

## Focused Observation and Evaluation of Endotracheal Intubation Skills During the First Month of Clinical Anesthesiology Residency

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**Learner Audience:** Program Directors; Fellowship Directors

**Background:** Focused Observation and Evaluation (FOAE) is a procedure commonly used to assess technical skills. 1 We have developed a FOAE form for the assessment of perioperative procedures using the Dreyfus' Stages of Skill Acquisition as a descriptive assessment scale.2 This study seeks to analyze the responses and to ascertain whether the measure can be used to distinguish residents' skill progression in endotracheal intubation across time.

**Hypothesis:** Focused Observation and Evaluation can assess residents' skill progression in endotracheal intubation across time.

**Method Designs:** FOAE of intubation skills was performed on 6 CA-1 residents during Week 1 and Week 4 of residency training during uncomplicated anesthetics. Subjects were evaluated between 1 to 2 times by different observers. Specific areas assessed included Knowledge of the procedure, Preparation and Equipment, Approach, Technique, Success or Failure, Complications, and the Number of Attempts required before successful intubation. Dreyfus' Skill Acquisition assessment was subsequently converted to numerical scores as follows: Novice = 1, Advanced Beginner = 2, Competent = 3, Proficient = 4, Expert = 5. Descriptive statistics were calculated for each item. The means of all items were also calculated for each resident. Using time (first- and fourth -week observations) as the independent variable and total mean score for the four items as the dependent variable, a dependent t-test was calculated. An effect size (Cohen's d) was also calculated to ascertain the standardized mean difference between the first- and fourth- week observations.

**Results:** During Week 1 of training average scores in all areas ranged from 1.2 to 1.3, consistent with skill performance at the Novice level. Intubation success rate was 83% with an average of 1.7 attempts required. One rating of Competent was given for Preparation. By Week 4 of training scores averaged from 1.9 to 2.3, in the range of Advanced Beginner (see Figure 1). Intubation success was 100% with 1 attempt required. Two assessments of Competent were given to different subjects in the areas of Preparation and Approach. A statistically significant difference between the first- and fourth-week observations was calculated ( $t = -3.9$ ,  $p < .05$ ). The calculated Cohen's D of 1.42 suggests that there was a meaningful difference between the first- and fourth-week observations.

**Conclusions:** Although a small sample size was used, the FOAE form detected improvement in endotracheal intubation skills between Week 1 and Week 4 of training correlating with skill acquisition from the Novice level to Advanced Beginner. This measure, then, may be a way of distinguishing resident performance across time. Further subjects will be required to ascertain whether the measure is reliable and valid.

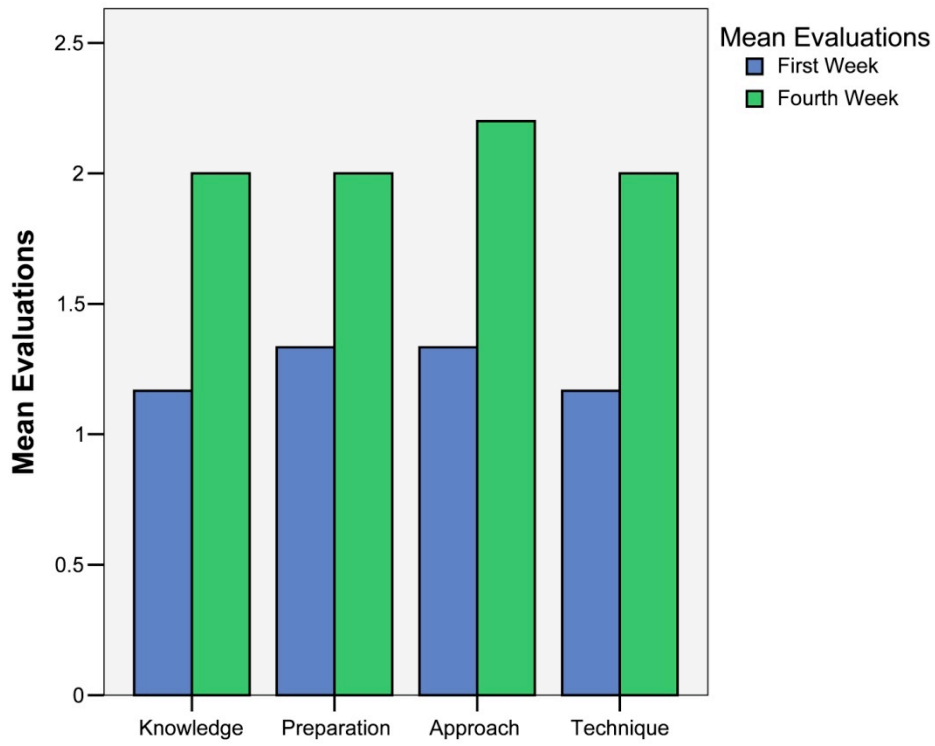


Figure 1. Mean Evaluations for First and Fourth Week Focused Observations Across Items