



NTSB National Transportation Safety Board

*Office of Railroad, Pipeline &
Hazardous Materials Investigations*

Obstructive Sleep Apnea



Obstructive Sleep Apnea

- Night hypoxia, interrupted breathing
- Extreme daytime sleepiness, short sleep latency
- Diagnosed by polysomnogram (RDI, AHI)



Treatment Of OSA

- Continuous positive airway pressure (CPAP) device
 - Keeps airway open
 - Pressure titration required for optimal results
 - Must be used nightly



Risks of OSA

- Extensively studied
- Incidence depends on definition
- Falling asleep or fatigue-related decrements in performance
- Up to 7-fold increase in risk of motor vehicle accident
- Risk reduced with CPAP

Evaluation of OSA

Sleep Apnea and Commercial Motor Vehicle Operators:

Statement From the Joint Task Force of the American College of Chest Physicians, American College of Occupational and Environmental Medicine, and the National Sleep Foundation

Evaluation of OSA, cont.

Screening Recommendation for Commercial Drivers With Possible or Probable Sleep Apnea

Medically Qualified to Drive Commercial Vehicles If Driver Meets Either of the Following	In-Service Evaluation (ISE) Recommended If Driver Falls Into Any One of the Following Five Major Categories (3 mo maximum certification)	Out-of-Service Immediate Evaluation Recommended If Driver Meets Any One of the Following Factors
<ol style="list-style-type: none"> 1. No positive findings or any of the numbered in-service evaluation factors 2. Diagnosis of OSA with CPAP compliance documented 	<ol style="list-style-type: none"> 1. Sleep history suggestive of OSA (snoring, excessive daytime sleepiness, witnessed apneas) 2. Two or more of the following: <ol style="list-style-type: none"> a) BMI ≥ 35 kg/m²; b) Neck circumference greater than 17 inches in men, 16 inches in women; c) Hypertension (new, uncontrolled, or unable to control with less than 2 medications). 3. ESS >10 4. Previously diagnosed sleep disorder; compliance claimed, but no recent medical visits/compliance data available for immediate review (must be reviewed within 3-mo period); if found not to be compliant, should be removed from service (includes surgical treatment) 5. AHI >5 but <30 in a prior sleep study or polysomnogram and no excessive daytime somnolence (ESS <11), no motor vehicle accidents, no hypertension requiring 2 or more agents to control 	<ol style="list-style-type: none"> 1. Observed unexplained excessive daytime sleepiness (sleeping in examination or waiting room) or confessed excessive sleepiness 2. Motor vehicle accident (run off road, at-fault, rear-end collision) likely related to sleep disturbance, unless evaluated for sleep disorder in the interim 3. ESS ≥ 16 or FOSQ <18 4. Previously diagnosed sleep disorder: <ol style="list-style-type: none"> d) Noncompliant (CPAP treatment not tolerated); e) No recent follow up (within recommended time frame); f) Any surgical approach with no objective follow up. 5. AHI >30

AHI indicates apnea-hypopnea index; BMI, body mass index; CPAP, continuous positive airway pressure; ESS, Epworth Sleepiness Scale; FOSQ, Functional Outcomes of Sleep Questionnaire; OSA, obstructive sleep apnea.

Evaluation of OSA, cont.

1. Sleep history suggestive of OSA (snoring, excessive daytime sleepiness, witnessed apneas)

2. Two or more of the following:
 - a) BMI ≥ 35 kg/m²;
 - b) Neck circumference greater than 17 inches in men, 16 inches in women;
 - c) Hypertension (new, uncontrolled, or unable to control with less than 2 medications).

3. ESS >10



Multi-modal

- Grounding of the Liberian Passenger Ship Star Princess on Poundstone Rock, Lynn Canal, Alaska, June 23, 1995
- Collision of Two Canadian National/Illinois Central Railway Trains near Clarkston, Michigan, November 15, 2001,
- 15-Passenger Child Care Van Run-Off-Road Accident, Memphis, Tennessee, April 4, 2002
- Mesa Airlines Bombardier CL-600, Hilo, Hawaii, February 13, 2008





Multi-modal

- Other accidents
 - OSA diagnosed, but not treated/followed
 - OSA suspected
- No current screening programs



FTA

- No regulatory authority
- No medical standards
- Many operators possess CDL
- Each authority independent
- No known existing OSA screening programs
- SEPTA initiating pilot project





FRA

- Currently standards only for vision and hearing
- New forms and guidance regarding medical certification
- Drafts include screening guidelines for OSA





FAA

- Guidance for reported OSA
- No screening criteria
- No questions regarding history or symptoms of OSA
- No guidance regarding risk factors



USCG

- Guidance for reported OSA
- No inquiries regarding OSA on 719K
- Draft revision includes question on OSA, other sleep disorders
- No questions on symptoms
- No screening criteria



FMCSA

- Website guidance regarding qualifying drivers with OSA
- Specific question about sleep disorders and symptoms
- MRB recommended screening for all obese drivers
- Currently no screening criteria



OSA Recommendations

- Rail – no new recommendations proposed (FRA progressing)
- Transit – to FTA and Authorities
- Aviation – to FAA, on notation
- Marine/Highway – to USCG/FMCSA, in review
- Consistent approach across modes





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