



Validation of a Simulation Scenario and Corresponding Assessment Tool to Assess the Competency of Nurse Anesthetists Seeking Reentry to Practice

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INTRODUCTION

Lapsed certification results for nurse anesthetists away from practice for ≥4 years. As of 2016, the National Board of Certification and Recertification of Nurse Anesthetists (NBCRNA) uses high-fidelity simulation as replacement for supervised clinical experience.

BACKGROUND

The NBCRNA oversees the 3-step Reentry Program for CRNAs, consisting of:

- (1) Review of key anesthesia concepts and modules including: airway management techniques, applied clinical pharmacology, human physiology/pathophysiology, anesthesia equipment and technology
 - (2) Completion of high-fidelity simulated anesthesia scenarios for the 20 NBCRNA-identified essential competencies
 - (3) Employment within 12 months of completing steps 1 & 2
- An average of **15 CRNAs** recertified per year between 2014-2017
 - An estimated 827 anesthetics are administered for *each* additional CRNA that re-enters practice, which improves access to care.
 - Cumulatively, CRNAs permitted to re-enter practice can provide an estimated 15,000-25,000 additional anesthetics each year.



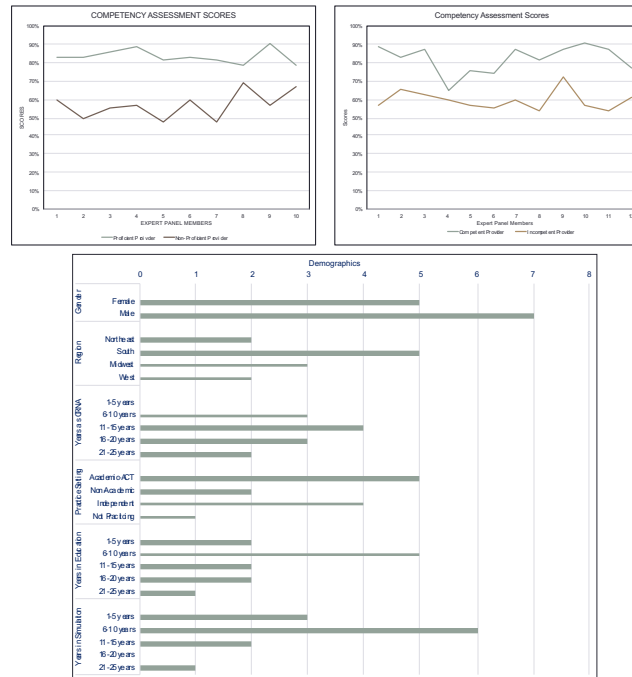
AIMS

1. Develop a simulation scenario that incorporates 5 essential competencies required as part of Step Two of the NBCRNA's Reentry Program.
2. Develop a corresponding assessment tool containing requisite, best-practice responses to various events within the scenario.
3. Convene an expert panel of ≥10 geographically diverse CRNAs who are proficient in nurse anesthesia practice, education, and simulation to evaluate simulation scenario and assessment tool validity.
4. Determine inter-rater reliability (IRR) and content validity (CV) of the scenario and assessment tool to ensure objective assessment.

METHODS

- Simulation Scenario (Aim 1):** One competent and one incompetent version of scripted scenarios were filmed. The expert panel was blinded as to which video was competent and which video was incompetent.
- Assessment Tool (Aim 2):** The assessment tool is an objective, evidence-based, standardized approach to evaluate provider performance.
- Expert Panel (Aim 3):** The Delphi method uses structured group discussion of a panel to reach objective consensus¹⁰. Geographically diverse CRNA expert panel members were recruited with experience in anesthesia, education, and simulation.
- Assessment of Scenario and Checklist (Aim 4):**
- Inter-rater Reliability (IRR): consistency of measurement obtained by independent examiners using the same measurement tool
 - Content Validity (CV): degree to which an assessment instrument is relevant and representative to what it is designed to measure
 - Content Validity Index (CVI): degree to which an instrument has an appropriate sample of items for the construct being measured

RESULTS



DISCUSSION

- The assessment tool and scenario allowed the expert panel to successfully assess the providers response to events
- Interrater reliability was high (ICC of 0.99 (Group 1) and 0.986 (Group 2)) for grading the competent and incompetent videos
- Survey responses to the questions that determined content validity of the scenario exceeded the minimum required value of 0.78 with a mean content validity index (CVI) of 0.96 (Group 1) and 0.97 (Group 2).
- The expert panel determined that the assessment tool was clear, easy to use, and to assess provider proficiency and competency
- "The assessment tool reflects appropriate terms and sequence"
- All questions regarding assessment tool validity deemed valid with a CVI of 0.83 (Group 1) and 1.0 (Group 2), which is higher than the minimum acceptable value of 0.78

CONCLUSIONS

- Objective assessment tools allow standardized evaluation
- Simulation assessment used for Reentry to Practice equates to a high-stakes evaluation and objective assessment is essential
- The scenario and assessment tool developed were validated by an expert panel
- This objective assessment process was designed to determine if providers are safe to return to clinical practice
- Validated simulation scenarios and corresponding assessment tools using the modified Delphi method increase objectivity among testing and evaluation materials to promote equal testing opportunities among all Reentry Program participants across testing locations
- These results are not limited to reentry to practice but may also be of interest to the NBCRNA or other credentialing bodies regarding initial certification, recertification, and continuing education

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