Abstract

❖ A concise, virtual educational intervention and distribution of cognitive aid led to improved anesthesia providers' knowledge and perceived value of the STOP-BANG questionnaire (SBQ) for obstructive sleep apnea (OSA), demonstrating feasibility, alignment with evidence-based practices, and potential to reduce perioperative complications.

Purpose

❖ This project aimed to improve anesthesia providers' understanding of OSA pathophysiology and SBQ screening principles, including its interpretation and application to evidence-based anesthetic strategies, thereby increasing systematic OSA screening.

❖ By offering virtual educational content and a laminated SBQ badge buddy, the initiative sought to embed the SBQ into preoperative workflows at Banner University Medical Center, fostering consistent use and ultimately enhancing patient safety and surgical outcomes.

Background/Significance

❖ OSA disrupts breathing and impedes oxygen supply to vital organs. Approximately 30 million Americans suffer from sleep apnea, yet only 6 million are officially diagnosed (American Academy of Sleep Medicine, 2023).

❖ Undiagnosed OSA contributes to higher perioperative complications, with 47.5% of OSA patients undergoing ambulatory surgery requiring hospitalization (Wu et al., 2022).

❖ The gap in diagnosis underscores the necessity of targeted interventions to standardize preoperative OSA screening.

❖ Polysomnography remains the gold standard for diagnosis, but its cost and time requirements have led to alternative, validated screening tools like the SBQ (Arslan et al., 2020).

❖ The SBQ demonstrates 90.7% sensitivity for moderate-to-severe OSA and 93.9% for severe OSA, can be completed in 1–2 minutes, and assists anesthesia teams in tailoring safer perioperative management (Hwang et al., 2021).

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References

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Methods

❖ **Design and Delivery:** A virtual quality improvement approach integrated a pre-survey, an asynchronous VoiceThread presentation, and a post-survey all hosted on Qualtrics to measure changes in knowledge and perceived value of the STOP-BANG questionnaire.

❖ **Likert-Scale Structure:** Ten questions (five each on SBQ value and knowledge) assessed aspects like clinical utility, simplicity, and OSA pathophysiology, providing nuanced, quantifiable data.

❖ **Implementation Framework:** The PDSA model guided planning, execution, and evaluation. Laminated SBQ badge buddies were distributed to reinforce learning and encourage long-term adoption in daily practice.

Results

Data Comparison of Pre- and Post-Education – Value Construct of SBQ

	Pre-Education Value	Post-Education Value	P-Value	R-Value
Mean (sd)	19.300 (3.301)	22.100 (2.923)	0.007	0.849

Survey Results – Value Item Analysis of SBQ

Survey Question	Participants	Pre-Education Mean (sd)	Post-Education Mean (sd)	P-Value	R-Value
The SBQ is a valuable tool for identifying patients at high risk for OSA in the preoperative setting.	10	3.900 (0.570)	4.400 (0.700)	0.025	0.707
Incorporating a standardized tool like the SBQ into routine preoperative assessments is beneficial to overall patient outcomes.	10	3.900 (0.880)	4.400 (0.840)	0.025	0.707
Using the SBQ can enhance my ability to make informed anesthetic management decisions for patients with suspected OSA.	10	3.700 (0.950)	4.300 (0.670)	0.034	0.670
I value the simplicity and efficiency of the SBQ in facilitating rapid assessment for OSA risk.	10	3.800 (0.630)	4.400 (0.700)	0.034	0.670
Using the SBQ aligns with best practices for pre-anesthetic patient assessments.	10	4.00 (0.820)	4.600 (0.520)	0.034	0.670

Comparison of Pre- and Post-Education – Knowledge Construct of SBQ/OSA

	Pre-Education Knowledge	Post-Education Knowledge	P-Value	R-Value
Mean (sd)	18.900 (2.331)	22.700 (2.311)	0.016	0.759

Discussion

❖ **Statistically Significant Gains:** Ten participants completed pre- and post-intervention surveys, revealing significant increases (via Wilcoxon Signed-Rank test) in both the perceived value of the SBQ and knowledge of OSA – with moderate-to-large effect sizes reflecting practical relevance.

❖ **Enhanced Perceptions and Integration:** Providers recognized SBQ's efficiency, alignment with best practices, and seamless integration into busy perioperative workflows, boosting willingness to adopt it consistently.

❖ **Knowledge Improvements:** Participants notably advanced in understanding SBQ components, OSA severity stratification, and applying insights to anesthesia decisions, although baseline familiarity in pathophysiology and intraoperative management limited change.

Conclusion

❖ A concise virtual intervention and SBQ badge buddies significantly improved anesthesia providers' knowledge and perceptions of OSA screening. Most participants recognized SBQ's efficiency, alignment with evidence-based care, and value in high-pressure environments, though changes in pathophysiology knowledge were less pronounced due to high baseline familiarity.

❖ Despite a modest sample and single-site limitations, the project highlights SBQ's feasibility and potential to reduce perioperative risks. Ongoing access to educational materials and collaborative support from leadership should sustain systematic OSA screening efforts, potentially enhancing patient outcomes long term.

Survey Results– Knowledge Item Analysis of SBQ/OSA

Survey Question	Participants	Pre-Education Mean (sd)	Post-Education Mean (sd)	P-Value	R-Value
I can accurately recite the components of the SBQ and explain how each factor contributes to assessing the risk of OSA.	10	3.100 (0.880)	4.500 (0.530)	0.010	0.811
I can explain the pathophysiology of OSA, including how intermittent hypoxia drives oxidative stress, inflammation, and sympathetic activation, contributing to cardiovascular and metabolic diseases.	10	4.100 (0.5700)	4.600 (0.520)	0.059	0.597
I understand the difference between moderate and severe OSA based on Apnea-Hypopnea Index scores and can explain the clinical implications of each category.	10	3.400 (1.070)	4.400 (0.520)	0.047	0.627
I understand the perioperative risks unique to patients with OSA or high STOP-BANG scores and can propose tailored preoperative interventions to mitigate these risks.	10	4.000 (0.470)	4.600 (0.520)	0.034	0.670
I am knowledgeable about the intraoperative management considerations for patients with OSA, including anesthetic agent selection and extubation strategies.	10	4.300 (0.4800)	4.600 (0.5200)	0.180	0.424