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OSA STOP-BANG Screening Tool

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Screening for Obstructive Sleep Apnea: Utilizing the STOP-BANG Questionnaire

SETH WOLF

SEPTEMBER 2019

SOUTH BURLINGTON UVMMC PRIMARY CARE

WHITNEY CALKINS, MD.

Problem Identification

Growing obesity rates

- Risk factor for OSA

Growing rates of OSA

- Estimated that 26 percent of adults between the ages of 30 and 70 years have sleep apnea.
- Increases the risk of high blood pressure, heart disease, type 2 diabetes, stroke and depression.

OSA is widely underdiagnosed

- One study found that in populations without barriers to care >80% of OSA was undiagnosed.

Screening tools being utilized and requested for insurance pre-authorization - Epworth Sleepiness Scale

- High rates of false negatives (244 to 635 per 1,000 patients) (24-63%)
- Disease not being identified and therefore not treated

Public Health Cost

Health complications, work-place errors and traffic accidents

It is estimated that increased healthcare spending to treat undiagnosed OSAS patients is between \$1950 and \$3,899, per patient, per year. Taking an estimated prevalence of 29.5 million people extrapolated from the Wisconsin Sleep Cohort data, if 60% remain undiagnosed, an estimate of the added burden on the healthcare system is between \$34 billion and \$69 billion annually.

Among commercial vehicle drivers one study found a significant reduction in the accident rate from 93% pre-CPAP treatment to 25% post-CPAP treatment.

Community Perspective

“It has been frustrating to see patients being denied needed polysomnograms because of the lack of a positive Epworth Sleepiness Scale. Once the insurance company denies a sleep study, it is an uphill battle. Having the addition of the STOP-BANG questionnaire could make a difference, especially if going through the appeal process with the insurance company.”

–Whitney Calkins, MD.

“As a provider I often disregard the Epworth Sleepiness Scale results and base my decision to order a polysomnogram on their clinical presentation.”

-Aaron Reiter, MD.

Intervention

STOP-BANG Questionnaire

False negative rate of 61 per 1,000 patients, 6.1%.

Compared with the Berlin questionnaire, STOP questionnaire, and [Epworth sleepiness scale](#), the STOP-BANG questionnaire is a more accurate tool with both a higher sensitivity and diagnostic odds ratio for detecting [obstructive sleep apnea](#) (OSA), statistically significant difference.

- Mild OSA (AHI 5-15):
 - Sensitivity – 88%
 - Diagnostic odds ratio – 5.13
- Moderate OSA (AHI 15-30):
 - Sensitivity – 90%
 - Diagnostic odds ratio – 5.05
- Severe OSA (AHI >30):
 - Sensitivity – 93%
 - Diagnostic odds ratio – 6.51

STOP-Bang Questionnaire

Please answer the following questions by checking "yes" or "no" for each one

	Yes	No
S noring (Do you snore loudly?)	<input type="checkbox"/>	<input type="checkbox"/>
T iredness (Do you often feel tired, fatigued, or sleepy during the daytime?)	<input type="checkbox"/>	<input type="checkbox"/>
O bserved Apnea (Has anyone observed that you stop breathing, or choke or gasp during your sleep?)	<input type="checkbox"/>	<input type="checkbox"/>
H igh Blood P ressure (Do you have or are you being treated for high blood pressure?)	<input type="checkbox"/>	<input type="checkbox"/>
B MI (Is your body mass index more than 35 kg per m ² ?)	<input type="checkbox"/>	<input type="checkbox"/>
A ge (Are you older than 50 years?)	<input type="checkbox"/>	<input type="checkbox"/>
N eck Circumference (Is your neck circumference greater than 40 cm [15.75 inches]?)	<input type="checkbox"/>	<input type="checkbox"/>
G ender (Are you male?)	<input type="checkbox"/>	<input type="checkbox"/>

Score 1 point for each positive response.

Scoring interpretation: 0 to 2 = low risk, 3 or 4 = intermediate risk, ≥ 5 = high risk.

Results

Educational session held for South Burlington Family Medicine providers on the STOP-BANG screening tool and OSA as a disease. Resulting in increased knowledge of:

- OSA as an underdiagnosed condition.

- OSA screening tools, including STOP-BANG.

Distribution of STOP-BANG EPIC SmartText to providers, providing an in-office screening tool for OSA. Resulting in:

- Easy access for provider.

- Faster screening capacity.

- Documentation in patient chart.

Effectiveness and Limitations

Effectiveness

Acceptance of polysomnography by insurance after STOP-BANG implementation.

Percentage of patient population diagnosed and/or treated for OSA.

Physician perception and comfort level of screening for OSA.

Limitations

Physicians must be aware of STOP-BANG and EPIC SmartText.

Need for sharing smart text with individual providers.

Low specificity of screening tool.

Future Directions

Clinical initiatives

Continue sharing EPIC SmartText.

Include STOP-BANG as part of the routine polysomnogram order.

Research initiatives

Further evaluating barriers to screening that physicians face.

Current screening tools still most effective for obese males, develop patient specific screenings by gender.

Evaluation of barriers patients face with using CPAP.

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