An advanced simulation-based educational activity was launched online on 11/24/2014. The intended goal of this activity was to improve clinicians’ ability to diagnose seizure types based on patient history, clinical presentation, and evaluation. An additional goal was to improve personalization of treatment choices based on various type and patient factors such as polypharmacy, age, and comorbidities.

**Institutional Method:**
A technologically advanced, interactive, simulation-based learning platform is designed to replicate the real-life physician patient encounter and decision-making environment. The platform is not limited to preselected multiple choices of lab tests, diagnoses, drug therapies, and procedures. Learners proceed through a series of steps, including selecting a patient, viewing the patient profile, reviewing medical history and electronic medical records, and selecting appropriate tests or procedures to assist in making a diagnosis and developing a treatment plan. Every preference indicated and action taken is recorded and evaluated, and relative feedback is provided, including error alerts, suitability of choices, potential adverse events, interactions, and alternative options, as well as references for further clarification and education. The authenticity of the experience offers a simulated view of a learning environment using evidence-based guidelines in cases of patients with seizures.

**Assessment Method:**
The clinical decisions made by the participants were analyzed using an artificial intelligence engine, and instantaneous clinical feedback was provided, employing current evidence-based and expert faculty recommendations on management of epilepsy. Participant decisions were collected after clinical guidance was provided, using a 2-trial, paired T-test (P<.05 was considered statistically significant) to assess the impact of simulation-based education on the clinical decision-making of neurologists participating in the study. Learners were shown in the assessment from 11/24/14 to 02/24/15.

**RESULTS:**
- The assessment sample consisted of 335 neurologists who made clinical decisions within the simulation and proceeded to the concluding detailed section. As a result of GG provided through simulation, significant improvements were observed in several areas of management of care for epilepsy, specified (Figure 2).
  - The number of participants who correctly diagnosed the patient with complex partial seizures with secondary generalization (85% post vs 15% baseline, P<.001) (Figure 2A)
  - Clinical decision was made with a confidence of the temporal lobe (82% post vs 9% baseline, P<.001) (Figure 2A)
  - Ordering an EEG in a sleep deprived patient (62% post vs 39% baseline, P<.001) (Figure 2A)
  - Discontinuation of current treatment in a patient who experienced adverse events and post medication adherence (35% vs 15% baseline, P<.001) (Figure 2A)
- Among participants, diagnosing a patient with complex partial seizures with secondary generalization (85% post vs 15% baseline, P<.001) (Figure 2A)
- Incorrect selection of AED combination therapy involved at least one medication that is closely related in a patient experiencing side effects and poor adherence to current therapy (45% post vs 6% baseline, P<.001) (Figure 2A)
- Ordering lamotrigine serum levels in a patient currently taking lamotrigine who still experiences occasional seizures and who wants to consider an alternative treatment to start a new AED (62% post vs 13% baseline, P<.001) (Figure 2B)

**CONCLUSIONS:**
This study demonstrated the success of advanced simulation-based interventions on improving the evidence-based clinical decisions of neurologists in the management of patients with epilepsy. The simulation-based decision-making instructions that lead to improvement in physician performance is a consequence of evidence-based decisions of clinical guidelines for epilepsy and may lead to improvement in patient outcomes.

**References:**