Fatigue & Obstructive Sleep Apnea Syndrome

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Aerospace Neurotologist

CAMA AME Refresher Course
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FAA Guidance (Part 61.53)

Prohibition on Operations during a Medical Deficiency

• (a) . . . A person who holds a current Medical Certificate issued under part 67 of this Chapter shall not act as Pilot in Command, or in any other capacity as a required Pilot Flight Crewmember, while that person:

• Under Title 14 of the Code of Federal Regulations (14 CFR) Part 61,
Part 61.53

– (1) Knows or has reason to know of any Medical Condition that would make the person unable to meet the requirements for the Medical Certificate necessary for the Pilot operation; or

– (2) Is taking Medication or receiving other Treatment for a Medical Condition that results in the Person being unable to meet the requirements necessary for the Pilot operation.

Title 14 of the Code of Federal Regulations (14 CFR), Part 61,
FAA: ‘Pilot is prohibited from flying with known Medical Deficiency’

- Deliberate failure (by a Pilot) to declare a Disqualifying Medical defect is **Punishable by Federal Statute** *(Falsification)*
- Each Pilot applicant must sign **FAA History Form** that He/She **understands the Law** *(done electronically)* *(18 US Code Secs. 1001; 3571)*
NTSB Safety Recommendations

**AMEs should:**
- Elicit specific information on OSA during application
- Identify Pilots at high risk for OSA
  - Furnish Evidence of Appropriate Evaluation and Treatment

**Federal Air Surgeon should:**
- Develop and disseminate guidance to identify Pilots at significant risk for OSA
- Conduct Research on how to identify and reduce Pilot Fatigue resulting from Shift Timing, Flight Scheduling, and Crew Rest
Air Canada Flight at SFO on July 7, 2017
NTSB finding of Fatigue as “Probable Cause”
Tried landing on Taxiway with 4 aircraft on Taxiway.

UAL1 (23:56:04): he’s on the taxiway.
Sleep Deprivation

Sleep Deprivation from ANY cause makes people *Unhappy, Clumsy, Stupid and DEAD!*

If left alone in a quiet place; *it is Normal and Expected that even a Healthy Well Rested adult will Power Down and go to Sleep within 15-20 minutes*

For those with OSAS...time to power down is *way less!*
Sleep Deprivation

- Exact reasons for Sleep are not known
- Like a Computer your Brain needs to Defrag, Delete Cookies, Temp Files, and Repair Work Systems Files
- Neuroprotein Synthesis occurs
- Breaking and Reforming Neural Networks occurs
- Metabolism of Neurotransmitters like Adenosine
- REM in particular is needed for processing New Information and Memories
Micro-Sleep
Consequences of Fatigue

- Three-Mile Island Nuclear accident
- Chernobyl Nuclear power plant explosion
- Bophal Toxic Chemical spill in India
- Grounding of the Exxon Valdez in Alaska
- 100,000 Traffic accidents & 1500 Traffic Deaths/yr
- DC-8 Terrain Impact Aug 1993 USNAS Guantanamo
- EMB-120 In-flight Loss of Control Pine Bluff Apr 1993
The Cost (CDC/NHTSA)

• 72,000 MVA: 32,675 Fatal; 9,967 Alcohol related
  6,000+ due to sleep deprivation. (Tracey Morgan)

• $424 Billion Total or $6 million/crash
  –$36 Billion from Fatigue/Sleepiness.
  –Sleepy people also drive drunk.

• 51% of drivers admit to driving Drowsy;
  –17% fall asleep at the wheel at least annually

• Men sleeping < 4 hrs have a 30% decline in insulin secretion and half the antibody response to a vaccine
  –Link between DM and SD is strong

• Women sleeping < 5 hrs have a 30% increased risk of CAD
Sleep Deprivation

Someone **Awake for 24 hours** = a Rested Person with a **BAC level of 0.1**

A Pilot, Surgeon, AME, or a Ship Captain who pulls an **“All-Nighter”** is about as sharp as a **Light Drinker who suddenly downs 4 Margaritas**
Sleep Deprivation

Causes **Short Term Memory** Impairment
Inaccurate **Recall** of Operational Events
**Neglect** of Peripheral Tasks
Decreased **Ability to Integrate New Information**
Decrease **Ability to Analyze/Solve Problems**
Diminished **Attention Span**
Inability to **Make Decisions**
Carelessness/Unable to Follow Instructions
**Reaction Time** Increased / Lack of awareness
**Pre-occupation** with Single Tasks or Element of Task
Reduced **Audio-Visual Scanning** / Performance Lapses
"My mind clicks on and off. I try letting one eyelid close at a time while I prop the other with my will. But the effect is too much, sleep is winning, my whole body argues dully that nothing, nothing life can attain is quite so desirable as sleep. My mind is losing resolution and control."

-Lindberg 1927
Feb 13, 2008: Both Pilots fell asleep for 18 minutes. Overflew destination airport in Hilo by 26 miles. Captain with Severe Undiagnosed OSA. 22 minutes to Death.
OSA: Scope of Problem

- 43% US Adults voluntarily sleep < 7 hrs/night (the average is now an incredible 6.8)
- 32% US Adults voluntarily sleep < 6 hrs/night
- 23% fall asleep at the wheel once per year
- WHO Insomnia 10% of adults worldwide
- OSA at least 9% of all comers in the US
OSA: Scope of Problem


- Inadvertent in-flight sleep
  - 17 reported incidents; 5 with both pilots asleep
  - *Determined there are 10 episodes in 400 person hours*

1999 NASA Survey of 26 regional airlines

- 80% admitted to having ‘nodded off’ during flight
Mean Body Mass Index US Population 20-74 yo vs Aviators

<table>
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<tr>
<th>Time</th>
<th>Men</th>
<th>Women</th>
<th>Men Pilot</th>
<th>Women Pilot</th>
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Federal Aviation Administration
National Obesity Rates for Adults (Age-Adjusted) and Children

<table>
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<tbody>
<tr>
<td>Children (Age 2-19)</td>
<td>13.9%</td>
<td>18.5%</td>
</tr>
<tr>
<td>Adults (Age 20+)</td>
<td>30.5%</td>
<td>39.6%</td>
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</table>
# Male Pilots >250 lbs

![Graph showing the number of male pilots greater than 250 lbs from 1968 to 2003. The number increases significantly over time, from a low of 1,000 in 1968 to over 30,000 in 2003.](image-url)
Adult obesity rates, 1990 to 2017
Obstructive Sleep Apnea

- OSA and Aeromedical Safety
- Office screening for OSA
- Diagnosis (Polysomnogram)
- Home Sleep Testing / Out of Center Testing
- Treatment (CPAP/Other)
- Compliance and Efficacy
- CPAP Intolerance
- AME Issuance with OSA
Prevalence of OSA

Approx. 20% of US population may have OSA
- Apnea-Hypopnea Index (AHI) ≥ 5 event/hr
- Mostly Asymptomatic (Mild AHI 5-15 events/hr)
- 7% have Moderate OSA
  - AHI 15-30 Events/hr
  - 4-5% of Men and 2-3% of Women

OSA affects > 30M Americans
- More Common than Diabetes and Asthma
- OSA/Fatigue is cited as a Causal Factor in 10-30% of MVA’s
Office Screening for OSAS

AMEs should have a High Index of Suspicion to Refer to a Sleep Specialist
Breathing During Sleep

- Snoring
- Sleep Apnea
- Tongue Fat
Dixon MR Imaging

*From: Tongue Fat and its Relationship to OSA; A. Kim et al; SLEEP, Vol. 37, No. 10, 2014*
Upper Airway in OSA

Normal

Airman
OSA Risk Factors

- Male
- Dental malocclusion
- Edema erythema of the uvula
- Low lying soft palate
- Septal Deviation/Obstruction
- Positive family history (21-80%)
- High arched narrow hard palate
- Anterior larynx
Physical Examination

Skinny people can have OSAS
We’re the only mammals... that don’t have a rigid airway support system
Definitions

- **Apnea** – Complete Cessation of Airflow ≥ 10 sec
- **Hypopnea** – Reduction in Airflow of ≥ 10 sec, Resulting in drop of Oxyhemoglobin Saturation by at least 4% and/or Arousal
- **Arousal** – Characterized by Alpha waves on EEG *(Seen during Relaxed Wakefulness)*

Public Health Impact

Significant Associations

- Hypertension
- Atrial Fibrillation
- Coronary Artery Disease (4x Risk)
- Congestive Heart Failure
- Stroke/TIA (4x Risk)
- Diabetes
- Personality Disturbances
- MVA; 7x risk of Serious Injury/Death

Reggie White
Dead at 43: untreated OSA

Federal Aviation Administration
AMEs should have a High Index of Suspicion

- Obesity \((\text{BMI} > 32)\)
- Neck circumference \((>17”)\)
- *Refractory* Hypertension
- Atrial Fibrillation
- Type 2 Diabetes
- Hx of Stroke or TIA
- Decreased Daytime Alertness/ Memory/ Concentration
- History of Snoring or *Witnessed Apneas*
- Ask about *Falling Asleep while Driving*
- Morning Headaches; Dry Mouth; Irritability
- Complaint of Non-Refreshing Sleep or Insomnia
Office Assessment of OSA “StopBang”

• **Snoring:** Do you Snore Loudly (Louder than Talking or Loud enough to be Heard through Closed Doors?)

• **Tired:** Do you often feel Tired, Fatigued or Sleepy during Daytime hours?

• **Observed:** Has anyone ever commented or observed you Stop Breathing during Sleep?

• **Blood Pressure:** Do you have or are you being treated for High Blood Pressure?
“StopBang” Questions - Risk of OSA

- **BMI**: BMI greater than 35 kg/m$^2$?
- **Age**: Age greater than 50 years?
- **Neck**: Neck circumference/Collar size ≥ 17 inches
- **Gender**: Male?

Answering Yes to ≥ 3 of “STOPBANG” items Equivalent to:

- AHI > 15;  Sensitivity 93%, Specificity 43%
- PPV 52%; NPV 90%
Tools for Screening

http://www.faa.gov/about/office_org/headquarters_offices/avs/offices/aam/ame/guide/dec_cons/disease_prot/osa/

Decision Considerations Disease Protocols - Obstructive Sleep Apnea (OSA)

- Check for the AMP (PFT)
- Obstructive Sleep Apnea (OSA) Reference Materials

Sleep apnea has significant safety implications due to cognitive impairment secondary to the lack of restful sleep and is disqualifying for an aviation medical certification. The condition is part of a group of sleep disorders with varied etiologies. Specifically, sleep apneic disorders are characterized by abnormal respiration during sleep. The apnea may be obstructive, central or complex in nature. However, no matter the cause, the manifestations of this disorder include a disordered breathing pattern with reduced minute ventilation that are not linked to excessive daytime sleepiness (daytime hypersomnia), cardiac dysrhythmia, sudden cardiac death, personality disturbances, refractory hypertension and, if untreated, above, cognitive impairment. Certification may be considered once effective treatment is achieved.
# OSA - FREQUENTLY ASKED QUESTIONS (FAQs)

_Last Updated: 06/2019_

## GENERAL:

1. Where can I view the video explaining the process?
   
   You can view an instructional video for AMPs here or at [http://www.faa.gov/airmed/](http://www.faa.gov/airmed/)

2. Where can I find the specification sheets and educational material?
   
   All OSA reference materials can be found at [http://www.faa.gov/airmed/](http://www.faa.gov/airmed/)

3. Does this process involve other sleep disorder conditions? (E.g. Period Limb Movement Disorder, Narcolepsy, central sleep apnea, etc.)

   No. This process is for obstructive sleep apnea only. If it is clear that the airman suffers from a different sleep disorder, ULI LR and submit any supporting documentation for FAA decision.

## TRIAGE:

4. I am not a sleep specialist. How am I supposed to determine if an airman is at high risk enough to send for a sleep evaluation? How many risk factors must be present before additional testing is required?

   The AMP should judge the airman based on the FAA OSA Flow Chart, supporting clinical guidelines, and good clinical judgment to determine the appropriate category for the airman.

5. The airman was assessed 5 years ago for OSA but did not have a polysomnogram. The evaluation was negative. Is he required to have an updated sleep evaluation or a sleep study?

   No. If there has been NO CHANGE in higher risk factors, follow Group/Box 2 of the flow chart and submit a copy of the previous assessment. However, if there has been a change in risk factors (e.g., elevated ULM, new snoring, refractory hypertension, etc.), follow the flow chart to determine if the airman needs a repeat assessment.

6. If I mark the radio button ‘(1)’ and have no concerns, do I still need to put notes in block 60 regarding the OSA issue?

   Yes. It is only required for Group/Box 4 to document that evaluation was given. However, it may be useful to document the rationale for the decision, especially for Group/Box 2, 6, and 8.

## FTP EVALUATION AND STUDY:

7. Is a sleep evaluation the same as a sleep study?

   No. Please reference the AASM guidelines. A sleep evaluation is needed when the triage process indicates that the airman is at high risk for OSA. The sleep evaluation is used to determine if a sleep study is warranted.

8. Do I have to turn in the “AML Assessment Statement” for every airman?

   No. The statement page is only used by an AMP to complete the sleep evaluation (including the triage with AASM guidelines) and thus that the airman does not have evidence of OSA. This is NOT to be used for the routine triage function.

9. Does the FAA require a specific type of sleep study if one is warranted?

   Yes. The FAA requires that the test be either a Type I (Laboratory polysomnography) or a Type II (7 channels) unattended home sleep test (UHST) that provides comparable data and standards to laboratory diagnostic testing. It does not have to be a chain of custody study.
Tools for Screening

OSA Reference Materials

Guidance

- OSA Protocol (TD) and Consequences Consideration Table (PDF)
- Quick Start for AMEs (PDF)
- OSA Flow Chart (PDF)
- AASM Traps 2 and 3 (PDF)
- AME Actions (PDF)
- Specification Sheet A - Information Request (PDF)
- Specification Sheet B - Assessment Request (PDF)

AME Assisted Special Issuance

- AASI (PDF)
- Arman Compliance with Treatment Form (signature document) (PDF)

Supplemental and Educational Information

- Frequently Asked Questions (FAQs) (PDF)
- Instructional Video - OSA Screening, YouTube 5 of FAA TV
- BMI Calculator and Chart (PDF)
- Harris Questionnaire (PDF)
- Edwertt Sleepiness Scale (PDF)
- STCP BANG Questionnaire (PDF)
- AASM OSA 2001 (PDF)

For AMEs Who Elect to Perform OSA Assessment

- AASM Guidelines (PDF)
- AME Statement (signature document) (PDF)
Other Tools for Screening

- Berlin Questionnaire
- Map Sleep Symptom-Frequency Questionnaire
- Epworth Sleepiness Scale

- Educational Information for Airmen
  - FAA Pilot Safety Brochure on Obstructive Sleep Apnea
FAA OSA Brochure

Treating OSA

Once recognized and identified, OSA is highly treatable, either with surgery or nonsurgical approaches. Obviously, nonsurgical methods should be tried first—

Behavioral changes

• Change sleeping position (sleep on side or stomach)
• Change sleeping environment (mattress, light level, temperature, etc.)
• A 10% weight loss will decrease the OSA Apnea-Hypopnea Index (AHI) by 20%

Dental appliances

Dentals specialize in sleep medicine. American Academy of Dental Sleep Medicine has formed the use of oral appliance therapy for the treatment of obstructive sleep apnea. The use of oral appliances (OAs) using mandibular repositioning are highly effective for mild to moderate OSA and snoring.

Continuous positive airway pressure (CPAP) machine

• Probably the best, non-surgical treatment for reducing AHI when used consistently over six hours a night
• Usually requires the use of a mouthpiece to hold the tissues open during sleep
• Decreases daytime sleepiness, as measured by neurocognitive testing
• Improves cognitive functioning on tests

The Bottom Line

If you experience one or more symptoms of obstructive sleep apnea, it is recommended that you consult a medical doctor for treatment. OSA is effective for decreasing fatigue and improving aviation safety.

What about your medical certificate? If your OSA is severe, you cannot use your current medical certificate and continue to enjoy your aviation career.

However, flying with untreated OSA creates an unnecessary risk and can become a safety-of-flight issue.

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Federal Aviation Administration

Aerospace Medical Education Division, FAA-600

To request copies of the brochure, please contact Aerospace Medicine Division at (301) 924-2178.
Apps for OSAS
Apps for OSAS

- sleepAPPhnas
  - Developed by Poseur Software Systems, Ltd.
  - Available: GET

- SnoreClock
  - Price: $0.99
  - Description: Do you snore?
  - Developed by Ralph Schirhauer

iPad

Federal Aviation Administration
Apps for OSAS

SnoreLab: Record Your Snoring
Reviva Softworks Ltd.

Snore Stopper Free (Snoring Analyzer)
Apirex, s.r.o.

iPad

Record Your Snoring
Discover your Snore Store

Track Your Snoring
Learn how it changes

See your sleep reports and due to history.

App detects the snoring, activates stop snoring function by using a sound.
Apps for OSAS

Vigor ScO2 | Pulse Oximeter for Sleep Apnea, Asthma, and Blood Pressure
Polycene

$2.99

Details | Reviews | Related

1. Place your finger over the phone camera and flashlight.
2. Press the SCAN button with your other hand.

SCAN

BACK

Federal Aviation Administration
HST (Home Sleep Testing) or OOC (Out of Center) Testing

Type III Monitors
CMS (Center for Medicare and Medicaid) Guidelines:
Portable monitor (unattended) minimum 4 channels
Channels must: 2 respiratory movement/airflow
1 ECG/heart rate; 1 oxygen saturation

*Note Monitors can’t tell if you are actually asleep (Need EEG for that)*

*Additional channels: Snoring/Light detection/Body position*
HST (Home Sleep Testing)

Type 1 - Sleep Lab/Monitored
Type 2 - Sleep Lab/Un-Monitored
Type 3 - Has 4 Channels
Type 4 - Has 1-2 Channels

Don’t use HST if you suspect Severe OSAS

Devices vary in technology, know what you are recording (some have up to 32 Channels):
Can record EEG, some use a Thermistor for $O_2$ Sat, others use Nasal pressures, still others record acoustical signals (snoring)
HST (Home Sleep Testing)

Challenges-Won’t Dx RLS, Automatic scoring reads Cheyne-Stokes Breathing as Obstructive; May have unscoreable data (lost of Chest Channel)
Sleep Specialist Referral

Polysomnogram

- **Apnea-Hypopnea Index (AHI)**
  - *Mild*: 5-15 Events/Hr
  - *Moderate*: 15-30 Events/Hr
  - *Severe*: > 30 events/Hr

- **Treatment**
  - AHI ≥ 15.0 Needs CPAP
  - AHI 5-15 Needs CPAP if any complaint of Excessive Daytime Somnolence (EDS) or if other Risk Factors (e.g. Hypertension)

- **Consider ENT Evaluation**
  - Retrognathic; Sinus issues, Crowded Oropharynx
OSA Diagnosis
Polysomnography

EEG
Electrooculogram (EOG)
Chin Electromyography
Naso-Oral Airflow
Thoraco-Abdominal Excursions
Arterial Oxyhemoglobin Saturation
Obstructive Sleep Apnea Criteria

A, B and D or C and D Satisfy the Criteria

A. At least one of the following applies:
   i. Airman complains of Unintentional Sleep Episodes during Wakefulness, Daytime Sleepiness, Unrefreshing Sleep, Fatigue, or Insomnia.
   ii. The Airman wakes with Breath Holding, Gasp{ing}, or Choking.
   iii. The Bed Partner reports Loud Snoring, Breathing, Interruptions, or both during the Airman’s Sleep

B. Polysomnographic Recording shows the following:
   i. Five or more Scoreable Respiratory Events (ie. Apneas, Hypopneas, or Respiratory Effort Related Arousals--RERAs) per hour of sleep

OR
Obstructive Sleep Apnea Criteria

C. Polysomnographic Recording shows the Following:
   
i. **≥ 15 Scoreable Respiratory Events** (i.e. Apneas, Hypopneas, or RERAs) per hour of sleep.
   
   ii. **Evidence of Respiratory effort** during all or a portion of each Respiratory event (In the case of a RERA, this is best seen with the use of Esophageal Manometry)

D. The Disorder is Not explained by another Current Sleep Disorder, Medical or Neurological disorder, Rx use , or Substance abuse disorder
Polysomnogram - RDI vs. AHI

Respiratory Disturbance Index (RDI)

- Similar to Apnea-Hypopnea Index (AHI)
- Includes Respiratory Events that Do Not Technically meet the Definitions of Apneas or Hypopneas, but Do Disrupt Sleep

Respiratory effort related arousals or RERA’s:

- RDI < 25 = Moderate to Severe Sleep Apnea
- RDI > 25 = Severe Sleep Apnea

* RDI of 25 Means Waking 25x per hour;
Equivalent to Sleeping 4-5 hrs per 7-8 hrs in Bed
Special Issuance - Compliance

CPAP Compliance
- **6 hrs/night;** 5-6 nights/week (75%)
- Maintenance of Wakefulness Test (MWT) Not Required

Subjective Report of Symptom Relief is the Most Reliable Measure of Efficacy
- Reduced Napping, Increased Energy Levels, Improved Memory and Concentration
- No Excessive Daytime Sleepiness
Continuous Positive Airway Pressure

**CPAP:** Air Pump in a case lined with Sound-absorbing material for Quiet Ops

Hose carries Pressurized Air to Face Mask or Nasal Pillow

**RECORDING CPAP**- ‘Smart Card’ has Downloadable Data to Determine Compliance and Efficacy of Treatment
Positive Airway Pressure
CPAP Mask Fit

Dural Equipment Technician is critical
Alternative Treatments

Oral Appliances

- Mild to moderate OSA (AHI 5-20 events/hr)
- Efficacy and Compliance Issues
- Polysomnogram or HST may be required

Bariatric Surgery or other Sustained Weight Loss

- Polysomnogram or HST may be required
Alternative treatments

- Positional Therapy – Generally Not Accepted
- DISE (Drug Induced Sleep Evaluation) for site of blockage
- Surgical Options
  - Septoplasty; Turbinate Reduction; Tonsillectomy
  - Genioglossus Advancement; Hyoid Suspension
  - Uvulo-Palato-Pharyngoplasty (UPPP)
  - Maxillo-Mandibular Advancement
  - Current status report
  - Post-op sleep study or HST
  - One-year follow-up may be required
New Technology

The Inspire Upper Airway Stimulation (UAS) System
Airman is Intolerant of CPAP

Alternative Treatments
– Sleep Hygiene – Often neglected
– No “Ben Snore Balls”

“So this time I nail ‘em in sharp end first – best night’s sleep I ever had!”
Sleep Hygiene

- Follow a **Consistent Bedtime Routine**
- Establish a **Relaxing Setting** at Bedtime
- Get a **Full Night’s Sleep** Every Night
- Avoid **Foods or Drinks** that contain Caffeine, as well as any Medicine that has a stimulant, Prior to Bedtime
- Do not Bring your **Worries to Bed** with you
- Do not go to Bed **Hungry**, but **Avoid a Big Meal** before Bed
- Avoid any **Rigorous Exercise** within 6 Hrs of Bedtime
- Make your **Bedroom Quiet**, Dark and a little bit Cool
- Get up at the **Same Time** every Morning
Maintenance of Wakefulness Test

**MWT:** Normal Mean Sleep Latency = 30; Ability to Remain Awake; Measure of Improved Alertness

**FAA AMCD:** No Sleep on ANY of the 4 Trials

**Multiple Sleep Latency Test (MSLT):** “Tendency to Fall Asleep” Usually Not used to Assess OSA, Insomnia, Circadian Rhythm Dyssynchrony or Effectiveness of Therapy
Restless Leg Syndrome

• **Use of Pramipexole (Mirapex) is an absolute DQ**
  - Can cause sudden Narcolepsy w/o warning
  - Do not stop taking abruptly
  - Wait time 2 days (3 days for Older pilots)

• **Use of Carbidopa/Levodopa (Sinemet) is OK**
AME OSAS Assessment

Obstructive Sleep Apnea (OSA)

**Applicant Previously Assessed**
1. Has OSA diagnosis and is on Special Issuance. Reports to follow.
2. Has OSA diagnosis and is currently being treated OR has had previous OSA assessment. NOT on Special Issuance. Reports to follow.

**Applicant Not at Risk**
3. Determined to NOT be at risk for OSA at this examination.

**Applicant at Risk/Severity to be Assessed**
4. Discuss OSA risk with airman and provide educational materials.
5. At risk for OSA. AASM sleep apnea assessment required. Reports to follow.

**Applicant Risk/Severity high**
Federal Aviation Administration

OBSTRUCTIVE SLEEP APNEA-OSA
AME ACTION TAB

** Applicant Previously Assessed:**
1. Has OSA diagnosis and is on Special Issuance. Reports to follow.
2. Has OSA diagnosis and is currently being treated OR has had previous OSA assessment. NOT on Special Issuance. Reports to follow.

** Applicant Not at Risk:**
3. Determined to NOT be at risk for OSA at this examination.

** Applicant at Risk/Severity to be Assessed:**
4. Discuss OSA risk with airman and provide educational materials.
5. At risk for OSA, AASM sleep apnea assessment required. Reports to follow.

** Applicant Risk/Severity high:**
6. Determined immediately at risk. AASM sleep apnea assessment required.

AASM OSAR* high risk:
7. Discuss OSA risk
   - Provide educational material
   - Notate in Block 60 - “OSA Risk Educated”
   - ISSUE, if otherwise qualified

DEFER Immediate safety risk:
8. Give airman FAS OSA Spec Sheet B
   - ISSUE, if otherwise qualified

Treated for OSA but NOT on AASI/SI OR Previously assessed for OSA**
- Give airman FAS OSA Spec Sheet A
- Submit all documentation
- Airman has 90 days to comply
- ISSUE, if otherwise qualified

Follow AASI/SI protocol

Diagnosed with OSA and is on AASI/SI

AASM * RISK FACTORS
- No assessment needed
- ISSUE, if otherwise qualified

Self-reported * Severe symptoms which represent an immediate safety risk

AT RISK FOR OSA
- Give airman FAS OSA Spec Sheet B
- AIRMAN has 90 days to comply
- ISSUE, if otherwise qualified

FEDERAL AVIATION ADMINISTRATION

* See AASM Tables 2 and 3. AME must use clinical judgment in applying AASM criteria. The risk of OSA is determined by an integrated assessment of history, symptoms, and physical/c clinical findings. No disqualification of airman should be based on BMI alone.

** If the applicant has been previously assessed, has previously provided the information, was negative for evidence of OSA, AND no changes in risk factors since the last exam, proceed with the flow chart as with any other applicant.
Obstructive Sleep Apnea Specification Sheet A
Information Request

Your application for airman medical certification submitted this date indicates that you have been treated or previously assessed for Obstructive Sleep Apnea (OSA).

You must provide the following information to the Aerospace Medical Certification Division (AMCD) or your Regional Flight Surgeon within 90 days:

- All reports and records regarding your assessment for OSA by your primary care physician and/or a sleep specialist.
- If you are currently being treated, also include:
  - A signed Airman Compliance with Treatment form or equivalent;
  - The results and interpretive report of your most recent sleep study; and
  - A current status report from your treating physician indicating that OSA treatment is still effective.

- **For CPAP/BIPAP/APAP:**
  A copy of the cumulative annual PAP device report. Target goal should show use for at least 75% of sleep periods and an average minimum of 8 hours use per sleep period.

- **For Dental Devices or for Positional Devices:**
  Once Dental Devices with recording/monitoring capability are available, reports must be submitted.

To expedite the processing of your application, please submit the aforementioned information in one mailing using your reference number (PI, MID, or APP ID).

Using Regular Mail (US Postal Service) or
Federal Aviation Administration
Aerospace Medical Certification Division
Civil Aerospace Medical Institute
PO BOX 25082
Oklahoma City, OK 73125-9867

Using Special Mail (FedEx, UPS, etc.)
Federal Aviation Administration
Aerospace Medical Certification Division
Civil Aerospace Medical Institute, Bldg. 13
6700 S. MacArthur Blvd., Room 308
Oklahoma City, OK 73169
OBSTRUCTIVE SLEEP APNEA SPECIFICATION SHEET D

ASSESSMENT REQUEST

Due to your risk for Obstructive Sleep Apnea (OSA), and to review your eligibility to have a medical certificate, you must provide the following information to the Aerospace Medical Certification Division (AMCD) or your Regional Flight Surgeon’s Office for review within 90 days:

- A current OSA assessment in accordance with the American Academy of Sleep Medicine (AASM) by your AME, personal physician, or a sleep medicine specialist.

- If it is determined that a sleep study is necessary, it must be either a Type I laboratory polysonography or a Type II (7 channel) unattended home sleep test (HST) that provides comparable data and standards to laboratory diagnostic testing. It must be interpreted by a sleep medicine specialist and must include diagnosis and recommendation(s) for treatment, if any.

- In communities where a Level II HST is unavailable, the FAA will accept a Level III HST. If the HST is positive for OSA, no further testing is necessary and treatment in accordance with the AASM must be followed. However, if the HST is equivocal, a higher level test such as an in-lab sleep study will be needed unless a sleep medicine specialist determines no further study is necessary and documents the rationale.

If your sleep study is positive for a sleep-related disorder, you may not exercise the privileges of your medical certificate until you provide:

- A signed Airman Compliance with Treatment form or equivalent.
- The results and interpretive report of your most recent sleep study; and
- A current status report from your treating physician addressing compliance, tolerance of treatment, and resolution of OSA symptoms.

If you are not diagnosed with a sleep-related disorder or the study was negative for a sleep-related disorder, you may continue to exercise the privileges of your medical certificate, but the evaluation report along with the results of any study, if conducted, must be sent to the FAA at the address below. All information provided will be reviewed and is subject to further FAA action.

In order to expedite the processing of your application, please submit the aforementioned information in one mailing using your reference number (PI, MID, or APID).

Using Regular Mail (US Postal Service) or
Federal Aviation Administration
Aerospace Medical Certification Division
AAM-30C
Civil Aerospace Medical Institute
PO BOX 25682
Oklahoma City, OK 73125-9367

Using Special Mail (FedEx, UPS, etc.)
Federal Aviation Administration
Aerospace Medical Certification Division
AAM-30C
Civil Aerospace Medical Institute, Bldg. 13
6700 S. MacArthur Blvd., Room 306
Oklahoma City, OK 73169
AIRMAN COMPLIANCE WITH TREATMENT
OBSTRUCTIVE SLEEP APNEA (OSA)

I __________________________ (print name) certify that (check one):

___ I have been using __________________ (CPAP/ Dental / or Positional Device)
for OSA as prescribed. I am tolerating the therapy well and have no symptoms of
OSA (e.g. daytime sleepiness or lack of mental attention or concentration).

___ I have been surgically treated for OSA and I have no symptoms of OSA (e.g.
daytime sleepiness or lack of mental attention or concentration).

I understand and acknowledge that I will receive the new requirements for
continuation of my special issuance of Obstructive Sleep Apnea and I will comply
with the requirements at my next FAA medical certificate renewal or reapplication.

Applicant Name: ________________________________

Date of Birth: ________________________________

Reference Number: (PI, MID, or APP ID): ________________

Applicant Signature ____________________________ Date ______

Federal Aviation Administration
AME’s Assessment

No Risk

Some Risk
- Education Only
- Encourage Follow-Up
- Block 60 Notation

High Risk

Previous Diagnosis
- Spec. Sheet A
- 90 days for records
- Issue Certificate

At Risk
- Spec. Sheet B
- 90 days to comply
- Issue Certificate

Immediate Risk
- Spec. Sheet B
- 90 days to comply
- Defer
THANK YOU!

Questions?
Contact Information

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Aerospace Neurotologist

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