September 12, 2023

Thomas Fincannon
Department of Transportation
Office of Vehicle Safety Research
Human Factors/Engineering Integration Division NSR–310
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1200 New Jersey Ave. SE
Washington, DC 20590
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RE: Docket No. NHTSA-2023-0026 – National Highway Traffic Safety Administration (NHTSA), Department of Transportation (DOT) – Examining Distraction and Driver Monitoring Systems To Improve Driver Safety

Dear Mr. Fincannon:

On behalf of the American Academy of Sleep Medicine (AASM), we are contacting your office to submit comments regarding the National Highway Traffic Safety Administration (NHTSA) and Department of Transportation (DOT) request for approval to collect new information, Docket No. NHTSA-2023-0026.

The AASM is a professional society that represents a membership of 12,000 physicians, scientists, advanced practice practitioners, allied health professionals, and accredited sleep centers. The AASM is the leader in advancing sleep care and enhancing sleep health to improve lives.

As members of the AASM Public Safety Committee, we commend NHTSA and DOT for this request for feedback on their notice concerning Distraction Monitoring Systems (DMS). The AASM Public Safety Committee endeavors to provide evidence-based information for sleep health. As such, we read the notice with great interest, as DMS may provide some needed “real-time” feedback to drivers and thus work to preserve public safety.

Respectfully, we comment on the methodology specific to the conditions explained in the notice. While it may be implied that the participants will serve as their own control, we ask for that to be stated more directly. In condition B, unknown variables include the ordering of presentation, and whether there will there be a control condition between the presentations to alleviate carry-over effect. In addition, the duration of each drive is undetermined. Evidence suggests that increasing time on task unmasks driver sleepiness, and it is unclear whether a short drive would yield representative results.

We appreciate that it can be difficult to collect objective data on a driver’s sleepiness during a simulation. However, self-reported sleepiness does not always reflect an individual’s true level of sleepiness. We recommend that other objective measures of alertness be considered. For example, the participants could wear electroencephalography (EEG) during the simulations so that microsleep and slow, rolling eye movements (indicative of drowsiness) can be compared to driving performance. Similarly, the psychomotor vigilance task (PVT) could be performed during the breaks before simulations to provide an objective measure of sleepiness. The inclusion of such additional measures would strengthen the study and would be useful for assessing the accuracy of the DMS. We appreciate that participants will undergo screening prior to participating in the study. We commend the explanation of the questions for the participants to carefully rule out conditions (e.g., Bipolar disorder, Major Depressive Disorder, Anxiety Disorder, Hyperthyroidism) and medications (e.g., allergy, asthma, and pain medications) that may alter the participants’ ability to sustain an attentive state. However, it is uncertain whether this screening will be sufficient to assess sleep disorders and poor sleep habits, which may affect driving performance during the "alert” drive.

We strongly recommend an assessment of possible sleep disorders when screening for participants, as untreated sleep disorders can significantly impact daytime drowsiness and driving. Exclusion (or acknowledgement and discussion) of this population of drivers in the methodology is advised. We suggest a reporting of the participants' sleep schedule using a sleep log, or at minimum, at the time of the interview, a three-day recall reporting of bedtimes, waketimes, estimate of the amount of time to fall asleep, number of awakenings, estimate of the amount of time awake during the awakenings, and daytime sleeping times and duration. In this manner, the quality of the participants' sleep can be obtained and therefore ruled in or out as a contributing factor to their drowsiness and performance on your measures. It would be important to request that the participants estimate their typical schedule so that your measures reflect how they might typically approach their driving tasks each day. Regarding the criteria for drowsiness, 14 hours may not be sufficient for rested participants to become sleepy or fatigued, or to even negatively impact their driving safety. Moreover, individuals who are chronically sleep deprived may not be "alert" at any point during the control drive. Thus it is critical to quantify participants' sleep habits in order to adjust for such effects in statistical analyses.

We request that there is clarification on how the data obtained from the study will be protected. Given the goal of detecting distraction and preventing motor vehicle accidents, there may be sensitive data on how alert a participant is while driving. If they are found to be distracted during assessment, will there be prevention of consequences outside of the study? Is a certificate of confidentiality provided?

Finally, specific to the stimuli of the DMS, it is not stated whether participants will be presented with stimuli during the experimental drives or whether this study intends to validate such technologies against self-reported sleepiness. If DMS will be used, then the exact methods of presentation (i.e. visual, tactile, auditory, etc.) should be described. It is also important that the internet call for participants ensure representation inclusive of all demographics by reaching the largest audience. We find the assessment of both drowsiness and distraction while drowsy, as NTHSA and DOT have planned, to be a progressive, necessary step in determining the utility of DMS as a tool to invest in citizens' road safety.

Thank you for your consideration of these comments.

Sincerely,

Kathy Sexton-Radek, PhD, and Tammy Wong, MD, on behalf of the Public Safety Committee of the American Academy of Sleep Medicine