Sleep Medicine Board Certification Status of Physicians and American Academy of Sleep Medicine Sleep Center Accreditation Improves Healthcare Outcomes in Obstructive Sleep Apnea Patients Treated with Positive Pressure Therapy. It's Not Complicated!

Commentary on Parthasarathy et al. A multicenter prospective comparative effectiveness study of the effect of physician certification and center accreditation on patient-centered outcomes in obstructive sleep apnea. *J Clin Sleep Med* 2014;10:243-249.

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COMMENTARY

It's not complicated. The notion that specialized physician training culminating with specialty board certification and accreditation of healthcare organizations leads to superior outcomes should not surprise as the processes used to obtain such designations are aimed at achieving recognized quality standards. In 2002, Lisa Sharp et al. examined the relationship between certification and clinical outcomes by reviewing relevant studies published between 1966 and 1999 and showed that the majority of the 33 relevant studies identified supported an association between certification and positive clinical outcomes.¹ A subsequent work by Holmboe and coworkers contends that credentialing correlates with better outcomes in both surgical and medical subspecialties.² That patients perceive credentialing as valuable is evidenced by the 2008 American Board of Medical Specialties consumer survey which showed that 91% of respondents considered board certification "important" or "very important" and that 25% listed board certification as the "most important" physician quality.³ Parthasarathy extended the positive relationship between improved outcomes and credentialing to sleep medicine when he showed that patients with obstructive sleep apnea (OSA) attended to by an American Academy of Sleep Medicine (AASM) accredited sleep center or a physician board-certified in sleep medicine had lower rates of treatment discontinuation and reported greater satisfaction than those attended to at non-accredited sleep centers and by physicians not board certified in sleep medicine.⁴ Employers and insurers are increasingly mandating board certification of physicians and accreditation of healthcare facilities as a prerequisite for credentialing in response to the medical evidence and consumer pressure that links credentialing to superior outcomes. Indeed, one can argue that board certification of physicians and accreditation of healthcare facilities is practically a necessity of business in American healthcare. However, the push to value-driven, affordable healthcare inherent in the Affordable Care Act poses

challenges to the core worth of medical specialty certification and healthcare facility accreditation. Providers of healthcare service must now evaluate outcomes in the context of cost, i.e., value. Further, some have argued that the literature of examining credentialing and outcomes is inherently flawed, in part because confounding factors, such as time since credentialing, setting, and support staff, unrelated to credentialing that affect clinical outcome cannot all be controlled.⁴ In sleep medicine, one recent study conducted in South Australia concludes that in obstructive sleep apnea (OSA), treatment within a primary care model compared with a specialist model did not result in worse sleepiness as assessed by the Epworth Sleepiness Scale (ESS).⁶ The investigators conducted a comparison of within-trial sleep diagnostic and treatment cost and report a total average cost per randomized patient of \$1819.44 in the primary care group and \$3067.86 in the sleep specialist group. Although the investigation has significant limitations^{7,8} that make the conclusions difficult to extrapolate to the general population and to healthcare systems outside of Australia, the data nonetheless question the value of specialty care in the diagnosis and management of OSA. It appears that what was once not so complicated is, in fact, now complicated and controversial.⁷⁻⁹

In this issue of the *Journal of Clinical Sleep Medicine*, Parthasarathy and colleagues¹⁰ deploy a multicenter prospective comparative effectiveness approach to assess the effect of sleep medicine board certification of physicians and AASM accreditation of sleep centers on selected patient centered clinical outcomes in a cohort of 502 subjects with OSA diagnosed by polysomnography conducted in the United States. The primary end point for analysis was objectively derived adherence to positive airway pressure (PAP) therapy. Adherence was defined using the standardized Medicare criteria of mean use of four hours or more per day and use of four hours or more on 70% of the days during a consecutive 30-day sample at any time during the first three months after treatment initiation.

Secondary endpoints included patient perception of education on OSA, patient perception of health risk associated with OSA, time delay in receiving PAP treatment, and overall satisfaction with healthcare delivery by physician and center. The study sites included two AASM accredited and two non-accredited sleep centers. In order to account for the effect of academic versus private affiliation, both AASM accredited and non-accredited sites were comprised of one academic hospital-based facility and one non-academic freestanding facility. The outcome data analysis included separation of patients into groups where both physician and center were credentialed, either one was credentialed, and neither was credentialed. The investigators showed that the proportion of patients who were adherent to PAP by Medicare guidelines was greater in accredited than non-accredited sites (79% versus 64%, respectively, $p = 0.004$), and that those receiving care from AASM accredited centers and board certified sleep medicine physicians were more likely to be PAP adherent than those receiving care from non-accredited centers and physicians not board certified in sleep medicine. Further, patient satisfaction was associated with physician education received, greater risk perception, and sleep medicine board certification status of the physician. Delays in care were inversely related to AASM accreditation, physician sleep medicine board certification status, and patient satisfaction. The investigators conclude that under real-world conditions, AASM center accreditation and sleep medicine board certification of physician are important determinants of quality metrics in OSA. Since these findings are expected to play a pivotal role in policy decisions pertaining to healthcare delivery for those with OSA, it is appropriate to highlight the relevant distinctions between this work and that published earlier by Chai-Coetzer and colleagues.⁶

First, as noted by the authors, the present study is a real world comparative effectiveness trial, while that published by Chai-Coetzer is an efficacy study and outcomes from efficacy trials may not translate to equivalent outcomes in effectiveness trials. Secondly, there is an important clinical distinction between the primary outcome metrics used in this trial (objectively derived PAP adherence) and that reported by Chai-Coetzer (ESS score). Studies demonstrating improvement in survival with PAP treatment of severe OSA show that a minimum PAP adherence, typically 4 hours per day, is necessary to achieve the outcome benefit.¹¹⁻¹³ In the Australian study of Chai-Coetzer, adherence to PAP use among those using PAP at 6 months was 4.8 hours/day for 51 patients in the primary care group and 5.4 hours/day for 44 patients in the sleep specialist group ($p = 0.11$). Power calculations in Parthasarathy's study indicate a required sample size of 458 subjects to detect a difference in PAP adherence. Therefore, the study of Chai-Coetzer was likely underpowered to demonstrate a difference in the PAP adherence metric. Additionally, as noted by Weingarten and Basner,⁸ study withdrawal was 2-3 fold higher in primary care versus specialist groups, with nearly half of the withdrawals in the primary care group due to PAP intolerance. Demonstrating non-inferior reduction in subjective sleepiness as determined by ESS in OSA in a tightly controlled protocol managed by primary care physicians and allied health providers relative to sleep specialist should not be interpreted as providing equivalent PAP adherence and cardiovascular risk reduction. Third, since sequentially assessed ESS

as a metric of sleepiness has been shown to be variable¹⁵ and subjective sleepiness does not correlate with cardiovascular risk related to OSA,¹⁴ the use of ESS as primary outcome metric, as done in the Australian study, weakens the clinical impact of their findings. Fourth, the Parthasarathy study¹⁰ used polysomnography to establish the presence and severity of OSA, while Chai-Coetzer's study relied on a 4-item OSA screening questionnaire with oximetry as the objective metric for confirmation of OSA, a strategy that is more prone to classification errors and inclusion in the sample of those afflicted with central sleep apnea or other complex forms of sleep disorder breathing. Fifth, differences in population, healthcare delivery, and education of physicians between Australia and the United States may have played a relevant role in the outcomes.

Limitations of the work by Parthasarathy and companions¹⁰ are largely adequately addressed in the manuscript. The study design was intended to limit participation to those patients having OSA without secondary confounding disorders. A significant number of those with OSA are afflicted with a comorbid disorder of sleep that might impact PAP adherence or other important OSA treatment outcome. In excluding patients with mixed disorders of sleep, this work, similar to that by Chai-Coetzer,⁶ may not be generalized to all cases with OSA. However, given the broader sleep specific education and experience of sleep medicine board certified physicians and the resources mandated by AASM accredited centers, one might expect greater separation in PAP adherence in patients with mixed sleep disorders. Also, since the investigation was limited to sleep centers accredited by the AASM, one cannot generalize the data to sleep disorders centers accredited by others.

To summarize, in selecting PAP adherence as the primary outcome metric, appropriately powering the study and using a comparative effectiveness paradigm, Parthasarathy and colleagues got it right. That AASM accreditation of sleep centers and sleep medicine board certification improve healthcare outcomes in OSA should not be an astonishing finding. Quite the contrary as improved sleep healthcare outcomes is an intended consequence of sleep medicine board certification and AASM accreditation. The manuscript by Parthasarathy et al.¹⁰ in this issue of the *Journal of Clinical Sleep Medicine* is unique for the field of sleep medicine and it will play a pivotal role in the realm of health policy decisions.

CITATION

Chediak AD; Ibraheim G. Sleep medicine board certification status of physicians and American Academy of Sleep Medicine sleep center accreditation improves healthcare outcomes in obstructive sleep apnea patients treated with positive pressure therapy. It's not complicated! *J Clin Sleep Med* 2014;10(3):251-253.

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SUBMISSION & CORRESPONDENCE INFORMATION

Submitted for publication January, 2014

Accepted for publication January, 2014

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DISCLOSURE STATEMENT

The authors have indicated no financial conflicts of interest.