Abstract:

- **Background:** As the government, the insurance industry and the public begin to look towards medicine with an increasing skepticism due to medical errors, medicine has begun to take measures to establish proof of competency. (1)

- **Objectives:** To determine whether an UGRA simulator that provides real-time feedback along with a cognitive exam is useful in the determination of UGRA competency. (4)

- **Methods:** 19 Pediatric anesthesia fellows completed both a series of 10 timed ultrasound-guided needle-passes using our training model and a cognitive examination at 0,6, and 12 months of training.

- **Results:** Using Spearman correlation to analyze the data, the cognitive scores at 6 and 12 months correlated significantly with our pediatric anesthesia fellowship.

- **Conclusion:** The use of overall performance data enabled us to discriminate between groups of practitioners with varying degrees of UGRA accuracy and efficiency. Our paradigm is a promising tool for UGRA proficiency research, evaluation, education, and improvement.

Background:

- As public pressure increased, medicine began to take measures to establish proof of competency. (1)

- Competency in regard to medical knowledge has been established with testing by medical boards.

- There is mounting pressure to increase proof of competency both temporally and specifically. (2)

- The temporal aspect is noted with the relatively recent introduction of MOCA, or Maintenance of Certification in Anesthesia.

- Specifically, as the body of knowledge of medicine becomes even more voluminous, there is a tendency for each group to divide into subgroups.

- One subgroup, regional anesthesia, uses ultrasound guidance for providing theoretically safer, quicker, and more effective regional anesthesia. (3)

- Our study was conducted to evaluate the UGRA simulation model’s utility as both a proficiency evaluation and data collection tool for UGRA.

**Objective:** To determine whether an UGRA simulator that provides real-time feedback along with a cognitive exam is useful in the determination of UGRA competency. (4)

**Methods:** 19 Pediatric anesthesia fellows completed both a series of 10 timed ultrasound-guided needle-passes using our training model and a cognitive examination at 0, 6, and 12 months of training.

- Time to complete the task and # of contacts with the intended target were recorded.

- Also recorded was individual subject’s experience (# of UGRA blocks performed in the past 12 months).

- Accuracy (#correct/10), and efficiency (accuracy/time) scores were calculated from the raw data.

- Since our department sets “privileging” criteria for performing regional anesthesia at 10 peripheral nerve blocks/year we defined “experienced practitioners” as those who reported performing ≥ 10 blocks in the past 12 months.

**Results:**

- 19 anesthesia fellows participated in the study over two academic years. We recorded data for both sets of fellows over these two academic years at 0, 6 and 12 months during their training. Results for Cognition, Accuracy and Efficiency were analyzed both for individual academic year, and also as a combination of both years.

- There was a statistically significant improvement in cognitive scores from base of 55.7 (0 months) to 85.8% (12 months).

- The change from 0 to 12 months in accuracy and efficiency also was statistically significant, with base scores improving from 0.56 to 0.86 for accuracy, and 0.006 to 0.013 for efficiency.

- The cognitive scores at 6 and 12 months correlated significantly with UGRA competency in terms of accuracy and efficiency (Spearman correlation coefficients of 0.6-0.8, p value < 0.01).

- At both 6 and 12 months, there is a good to very good correlation with our cognitive test to those who did well with our UGRA simulator.

- Spearman correlation coefficients are noted to have: Good correlation if the coefficient is 0.4-0.8, Very good correlation at 0.6-0.8, and Excellent correlation at 0.8 and above.

**Conclusion:**

Our UGRA training paradigm covered both regional anesthesia knowledge and procedural proficiency. Both were tested over time at the beginning, mid and end of our pediatric anesthesia fellowship.

The use of overall performance data enabled to discriminate between groups of practitioners with varying degrees of UGRA accuracy and efficiency.

Our UGRA paradigm is a promising tool for UGRA proficiency research, evaluation, education, and improvement.

**References:**


