

FINAL PROGRESS REPORT

PROJECT TITLE: **SCREENING FOR OBSTRUCTIVE SLEEP APNEA IN COMMERCIAL DRIVERS**
PROTOCOL NUMBER: 5 R01 OH00 9149 - 03
PRINCIPAL INVESTIGATOR: INDIRA GURUBHAGAVATULA, MD, MPH

AIM 1: Screening for Sleep Apnea in Commercial Drivers

▪ Subject Recruitment:

- The primary emphasis of the past year has been on data analysis and manuscript preparation. Since the last continuing review in 2012, we have conducted data analyses and published the following manuscript:

A Platt, S Hurley, H Soto-Calderon, W Wieland, B Staley, G Maislin, I Gurubhagavatula: Hits and Misses: Screening Commercial Drivers for Obstructive Sleep Apnea Using Guidelines Recommended by a Joint Task Force. *Journal of Occupational and Environmental Medicine* 2013

- Additional manuscripts are in progress.

▪ Summary of subject characteristics, N=104 drivers enrolled

For 104 drivers, demographic variables, examination data, and polysomnographic indices are shown in Table 1.

Table 1 Subject characteristics

	N (%)	Mean ± SD	Range
Number of subjects	104	-	-
Males (%)	97(93%)	-	-
Age (years)		44.3 ± 8.5	24.4–64.2
Race			
Caucasians	54(52%)	-	-
African-Americans	44(42%)	-	-
Anthropometry			
BMI (kg/m ²)	-	34.0 ± 8.0	21.6–68.9
Symptoms			
ESS score	-	6.7 ± 4.7	0.0–22.0
MAP index	-	0.6 ± 0.2	0.1–1.0
Polysomnography			
AHI	100 (96%)	27.0 ± 22.5	1.6–96.8
AHI ≥5/hour	91/100 (91%)	-	-
AHI ≥15/hour	60/100 (60%)		
AHI ≥30/hour	30/100 (30%)		

AIM 2: The Role of Two-Stage Strategies in Screening for Obstructive Sleep Apnea

Data analysis in progress

AIM 3: What are the Economic Aspects of Screening?

Data analysis in progress

- Significance:** Our preliminary analysis indicates that sleep apnea is extremely common in this group of community-based commercial drivers' license holders in the Philadelphia area. The group was largely male and self-referred, and had extremely high rates of obesity/overweight (90%) and very high rates of sleep apnea (91%). Comparative data using a prior study we completed in commercial drivers' license holders showed that this group had a higher prevalence of obesity than the prior cohort, which was also self-referred.

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Additionally, we found that assuring confidentiality improved the utility of screening measures based on subjectively-reported criteria, whereas prior reports have indicated that self-reported data relating to sleep apnea symptom experience were unreliable in this group.

We also found that unattended Type 2 sleep studies identified cases of obstructive sleep apnea with reasonable accuracy in this cohort; the Type 2 monitors we used included the recording of brain wave signals to ascertain sleep and its architecture.

Additional analyses will include the value of using combinations of these tests, as compared with the use of screening criteria singly, to determine an optimal screening strategy for obstructive sleep apnea.

- b. Plans:** We plan to continue to answer questions presented in Specific Aims 1 and 3, and to perform data analysis related to all three Specific Aims. We plan to submit manuscripts for publication in peer-reviewed journals, and to present findings at appropriate scientific venues.

Human Subjects. No changes to report. Children are not included in the study, as OSA syndrome is believed to differ in clinical presentation and in outcome in these individuals in comparison to adults. No prisoners were included in the study.

- c. Publications:**

Platt, Alec B. MD, MSCE; Wick, Lindsay C. M.Phil.Ed., M.S.Ed.; Hurley, Sharon BA; Soto-Calderon, Haideliza BS; Wieland, Will BA; Staley, Beth BA; Maislin, Greg MS, MA;
Gurubhagavatula, Indira MD, MPH. Hits and Misses: Screening Commercial Drivers for Obstructive Sleep Apnea Using Guidelines Recommended by a Joint Task Force. *J Occup Environ Med.* 2013 Sep;55(9):1035-40

"Total sleep time estimated by actigraphy correlates with polysomnography-derived sleep time in commercial drivers," *American Journal of Respiratory and Critical Care Medicine*, 2011, 183:A5255.

"Prospective occupational screening for obstructive sleep apnea in volunteer commercial drivers," *American Journal of Respiratory and Critical Care Medicine*, 2010, 181:A6749.