SPECIAL ARTICLES

Quality Measure for Screening for Adult Obstructive Sleep Apnea by Primary Care Physicians

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Obstructive sleep apnea (OSA) is a highly prevalent condition which remains under-diagnosed and under-treated. Untreated OSA is associated with several chronic medical conditions, a reduction in quality of life and increases in health care costs. Therefore, early identification of undiagnosed cases is important. Implementation of a screening measure in a primary care environment for populations at high-risk for OSA could improve patient outcomes and reduce the health care burden of untreated OSA.

Keywords: quality measure, screening, sleep apnea, primary care

INTRODUCTION

Obstructive sleep apnea (OSA) remains considerably under-diagnosed, with an estimated 75% to 80% of cases remaining unidentified.[1] Untreated OSA is associated with reduced quality of life, increased incidence of cardiovascular disease[2], insulin resistance and diabetes,[3,4] stroke,[5,6] and an increased risk of death.[7] In addition, the costs of untreated OSA are estimated to be a staggering $34 to $69 billion dollars per year.[8] The Centers for Disease Control and Prevention (CDC) partnered with two professional societies for sleep, the American Academy of Sleep Medicine and the Sleep Research Society, to create the National Healthy Sleep Awareness Project (NHSAP).[9] A key goal of this project was to develop a quality metric that would determine if appropriate risk assessment for OSA is being performed. Such a metric could be useful to healthcare organizations as they strive to improve the overall health of those they serve.

In the current paradigm of care, the primary care provider is in the best position to identify patients with symptoms of OSA, such as snoring, excessive daytime somnolence, and pauses in breathing. Identification by the primary care provider of patients who are high risk for OSA, followed by appropriate referral to a sleep specialist, could significantly reduce the frequency of undiagnosed OSA, improve the quality of life and health outcomes for these patients, and reduce both the individual and public health burden of untreated OSA. The following quality measure was developed to fill this gap.

METHODS

Literature Search

A comprehensive search was conducted in the PubMed database to identify any publications that addressed sleep apnea, screening, and common comorbidities using the following criteria:

a) apnea OR apnoea AND
b) (screening OR questionnaire OR risk OR predict*) AND
c) (obesity AND (risk OR prevalence)) OR congestive heart failure OR atrial fibrillation OR (treatment refractory hypertension OR hypertension) OR type 2 diabetes OR coronary artery disease OR stroke OR pulmonary hypertension OR (high-risk occupation OR high-risk occupation OR occupation OR public safety OR driving OR drive*) OR (bariatric surgery OR preoperative for bariatric surgery)

All searches were limited to guidelines, meta-analyses, and systematic reviews, articles pertaining to humans, and published in the English language. A total of 364 articles were retrieved for review using this search.

The titles and abstracts of all articles were reviewed by both a Workgroup member and AASM staff. Any disagreements were resolved by the second Workgroup member. Full articles of publications thought to be relevant were obtained and reviewed in full to identify and provide support for the drafted quality measures.

Development of the Measure

The Workgroup drafted the technical specifications of the measure, which include definitions of the numerator and denominator of the proposed measure, and any exclusions to the numerator or denominator. The Workgroup also provided a rationale for the measure, along with estimates of the strength of evidence supporting their choices, and gaps in the present state of care that might be assessed by measurement. Where possible, the Workgroup used descriptors characterized by Current

Procedural Terminology (CPT) codes to identify patients in the numerator and denominator.

Stakeholder Review

The AASM requested review and feedback from a variety of stakeholders who might either use or be impacted by the measure. This included sleep specialists, primary care providers, and other medical specialists. The Workgroup used stakeholder feedback to further revise the measure, where appropriate.

QUALITY MEASURE

The following are descriptions of the quality measure and any exceptions, the supporting rationale for developing the measure, and a brief discussion of issues that were addressed during development of the measure. The full technical description of the measure can be found in the supplemental material.

Description

This quality measure is used to report all patients aged 18 years and older at high risk for obstructive sleep apnea (OSA) with documentation of screening for OSA using an appropriate standardized tool at least every 12 months AND in whom a recommended follow-up plan is documented based upon the result of the screening. Patients at high risk for OSA are defined as follows: obesity (BMI $\geq$ 30 kg/m^2), congestive heart failure, atrial fibrillation, treatment resistant hypertension (blood pressure above goal despite adherence to antihypertensive regimen of 3 medications, or hypertension controlled by at least 4 medications), impaired glucose tolerance or type 2 diabetes, nocturnal dysrhythmias, stroke, pulmonary hypertension, preoperative for bariatric surgery, coronary artery disease.

Exceptions and Exception Justifications

The following are exceptions and justifications for excluding a patient from inclusion in reporting on this quality measure.
- **Medical Reasons:** Patient has tracheostomy; patient already has diagnosis of OSA
- **Patient Reasons:** Patient refuses OSA screening; patient does not come for periodic office visit within 12 months
- **System Reasons:** None

Supporting Evidence and Rationale

There is a high prevalence of OSA in a number of conditions such as hypertension, heart failure, coronary artery disease, stroke, and atrial fibrillation. [2,5,6] The prevalence of OSA is also high in patients with diabetes,[3,4] another known risk factor for cardiovascular disease. Given that cardiac disease remains the leading cause of morbidity and mortality in the United States, early identification of potential risk factors has value. Since treatment of OSA has been shown to improve cardiovascular outcomes, screening for OSA in known high-risk populations has merit.

There are several screening tools for OSA that are currently available. Specifically, there are a number of OSA-specific questionnaires that are relatively simple to administer, cost-effective, and have been validated. However, the use of a validated screening tool is only recommended for initial case identification. Sleepiness scales are typically not recommended to identify OSA as they are designed to screen for sleepiness from any cause and not specifically OSA-related sleepiness.

Relationship to Desired Outcome

To improve OSA detection, it is critical that all patients in high-risk groups be screened using a validated instrument for OSA. Clinical awareness will be increased by using such instruments in these high-risk groups. Positive screening is likely to result in confirmatory testing, increased disease identification, and treatment.

Opportunities for Improvement

It is well-recognized that OSA is an underdiagnosed disorder and this lack of disease recognition poses significant economical and public health burdens. Targeted screening in populations at high risk for OSA will have a substantial impact in reducing the burden of undiagnosed disease.

Issues Addressed during Development

There were 2 major concerns that were discussed by the Workgroup. First was whether screening should be universal or focused on a high-risk population. Factors which were considered in the final decision were the cost-benefit of universal vs. focused screening, the feasibility of performing the screening and the burden on the clinical practice. After considering the potential positive and negative impacts on clinical care, it was felt that screening should be limited to high-risk populations. Screening in these populations will identify undiagnosed patients with OSA, resulting in treatment and a positive impact on their underlying disease. The potential benefit clearly offsets the small extra burden on clinical practice and additional expense of confirmatory testing and treatment. Second, there was discussion of whether the definition of the high-risk population should include persons working in occupations such as commercial motor vehicle operators where sleepiness would be dangerous to themselves or others. A decision was made to exclude this group because the decision to screen in this population is one of public policy decision rather than medical practice.

IMPLEMENTATION STRATEGIES

Given the clinical and public health implications of untreated OSA, screening for OSA in high-risk populations has considerable merit. However, implementation and integration of OSA screening programs into clinical practice in a seamless and efficient manner is a challenge. Consideration should be given to screening high-risk individuals prior to the clinic visit to help streamline the process. Additionally, adoption of screening tools into the electronic health record (EHR) as well as training of medical support staff such as medical assistants, nurses, and clinic administrators to help administer screening questionnaires may also help facilitate practice transformation. Finally, a key component of successful execution of OSA screening is education of clinical healthcare staff and providers about the value and potential positive impact of OSA screening.

FUTURE DIRECTIONS

Early case identification of OSA is of significant value given the established associations between untreated OSA and a number of adverse health outcomes as previously described. Given that primary care providers frequently are the first point of direct medical care for most individuals, there is value in screening for OSA in the primary care setting. It is important to recognize that current screening protocols and high-risk subpopulations may evolve as new tools and research emerge. It is anticipated that over time, screening for OSA will become more effortless and assimilate into clinical practice in a similar manner as screening for other chronic diseases. Additionally, the hope is that early identification of OSA will result in mitigation of adverse cardiometabolic outcomes. However, long-term tracking and analyses are necessary to validate that expected outcomes are in fact being achieved.

Ultimately, this measure should be tested for validity and implementability. Long-term tracking and analyses are necessary to validate that expected outcomes are in fact being achieved.

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SUBMISSION & CORRESPONDENCE INFORMATION

DISCLOSURE STATEMENT

This was not an industry supported study. The authors have indicated no financial conflicts of interest.