

Does the Rubber Meet the Road? Addressing Sleep Apnea in Commercial Truck Drivers

Commentary on Zhang et al. Portable diagnostic devices for identifying obstructive sleep apnea among commercial motor vehicle drivers: considerations and unanswered questions. *SLEEP* 2012;35:1481-1489.

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In this edition of *SLEEP*, Zhang and colleagues¹ review the use of portable sleep monitors to address obstructive sleep apnea (OSA) in commercial drivers. Their work is timely and germane. In 2010, the Federal Motor Carrier Safety Administration (FMCSA) reported that the United States has 14 million holders of commercial driver's licenses (CDL), with 7 million employed as active interstate drivers. These drivers experience 341,000 crashes/year,³ which cause ~4,000 deaths per year.³ Fatigue is the largest cause (31%) of fatal-to-driver accidents.⁴ Afflicting between 28% and 80% of commercial truck drivers,⁵⁻⁷ OSA causes daytime sleepiness and increases fall-asleep-crash risk.⁸ This high prevalence of OSA in truck drivers is unsurprising, as they tend to be middle-aged, male, and obese,^{6,7,9} which are three major risk factors for OSA. Daytime sleepiness in this group is exacerbated by insufficient sleep,^{10,11} with 35% reporting that they sleep for an average of < 6 h per night.¹¹

Drowsiness-related crashes of commercial vehicles are catastrophic not only because trucks are large in size, but also because of the absence of avoidance maneuvers, such as swerving or braking, and therefore high speed at the time of impact.¹² Commercial-vehicle crashes are 7 times more likely to be fatal to other drivers on the road,¹³ and are estimated to cost \$48 billion per year due to death, injury, and property damage.³

In as little as one night of treatment of OSA with positive airway pressure (PAP), crash risk drops and daytime sleepiness improves;¹⁴ within 2-7 days of treatment, performance on a driving simulator improves,¹⁴ in addition to numerous other health benefits. These data have compelled the United Kingdom, Canada, Australia, and New Zealand to formulate regulations regarding OSA in commercial truck drivers. In the U.S., these data have led to the formulation of guidelines to screen for OSA by a Tri-Society Task Force,¹⁵ a Medical Expert Panel (MEP) commissioned by the FMCSA,¹⁶ a Medical Review Board (MRB) of the FMCSA,¹⁷ and in February 2012, jointly by the MRB and the Motor Carrier Safety Advisory Committee of the FMCSA.¹⁸ All have incorporated pathways for testing while the driver remains in service.

Despite these guidelines, as Zhang and colleagues¹ outline in this issue of *SLEEP*, OSA remains largely undiagnosed in com-

mercial drivers, for many reasons: (1) drivers have concerns about the diagnosis affecting their economic and employment status; (2) medical examiners report being unaware of guidelines¹⁹ or have concerns about loss of clients, due to "doctor shopping"¹⁹; (3) employers have concerns about liability, staffing, and work schedules; and (4) BMI thresholds for screening are conservative, capturing only the "tip of the iceberg" and still missing cases.

The National Transportation Safety Board (NTSB), which investigates and reports on the causes of large vehicle accidents, has been urging the FMCSA to formulate specific rules regarding screening of commercial drivers for OSA.²⁰ Thus far, the only rule (49 CFR 391.41) requires that the commercial driver: "has no current clinical diagnosis of... a respiratory dysfunction likely to interfere with his ability to control and drive a commercial motor vehicle safely... or any other condition which is likely to cause loss of consciousness or any loss of ability to control a commercial motor vehicle."²¹ This rule does not reflect the evidence that OSA is treatable, and it does not provide specific criteria for evaluation and treatment.

In the absence of clear and specific rules, few companies have undertaken systematic screening initiatives. One exception is Schneider National, Inc.,²² which screened 19,371 employees and tested those at high risk for OSA; 80% of those undergoing sleep studies had OSA (defined as an apnea-hypopnea index [AHI] > 5/h). They estimated that 21% to 80% of their drivers may have OSA.

Why haven't more employers followed Schneider's example? As Zhang and colleagues¹ delineate, the high prevalence of obesity may result in many drivers being taken out of service and inefficient company operations. Given the degree to which our economy relies on trucking, screening can impact the economy as a whole. An effective screening program would require careful consideration of work schedules and routes, as Schneider's has done.²² Though companies have argued that costs are prohibitively expensive,²³ data show that health care costs^{24,25} and disability claim rates²⁵ actually decline with treatment. Less costly portable sleep studies are gaining wider acceptance, but, as Zhang and colleagues indicate, portable testing leaves open the possibility of "data fudging" and an incomplete chain of custody solution—we cannot be certain that the individual who wore the device was the intended patient²⁶—and negative studies require additional follow-up. CDL holders also argue that a past accident-free record in an individual driver, even if found to have OSA, comprises evidence of future safety. There is also insufficient evidence to convince drivers that driving simulators offer proof of on-the-road risk, and that data from passenger car drivers can be extrapolated

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to truck operators. However, these arguments seem unconvincing when one considers that regulations regarding hypertension and diabetes requiring insulin are in place, though the evidence linking these conditions to crashes is far less than the large body of evidence linking OSA to crashes.^{8,14} The report of Tregear et al.,⁸ commissioned by the FMCSA, has argued that existing evidence is sufficient to conclude that OSA indeed causes crashes and that PAP lowers this risk in as little as 2-7 days.¹⁴

Where do we go from here? OSA is common, identifiable, and treatable. Untreated, it leads to expensive, injurious, and fatal crashes. It is time for the rubber to meet the road. A pressing need exists for the transportation industry to advance a culture of health and safety, so that drivers are able to lift the veil of secrecy and seek testing and treatment for OSA without fear of job loss. Indeed, employers may realize that screening programs lead to large return on investment due to reduction in health care costs^{24,25} and disability claims.²⁵ The FMCSA must move forward with rulemaking in this area, as other countries have done. And finally, sleep medicine must address the unmet educational, clinical, and research needs in this area: to train medical examiners so that standards of evaluation for fitness are uniform and appropriate; to partner with the diagnostics industry to develop tamperproof chain-of-custody solutions; to streamline clinical pathways so that testing and treatment are accessible and affordable; to develop evidence-based, accurate, and cost-effective screening algorithms; and to research the economic and health outcomes of screening and management programs. The time has come for all of us to act, so that no additional lives are lost to this common and treatable disorder.

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