

# An Online, Interactive, Self-Paced, Case-Based Clinical Neurophysiology Curriculum for Neurology Residents

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## Background & Purpose

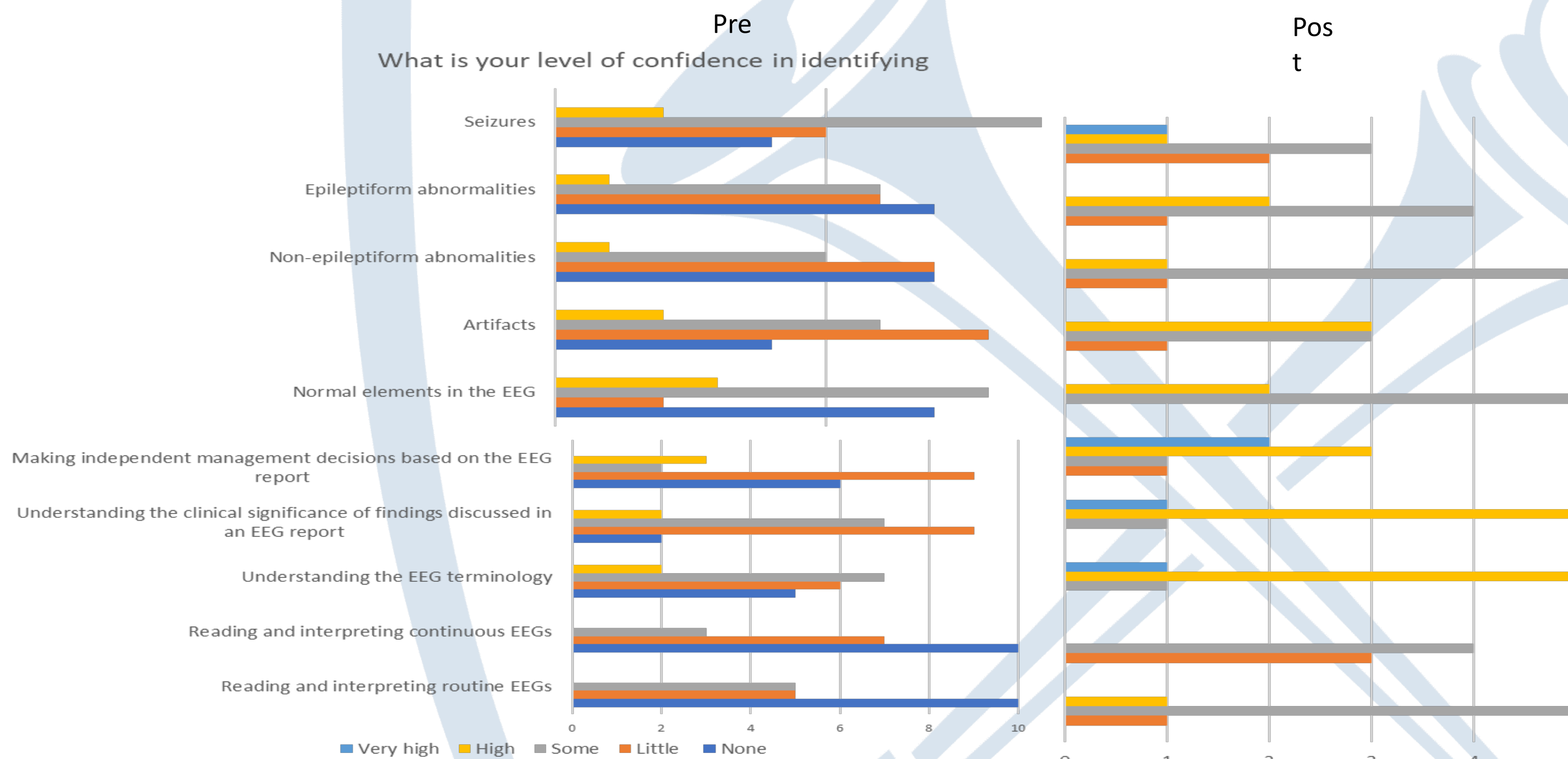
Despite routinely ordering and using electrophysiological (EEG) studies to guide patient care, neurology residents rarely feel comfortable interpreting these. Misinterpretation of EEG findings can lead to inappropriate treatment and potential harm to patients. Exposure to EEG during residency is fragmented and relies heavily on on-site supervision between the trainee and the faculty in the work setting. There is no formalized curriculum for teaching EEG in residency. The objective of this project was to develop, implement and evaluate an interactive, case-based EEG curriculum for neurology residents and other interested learners.

## Methods

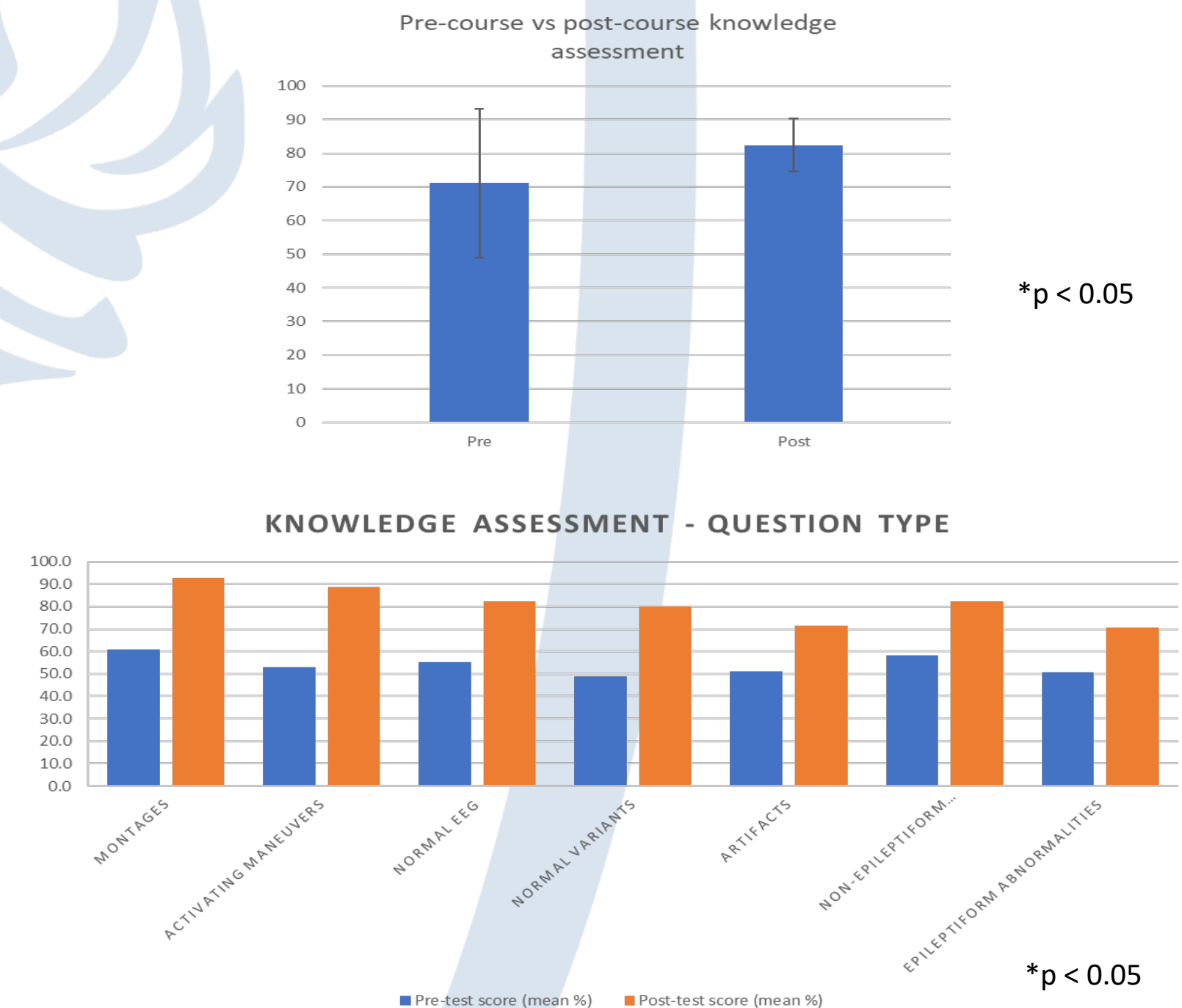
Using a specialized platform (Rise Articulate), we created an online course that consisted of 10 lessons (introduction in EEG, electrodes and montages, normal adult EEG, normal EEG variants, artifacts, non-epileptiform, interictal and ictal epileptiform abnormalities, EEG in the ICU and neonatal EEG). We distributed the course through specialized software (Canvas) to adult and pediatric neurology residents and other interested learners. A pre and post course survey was used (SurveyMonkey) to evaluate the trainees' interest, comfort level and barriers in learning EEG and a pre- and post-course knowledge assessment was used to evaluate its effectiveness. Student t-test and Chi-square were used for comparison of continuous and categorical variables, respectively.

## Results

### Qualitative Curriculum Assessment



### Quantitative Curriculum Assessment



- 18 neurology trainees (PGY1-PGY5), 3 EEG technologists and advanced practitioners answered the survey. 73% of the neurology trainees were very interested in learning EEG. Most residents wished they had more opportunities to learn EEG during residency. Most significant barriers to learn EEG included limited time, need for 1:1 teaching and complexity of the topic. 72% felt very little or not at all comfortable reading EEGs. 61% of the trainees rarely or never reviewed the EEGs they ordered.
- 7 Residents completed the post-course survey. It took 3-10 hours to complete the course. The level of confidence in understanding EEG terminology (11% vs 85%), significance of EEG findings (11% vs 85%) and making management decisions based on EEG (16% vs 71%) improved among residents. All were likely or very likely to recommend the course to other trainees. Suggested areas of improvement included reducing the length of the knowledge assessments.
- The mean score of the pre-course knowledge assessment was 60% (among all trainees). Within the group that completed both the pre-course and the post-course test (n=11), there was an improvement in the mean score (71% vs 82%, respectively, p<0.05). That improvement was reflected in all question categories.

## Conclusion

A self-paced and interactive online EEG course can provide foundational concepts and complement existing strategies to improve knowledge and level of confidence in interpreting EEG.

## References

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