# Obstructive Sleep Apnea (OSA) in Women in a Primary Care Practice



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#### Introduction

Pathophysiology of OSA: closure of airway during sleep





- OSA is a precursor to negative cardiovascular outcomes: stroke, heart attacks, hypertension, sudden death
- ~1 in 4 adults in the U.S. have OSA
- Estimate of cost of undiagnosed OSA in the U.S. ~ \$26 billion
- Women are less likely to be diagnosed than men
- Women have worse CV outcomes than men due to late diagnoses

#### Purpose

Implement an assessment tool for women and men with co-morbidities of HTN and BMI ≥ 35 to consistently identify high-risk patients for OSA and refer for definitive diagnosis sleep study and treatment to prevent negative cardiovascular outcomes

#### Methodology

- Quasi-experimental, Quality Improvement Project
- Compared 12 weeks pre and post implementation # of sleep study referrals for OSA

Subjects convenience sample:

- · Male or female
- Ages 18-75
- Co-morbidities obesity and hypertension
- · Non-pregnant
- · Own healthcare decisionmaker
- English-speaking
- · Not already diagnosed OSA

## What Do You Do if OSA Is Suspected: STOP-BANG

► STOP Questionnaire ► BANG

- Snoring
- BMI>35
- Tiredness
- Age >50
- Observed you stop breathing
- Neck circumference >40 cm (>15.7")
- Blood Pressure
- Gender male

High risk: Yes to >3 items → Refer for sleep testing

Low risk OSA: 0-2 Intermediate risk OSA:: 3-4 High risk OSA:: 5-8

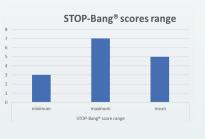


#### Results

n-=11

Cronbach's alpha for tool was .098

STOP-Bang® Scores 3 to 7; all pts. were intermediate to high risk for OSA.







Increased overall referrals by 75%, increased women referrals by 50%

## Conclusion

## **Clinical Significance:**

- STOP-Bang® tool effective in identifying intermediate and high-risk patients for OSA sleep study in primary care setting
- Patients may be experiencing OSA symptoms before age 50
- Use of a consistent assessment tool increases identification of OSA risk

## Limitations of the study:

- Small sample size made parametric testing impossible
- Conclusions must be interpreted with caution due to small sample size
- Provider compliance was a barrier
- Higher number of females were in the sample

## References

<sup>2</sup>Tan, A., Yin, J. D. C., Tan, L. W. L., van Dam, R. M., Cheung, Y. Y., & Lee, C.-H. (2016). Original Article: Predict Internationalobstructive sleep apnea using the STOP-Bang questionnaire in the general population. Sleep Medicine, 27–28, 66–71.

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<sup>4</sup>Winnss, A., Woehrle, H., Ketheeswaran, S., Ramanan, D. & Armitstead, J. (2016). Obstructive Sleep Apnea in Women: Specific Issues and Interventions. *BioMed Research*, Vol 2016 (2016). https://doi.org/ 10.1155/2016/1764837