THE UNIVERSITY OF KANSAS HEALTH SYSTEM

Increasing Perianesthesia Nurse Competency in Selected Critical Care Modalities

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MAGNET RECOGNIZED AMERICAN NURSES CREDENTIALING CENTER

Introduction

The Indian Creek Hospital is a satellite campus of The University of Kansas Health System located in Overland Park, Kansas. Pre/Post nurses at this location rarely experience critical care modalities during practice, although there is potential for these modalities in all perianesthesia settings. The patient selection criteria for eligibility for surgery, as well as the planned, elective nature of surgeries performed at this location, result in a patient population that is relatively healthy with fewer major comorbidities and complications, particularly when compared to populations undergoing non-elective, emergent surgeries. Therefore, a high-risk, low-frequency situation exists for critical care modalities in the perianesthesia setting at this location.

Problem & Purpose

How do Pre/Post nurses at this location improve competency in critical care modalities when these modalities are rarely encountered in practice? Challenges to improving competency include varying critical care experience among Pre/Post nurses and the infrequency with which these modalities occur in practice at this location. Figure 1 below provides the percentage of Pre/Post nurses on this unit with previous ICU experience. Per the QSEN Institute (2020), competency is the knowledge, skills, and attitude (KSA) needed to provide high-quality, safe care. The purpose of this quality improvement project was to develop an effective education strategy to improve competency in Pre/Post nurses on this unit for selected critical care modalities.

Figure 1 - Percentage of Pre/Post RNs with previous ICU experience

- 58% Practiced in an ICU
- 5% Recovered ICU patients
- 37% None
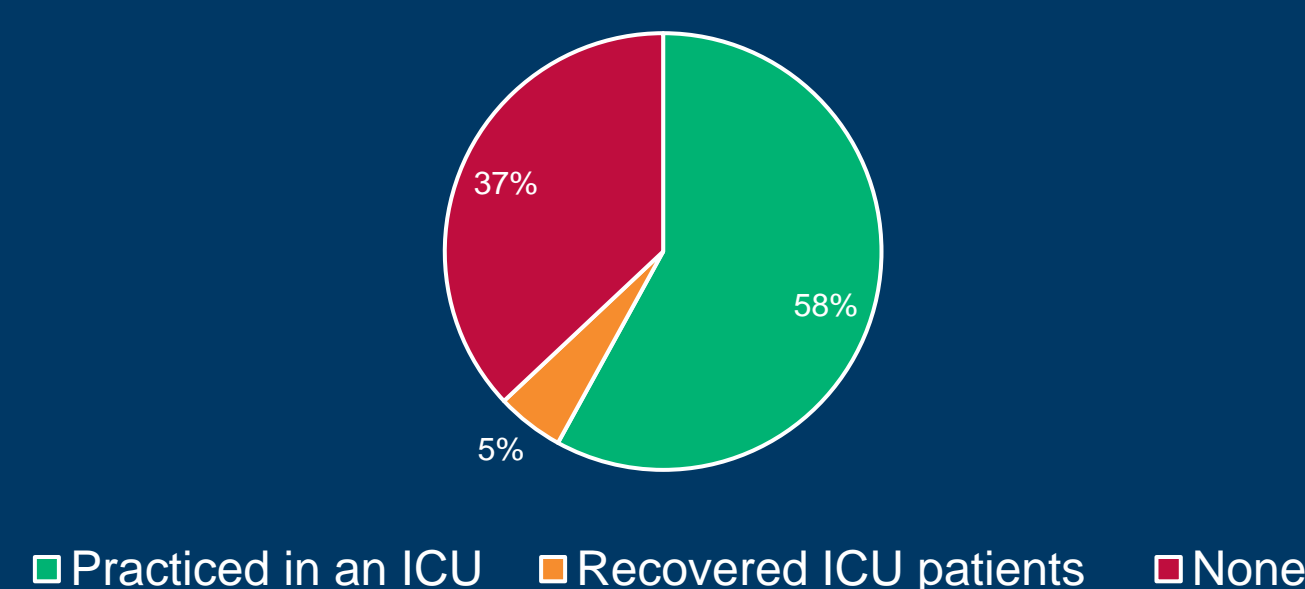
Methods

A gap analysis using the 2019 edition of ASPAN's *A competency-based orientation program for the registered nurse in the perianesthesia setting (CBO)* revealed the need to improve competency for the following critical care modalities on this unit: arterial lines, intubation, mechanical ventilation, extubation, and titratable drips. Competency expectations for these modalities were derived from corresponding sections of the ASPAN *CBO*. A sequential, tiered education strategy was developed. First, nurses completed pre-intervention surveys to capture baseline self-rated competency using a Likert scale based on Patricia Benner's "From Novice to Expert" theory and adapted from the survey used by Przybyl et al. (2015) in a paper examining the use of high-fidelity simulation to assess competency. Second, staff completed a didactic curriculum primarily consisting of corresponding Health System policies, procedures, and patient care guidelines. Recommended resources were provided to supplement required prework, particularly for staff with less ICU experience, and were completed at staff discretion. Completion of didactic prework was validated by attestations of completion and passing scores on

quizzes. Third, staff completed skills stations with validators to gain haptic experience with supplies and equipment associated with the selected modalities. The final step would have entailed precepting with ICU staff to gain real-life experience with the selected modalities in critically-ill patients. However, unforeseen implications of the COVID-19 pandemic prevented execution of this step. Therefore, the post-intervention survey was administered after completion of didactic prework and haptic skills stations. The questions on the pre- and post-intervention surveys were identical with the following exceptions on the post-survey: (a) attention was called to the fact that only didactic prework and haptic skills stations had been completed and (b) an extra question was added to assess staff perception of how helpful precepting in the ICU would have been in improving competency. Figures 1 and 2 below provide the pre- and post-surveys, respectively.

Figure 2. Pre-intervention survey

Figure 3. Post-intervention survey

FIGURE 4. AVERAGE SELF-RATED COMPETENCY SCORES

Pre-Survey / Post-Survey

	Arterial Lines	Intubation	Mechanical Ventilation	Extubation	Titratable Drips	Overall Average
Pre	4.79	5.05	3.84	5.11	4.89	4.74
Post	5.7	6.6	5.5	7.2	5.7	6.14
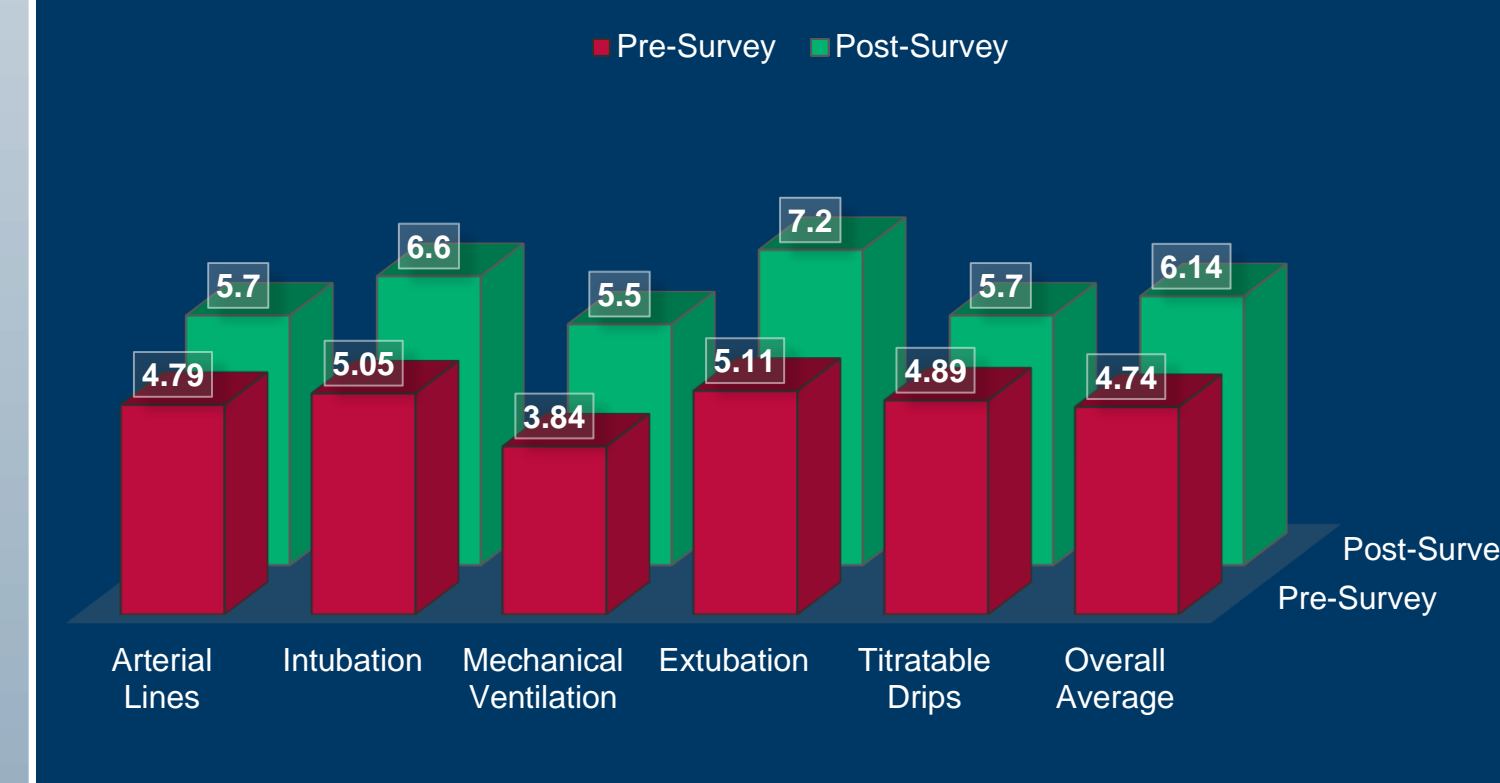
Figure 5. Percentage of staff self-reporting "Hold my own" (5) or higher

Pre-Intervention: Arterial Lines 42%, Intubation 58.00%, Mechanical Ventilation 42%, Extubation 58%, Titratable Drips 58%
Post-Intervention: Arterial Lines 70%, Intubation 80%, Mechanical Ventilation 60%, Extubation 90%, Titratable Drips 70%
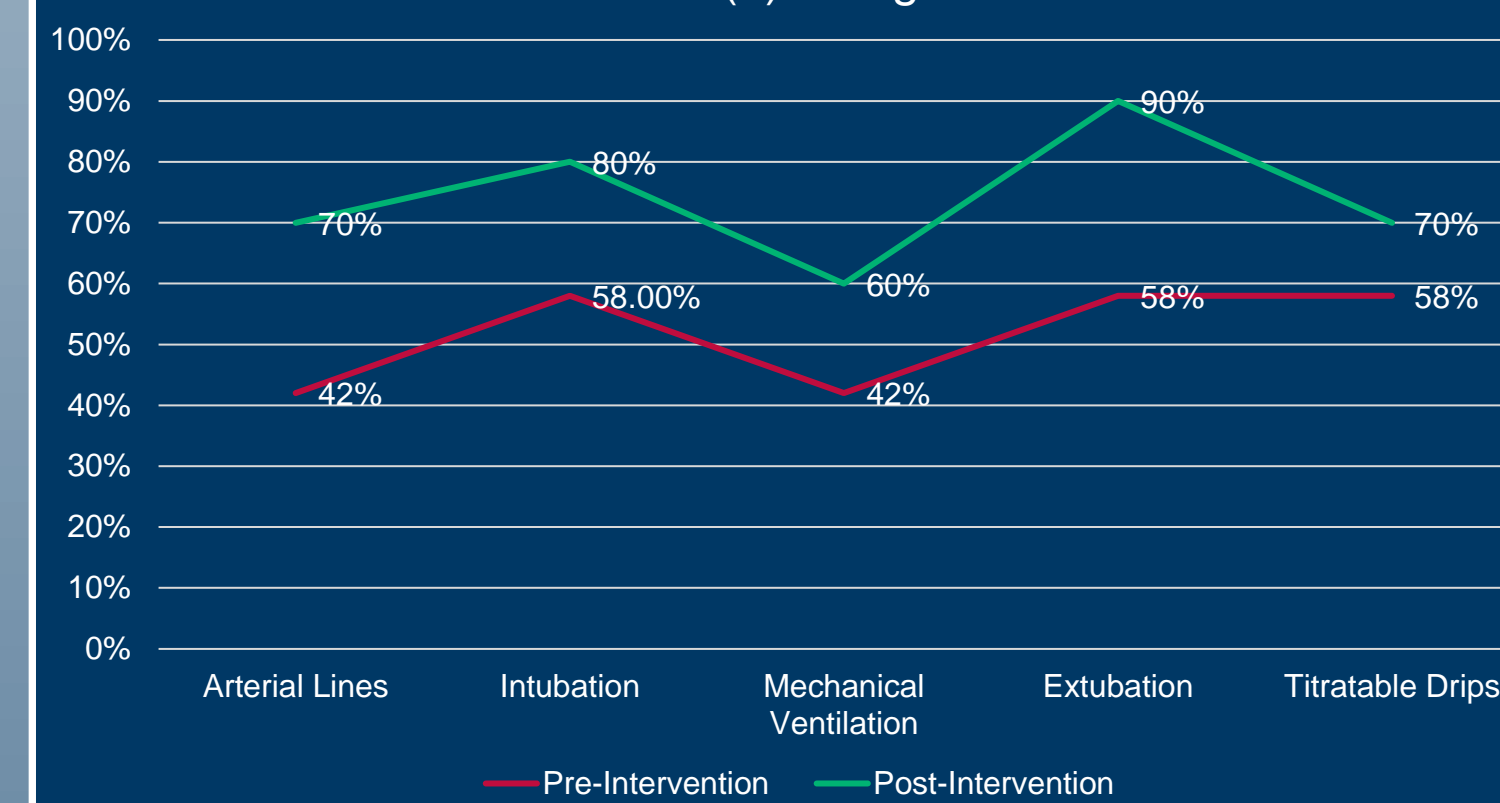
Figure 6. Percentage of staff self-reporting "Comfortable" (7) or higher

Pre-Intervention: Arterial Lines 32%, Intubation 47%, Mechanical Ventilation 26%, Extubation 47%, Titratable Drips 30%
Post-Intervention: Arterial Lines 50%, Intubation 70%, Mechanical Ventilation 40%, Extubation 80%, Titratable Drips 26%
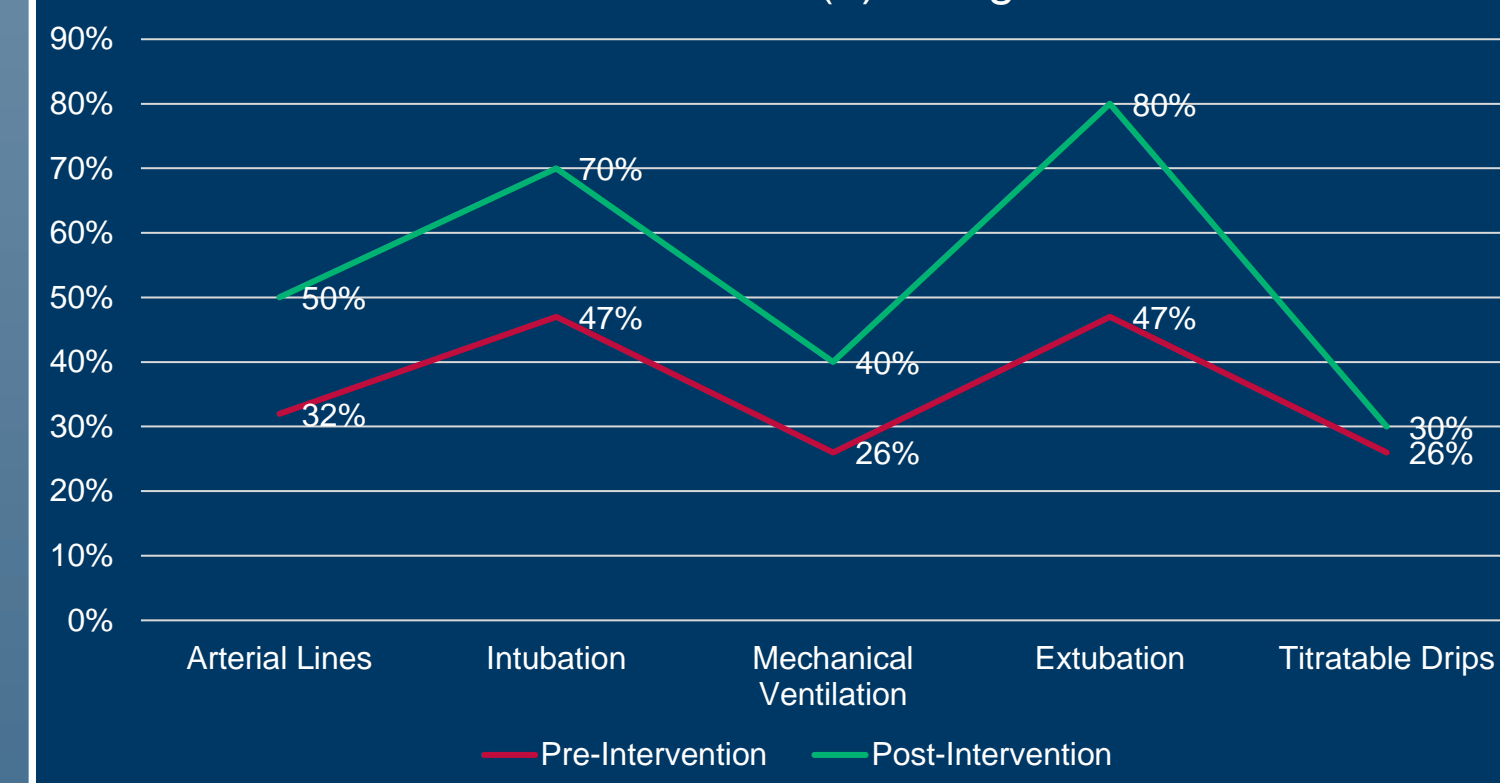
Results & Discussion

While the response rate for the pre-survey was 100% (19/19), the response rate for the post-survey was 71% (10/14). The difference in pre- and post-survey denominators is due to staff leaving the unit between survey administrations. Average pre- and post-intervention self-rated competency scores are given in Figure 4 above. For all critical care modalities, average self-rated competency scores increased after the intervention. Further, prior to the intervention, the average overall score for all critical care modalities was 4.74,

corresponding to a self-reported competency rating between "Nervous" (4) and "Hold my own" (5). After the intervention, this score increased to 6.14, corresponding to a self-reported competency rating between "Hold my own" (5) and "Comfortable" (7). The percentage of staff self-rating "Hold my own" (5) or higher is given in Figure 5. This percentage increased after the intervention across all modalities. The percentage of staff self-rating "Comfortable" (7) or higher is given in Figure 6. This percentage increased across all modalities after the intervention. On the post-survey, the average score for the final question was 4.4, indicating that staff perceive precepting in the ICU would have been "Somewhat helpful" to "Helpful" in improving competency in the selected modalities.

Limitations of this quality initiative project include the following: (a) the inability to execute the final step of the plan (precepting in the ICU) prior to post-survey administration, (b) the inability to capture all staff post-intervention due to staff turnover and 71% post-survey return rate, (c) analysis with descriptive versus inferential statistics, (d) potential bias inherent in survey methodology, and (e) subjective, self-rated competency assessment.

Conclusion & Implications

In Pre/Post nurses on this unit, didactic prework followed by haptic skills stations based on the ASPAN *CBO* increased self-rated competency across all critical care modalities. On average, staff on this unit perceive that precepting in the ICU would be moderately helpful in improving competency in these modalities.

While the purpose of this quality improvement project was to develop an effective education strategy to *improve* competency, future research is needed for an effective education strategy to *maintain* competency (mitigate knowledge and skill decay). To this end, the authors of this poster are collaborating with other unit leadership to design and implement a high-fidelity simulation for the selected modalities. While precepting in the ICU would be ideal for obtaining experience with patients, it has not been feasible during the COVID-19 pandemic. A high-fidelity simulation may be the solution to this challenge. In addition, this quality improvement project used pre- and post-surveys of self-rated competency to assess the intervention's effect. Further research using more robust competency validation methods is needed. Given that high-fidelity simulation promotes critical thinking and allows participants to apply knowledge and skills under high-pressure conditions without fear of patient harm, a robust competency validation method might combine objective performance measures observed during simulation with subjective, reflective self-assessments during post-simulation debriefing.

Acknowledgements & References

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