundational” material is reviewed online, using short videos or other educational materials, and interactive time is used for deeper learning and consolidation2.

Using this model, we developed an EEG education curriculum supported by 10 short teaching videos based on the ACGME neurology milestones.

METHOD

16 residents (8 PGY2 and 8 PGY3) in our program participated in the curriculum. Each resident spends 1 month on the clinical neurophysiology rotation, and half of that time is in EEG interpretation.

10 teaching videos were developed using Camtasia® screen-capture software, and were made available to residents through either DropBox® or the Yale School of Medicine Instructional Video Website. Each video was linked to a set of 3-4 multiple choice questions.

Residents were instructed to review the videos on their own, and then review concepts during EEG reading sessions.

RESULTS

This curriculum is being evaluated during the 2014-2015 academic year with all PGY3 and PGY4 residents.

A version of this curriculum is also being evaluated at a smaller neurology residency program in Canada.

At the end of the academic year, residents and attending neurophysiologists will complete a survey with questions about the impact of this curriculum on learning, patterns of usage of teaching videos, and recommendations for improvement of the curriculum.

FUTURE DIRECTIONS

We have several goals beyond this initial study:

1. Refining the curriculum and testing it in other neurology residency programs in North America.

2. Exploring how similar tools could be used to facilitate education in other highly technical fields within neurology (e.g. electromyography) and medicine.

3. Exploring how similar curricula could be designed with roots in the theory of “threshold concepts”4.

REFERENCES

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