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*The VA's proposed changes would incentivize failure and drive-up associated healthcare costs and disease burden. Our Veterans deserve better.*

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### ***A Penny-wise but Pound-foolish Proposal***

I disagree with the VA's proposed changes to how sleep apnea is rated for disability claims. Ironically, while the VA is concerned about saving the pennies they are spending on VA disability claims related to sleep apnea, the proposal is pound-foolish. While CPAP use/ breathing assistance device use is not a fool-proof proxy for impairment and loss of earnings potential, there are few other evidence-based contenders to replace it. More importantly, the unique position of CPAP use in the disability rating has created a positive public health phenomenon where Veterans are now educating each other about sleep apnea and supporting each other's pursuit of the gold standard treatment of PAP therapy. This has an incredibly powerful and positive public health impact; preventing all the negative consequences of untreated sleep apnea in Veterans will save the VA money in the long-term despite the money spent on sleep apnea disability claims. CPAP use has been proven to be cost-effective for healthcare systems. However, CPAP is also notoriously hard to adjust to and a huge percentage of individuals prescribed a CPAP do not continue with CPAP use because of that. We also know that individuals with PTSD and other mental health conditions in particular have difficulties adjusting to PAP therapy due to their symptoms. The VA's new proposal would have a profoundly negative impact on Veterans and reverse the course of progress that has been made in identifying Veterans with untreated sleep apnea and increasing their adherence to PAP therapy. The VA's ill-considered proposal would actually incentivize Veterans to give up on an important treatment that is very difficult to adjust to, leading them to have an increased likelihood of countless other difficulties due to that untreated sleep apnea. This proposal would have a very negative impact on the overall health of Veterans and quite literally kill them more quickly by contributing to their early deaths from the consequences of untreated sleep apnea. The public health benefit of using CPAP/breathing assistance device use as a proxy for impairment and potential income loss (including preventing the early deaths of our Veterans) far outweigh any concerns related to the cost of paying those sleep apnea claims.

### ***"As Determined by a Sleep Study" fails to capture actual functional impairment***

I disagree with the use of "as determined by a sleep study" in the rating criteria. The notation "as determined by sleep study" to decide whether treatment is effective isn't realistic given that it isn't routine practice for Veterans to keep getting sleep studies over and over again to see how their CPAP or other treatment is working, and the data from their CPAP rarely ever actually makes it into a medical record (and can't reasonably be considered a sleep study anyway). The data the VA would want wouldn't be available to the Veteran or the C&P examiner and therefore there'd be an undue burden on

the Veteran making it nearly impossible for them to prove their claim in most instances. In addition, it would create a push to keep providing sleep studies over and over again which were not medically necessary, simply to help provide Veterans with evidence for their disability claims. It would divert precious sleep study utilization to Veterans seeking more data for their disability claims and worsen the backlog for Veterans who need to be evaluated for sleep apnea for the first time. Regardless, sleep studies often do not yield the data that is most relevant to the continued impairment seen despite CPAP use. For example, the AHI which is a measure obtained in a sleep study and is often used as a shorthand for severity of sleep apnea, is not an ideal predictor of actual functional impairment and has been much criticized in the medical literature. Pevernagie, et. al. (2020) offer a review on the data related to the AHI, the metric most-likely to be looked at by inexperienced C&P examiners when addressing whether treatment was effective “as determined by a sleep study.” The AHI “has been criticized for not capturing relevant clinical features of obstructive sleep apnea.” The authors note “the lack of evidence has become sufficiently robust to accept that clinically relevant OSA cannot be ruled in or out based on the sole use of the AHI. In fact, the AHI fails to indicate a disease state or its severity in the individual OSA patient. This conclusion is supported not only by the various trials showing a flimsy correlation of the AHI with symptom scores and associated co-morbid conditions, but also because the AHI has been found to explain no more than 25% of the variance in relevant outcomes such as driving performance and sleepiness...” The authors note “the widely accepted severity cut-offs 5, 15 and 30 per [hour], introduced in the Chicago criteria, are invalid. It has been emphasized over and over again that these severity categories are arbitrary and misleading for clinical decision-making... Ergo, AHI should be abandoned as a “stand alone” exposure variable of clinically relevant SDB in the individual OSA patient.” The authors note that “this is actually bad news for all the organizations that rely on AHI cut-offs for decision-making” [see Pevernagie DA, Gnidovec-Strazisar B, Grote L, Heinzer R, McNicholas WT, Penzel T, Randerath W, Schiza S, Verbraecken J, Arnardottir ES. On the rise and fall of the apnea-hypopnea index: A historical review and critical appraisal. *J Sleep Res.* 2020 Aug;29(4):e13066. doi: 10.1111/jsr.13066. Epub 2020 May 14. PMID: 32406974]. Given that the field is moving away from using sleep study measures like the AHI as a proxy for impairment, the VA should not burden Veterans with this non-evidence based proposed impairment rating system.

Even if a follow up sleep study was done related to the impact of treatment on the AHI (despite a lack of sufficient ties to actual functional impairment from this measure), this is just a limited snapshot in time. The measure can vary significantly based on a variety of factors. It also does not consider the fact that sometimes individuals undergoing a sleep study have difficulty sleeping; this difficulty sleeping means an increased possibility that their events won't be sufficiently captured in the study, or the metrics obtained were not reflective of a typical night. Therefore, issues like insomnia and PTSD leading to them failing to sleep sufficiently during the study could potentially lead to metrics on the study which would imply that their treatment for sleep apnea was actually working well when it wasn't. Metrics like the AHI could therefore be deceptive in settings where an individual with PTSD or insomnia was not able to sleep (because the Veteran had not entered the sleep state long enough to have sufficient apnea and/or hypopnea events recorded).

Sleep studies also have no measures of the many actual lingering functional impairments tied to sleep apnea such as cognitive impairment. The VA suggested treatment being ineffective “as determined by a sleep study,” but I don't see where the VA is indicating that they are willing to consider the results of neuropsychological examinations or pay for a neuropsychological evaluation for every single Veteran having continued lingering cognitive symptoms despite their CPAP use (and presumably the VA wouldn't want to keep sending them to sleep studies for disability purposes either). Given the increasing use of auto-CPAP it is becoming less and less common for individuals to even have an attended CPAP titration

study let alone additional full sleep studies to evaluate their treatment effectiveness, so the data related to ongoing impairment is not likely to be available in Veterans' medical records.

Sleep apnea leads to functional impairment and CPAP can help with this functional impairment; however, it is a misconception that CPAP/ PAP therapy is expected to resolve all impairments for an individual with sleep apnea; this is not consistent with the scientific evidence. In addition, the AHI is not a reliable measure for all of the functional impairment associated with sleep apnea. Some relevant information from the scientific literature related to other factors not seen on a sleep study includes (but is not limited to):

We know that sleep apnea leads to “an increase in occupational accidents due to reduced vigilance and attention” in individuals with sleep apnea. “Such involvements were related to excessive daytime sleepiness and neurocognitive function impairments” [see *Rabelo Guimarães Mde L, Hermont AP. Sleep apnea and occupational accidents: Are oral appliances the solution? Indian J Occup Environ Med. 2014 May;18(2):39-47*]. We know that “cognitive impairments are commonly seen in patients with an OSA diagnosis” [see *Wang G, Goebel JR, Li C, Hallman HG, Gilford TM, Li W. Therapeutic effects of CPAP on cognitive impairments associated with OSA. J Neurol. 2020 Oct;267(10):2823-2828. doi: 10.1007/s00415-019-09381-2. Epub 2019 May 20. PMID: 31111204*]. “One of the major consequences of OSAS is an impact on neurocognitive functioning. Several studies have shown that OSAS has an adverse effect on inductive and deductive reasoning, attention, vigilance, learning, and memory” [see *Lal C, Strange C, Bachman D. Neurocognitive impairment in obstructive sleep apnea. Chest. 2012 Jun;141(6):1601-1610*].

Jackson, et. al. (2018) treated 110 patients with OSA with CPAP for three months and compared them to individuals in the community without OSA. “Compared to the community sample, participants with OSA were significantly sleepier, had impaired mood and quality of life, and showed decrements in neuropsychological function, specifically psychomotor function, working memory and vigilance. Some neuropsychological and mood outcomes were normalized with CPAP, but significant decrements persisted in most outcomes even in those participants with adequate device usage.” The authors found that “Patients with mild to moderate OSA have significant neurobehavioral morbidity. During "gold standard" treatment, normal function was not achieved, even with adequate device usage. CPAP efficacy for improving sleepiness and neuropsychological function in this milder end of the OSA spectrum may be poor, which may affect CPAP adherence. These findings suggest that there may be neurological changes related to OSA that do not respond to CPAP treatment. [see *Jackson ML, McEvoy RD, Banks S, Barnes M. Neurobehavioral Impairment and CPAP Treatment Response in Mild-Moderate Obstructive Sleep Apneas. J Clin Sleep Med. 2018 Jan 15;14(1):47-56*].

Jiang, et, al. (2021) completed a metaanalysis of multiple studies and found that sleep apnea is associated with "high risks of cognitive impairment, including Alzheimer's disease" and that CPAP only offers "partial" improvement in the cognitive problems caused by sleep apnea [see *Jiang X, Wang Z, Hu N, Yang Y, Xiong R, Fu Z. Cognition effectiveness of continuous positive airway pressure treatment in obstructive sleep apnea syndrome patients with cognitive impairment: a meta-analysis. Exp Brain Res. 2021 Dec;239(12):3537-3552*].

Kielb, et. al. (2012) also note that OSA is “associated with a number of adverse health consequences, and a growing literature focuses on its cognitive correlates.” They note that “multiple studies indicate” that individuals with OSA “show impairment in attention, memory,

and executive function.” While CPAP was the “most effective and widely used treatment” for sleep apnea, the studies of CPAP use showed that “in general, no consistent effect of CPAP use on cognitive performance was evident.” The authors noted also that “several prior reviews of the literature suggested that OSAS patients exhibit significant impairment on neuropsychological tests.” They reviewed evidence that OSA patients are “are at increased risk for motor vehicle accidents.” The reviewed multiple studies with mixed results and design. While some research shows some potential cognitive improvement with CPAP use, they noted that “in fact, several studies have reported that CPAP treatment has no effect on cognitive performance.” The authors concluded that “cognitive deficits have long been observed in OSAS patients, and although findings in this domain remain inconsistent, evidence exists for deficits in intellectual function, memory, attention, and executive function in OSAS.” Due to the mixed results of treatment studies, which may be due to variability in inclusion and exclusion criteria, study design, and duration of treatment, it is not possible to make definitive conclusions regarding the impact of CPAP treatment on cognition in OSAS. Although CPAP is a well-established, effective treatment for OSAS, it does not definitively reduce the host of cognitive deficits observed among OSAS patients. Daytime somnolence can particularly impact attention and executive functioning, including slower reaction time. Intermittent hypoxemia also can impact the performance on cognitive tests and is associated with declines in motor and processing speed, spatial abilities, mental flexibility and attention. “Some researchers argue that intermitted hypoxemia, together with sleep fragmentation, leads to prefrontal cortical degeneration, which could explain the impairment in executive function observed in patients” with OSA. Sleep fragmentation itself may be “an important mechanistic factor in the development of cognitive impairment” in sleep apnea. “For example, the number of arousals from sleep is a strong predictor of memory impairment in OSAS.” Sleep fragmentation has been associated with poorer cognitive performance and reduction in neurogenesis. “Another potential mechanism that may contribute to cognitive impairment in OSAS is disruption in circadian rhythms. Researchers have reported an association between disturbed circadian rhythms (as measured by actigraphy) and severity of cognitive impairment” [see Kielb SA, Ancoli-Israel S, Rebok GW, Spira AP. *Cognition in obstructive sleep apnea-hypopnea syndrome (OSAS): current clinical knowledge and the impact of treatment. Neuromolecular Med. 2012 Sep;14(3):180-93. doi: 10.1007/s12017-012-8182-1. Epub 2012 May 9*].

The evidence reflects significant functional deficits may persist despite CPAP treatment. The evidence also reflects that a sleep study, including the AHI result, does not reliably measure these deficits. A sleep study will not reliably predict the impact on a Veteran’s earnings power or the extent to which CPAP has made them whole in relation to the impact on their relationships, community functioning and increased likelihood of “serious complications such as heart attack, glaucoma, diabetes, cancer, and cognitive and behavioral disorders” per the NIH [see <https://www.nhlbi.nih.gov/health-topics/sleep-apnea>].

### ***Stay the course on identifying and treating sleep apnea in the Veteran population***

The VA should do nothing and make no changes to the current disability rating structure for disability related to sleep apnea. There are no evidence-based alternatives, and the current proposal will actually harm the overall health of the Veteran population. By making no changes on this proposal the VA will save the time, confusion, and money they would have spent proliferating new DBQ’s, training raters and C&P examiners and confronting the chaos caused by having two different rating approaches to deal with on sleep apnea (as Veterans who had a C&P based on the old DBQ could not possibly be rated fairly under the new system). The VA will also reap the benefits of the extensive cost savings on the healthcare side as treating sleep apnea appropriately prevents much costlier healthcare difficulties

down the road. We'll reap the cost-effective, significant public health benefits of having an informed population of Veterans who are motivated to educate each other about sleep apnea and motivated to encourage each other to stick with their PAP therapy. The VA's current disability rating structure for sleep apnea should continue as there is nothing evidence based to replace it with, and it also serves as a cost-effective public health campaign promoting the identification of sleep apnea and adherence to gold standard treatment with PAP therapy. The VA's proposed changes would incentivize failure and drive-up associated healthcare costs and disease burden. Our Veterans deserve better.



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*Dr. Todd Finnerty is the founder of NexusLetters.com and is a psychologist in private practice in Columbus, Ohio. He has significant training related to PTSD and other psychological difficulties, including VA-specific training through the contractors VES and QTC. Dr. Finnerty has had the same amount of training or more training than the third-party contractors used by the VA. In the past Dr. Finnerty has performed hundreds of examinations on veterans for VA third-party contractors. Dr. Finnerty also helps make decisions on Social Security disability claims for the state of Ohio and has substantial experience in evaluating impairment. In this role Dr. Finnerty was named the 2012 "Disability Review Physician of the Year" by the National Association of Disability Examiners, Great Lakes Region and the 2010 "Consultant of the Year" by the Ohio Association of Disability Examiners. He has training in behavioral sleep medicine and is a member of the American Academy of Sleep Medicine and the Society of Behavioral Sleep Medicine. Dr. Finnerty is a forensic specialist and adheres to the American Psychological Association's Ethical Principles of Psychologists and Code of Conduct as well as the APA's Specialty Guidelines for Forensic Psychology. These guidelines include the responsibilities of integrity, impartiality and fairness and note: "When offering expert opinions to be relied upon by a decision maker, providing forensic therapeutic services, or teaching or conducting research, forensic practitioners strive for accuracy, impartiality, fairness, and independence. Forensic practitioners recognize the adversarial nature of the legal system and strive to treat all participants and weigh all data, opinions, and rival hypotheses impartially. When conducting forensic examinations, forensic practitioners strive to be unbiased and impartial, and avoid partisan presentation of unrepresentative, incomplete, or inaccurate evidence that might mislead finders of fact. This guideline does not preclude forceful presentation of the data and reasoning upon which a conclusion or professional product is based."*