
Grace Peterson Nursing Research Colloquium

Use of Fiberoptic Intubation Simulation to Enhance Skill and Confidence Among Anesthesia Providers

Fredrich F. Raz
DePaul University, ffraz7@gmail.com

Kris Toribio
DePaul University, ktorib2@gmail.com

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Background:

Anesthesia providers may lack confidence in using a fiberoptic (FO) scope since it is rarely used in the clinical setting, which provides an opportunity for re-training via simulation.

Objectives:

The purpose of this study was to describe the usefulness of a video-recorded low-fidelity FO intubation simulation and its effect on anesthesia providers' confidence and skill in performing FO intubation.

Method:

The study was conducted during the 2019 IANA Airway Workshop using a post-test only study design, and participants who volunteered in the simulation were asked to watch a video-recorded instruction on FO intubation. After viewing the video, the participants completed a hands-on simulation while the researchers recorded their FO intubation times, and the participants were allowed up to three recorded attempts.

Results:

Fifty-eight participants completed the hands-on simulation and the post-simulation questionnaires. Results showed an improvement in skill as evidenced by faster mean FO intubation times for each of the three attempts (27.34 sec, 24.99 sec, and 16.13 sec), but was not statistically significant. The FO simulation was found to be effective as demonstrated by participants rating the simulation as both useful.

Simulation Usability Mean Scores for Each Item				
Item	Minimum	Maximum	Mean	SD
The simulation was well organized and easy to follow.	1	4	3.74	0.785
Objectives and procedures of the simulation were clearly communicated.	1	4	3.72	0.790
The simulation covered critical content necessary for performing successful FO intubation.	1	4	3.72	0.790
The simulation was an effective resource for improving my performance of FO intubation.	1	4	3.76	0.779
Participating in the simulation made it easier for me to perform a FO intubation	1	4	3.74	0.785
Overall Usability Score: Mean=3.73; SD=0.77; Range=3 Cronbach's Alpha =0.98				

Critical Action Survey Mean Scores for Confidence in Each Item				
Item	Minimum	Maximum	Mean	SD
More confident in recognizing the appropriate anatomical landmarks when performing a FO intubation	1	4	3.62	0.813
More confident in my ability to perform a successful FO intubation.	1	4	3.55	0.820
More efficient performing the steps involved in a successful FO intubation.	1	4	3.55	0.820
More confident in recognizing situations where FO intubation is appropriate.	1	4	3.60	0.815
More confident in my ability to operate the FO bronchoscope.	1	4	3.59	0.838
Overall Confidence Score: (M=3.58; SD=0.81, Range=3) Cronbach's Alpha =0.99				

Discussion:

One-way ANOVA tests were used to compare the mean scores based on demographic data with three or more groups. Only one of the ANOVA test results demonstrated statistical significance. The lack of statistical significance in other areas may have occurred due to the relatively small sample size (n=20). However, differences in mean overall scores based on demographic data could still be appreciated.

Implications for Nursing:

Simulation provides opportunity for nurse anesthesia providers to build or retain confidence and skill in FO intubation.

Conclusions:

The simulation enhanced anesthesia providers' skill and confidence in FO intubation and was found useful by the participants.

