

# A BEST PRACTICE CONTINUING MEDICAL EDUCATION CURRICULUM TO IMPROVE SCREENING AND MANAGEMENT PRACTICES RELATING TO OBSTRUCTIVE SLEEP APNEA IN THE PRIMARY CARE SETTING

Barbara A. Phillips, MD, MSPH;<sup>1</sup> Maha Alattar, MD;<sup>2</sup> Roy C. Blank, MD;<sup>3</sup> Nike D. Gazonas, MS;<sup>4</sup> Wendy Gloffke, PhD;<sup>4</sup> and Marissa Seligman, PharmD<sup>5</sup>

<sup>1</sup>University of Kentucky College of Medicine and Sleep Center, Good Samaritan Hospital, Lexington, KY; <sup>2</sup>Mary Washington Hospital, Fredericksburg, VA; <sup>3</sup>Wingate University and Southern Piedmont Primary Care, Monroe, NC; <sup>4</sup>Athena Education Group, LLC, Lambertville, NJ; and <sup>5</sup>pmiCME, Boston, MA

## ABSTRACT

**Purpose:** Obstructive sleep apnea (OSA) is a common medical condition associated with increased risk of high blood pressure, stroke, heart attack, and heart failure. Studies of practice behaviors show that the majority of primary care providers (PCPs) do not adequately or effectively screen for, or address, sleep-related disorders in their patients. The objectives of this continuing medical education (CME) curriculum were: (a) to show PCPs how to utilize diagnostic tools in patients at risk for OSA; (b) to review current evidence-based treatment strategies for OSA; and (c) to describe the role of the PCP in supporting treatment and adherence among their patients with OSA.

**Methods:** Our goal was to build an innovative, outcomes-oriented CME curriculum for a primary care audience based upon: (a) A robust needs assessment; (b) Sound adult learning concepts; (c) Best practices in patient care; and (d) The unique needs associated with the use of continuous positive airway pressure (CPAP) therapy. We utilized integrated learning activities incorporating elements that support clinician learning styles and provide opportunities for patient assessment and discussion with experts. The program featured a blend of didactic presentations with audience participation, immediate feedback from peers, and video-based patient screening sessions. Assessment included immediate measurement of specific changes relative to baseline prior to the activity and subsequent follow-up to discern the implementation of program tactics in clinical practice.

**Results:** PCPs reported increased adherence to clinical standards and improved assessment of at-risk patients (hypertension; BMI >27) for snoring, irregular breathing during sleep, chronic morning fatigue and daytime sleepiness.

**Conclusions:** Incorporating primary care patient case studies into clinical education curricula is a very powerful teaching tool, but it is not adequately used in CME. CME faculty and educational providers should explore how to use this model in different therapeutic settings; the best use in varied clinical scenarios may be different.

**Clinical Implications:** PCPs can improve patient outcomes when they understand their role in the initial screening and diagnosis and also their role in supporting treatment and compliance among their patients with OSA.

## BACKGROUND

Obstructive sleep apnea (OSA) is the most severe form of sleep disordered breathing. OSA is associated with, and may increase the risk of, diseases such as high blood pressure, stroke, heart attack, heart failure, and diabetes. The Sleep Heart Health Study (SHHS) found that people with OSA, especially middle-aged people, are at an increased risk of developing hypertension. Compared to people who do not have OSA, those with OSA are twice as likely to have a stroke or heart attack within 10 years; it is estimated that there are 38,000 OSA-associated cardiovascular deaths each year.<sup>1</sup>

Drowsiness associated with OSA significantly increases the probability of automobile accidents. According to the National Commission on Sleep Disorders Research, OSA-related drowsiness may be involved in 36% of all fatal traffic accidents.<sup>2</sup>

The Centers for Disease Control (CDC) and National Institutes of Health (NIH) have established sleep disorder programs. The Sleep and Sleeping Disorders Center (CDC) and the National Center on Sleep Disorders Research (NCSDR, NIH) aim to raise awareness about, and to promote evidence-based practices and treatment of sleep disorders.<sup>3,4</sup> The CDC states that, "As interruption of regular breathing or obstruction of the airway of the individual during sleep can pose serious complications for the health of the individual, symptoms of OSA should be taken seriously."<sup>3</sup>

## OBJECTIVES

We identified specific knowledge and clinical practice objectives based upon the challenges associated with screening for OSA and managing patients with OSA, especially those who are being treated with continuous positive airway pressure (CPAP). The overall goals of these educational activities were to increase PCPs' understanding of the relationship between OSA and comorbidities, to improve their ability to identify and screen patients at risk for OSA, and to facilitate implementation of tactics to co-manage and support patients with OSA.

By participating in these CME activities, we expected PCPs would be able to:

- Describe how evidence-based screening and diagnostic guidelines can improve the care of patients with OSA who are at-risk for diabetes and cardiovascular disease
- Identify and implement practice-based procedures to screen, diagnose and refer patients with, or suspected of having OSA to sleep specialists
- Co-manage patients with OSA and encourage continued monitoring and adherence to CPAP therapy

## METHODS

### Primary Care Obstructive Sleep Apnea Education Plan

We utilized integrated learning activities incorporating elements that support clinician learning styles and provided opportunities for patient assessment and discussion with experts. The live activities featured a blend of didactic presentations, audience participation and immediate feedback from peers; 75-minute case-based sessions were combined with a 30-minute question and answer period that utilized an interactive audience response system (ARS). Assessment included immediate measurement of specific changes relative to baseline prior to the activity, and subsequent follow-up to assess application of program concepts and tactics in clinical practice.

The incorporation of real patient scenarios into the educational design was based upon sound adult learning and medical education principles.<sup>5,6</sup>

- The use of real patient scenarios in the live activity setting is critical for effective education.
- Real patient scenarios create learner motivation by promoting and supporting relevance and for providing clinical context.

The incorporation of real patient scenarios in the educational setting is a very powerful teaching tool that supports the new ACCME criteria that emphasize custom learning in CME (Table 1). However, this tactic is not commonly used in CME.

**Table 1. New ACCME Criteria Emphasizing Custom Learning**

	OLD CME	NEW CME
<b>TOPICS</b>	Based on general interests, surveys	Targets closing defined healthcare gaps
<b>FOCUS</b>	Knowledge	Performance
<b>METHODS</b>	Passive	Interactive
<b>CREDIT</b>	Hours in seats	Performance Improvement demonstrated by chart audits or surrogate
<b>METRICS</b>	Participation and satisfaction	Measurement of changes in knowledge, skills, practice patterns, and patient outcomes

This CME curriculum included the following components:

- Expert sleep apnea faculty coupled with primary care faculty who were knowledgeable about the diagnosis and treatment of OSA
- Didactic presentations which covered risk factors for OSA, OSA-associated comorbidities and clinical consequences, which patients to screen, screening options in primary care, diagnostic tests for OSA, treatment options, and supporting adherence to CPAP therapy
- Pre-test and post-test outcomes studies
- Audience response system (ARS) used strategically throughout each activity to capture the opinions/choices of the participants and facilitate interaction between the faculty and learners
- A real patient scenario that was videotaped and played on a large screen in short time increments of 20–60 seconds.



Educational objectives included knowledge, competence, and performance indices.

## RESULTS

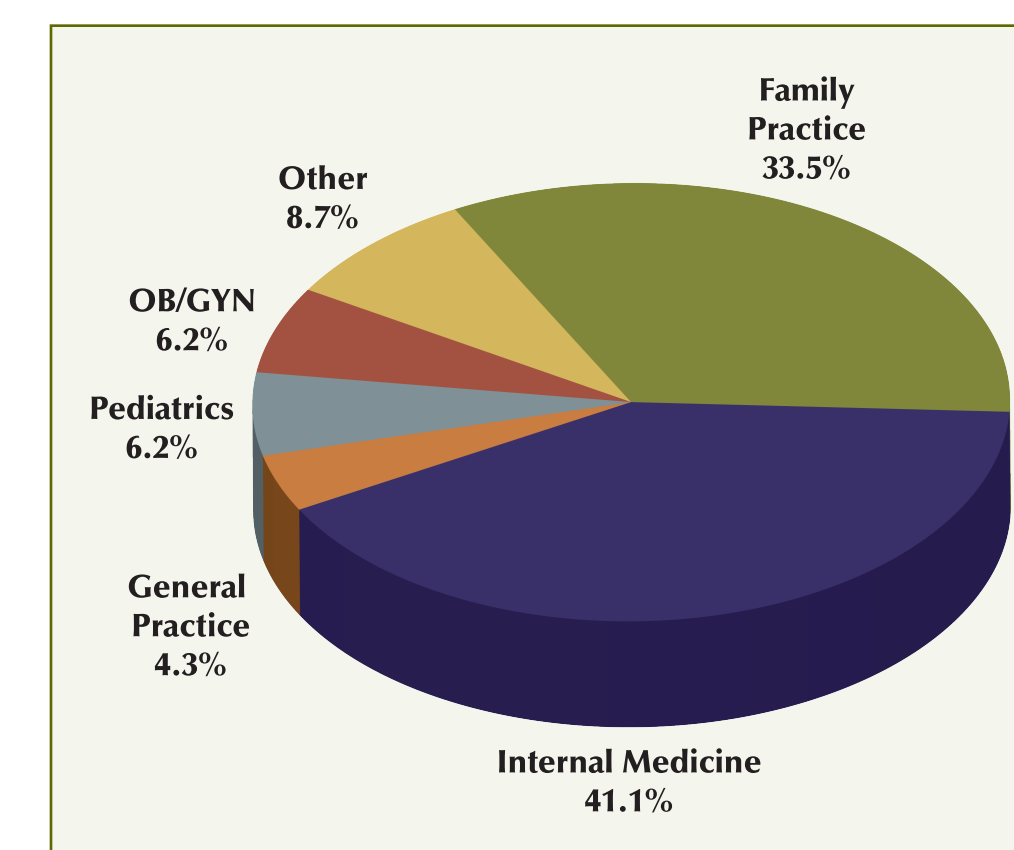
To date, outcomes results are available from five (5) live activities conducted in:

- Cleveland, Ohio
- Charlotte, North Carolina
- Portland, Oregon
- Baltimore, Maryland
- Las Vegas, Nevada

### Participants and Professional Demographics

- 2,371 participants
  - The majority were MDs or DOs
    - » 67% MD/DO
    - » 31% NP/PA
    - » 2% PhD/Other
- 75% of participants practice in either internal medicine or family practice settings (Figure 1)
- Learners are highly active in patient care
  - Average # patients seen per week: 75
    - » 30% of respondents see more than 100 patients weekly
- Average # patients with OSA seen per week: 13

**Figure 1. Professional Practice Settings of Learners for All Activities**



### Activity Evaluations and Feedback

- The use of real patient case scenarios and video patient cases stimulated critical thinking by the participants and made the content more valuable and clinically relevant as shown by selected representative actual responses to post-activity questions (Table 2).

**Table 2. Selected Post-Activity Questions and Representative Actual Responses\***

Post-Activity Question Focus	Representative Actual Responses
<b>Diagnosis and Screening</b>	<ul style="list-style-type: none"><li>• Am now more aware of how many patients are at risk for sleep apnea (not just overweight, etc.) and am routinely assessing any patient with reported sleep or drowsiness concerns.</li><li>• Have discussed the importance of screening for OSA and also treatment compliance; also discussed the benefits of heated humidification to help with the comfort of using CPAP.</li><li>• Am more aware and considering sleep apnea in patients with hypertension and metabolic syndrome.</li><li>• Screening more frequently — I had a pretty good grasp of the risk factors before the session, but the review has prompted me to assess more frequently.</li><li>• Screen appropriate patients for sleep apnea and set up CPAP.</li><li>• Screening more people; and am ensuring compliance with CPAP.</li><li>• Am screening more patients by using questionnaires; being more vigilant about uncontrolled hypertension, daytime sleepiness, obesity, etc.</li><li>• Alerted me to how common sleep apnea was and the need for screening my obese patients for this condition.</li><li>• Asking more sleep apnea related questions.</li><li>• Measuring neck circumference more often in patients.</li></ul>
<b>Treatment and Management</b>	<ul style="list-style-type: none"><li>• Have encouraged patients to follow up with a sleep specialist when having trouble with claustrophobia or difficulties with masks, in an effort to find something that will help improve symptoms and compliance.</li><li>• Have adjusted CPAP without sending patient back to the pulmonologist and have sent patients for sleep studies.</li><li>• Have been more aggressive in my referrals to sleep medicine.</li><li>• Pri-Med [session] triggered referral for diagnostic tests sooner.</li></ul>
<b>General Patient Care</b>	<ul style="list-style-type: none"><li>• Update provided evidence-based solutions that I can tap when evaluating, testing, counseling, and planning care for patients.</li><li>• More aware of testing.</li><li>• Always consider this disorder now.</li><li>• Gained confidence in screening for sleep apnea.</li></ul>

\* When participants were asked post-activity if they had used the clinical information they learned to change/update their patient care approach.

### Outcomes

- Outcomes were measured 2–3 months after participation in an activity.
- The majority of respondents reported high-level practice changes as a result of participating in the activities.
  - *Improvements in Competence*
    - » Improved clinician competence in screening patients with comorbid conditions for OSA, according to practice recommendations.
    - » Clinicians' improved competence to understand the correlation between OSA and risk for CV events will result in better patient outcomes through early identification and treatment.
  - *Improvements in Performance*
    - » In patients with hypertension and body mass index (BMI) >27, PCPs showed improvements in their performance through their reported assessment of patients for snoring, irregular breathing during sleep, chronic morning fatigue and daytime sleepiness.
    - » Clinicians' incorporation of CPAP to treat OSA has a positive correlation to improvements in clinical outcomes (i.e., stroke, cardiovascular, hypertension, and glucose measures).

## CONCLUSIONS

- Through the use of a variety of interactive adult learning techniques, we achieved a far greater level of competency than would have been achieved via lecture-only didactic presentations.
- The use of a real patient primary care scenario in video format stimulated critical thinking and increased the value and clinical relevance of the content.
- The incorporation of real patient scenarios into the educational setting is a very powerful teaching tool and should be employed more frequently in CME.

## FUTURE DIRECTIONS

- Through our work on this CME curriculum and a thorough review of public health statistics on the problem of OSA, we have determined that additional education is warranted for primary care professionals, particularly as it relates to screening for OSA, referral to an OSA specialist, and follow-up care for patients on therapy.

## ACKNOWLEDGEMENTS

Athena and pmiCME gratefully acknowledge the many valuable contributions of the following faculty (in alphabetical order):

- Sleep apnea specialist faculty:
  - Maha Alattar, MD, Mary Washington Hospital, Fredericksburg, VA; and
  - Barbara A. Phillips, MD, MSPH, University of Kentucky College of Medicine and Sleep Center, Good Samaritan Hospital, Lexington, KY.
- Primary care faculty:
  - Roy C. Blank, MD, Southern Piedmont Primary Care, Monroe, NC;
  - Robert J. Cantor, MD, Umpqua Valley Urgent Care, Roseburg, OR;
  - Louis Kuritzky, MD, University of Florida, Gainesville, FL;
  - Jonathan S. Lown, MD, Smithtown Cardiovascular Risk Intervention Program, Huntington, NY; and
  - Nancy Nadolski, FNP, MSN, M.Ed, RN, Northwest Pulmonary and Sleep, Boise, ID.

## REFERENCES

1. The Sleep Heart Health Study. Available at <http://www.jhuccct.com/shhs/>.
2. National Heart Lung and Blood Institute/National Institutes of Health. Drowsy Driving and Automobile Crashes. Available at [http://www.nhlbi.nih.gov/health/press/sleep/drvy\\_drv.htm](http://www.nhlbi.nih.gov/health/press/sleep/drvy_drv.htm).
3. National Center on Sleep Disorders Research. Available at <http://www.nhlbi.nih.gov/about/nscdr/about/about.htm>.
4. Centers for Disease Control and Prevention, Sleep and Sleep Disorders. Available at <http://www.cdc.gov/sleep/about.htm>.
5. Spencer J, Blackmore D, Heard S, et al. Patient-oriented learning: a review of the role of the patient in the education of medical students. *Med Educ.* 2000 Oct;34(10):851-7.
6. Bokken L, Rethans J, Scherpbier AJ, et al. Strengths and weaknesses of simulated and real patients in the teaching of skills to medical students: a review. *Simul Healthc.* 2008 Fall;3(3):161-9.

Athena and pmiCME gratefully acknowledge educational grants from Philips Respironics and ResMed in support of this primary care CME curriculum.