

COMMENTARY

Sleep Apnea Evaluation of Commercial Motor Vehicle Operators

Comment on Colvin and Collop. Commercial motor vehicle driver obstructive sleep apnea screening and treatment in the United States: an update and recommendation overview. *J Clin Sleep Med* 2016;12(1):113–125.

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As members of the Sleep and Transportation Safety Awareness Task Force of the American Academy of Sleep Medicine, we aim to engage federal and state agencies, as well as other transportation stakeholders, to develop educational tools regarding the dangers of drowsy driving and the protective benefits of sufficient sleep. We also aim to develop position statements on these topics for use in public awareness initiatives.

We thank Dr. Collop and Ms. Colvin for their thorough review and thoughtful recommendations on the subject of sleep apnea evaluation among commercial motor vehicle (CMV) operators.¹ We concur with their assessment that more comprehensive recommendations for CMV drivers are needed.

We agree with the authors that current Federal Motor Carrier Safety Administration (FMCSA) rules regarding sleep apnea are outdated and provide insufficient guidance for medical examiners and sleep specialists in the diagnosis, care, and ongoing evaluation of CMV operators. This lack of guidance necessitates that clinicians rely upon existing consensus documents.^{2–6} While consensus documents share many common elements, including ways to keep the operator in service during their sleep apnea evaluation, at times they differ significantly in their recommendations. We applaud the authors' efforts to compile and summarize these sources and their content in a single document to assist the decision-making of healthcare providers in their management of CMV operators' health and sleep conditions.

We also agree with Colvin and Collop¹ that challenges remain, including acknowledgement that the definition of obstructive sleep apnea (OSA) has evolved with the advent of home sleep apnea testing devices, which typically do not assess sleep time or sleep fragmentation resulting from abnormal breathing. Also, the threshold for minimum adherence to positive airway pressure (PAP) therapy is not supported by strong data in CMV operators *per se*. These and other developing aspects of the diagnosis and treatment of OSA should be addressed when approaching the CMV operator with OSA.

With this background we wish to highlight and comment on several points from the Collop and Colvin paper¹:

1. The threshold apnea-hypopnea index (AHI) value of ≥ 20 /hour for requiring PAP therapy (as opposed to other modes of treatment, including surgery or a dental appliance) was advised by groups convened by the FMCSA: the Medical Expert Panel (MEP),³ the Medical Review Board,⁴ and jointly by the MRB and Motor Carrier Safety Advisory Committee (MCSAC).^{5,6}
 - Lower thresholds of AHI should still be considered for treatment in appropriate clinical settings. In CMVs with milder OSA (AHI < 20/hour), in addition to PAP, alternative treatment modalities, such as oral appliances or upper airway surgery can be considered, particularly when adherence or successful treatment can be demonstrated.
 - Indeed, treating patients with milder OSA could be important if home sleep testing is used for diagnosis, since arousal-related hypopneas are not typically included in scoring, but were included in the literature that linked AHI with crashes.

Potential benefits of treating at lower AHI values include not only reduction of sleepiness, but also lowered blood pressure and improved quality of life. A more inclusive AHI threshold allows more CMV operators to gain important health benefits of treatment.
2. We agree that the using objective criteria is certainly a vast improvement over the self-reported question on the Commercial Driver Medical Examination Report form.⁷ While the authors advise using the Joint Task Force (JTF) criteria² for screening to determine who needs testing, these criteria have resulted in a very high positive predictive value of 79–100%. As a result, JTF criteria are conservative, capturing only the “tip of the iceberg,” as opposed to “casting a wide net,” as the authors indicate. This means that drivers with OSA (including some who are still at risk for a fall-asleep crash) will continue to be missed. The MRB⁴ endorsed the use of a more stringent BMI threshold (≥ 30 kg/m², rather than ≥ 35 kg/m²), and the MEP

advised BMI ≥ 33 kg/m².^{3,4} The MEP chose this cut-point because a BMI threshold of 32.5 kg/m² was supported by a study of screening for sleep apnea in CMV operators.⁸ and this threshold had 77% sensitivity and 71% specificity for OSA. While a still lower BMI threshold of 30 kg/m² allows more cases to be identified and treated, it would likely also be less specific for severe OSA and for drivers at risk for crashes. Thus, a threshold of 33 kg/m² would allow more CMV operators with apnea to have the opportunity to experience not only reduced crash risk, but other major health benefits as well, including improvement in hypertension.

3. We urge clinicians to consider including type 2 diabetes along with the JTF criteria in screening evaluation, as data from the Sleep AHEAD study⁹ indicated that 80% of obese patients with type 2 diabetes had obstructive sleep apnea.
4. Given that pre-employment evaluations can delay income until the driver is “cleared,” progress is needed with respect to the timeliness of insurance coverage for testing and treatment. Health insurance companies must modify their algorithms in providing coverage for testing and treatment to minimize avoidable delays, which pose not just barriers for at-risk individuals to participate in the screening and treatment process, but as disincentives to OSA testing and treatment.
5. As previously mentioned, data linking crashes to AHI values used hypopnea definitions that included arousal-related hypopneas. The use of the current, “primary definition”¹⁰ excludes the possibility of scoring hypopneas related to arousals, without desaturation, which still contributes to sleep fragmentation and daytime sleepiness. This is particularly problematic in non-obese individuals with OSA. Given that many third party payers require the use of the “primary definition,”¹¹ coverage for non-obese individuals with milder OSA is suboptimal and needs to be addressed to reduce crash risk.
6. In-vehicle technologies to assess sleepiness in real-time currently exist in many makes and models of cars. These technologies, as well as the promise of autonomous vehicles, may eventually confer additional road safety benefits for CMV operators with sleep apnea. Future research should focus on the use of such technologies in this population.

In conclusion, nothing less than the safety of every driver or passenger riding in a motor vehicle is at stake when addressing the burden of OSA in CMV operators. Sensible, evidence-based management plans have great potential to improve CMV operator health and reduce the devastating crashes that can result from untreated OSA in these individuals. We call on Federal agencies such as the FMCSA to develop and adopt policies that grasp the opportunity before them to protect the well-being of CMV drivers and maximize roadway safety through the aggressive diagnosis and management of OSA in CMV operators. As Federal agency actions evolve, we hope our commentary on the topic provides useful supplemental guidance to clinicians and transportation companies.

CITATION

Gurubhagavatula I, Patil S, Meoli A, Olson R, Sullivan S, Berneking M, Watson NF. Sleep apnea evaluation of commercial motor vehicle operators. *J Clin Sleep Med* 2016;12(3):285–286.

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DISCLOSURE STATEMENT

Dr. Gurubhagavatula has consulted for AmeriGas, Inc. Dr. Patel has consulted for Somnomed Inc. The other authors have indicated no financial conflicts of interest.