

OBSTRUCTIVE SLEEP APNEA SCREENING IN ADULT PREOPERATIVE MILITARY PERSONNEL



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Practice Problem

- Surgical patients at risk or have a medical diagnosis of obstructive sleep apnea (OSA) are not identified on a routine basis
- Lack of current facility policy pertaining to the identification of high-risk OSA and medically diagnosed surgical patients in relation to the perioperative management is the leading practice problem at a large military level I trauma medical center in central Texas
- The population is patients presenting for surgical procedures at-risk or currently diagnosed with OSA
- Munish and colleagues (2012) stated that over 24 percent of the male and 9 percent of the general female population have at least mild OSA
- Singh and colleagues (2013) concluded that 69 percent of all surgical patients in their study had OSA, while 60 percent of all OSA patients have moderate to severe OSA and are not routinely recognized by the anesthesia teams (Acar, et al., 2014)
- The impact of unrecognized OSA can have detrimental effects on the patients and their caregivers
- Currently, the American Society of Anesthesiologists, recommend that every surgical patient is screened preoperatively for OSA (Joshi, et al., 2012; Munish, et al., 2012)

Clinical Question

In the adult surgical population, how does the routine use of the STOP-Bang Questionnaire compared to random assessment for obstructive sleep apnea influence the identification of obstructive sleep apnea in eight weeks, during the preadmission processing in a military healthcare treatment facility?

Project Evaluation

Compare the number of medically diagnosed OSA surgical patients (prior to implementation) to the identified at-risk OSA patients through the use of the STOP-Bang Questionnaire.

- Independent t-test for comparison
- Chi-square for proportions of two groups in relation to OSA identification
- Cronbach's Alpha was utilized to evaluate the reliability of the STOP-Bang Questionnaire

Project Description

Vision: Increase awareness of OSA patients through early identification

Mission: Increase OSA identification through the utilization of the STOP-Bang Questionnaire screening tool during the preadmission appointment for ambulatory surgical patients

Framework: Theoretical, Neuman's System Theory

Change Model: ACE STAR Model of Knowledge Transformation

- Educational sessions pertaining to OSA screening was provided to the preadmission nursing staff and the anesthesia department
- 100 preoperative charts were screened for the diagnosis of OSA prior to STOP-Bang Questionnaire implementation
- After the implementation of the STOP-Bang Questionnaire in the preadmission unit, another 100 charts were screened for STOP-Bang scores to determine the at-risk OSA population

STOP-Bang Questionnaire:

- **STOP:** Snoring, tiredness, observed apnea, high blood pressure
- **Bang:** BMI, age > 50, neck circumference, gender

Conclusions

- Chi-square was conducted to determine if there was a difference in frequency in STOP-Bang score clusters of low, intermediate and high risk; No significance noted with low-intermediate clusters
- Significance was noted with intermediate-high risk ($p=0.008$) and low-high risk ($p=0.001$) clusters comparisons
- t-test revealed a difference of mean STOP-Bang score between OSA and non-OSA: 5.14, $p=0.001$ (Figure 2)
- Multiple linear regression: Predict OSA based on STOP-Bang scores; Snoring $p=0.032$; BMI $p=0.048$

References

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Results

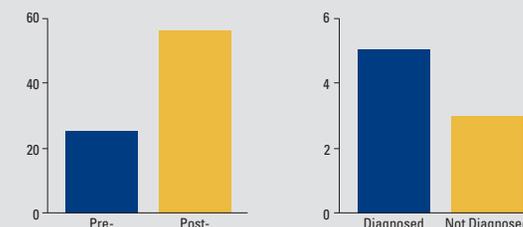


Figure 1. Effects of STOP-Bang Questionnaire implementation. Number of Patients with the medical diagnosis of OSA (n=23) compared to the number of patients that screened greater than minimal risk (n=54) using the STOP-Bang questionnaire (STOP-Bang scores greater than 3).

Figure 2. STOP-Bang score in patients diagnosed with OSA. Patients with a diagnosis of OSA ($x=5.14$, SEM 0.467) had significantly higher scores ($P=0.001$) on the STOP-Bang questionnaire compared to patients without positive diagnosis of OSA ($x=2.76$, SEM 0.233).

Nursing and Healthcare Implications

- Identifying and recognizing at-risk OSA patients play a crucial role for the care provided to surgical patients
- Early identification will impact the decisions made to augment and enhance the patient specific tailored care for each at-risk OSA surgical patient
- Potential adverse events may be diminished or eliminated with the early identification of OSA patients
- Preoperative policies that support the utilization of preoperative screening for OSA will improve the overall quality and safety of care provided to surgical patients