



POCUS: Upper Airway Evaluation Curriculum Development

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Project Aims

The purpose/aim of this project was to create and implement an airway Point-of-care-ultrasound (POCUS) curriculum at Rosalind Franklin University (RFU) for nurse anesthesia (NA) residents.

Vision: To empower the nurse anesthesia profession by facilitating the transformational growth and development of nurse anesthesia residents through innovation, self-discovery, skills acquisition, and clinical decision making.

Background

- The inability to mask ventilate or intubate presents a myriad of challenges that may result in adverse patient outcomes such as hypoxia, aspiration, brain damage, cardiac arrest and death.
- The ability to predict and identify difficult or abnormal airway anatomy is essential. Current assessment tools have several limitations and predictive capability.
- POCUS is a noninvasive tool used for airway evaluation, which has been shown to be reliable in detecting atypical airway anatomy or predicting difficult laryngoscopy.
- The use of POCUS can enhance the identification of important neck structures such as the cricothyroid membrane, tracheal rings, cricoid cartilage, thyroid cartilage, and hyoid bone that are often not seen when using traditional assessment techniques
- Both the Council on Accreditation (COA) and the AANA encourages nurse anesthesia programs to incorporate POCUS training into their core curriculum before the anesthesia resident matriculates into clinical practice.

Methods

Evidence Based

Upon extensive assessment of and utilizing technique gathered from various studies on curriculum development, hands-on simulation training, and fluency checklist development, a blended curriculum on POCUS of the airway was developed.

Curriculum Delivery

NA residents from team 25 received a pre-recorded power-point lecture that was delivered live during clinical correlations on August 25th, 2023. The curriculum included understanding of airway sonoanatomy, knobology, proper techniques in handling/operating the ultrasound probe, capturing, interpreting sonographic images, understanding pertinent pathophysiology with associated airway implications, and clinical application.

Assessment

At the end of lecture and live demonstrations, students were given a post implementation survey which was designed to assess the learners perceived gain in confidence and knowledge when using POCUS to evaluate the upper airway. This survey was constructed and disseminated using Qualtrics and the data collected was intended to assess if project aims and outcomes were aligned.

Research Question

For nurse anesthesia residents who attend Rosalind Franklin University, what is the impact of point of care ultrasound (POCUS) curriculum for evaluation of the upper airway on their self-efficacy, diagnostic accuracy, and evaluation skills during airway assessment?

Results

Table 1
Needs Assessment of the Airway POCUS Curriculum

Questions	Allowed Responses				
	Strongly Agree n=38	Agree	Neutral	Disagree	Strongly Disagree
This presentation met my learning needs/style	89.47%	10.53%	-	-	-
This presentation increased my interest in POCUS	92.11%	7.89%	-	-	-
I feel this content is applicable to my future CRNA practice	94.59%	5.41%	-	-	-
I would like this content presented and accessible as a recorded lecture	86.84%	13.16%	-	-	-
Do you think this content should be included into the curriculum if not required by COA?	84.21%	15.79%	-	-	-
I would like access to sonoanatomy picture/video library of anesthesia related POCUS material	89.47%	10.53%	-	-	-

Table 2
Applicability of the Airway POCUS Curriculum

Questions	Responses	
	Yes % (n)	No % (n)
The POCUS Airway hands-on scanning session provided me with the opportunity to translate the didactic content in a meaningful way.	97.30% (37)	2.70% (1)
The POCUS Airway hands-on scanning session increased my confidence.	97.30% (37)	2.70% (1)
I had enough time at the POCUS Airway hands-on scanning stations.	94.59% (35)	5.41% (2)

Discussion

- The curriculum development proved to be a positive step for staying up to date with standards set forth by accrediting bodies of nurse anesthesia programs such as the COA
- Survey data demonstrated overwhelming support for the POCUS curriculum. All participating students (100%) felt that the airway POCUS content should be incorporated into the curriculum at RFU even if it were not to be required by the COA.
- Students agreed (100%) they should have continual access to the POCUS material presented.
- Providing both guided learning and continual access, students will be able to not only develop their skills but strengthen them over time as well.
- Inclusion of an airway POCUS curriculum into nurse anesthesia programs utilizing a blended curriculum approach, is expected to improve the confidence, comfort, skill, and overall clinical decision making when using POCUS for airway landmark recognition.
- The blended POCUS curriculum will produce multiskilled providers and impact patient care by reducing adverse outcome such as unanticipated difficult laryngoscopy.

Conclusion

- POCUS has been shown to be a reliable tool with its use growing in the anesthesia profession, including upper airway assessment. Incorporating an airway POCUS curriculum, that utilizes lecture and hands-on scanning, should be included into RFU's existing NA curriculum to meet the requirements of the accrediting agency, and improve proficiency of NA residents.
- Nurse anesthesia programs who are committed to the growth and development of the nurse anesthesia profession should consider incorporating POCUS related training into their curriculum.

References



REFERENCES