



**ACCREDITED TRAINING FOR THE NATIONAL
REGISTRY OF CERTIFIED MEDICAL
EXAMINERS**

MODULE 5

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Welcome to the TeamCME accredited training for the national registry of certified Medical Examiners. This is Module #5.

Respiratory 49 CFR 391.41 (b) (5)

A person is physically qualified to drive a commercial motor vehicle if that person: Has no established medical history or clinical diagnosis of a respiratory dysfunction likely to interfere with ability to control and drive a commercial motor vehicle safely.

Many conditions may interfere with the ability to control and drive a commercial motor vehicle safely

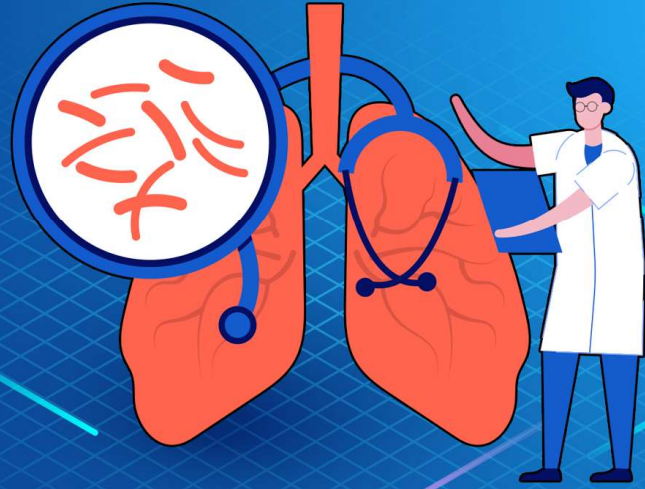
- Emphysema
- Chronic asthma
- Carcinoma
- Tuberculosis
- Chronic bronchitis
- Obstructive sleep apnea

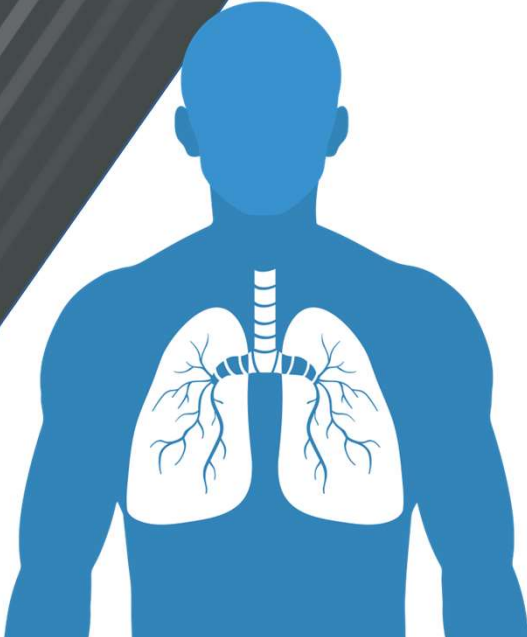
Medications used to treat respiratory conditions may cause cognitive difficulties and increase the likelihood for excessive daytime sleepiness.

The medical examiner should confer with the treating provider, or the driver should be referred to a specialist for further evaluation if the medical examiner detects an undiagnosed or inadequately treated respiratory dysfunction that is likely to interfere with the driver's ability to control and drive a commercial motor vehicle safely.

The codified federal regulations state that a driver can have no established medical history or clinical diagnosis of a respiratory dysfunction likely to interfere with their ability to control and drive a commercial motor vehicle safely. Many conditions may interfere with the ability to control and drive a commercial motor vehicle safely. These include emphysema, chronic asthma, carcinoma, tuberculosis, chronic bronchitis, and obstructive sleep apnea. Medications used to treat respiratory conditions may cause cognitive difficulties and increase the likelihood for excessive daytime sleepiness. The medical examiner should confer with the treating provider, or the driver should be referred to a specialist for further evaluation if the medical examiner detects an undiagnosed or inadequately treated respiratory dysfunction that is likely to interfere with the driver's ability to control and drive a commercial motor vehicle safely.

RESPIRATORY EXAMINATION





Look for:

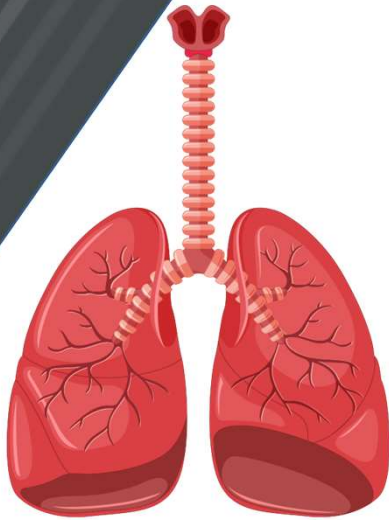
- Respiratory rate (tachypnea at rest)
- Use of accessory muscles
- Prolonged expiration
- Dyspnea
- Cyanosis
- Clubbing of the fingers
- Kyphosis/Scoliosis

Auscultation:
Listen for absent/decreased sounds, rhonchi, rales, wheezes, friction rub

Abnormal findings and/or multiple risk factors that are likely to interfere with the ability to operate a CMV, may require further testing such as PFTs and/or chest x-ray. Consider referring to a specialist for further evaluation.

On exam, the ME should look for the respiratory rate, the use of accessory muscles to breath, prolonged expiration, dyspnea, cyanosis, clubbing of the fingers, and a spinal deformity such as kyphosis or scoliosis. Medical examiners should auscultate for abnormal breath sounds including friction rubs, wheezes, rales, or rhonchi. Abnormal findings or multiple risk factors that are likely to interfere with the ability to operate a CMV, may require further testing such as PFTs and/or chest x-ray. Consider referring to a specialist for further evaluation.

Abnormal Lung Sounds



- **Wheezes, Rhonchi:** Continuous High pitch with inspiration and expiration associate with Asthma, others
- **Rales, Cracks:** Discontinuous, High/Low pitch with inspiration associated with Pneumonia and Congestive Heart failure
- **Total loss/Increased sound:** associated with consolidation
- **Pleural Friction Rubs:** squeaking/grating, treading on snow, pneumonia, embolism, pleurisy
- **Decreased sounds:** increased effort to breathe (with hyper-resonance) is the most important physical finding for emphysema

Prolonged expiration is a symptom of pulmonary conditions

Prolonged expiration is a symptom of pulmonary conditions. Abnormal lung sounds can be distinguished by their characteristic sound, whether they are continuous or discontinuous, and if they are heard during inspiration and/or expiration. Wheezes and Rhonchi are Continuous High pitch noises associated with Asthma. Rales and Cracks are discontinuous high or low-pitched sounds that occur during inspiration and are associated with Pneumonia and Congestive Heart failure. The total loss of lung sounds or an increase in clarity or intensity of lung sounds are associated with consolidation. Pleural Friction Rubs occur during inspiration and expiration, and are generally described as squeaking or grating, like the sound made by treading on fresh snow, and are associated with pneumonia, pulmonary embolism, and pleurisy. Drivers with emphysema have decrease lung sounds and exhibit an increase in the effort to breath referred to as hyper-resonance. Drivers that have chronic bronchitis have louder “harsh” breath sounds due to mucous related rattling.

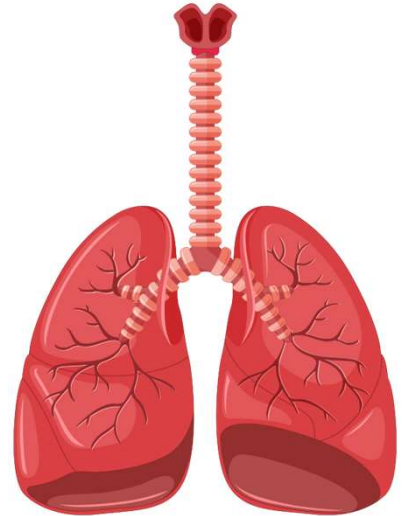
Pulmonary Function Tests (PFT)

Three Pulmonary Tests are used for the certification of drivers with pulmonary disease.

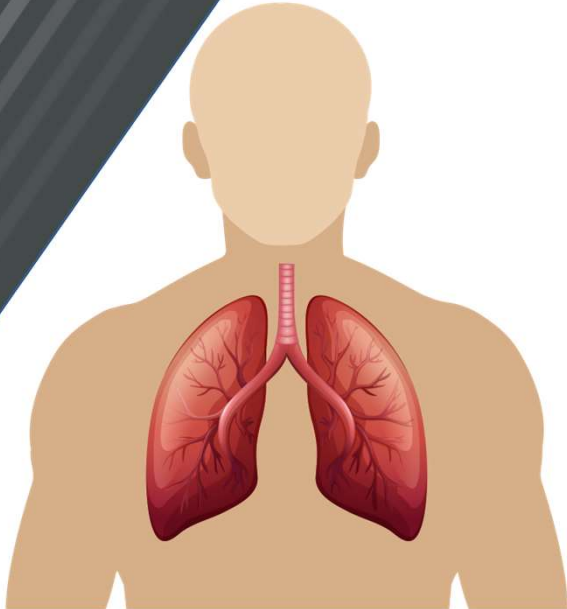
- Pulse Oximetry (FDA 510K Certified Device)
- Spirometry
- Arterial Blood Gases (ABG)

Other Testing:

- Chest x-ray
- Lung diffusion
- Sleep studies



There are three types of pulmonary function tests (PFT) that can be used to determine if a driver meets the pulmonary standard. The easiest is the use of a pulse oximeter. The other two tests are spirometry and arterial blood gas (ABG). Medical examiners should use best practice in determining which specific pulmonary test may be needed. Depending on the pulmonary medical condition, other testing may be required or may be part of best practice. They would include chest x-ray, lung diffusion test, or a sleep study.



Pulmonary Function Tests

When is a Pulmonary Function Test Necessary?

- History of any specific lung disease.
- **Symptoms of shortness of breath (especially at rest)**, cough, chest tightness, or wheezing
- **Cigarette smoking in drivers 35 years or older**
- **Clubbing of the fingers** usually associated with pulmonary or cardiovascular disease

No further testing is needed if lung function is normal, and no other abnormality is suspected.

A pulmonary function test should be obtained when any of the following are present: If there is a driver history of lung disease. If the driver has symptoms of shortness of breath, especially at rest; Cough, Chest tightness, or wheezing. Pulmonary function testing should be ordered on all drivers who are 35 years old or over and who smoke. Testing should also be obtained if clubbing of the fingers is present. No further testing is needed if the lung function is normal, and no other abnormality is suspected.

PFT Requirements

Pulse Oximetry:

- Driver meets guidelines if $SpO_2 \geq 92\%$ on room air

If results are not met, either spirometry or ABG should be obtained.

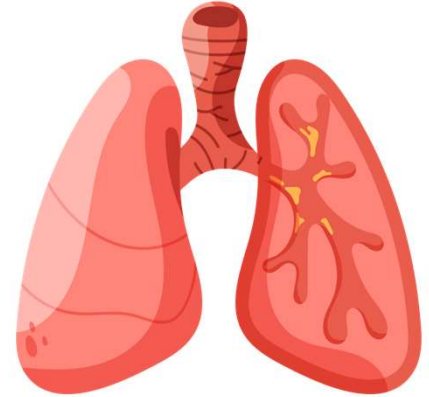
Spirometry:

- $FEV_1 \geq 65\%$ of the predicted value
- $FVC \geq 60\%$ of the predicted value
- FEV_1/FVC ratio $\geq 65\%$

Arterial Blood Gases:

- Driver meets guideline if:
 - Driver lives less than 5000 feet above sea level and has $PaO_2 \geq 65\text{mmHg}$
 - Driver lives more than 5000 feet above sea level and has $PaO_2 \geq 60\text{mmHg}$

Do not certify if $PaCO_2 > 45\text{mmHg}$ at any altitude.



Drivers with known or suspected lung disease must meet the general pulmonary requirements of at least one of the three pulmonary function tests. If no previous testing has been performed, the medical examiner may elect to first use pulse oximetry. If pulse oximetry results are not met, the examiner may initiate either spirometry or ABGs. For pulse oximetry, the oxygen saturation must be greater than or equal to 92% on room air. If the driver meets this guideline, they meet the pulmonary requirements. If the driver does not meet the pulse oximetry 92% requirement, the examiner may elect to perform either spirometry or ABG. The minimum requirements for spirometry are that a driver have a forced expiratory volume in one second (FEV1) greater than or equal to 65% of the predicted value, a forced vital capacity, otherwise known as FVC, greater than or equal to 60% of the predicted value, and a ratio of FEV1 to FVC of equal to or greater than 65%. If the driver does not meet the requirements for both pulse oximetry and spirometry, the medical examiner should order an arterial blood gas test. To meet these requirements, the driver must have a PaO_2 greater than or equal to 65mmHg when the test is performed at an altitude below 5000 feet. If the test is performed at an altitude above 5000 feet, the PaO_2 of the driver must be equal to or greater than 60mmHg. However, do not certify the driver if their $PaCO_2$, or carbon dioxide level, is greater than 44mmHg at any altitude.



ALLERGIES AND ASTHMA RELATED DISEASES

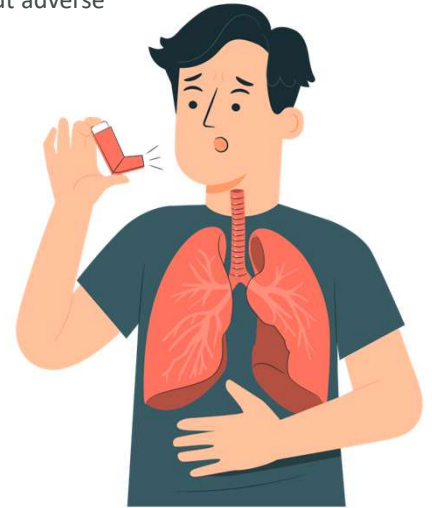
Severe symptoms can cause dyspnea, hypoxemia, anxiety, panic, and decreased consciousness.

Drivers at risk for sudden onset should have documentation of successful preventive measures and/or have undertaken treatment without adverse effects, before being certified to drive.


Medications:

- Bronchodilators
 - Albuterol (Proventil, Ventolin)
 - Ipratropium (Atrovent)
- Corticosteroid Inhalers
 - Fluticasone (Flovent)
 - Budesonide (Pulmicort)
 - Flunisolide (AeroBid)

Singulair (montelukast) works to prevent asthma or allergy symptoms by blocking leukotrienes



Asthma and allergy related diseases include allergic rhinitis, allergy-related life threatening conditions, asthma, and hypersensitivity pneumonitis. Drivers with these conditions can generally be certified without too much concern unless they have severe symptoms that would cause dyspnea, hypoxemia, anxiety, panic or decreased consciousness. For those drivers that are at risk for having sudden onset of these symptoms, the driver should have documentation of a preventative measure or a treatment that can be undertaken without any adverse side effects to safe driving. Medications often used include bronchodilators such as albuterol, and corticosteroid inhalers such as flovent. Singulair is a medication that works to prevent asthma or allergy symptoms by blocking leukotrienes.



Allergic Rhinitis

- Inflammation of the nasal portion of the upper respiratory tract
- Should be treated with non-sedating antihistamines or local steroid sprays that don't interfere with driving
- Rarely disqualifies driver

Allergic rhinitis is inflammation of the nasal portion of the upper respiratory tract. Drivers with allergic rhinitis are rarely disqualified but should be treated with non-sedating antihistamines or local steroid sprays that don't interfere with driving.

Allergy-related Life-Threatening Conditions

Systemic anaphylaxis and acute upper airway obstruction can be induced by the following conditions:

- The sting of an insect
 - The ME could suggest that the driver carry an epinephrine injection device in the CMV
- Hereditary or acquired angioedema due to a deficiency of a serum protein can cause life-threatening airway obstruction or severe abdominal pain
- Recurrent episodes of idiopathic anaphylaxis or angioedema that may lead to sudden onset of severe dyspnea, visual disturbance, loss of consciousness, or collapse

Considerations:

- Has the driver undertaken successful preventive measures and/or treatment?
- Is the nature and severity of the medical condition and the treatment regimen likely to interfere with the driver's ability to control and drive a CMV safely?



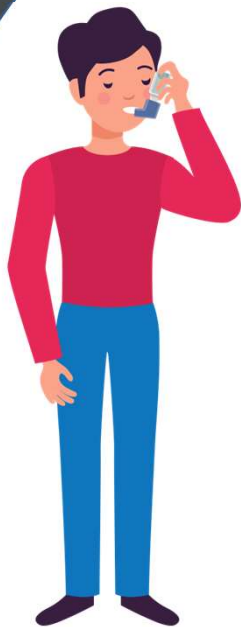
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When making a qualification determination, the ME should consider the following:

- Has the driver undertaken successful preventive measures and/or treatment?
- Is the nature and severity of the medical condition and the treatment regimen likely to interfere with the driver's ability to control and drive a CMV safely?

Asthma



- Generally reversible airway obstruction when treated effectively with bronchodilators and corticosteroids
- Ranges in severity from essentially asymptomatic to potentially fatal

Things to consider before certification:

- How frequent and severe are the asthma attacks?
- Do they exhibit continual, uncontrolled, symptomatic asthma?
- Are the asthma attacks and the prevention/treatment regimen likely to interfere with the driver's ability to drive a CMV safely?
- Is there significant impairment of pulmonary function (FEV1 less than 65%, PaO2 less than 65mmHg)?

The severity of asthma ranges from essentially asymptomatic to potentially fatal. Asthma is generally reversible and treated effectively with bronchodilators and corticosteroids. Things to consider before certification include: How frequent and severe are the asthma attacks? Do they exhibit continual, uncontrolled, symptomatic asthma? Are the asthma attacks and the prevention/treatment regimen likely to interfere with the driver's ability to drive a CMV safely? Is there significant impairment of pulmonary function (FEV1 less than 65%, PaO2 less than 65mm Hg)?

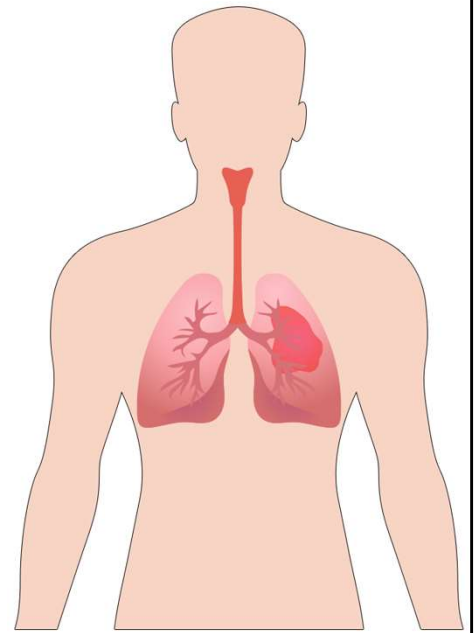
Hypersensitivity Pneumonitis

- Immune-mediated interstitial pneumonitis
- Presenting as dyspnea, cough, fever
- Driver should avoid (repeated) exposure to causative agent (cargo)

MEs should consider:

- Does driver have a successful treatment plan to alleviate symptoms?

(If these or similar symptoms are presented on the test, and if there is the choice to order an x-ray, consider marking this answer.)



Hypersensitivity Pneumonitis is an immune-mediated interstitial pneumonitis that presents as dyspnea, cough, or fever. Drivers should avoid transporting any agents that have been identified as a source for hypersensitive pneumonitis. MEs should consider whether the driver has a successful treatment plan that sufficiently alleviates symptoms. *If these or similar symptoms are presented on the test, and if there is the choice to order an x-ray, consider marking this answer.*

During the history, the driver admits to taking Benadryl for seasonal allergies. What should the examiner do?

- A. Counsel the driver to not take the medication for 12 hours prior to driving
- B. Obtain medical clearance from the driver's PCP that he/she can drive
- C. Disqualify the driver until he/she is no longer taking Benadryl
- D. Provide a 1-time, 3-month certificate to determine the medication's effect on the driver

The correct answer is **A**. A driver taking over-the-counter antihistamines and antitussive should be counseled not to take the medication for 12 hours prior to driving. These medications cause drowsiness and should not be taken while driving.

During the history, the driver admits to taking Benadryl for seasonal allergies. What should the examiner do? A, counsel the driver to not take the medication for 12 hours prior to driving. B, obtain medical clearance from the driver's PCP that he or she can drive. C, disqualify the driver until he or she is no longer taking Benadryl. Or D, provide a 1-time, 3-month certificate to determine the medication's effect on the driver. The correct answer is **A**. A driver taking over-the-counter antihistamines and antitussive should be counseled not to take the medication for 12 hours prior to driving. These medications cause drowsiness and should not be taken while driving.

Antihistamine Therapy

1st Generation Antihistamines:

- *Diphenhydramine (Benadryl)*
- Have sedating effects
- *ME should inform driver to abstain from driving for 12 hours after taking medication*

2nd Generation Antihistamines:

- Cetirizine, Loratadine
- Are less sedating and most do not interfere with driving

Considerations:

- Is the underlying condition and treatment with antihistamines likely to interfere with the driver's ability to control and drive a CMV safely?
- Does the driver have complications relating to the respiratory dysfunction and treatment that impairs function, such as severe conjunctivitis affecting vision, inability to keep eyes open, photophobia, uncontrolled sneezing, or sinusitis associated with severe headaches?



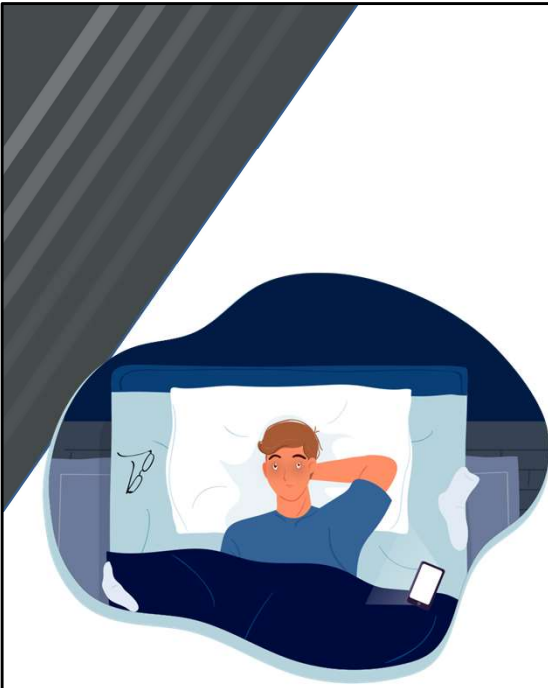
Antihistamines are generally used to relieve respiratory congestion. 1st generation antihistamines are sedating and can be a risk to safe driving. Because of the sedating qualities of 1st generation antihistamines, medical examiners should alert drivers not to drive for 12 hours after taking the medication. 2nd generation antihistamines are less sedating and not considered to be a risk to safe for driving. When making a physical qualification determination, the ME should consider the following:

- Is the underlying condition and treatment with antihistamines likely to interfere with the driver's ability to control and drive a CMV safely?
- Does the driver have complications relating to the respiratory dysfunction and treatment that impairs function, such as severe conjunctivitis affecting vision, inability to keep eyes open, photophobia, uncontrolled sneezing, or sinusitis associated with severe headaches?

SLEEP DISORDERS



Narcolepsy



- A neurological sleep disorder caused by the brain's inability to regulate sleep-wake cycles normally
- Characterized by excessive sleepiness and manifestations of rapid eye movement (REM) sleep during wakefulness
 - Cataplexy
 - Sleep paralysis
 - Hypnagogic hallucinations
- Manifests as pervasive drowsiness and sub wakefulness, frequent napping, and unexpected and overpowering sleep attacks occurring almost daily
- The condition should be diagnosed with an overnight lab-based sleep study followed by a Multiple Sleep Latency Test the next morning

*There is no cure. A driver is likely to lose consciousness.
Diagnosis of Narcolepsy is disqualifying.*

Narcolepsy is a neurological sleep disorder caused by the brain's inability to regulate normal sleep-wake cycles. It is characterized by excessive sleepiness and manifestations of rapid eye movement (REM) sleep during wakefulness. Examples include cataplexy, sleep paralysis, and hypnagogic hallucinations. Narcolepsy manifests as pervasive drowsiness and sub wakefulness, frequent napping, and unexpected and overpowering sleep attacks occurring almost daily. The condition should be diagnosed with an overnight lab-based sleep study followed by a Multiple Sleep Latency Test the next morning

There is no cure for narcolepsy. While medications may help with symptoms, a driver still has the potential to lose consciousness. Therefore, the diagnosis of narcolepsy is disqualifying.

Idiopathic Hypersomnia

Excessive sleepiness after sufficient or even increased amounts of nighttime sleep without any identifiable cause.

Unintended naps are longer than those of narcolepsy and are usually unrefreshing.

The condition should be diagnosed with an overnight lab-based sleep study followed by a Multiple Sleep Latency Test the next morning

Other symptoms:

- Difficulty awakening from sleep
- Disorientation and confusion on awakening
- Headaches
- Syncope
- Orthostatic hypotension

*There is no cure. A driver is likely to lose consciousness.
Diagnosis of Idiopathic Hypersomnia is disqualifying.*

Idiopathic hypersomnia is characterized by excessive sleepiness after sufficient or even increased amounts of nighttime sleep without any identifiable cause. Unintended naps are longer than those of narcolepsy and are usually unrefreshing. The condition should be diagnosed with an overnight lab-based sleep study followed by a Multiple Sleep Latency Test the next morning. Affected individuals often report difficulty awakening from sleep. Disorientation and confusion on awakening, headaches, syncope, and orthostatic hypotension may be present as well. Treatment is aimed at easing symptoms. There is no cure for idiopathic hypersomnia. While medications and lifestyle modifications can help ease some symptoms, the driver remains likely to lose consciousness. Therefore, the diagnosis of idiopathic hypersomnia is disqualifying.



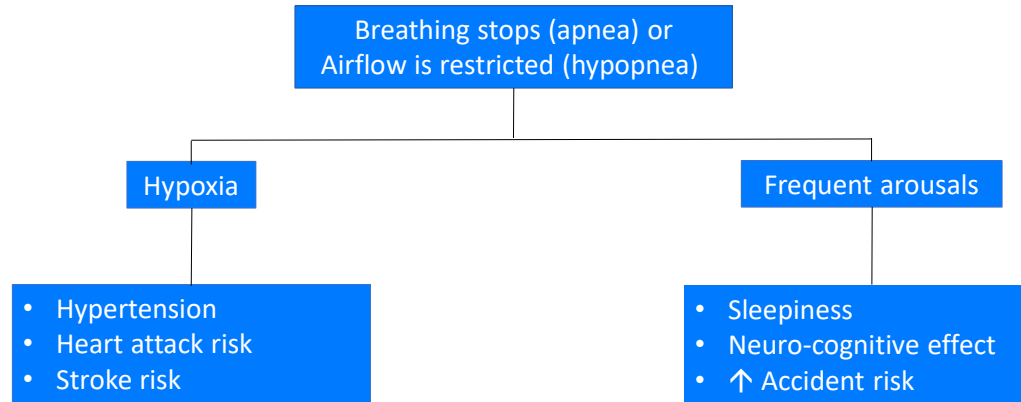
Obstructive Sleep Apnea

- Patients with untreated OSA use double the healthcare resources compared to peers their age.
- Nontreatment-adherent, OSA-positive drivers have a fivefold greater risk of serious preventable crashes.
- Employees treated for OSA at Schneider National saved the company \$441 per member per month in medical insurance costs stemming from health care problems other than sleep apnea.
- Waste Management Inc. reported that treated OSA drivers saved them \$2,700 in the first year of treatment, and \$3,100 in the second year.

Here are some important statistics to consider when evaluating drivers with possible sleep apnea. Patients with untreated OSA use double the healthcare resources compared to peers their age. Nontreatment-adherent, OSA-positive drivers have a fivefold greater risk of serious preventable crashes. Employees treated for OSA at Schneider National saved the company \$441 per member per month in medical insurance costs stemming from health care problems other than sleep apnea. And Waste Management Inc. reported that treated OSA drivers saved them \$2,700 in the first year of treatment, and \$3,100 in the second year.

What is Obstructive Sleep Apnea (OSA)?

A respiratory disorder characterized by a reduction or cessation of breathing during sleep. If left untreated, moderate-to-severe OSA may contribute to fatigue, deficits in attention, concentration, situational awareness, and memory.



Sleep apnea is a respiratory disorder characterized by a reduction or cessation of breathing during sleep. If left untreated, moderate-to-severe OSA may contribute to fatigue, deficits in attention, concentration, situational awareness, and memory. The result of apnea or hypopnea is hypoxia and frequent arousal from sleep. Hypoxia can be a contributor to hypertension, and an increase in the risk of heart attack and stroke. Frequent arousals lead to driver sleepiness, a decrease in neuro-cognitive ability, and the increased risk of causing an accident.

Obstructive Sleep Apnea Guidance

“The FMCSRs do not include requirements for MEs to screen CMV drivers for OSA or provide requirements regarding whether to refer a driver for OSA testing. The FMCSRs also do not include preferred diagnostic testing methods, preferred treatment methods, or requirements by which to assess compliance for OSA treatment.”

If multiple risk factors for moderate-to-severe OSA are observed, the ME may consider referring the driver for a sleep study.

- History of a small airway
- Loud snoring
- Daytime sleepiness
- Self reported or witnessed apneas
- Obesity, high body mass index (BMI)
- Large neck circumference
- Diabetes
- HTN
- History of stroke, coronary artery disease, arrhythmias
- Retrognathia (recessed chin/overbite)
- Mallampati Score indicating sleep apnea risk (class 3 or 4)

Considerations:

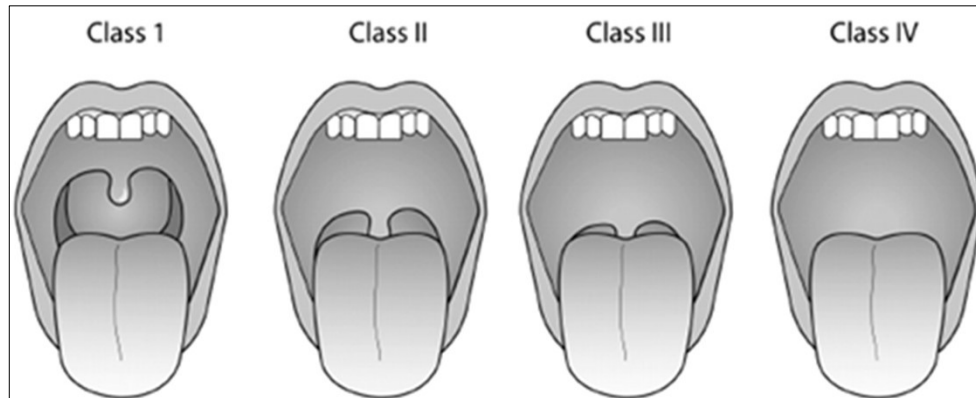
- Are symptoms reported likely to interfere with the driver’s ability to control and drive a CMV safely?
- If a driver is diagnosed with moderate-to-severe OSA, has treatment been shown to be adequate, effective, safe, and stable?

When it comes to guidance from FMCSA, ““The FMCSRs do not include requirements for MEs to screen CMV drivers for OSA or provide requirements regarding whether to refer a driver for OSA testing. The FMCSRs also do not include preferred diagnostic testing methods, preferred treatment methods, or requirements by which to assess compliance for OSA treatment.”

The handbook suggest that if risk factors for moderate-to-severe OSA are observed, the ME may consider referring the driver for a sleep study. These risk factors include but are not limited to a history of a small airway, loud snoring, daytime sleepiness, self reported or witnessed apneas, obesity, high body mass index (BMI), large neck circumference, diabetes, hypertension, a history of stroke, coronary artery disease, or arrhythmias, retrognathia (recessed chin/overbite), and a Mallampati Score indicating sleep apnea risk (class 3 or 4). Retrognathism is an abnormal posterior position of the maxilla. Particularly the mandible relative to the facial skeleton and soft tissues. Retrognathism is an indication that a driver may have structurally based obstructive sleep apnea.

When making a physical qualification determination, the ME should consider if symptoms reported are likely to interfere with the driver’s ability to control and drive a CMV safely, and if a driver is diagnosed with moderate-to-severe OSA, has treatment been shown to be adequate, effective, safe, and stable?

Objective Test for OSA Risk
Modified Mallampati Score



An objective test that can be performed in the medical examiner's office is the Modified Mallampati test. The medical examiner has the driver open their mouth and lay back. The medical examiner then views inside of the mouth to see the relationship between the uvula and the base of the tongue. If most of the uvula is not visualized or is entirely covered from sight by the base of the tongue this indicates the driver is considered at risk of having sleep apnea.

OSA Diagnostic Testing

In-Lab Polysomnography

- 1 or 2 nights in-lab
- Expensive
- Needed to titrate therapy pressure for CPAP

Home Sleep Testing

- 96%+ Specificity/Sensitivity – mod/severe range
- In patient's home
- Inexpensive /easy on patient
- No pressure titration – treat with auto-titrating PAP

Polysomnography requires a 1 or 2 overnight stay in a sleep laboratory. It generally ranges from over \$1,000 to \$4,000. If the driver will be issued a CPAP machine for treatment, repeat polysomnography is required to determine the titration pressure needed for effective treatment. Home sleep testing is 96% as accurate as polysomnography in cases of moderate or severe sleep apnea. It can be performed when at home or away. If the driver will be issued an APAP (autopap) to treat their sleep apnea, retesting is not required.

Apnea / Hypopnea Index (AHI)

Severity	AHI (events/hr; AASM)	FMCSA Guidance
None	0 - 5	N/A
Mild	6 - 15	Explore treatment options
Moderate	16 - 29	Place on therapy
Severe	≥30	

- Drivers with AHI >15 should be treated for sleep apnea
- Driver with AHI <15 may be required to be treated if they have HTN, Diabetes, or Cardiovascular disease

The Apnea Hypopnea Index (or AHI) is a measurement of a driver's number of apnea and hypopnea events experienced per hour when sleeping. The AHI is used to determine the severity of sleep apnea. A driver does not have sleep apnea and treatment is not required for an AHI between 0 and 5. Mild sleep apnea is described as an AHI from 6 to 15. Drivers with mild sleep apnea may need to be treated if they have other comorbidities such as hypertension, diabetes, or cardiovascular disease. We will be discussing other risk factors as well. A driver with an AHI of 15 or greater is required to be placed on therapy for their sleep apnea to be effectively treated and controlled.

OSA Therapy

Gold standard:


- CPAP
- APAP
- Bi-level PAP (BiPAP)

Alternative therapies:

- **Oral appliances:**
 - Oral devices may be limited in the ability to record and store data regarding driver use
 - May use chip on device to monitor use
- **Inspire Surgical Procedure:**
 - Device implanted at base of tongue using electrical stimulation to open the airway
 - Cloud-based adherence monitoring

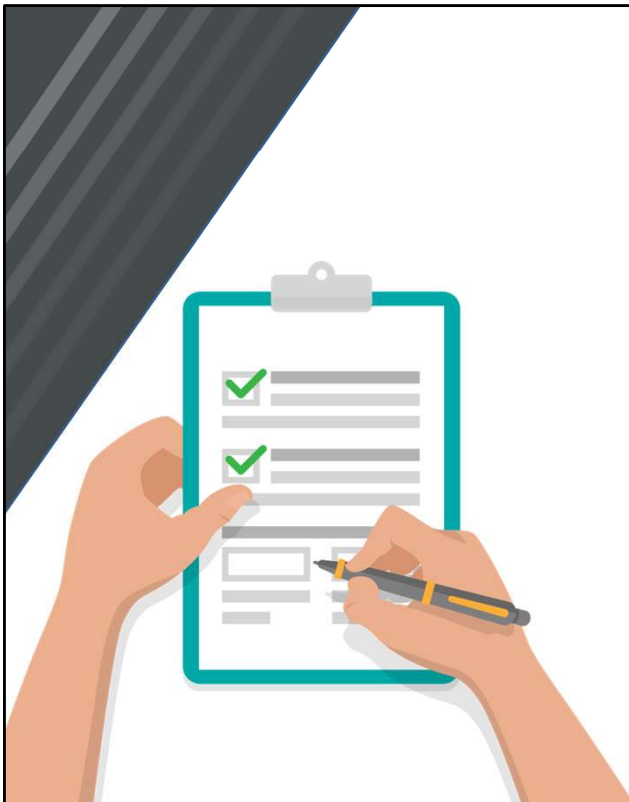


The gold standard for treatment of obstructive sleep apnea is CPAP (Continuous Positive Airway pressure), APAP (automatic pressure airway pressure) and BiPAP (Bi-level airway pressure). BiPAP can be used when a higher positive airway pressure during inspiration and a lower positive airway pressure during expiration provides more effective treatment. Other forms of treatment include oral appliances. These devices may be limited in their ability to record and store data regarding driver use. Some have a temperature-sensitive chip to help monitor use. A fairly new treatment is an implantable device called Inspire. It is positioned at the base of the tongue and uses electrical stimulation to open the airway. The device is turned on remotely before bed and it has cloud-based adherence monitoring.



“With respect to OSA, the FMCSRs do not include any specific requirements for waiting periods, maximum certification periods, specific diagnostic procedures or treatment, or specific diagnostic results. For additional guidance on certification of drivers with moderate-to-severe OSA, one source MEs could consider is the November 21, 2016, OSA advisory recommendations. They are available at <https://www.fmcsa.dot.gov/advisorycommittees/mrb/final-mrb-task-16-01-letter-report-mcsac-and-mrb>.”

The FMCSA medical examiner handbook includes the following paragraph: “With respect to OSA, the FMCSRs do not include any specific requirements for waiting periods, maximum certification periods, specific diagnostic procedures or treatment, or specific diagnostic results. For additional guidance on certification of drivers with moderate-to-severe OSA, one source MEs could consider is the November 21, 2016, OSA advisory recommendations. They are available at the website listed here. We will be discussing these medical review board recommendation in the slides that follow.



2016 MRB OSA Recommendations

- Sleep apnea is a respiratory dysfunction
- If ME believes OSA is in any way likely to interfere with safety, patient should be referred for evaluation & therapy (if needed)
- MEs should clearly explain basis for decision regarding certification if a certificate for <2 years, or denied
- Drivers with a diagnosis of OSA regardless of severity cannot be issued a medical certificate for more than 1 year
- Effective Treatment is resolution of moderate/severe OSA to mild or better as determined by a Board-Certified sleep specialist
- Subjective sleepiness questionnaires are not considered to be helpful due of unlikelihood of truthfulness.(Epworth, STOP-BANG, Berlin)

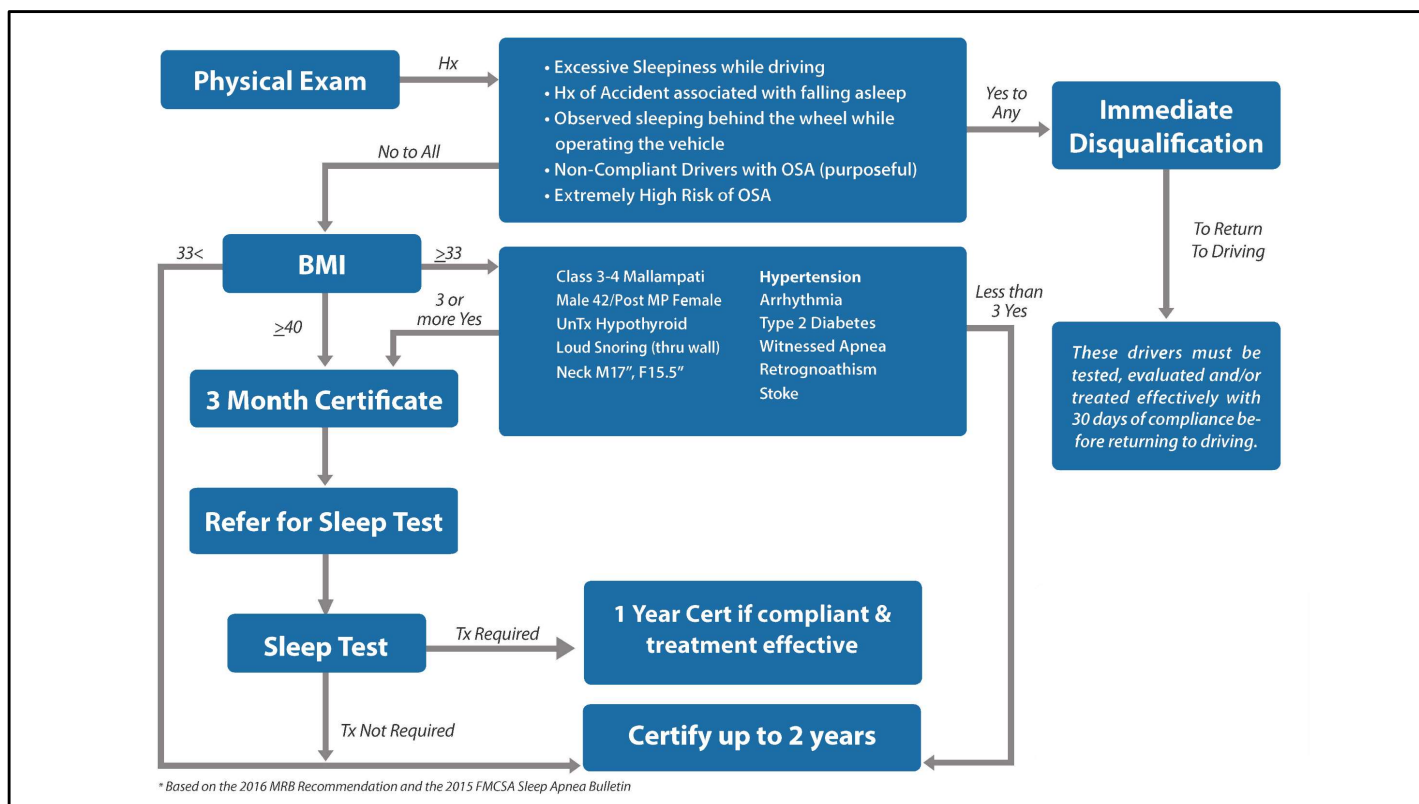
The 2016 Medical Review Board Recommendations state sleep apnea is a respiratory dysfunction and therefore the respiratory standard applies. If the certified medical examiner believes that sleep apnea is in any way likely to interfere with driving safety, the driver should be referred for evaluation and therapy, if needed. Certified medical examiners should clearly explain to the driver the basis for the decision regarding certification if the medical examiner certificate is issued for less than 2 years or denied. Drivers with a diagnosis of sleep apnea, regardless of severity, cannot be issued a medical certificate for more than one year. Effective treatment is defined as resolution of moderate to severe sleep apnea, to mild or better, as determined by a board-certified sleep specialist. Subjective sleepiness questionnaires are not considered to be helpful due to the unlikelihood of truthfulness. This would involve the Epworth, STOPBANG, Berlin and other sleepiness questionnaires.

TEAMCME OSA EVALUATION SCREENING ALGORITHM

BASED ON THE 2016 MRB
RECOMMENDATIONS AND THE 2015 FMCSA
BULLETIN TO MEDICAL EXAMINERS AND
TRAINING ORGANIZATIONS REGARDING
OBSTRUCTIVE SLEEP APNEA.



TeamCME was the first to develop an evaluation or screening algorithm for sleep apnea. It is based on the 2016 medical review board recommendations and the 2015 FMCSA bulletin to medical examiners and training organizations regarding obstructive sleep apnea. This represents the current recommendations for testing, treating, and certification of drivers with sleep apnea.

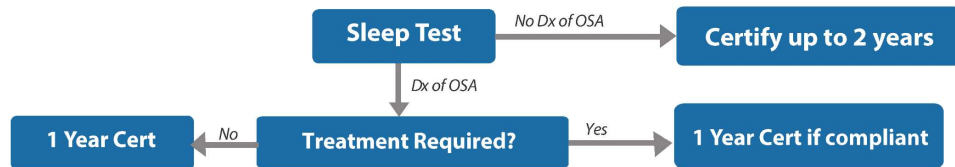


Starting on the upper left, the evaluation of a driver for obstructive sleep apnea begins with the history portion of the physical exam. Does the driver have excessive sleepiness when driving? Do they have a history of an accident associated with falling asleep (sometimes manifested as a single vehicle accident)? Has the driver been observed sleeping or falling asleep behind the wheel while operating the vehicle? If the driver already has a diagnosis of sleep apnea requiring treatment, are they non-compliant? And lastly, is the driver at an extremely high risk of having obstructive sleep apnea? If the answer is “yes” to any of these questions, the driver should immediately be disqualified from driving. Drivers without a previous diagnosis of OSA must be tested and evaluated. If diagnosed with OSA and requiring treatment, they must be compliant for 30 days before being certified for up to 1 year. Drivers diagnosed with OSA but not requiring treatment can be certified for 1 year if otherwise found safe to drive. Drivers who after testing do not have a diagnosis of OSA can be certified for up to 2 years.

For drivers that answered “no” to all of the previous questions, the medical examiner evaluates the driver’s BMI. Drivers that have a BMI that is less than 33 can be certified for up to two years and are not required to have a sleep test. If the driver’s BMI is equal to or greater than 33, check their medical history and physical exam for hypertension, arrhythmia, cardiovascular disease, a history of stroke, or type II diabetes. Is the driver a male that is 42 years old or older, or are they a post-menopausal female? Have they been told that they stop breathing when they are asleep? Do they snore loud enough to be heard through a door or wall? On physical exam, does the driver have retrognathism, a class 3 or 4 Mallampati score, untreated hypothyroidism? If male, do they have a neck circumference greater than 17”, or if a female, do they have a neck circumference greater than 15.5”? If the answer is “yes” to less than 3 of these questions, the driver can be certified for up to two years. If the answer is “yes” to 3 or more of the questions, the driver should be issued a three-month certificate and referred for a sleep study.

If their BMI is equal to or greater than 40, the medical examiner should issue the driver a 3-month medical certificate and refer the driver for a sleep test. After having the sleep test, if treatment is not required, they can be certified for up to 2 years.

When drivers with previously diagnosed OSA which requires treatment are non-compliant with treatment, they must provide CPAP usage records for ME review. These records must demonstrate compliance before being eligible for a one-month certificate and then must follow the certification procedure for non-compliant drivers.



When is treatment required?

- Treatment is required whenever the OSA test result indicates an Apnea/Hypopnea Index (AHI) of 15 or more
- If the driver's AHI is less than 15 but equal to or greater than 5, and they have a comorbidity such as diabetes, hypertension, CVD or arrhythmia, treatment

Once therapy has started, what is needed to be compliant?

- The driver must demonstrate use of the assistive device for at least 4 hours per night, 70% of nights, and relate no excessive daytime sleepiness

When is treatment considered effective?

- Treatment is deemed effective if their AHI while using the device is resolved to below 15

Treatment is required whenever sleep test results indicate an AHI of 15 or more. The driver can be issued a one-year certificate if during the time that the 3-month certificate was issued, the driver was:

Compliant for the last 30 days for at least 4 hours per night for 70% of nights, has no excessive sleepiness and their treatment is shown to be effective (meaning that their AHI during treatment resolves to a value below 15).

Treatment is not required if the sleep test AHI results are less than 15 unless the driver has a comorbidity such as type 2 diabetes, hypertension, untreated hypothyroidism, or cardiovascular disease. When one or more comorbidities are present, and the driver's AHI is less than 15 but greater than or equal to 5, the medical examiner should consider requiring the driver to be treated. To assist with that decision, the CME should consult with the sleep specialist.

To demonstrate compliance with treatment, the driver must be using the assistive device at least 4 hours per night, 70% of nights.

Initial & Re-Certification of Drivers with OSA

Initial Certification:

A driver may be certified for up to 1 year if:

- The driver is compliant (70% of nights with 4 or more hours of use) during the last 30 consecutive days and does not report excessive sleepiness during the major wake period

Re-Certification:

A driver may be re-certified for up to 1 year if:

- Driver has documentation showing compliance with use of their assistive device from the time they were last certified
- The driver does not report excessive sleepiness during the major wake period

If a driver does not meet the above requirements, they must follow the certification procedure for non-compliant drivers.



When a driver who was tested and found to have sleep apnea requiring treatment returns following a 3-month certificate, the driver may be certified for up to 1 year if the driver is compliant (meaning 70% of nights with 4 or more hours of use) during the last 30 consecutive days and does not report excessive sleepiness during the major wake period.

Drivers with a previous diagnosis of sleep apnea requiring treatment, who are seeking re-certification may be re-certified for up to 1 year if:

- The Driver has documentation showing compliance with use of their assistive device from the time they were last certified
- The driver does not report excessive sleepiness during the major wake period

If the driver cannot demonstrate compliance with the usage requirements, they must follow the re-certification procedure for non-compliant drivers.

Re-Certification of Non-Compliant Drivers

1. ME may issue a 30-day certification to allow the driver to produce 30 days of compliance
2. When the driver returns, the ME may issue a 60-day certificate if the driver has been compliant for the previous 30 days. Otherwise, the driver is disqualified until they demonstrate 30 days of compliance
3. When the driver returns, the ME may issue a 90-day certificate if the driver continued to be compliant during the previous 60 days. Otherwise, the driver is disqualified until they demonstrate 30 days of compliance*
4. When the driver returns, the ME may issue a 1-year certificate if the driver remained compliant for the previous 90 days. Otherwise, the driver is disqualified until they demonstrate 30 days of compliance*

* There is an exception to a driver being disqualified for non-compliance after receiving 60-day or 90-day certification. If the driver was compliant during last 30 days of the certification period, the ME may restart the re-certification process again by issuing the driver a 30-day medical certificate without disqualifying the driver to produce 30 days of compliance.

This process is to help the driver successfully establish a history of compliance as assurance they will continue to be compliant with their CPAP use once they receive one-year certification. When a driver does not meet the compliance requirements for sleep apnea treatment, the ME can issue a 30-day certification to allow the driver to produce 30 days of compliance. When the driver returns for a new medical certificate, the ME may issue a 60-day certificate if the driver has been compliant for the previous 30 days. If the driver has not been compliant during the previous 30 days, the driver is disqualified and must demonstrate 30 consecutive days of compliance before being able to begin the re-certification process again. If the driver was issued a 60-day certification and then returns to the medical examiner, the ME may issue a 90-day certificate if the driver continued to be compliant during the previous 60 days. If the driver was not compliant during the previous 60 days, the driver is disqualified and cannot be qualified to drive until they have demonstrated 30 days of compliance, upon which the driver begins the re-certification process again. When a driver returns to the ME showing compliance during the previous 90 days of certification, the ME may issue a 1-year certificate. However, if the driver is not compliant during the 90 days of certification, the driver is disqualified from driving and must show 30 days of compliance before beginning the re-certification process again. There is an exception to a driver being disqualified after receiving the 60-day or 90-day certification. If the driver was compliant for last 30 days of the 60- or 90-day certification period, the ME could restart the re-certification process again by issuing a 30-day medical certificate without disqualifying the driver to produce 30 days of compliance.

You certified a driver for 3 months and referred for a sleep study due to possible obstructive sleep apnea. They were subsequently given a CPAP. Which of the following is not a condition for initial recertification?

- A. The driver's CPAP use records must demonstrate use of at least 70% of nights for at least 4 hours per night
- B. The sleep study must demonstrate mild sleep apnea or better
- C. The driver does not report excessive sleepiness while driving
- D. The driver's CPAP use records must include at least the previous 30 days


The correct answer is **B**. The only recommendation regarding sleep study results is that a driver with moderate sleep apnea (AHI > 15) should be treated. The other three answers are all requirements for initial recertification after obtaining a sleep study and starting treatment.

You certified a driver for 3 months and referred for a sleep study due to possible obstructed sleep apnea. They were subsequently given a CPAP. Which of the following is not a condition for initial recertification? A, the driver's CPAP use records must demonstrate use of at least 70% of nights for at least 4 hours per night. B, the sleep study must demonstrate mild sleep apnea or better. C, the driver does not report excessive sleepiness while driving. Or D, the driver's CPAP use records must include at least the previous 30 days. The correct answer is **B**. The only recommendation regarding sleep study results is that a driver with moderate sleep apnea (AHI greater than 15) should be treated. The other three answers are all requirements for initial recertification after obtaining a sleep study and starting treatment.

TeamCME[®]
Nationwide Network of DOT Medical Examiners



INFECTIOUS RESPIRATORY DISEASES



Tuberculosis (TB)

Pulmonary Tuberculosis

- Treatment is extremely successful
- TB only persists in individuals while on therapy or if they are noncompliant with treatment (**Streptomycin – can cause hearing loss**)
- Advanced TB may cause respiratory insufficiency

Atypical Tuberculosis

- Noninfectious
- Medications generally not needed
- If progressive, respiratory insufficiency may develop
 - Associated with cough, mild hemoptysis, sputum production
- Main issue is to determine the amount of disease an individual has, and the extent of their symptoms

There are two types of Tuberculosis, or TB, pulmonary and atypical. Pulmonary tuberculosis is contagious. Fortunately, modern treatment is very successful. However, tuberculosis persists in some individuals while they are in therapy or especially if they are non-compliant. Advanced Tuberculosis may cause respiratory insufficiency but the risk of recurrence with successful treatment is very low. Streptomycin treatment can cause damage to the eighth cranial nerve, affect hearing and balance. Atypical tuberculosis is generally non-infectious and is not usually treated with medications. However, if it is a progressive form, respiratory insufficiency may develop.

Tuberculosis (TB)

Certification Considerations:

- What is the nature and severity of the driver's disease and symptoms?
 - If the disease is progressive, respiratory insufficiency may develop
- Is the etiology and treatment confirmed?
- Is the driver compliant with medications and treatment?
- Has treatment been fully effective in resolving the underlying infection?
- Are there symptoms that are likely to interfere with the driver's ability to control and drive a CMV safely?

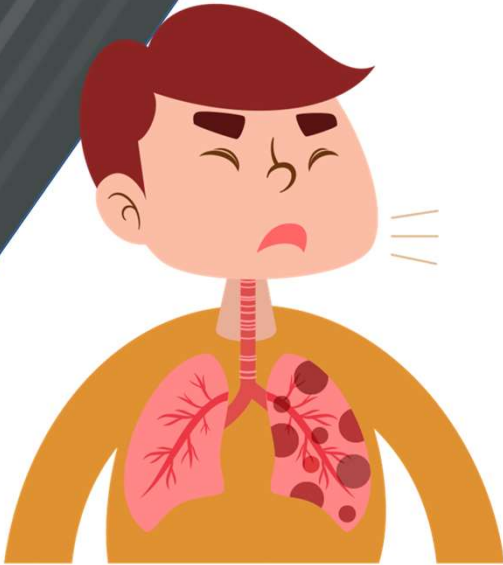
When making a physical qualification determination, the ME should consider the following:

- What is the nature and severity of the driver's disease and symptoms?
 - If the disease is progressive, respiratory insufficiency may develop
- Is the etiology and treatment confirmed?
- Is the driver compliant with medications and treatment?
- Has treatment been fully effective in resolving the underlying infection?
- Are there symptoms that are likely to interfere with the driver's ability to control and drive a CMV safely?



NON-INFECTIOUS RESPIRATORY DISEASES

Chronic Obstructive Pulmonary Disease (COPD)



- A group of medical conditions causing a chronic reduction in expiratory flow
- Most often caused by chronic bronchitis, emphysema
- Usually brought on by smoking

Symptoms:

- Chronic cough
- Sputum production
- Dyspnea on exertion

Considerations:

- Is severity likely to interfere with safe driving?
- Is there an unstable medical condition such as:
 - Hypoxemia at rest
 - Chronic respiratory failure
 - History of continuing cough with cough syncope

Chronic obstructive pulmonary disease (COPD) is a group of medical condition that cause a reduction in expiratory flow. Drivers with COPD usually have a combination of chronic bronchitis and emphysema. Cigarette smoking is the primary etiologic factor. Symptoms of COPD are a chronic cough with sputum production, chronic respiratory failure, and dyspnea on exertion. MEs should consider whether the severity is likely to interfere with safe driving and whether the condition is unstable due to hypoxemia at rest, chronic respiratory failure, or cough with cough syncope.

Practice Scenario

A 65-year-old male present with a history of HTN, shortness of breath, lung disease, emphysema, asthma, and chronic bronchitis. Driver states he has been smoking 2 packs/day for 50 years.

- **Medications:** Spiriva, using inhaler device (Advair), and occasional albuterol inhaler
- **PCP exam (1 year ago):**
 - ECHO demonstrated mild right ventricular hypertrophy, mild pulmonary HTN, but otherwise WNL
 - Chest X-ray revealed findings consistent with COPD
 - PFT demonstrated moderate obstruction, consistent with COPD
- **Exam Findings:**
 - Pulse Oximetry: 87% on room air
 - Older appearance with red puffy face
 - Grade II, S4 murmur
 - Shortness of breath with mild exertion
 - Mild pretibial edema
 - The rest of the exam was unremarkable

Should this driver be disqualified or certified? Why?

If certified, for how long?

A 65-year-old male present with a history of HTN, shortness of breath, lung disease, emphysema, asthma, and chronic bronchitis. Driver states he has been smoking 2 packs/day for 50 years. He is taking Spiriva, using an Advair inhaler, and occasionally using an albuterol inhaler. The driver had an exam with his PCP 1 year ago. During this exam, driver was diagnosed with borderline hypertension, COPD and Cor Pulmonale, secondary to COPD. The driver provided a copy of his PCP medical records containing an echocardiogram two months ago showing right ventricular hypertrophy, mild pulmonary hypertension, and otherwise was within normal limits. A chest x-ray dated six months ago showed findings consistent with COPD and pulmonary function testing conducted one year ago showed moderate obstruction, consistent with COPD. Pulse oximetry conducted on room air was 87%. Examination notes state an older appearing adult with red puffy face, a grade two S4 murmur, shortness of breath with mild exertion, and mild pretibial edema. The rest of the exam is unremarkable. Should this driver be disqualified or certified? Why? If certified, for how long?

Practice Scenario Answer

- Determination Pending while awaiting pulmonary function testing
- Required results would be either:
 - FEV 65% and FVC 60% of predicted value
 - ABG of 65mmHg
 - Pulse oximetry of 92% on room air

The best outcome for this driver would be for the medical examiner to use determination pending while awaiting pulmonary function testing to be performed. Required results would be FEV of at least 65% and FVC of at least 60% of predicted value, Arterial blood gas of at least 65mmHg, or pulse oximetry of at least 92% on room air.

Chest Wall Deformities

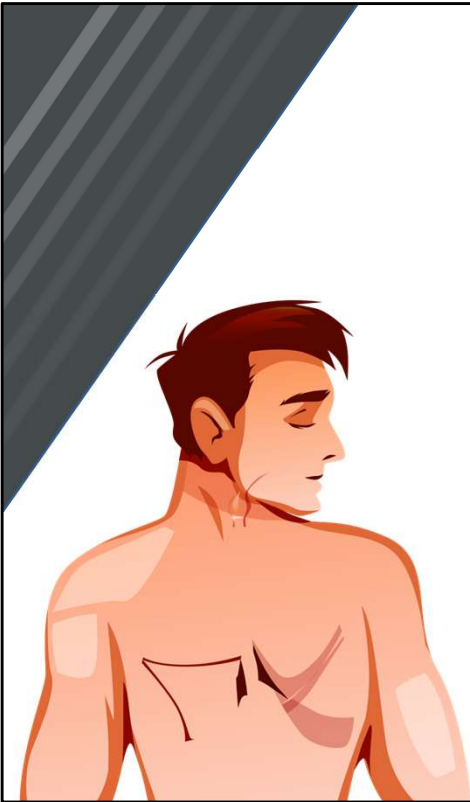
Affect the mechanics of breathing, usually affect the driver's vital capacity.

Examples:

- Excessive kyphosis
- Scoliosis
- Pectus excavatum
- Ankylosing spondylitis
- Massive obesity
- Recent thoracic/upper abdominal surgery or injury

ME Considerations:

- Is the deformity stable?
- Is the deformity likely to interfere with safe driving?
- Does the driver also have an unstable medical condition?
 - Chronic respiratory failure
 - History of continuing cough with cough syncope
 - Hypoxemia at rest



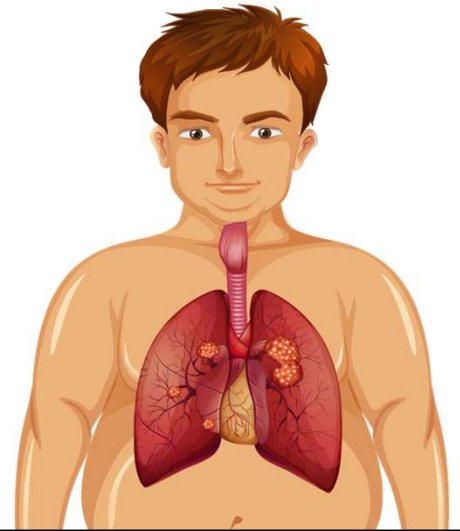
Chest wall deformities involve the mechanics of breathing and predominantly affect the driver's vital capacity. Chest wall deformities include excessive kyphosis, scoliosis, pectus excavatum, ankylosing spondylitis, recent thoracic surgery or even massive obesity. Other medical conditions such as chronic respiratory failure, a history of continuing cough with cough syncope, and hypoxemia at rest can decrease the driver's pulmonary function and may be a concern for safe driving. MEs should consider whether the deformity is stable and if the deformity is likely to interfere with safe driving.

Cystic Fibrosis

- Requires continuous antibiotic therapy and respiratory therapy to mobilize abnormal secretions
- May result in limited physical strength
- A mild form may go undiagnosed until early adulthood

ME Considerations:

- Nature and severity of the disease and symptoms
 - Hypoxemia at rest
 - Chronic respiratory failure
 - History of continuing cough with syncope
- Is the driver able to obtain therapy while working if necessary?



Cystic fibrosis is a progressive, debilitating disease. It requires continuous antibiotic therapy and respiratory therapy to mobilize abnormal secretions. Sometimes mild forms of cystic fibrosis go undiagnosed until early adulthood. Cystic fibrosis may result in limited physical strength. Drivers with cystic fibrosis must be evaluated to determine the extent of the disease, their symptoms, and their ability to maintain their treatment while driving a truck. Drivers with cystic fibrosis that should not be certified are with those with hypoxemia at rest, chronic respiratory failure, or those who have a history of continuing cough associated with syncope.

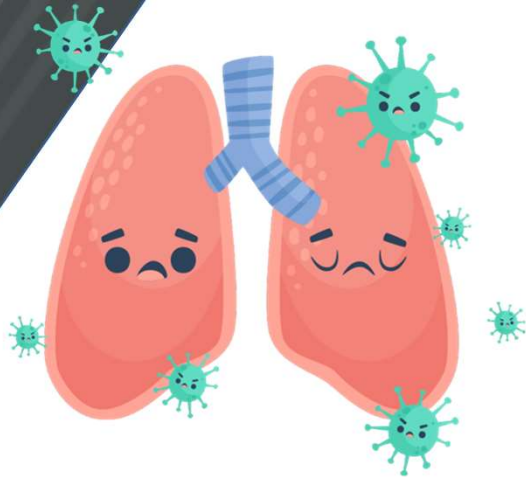
Interstitial Lung Disease

- Diseases grouped together due to common x-ray, physiologic, and pathologic features
- Commonly caused by occupational and environmental exposure
- Slow progression is common
- Side effects of treatment with corticosteroids and cytotoxic agents

A history of breathlessness while driving, walking short distances, climbing stairs, handling cargo, or entering/exiting the cab should initiate a careful evaluation of pulmonary function.

ME Considerations:

- Is the disease stable?
- Is the disease likely to interfere with safe driving?
- Does the driver also have an unstable medical condition?
 - Chronic respiratory failure
 - History of continuing cough with cough syncope
 - Hypoxemia at rest



Exposure to a wide variety of chemical agents, hazardous materials, and toxins can be the cause of a group of interstitial lung diseases that have common x-ray, pathological and physiological features. These diseases tend to be progressive, and the individual can develop breathlessness when driving, walking short distances, climbing stairs, loading, or unloading cargo or even entering or exiting the cab. Should a driver exhibit or report these changes, the medical examiner should initiate a careful evaluation of pulmonary function. MEs should consider whether the disease is stable and if the deformity is likely to interfere with safe driving. Also consider whether the driver has another unstable condition such as chronic respiratory failure, a history of continuing cough with cough syncope, or hypoxemia at rest.

Pneumothorax

Air between the membranes (pleural space) that surround the lungs

Traumatic Pneumothorax

- The medical history and physical exam will provide details of the event that caused the traumatic pneumothorax

Spontaneous Pneumothorax

- The underlying disease is the determining factor for certification

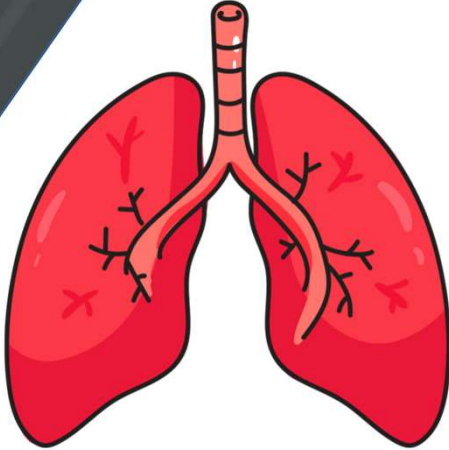
ME Considerations:

- Has there been complete recovery and x-ray confirmation documented by the treating provider?
 - No air in pleural space or in the mediastinum ([Order X-ray](#))
- Is the driver asymptomatic without chest pain or shortness of breath?
- For a spontaneous pneumothorax, what is the underlying disease?
 - Is this disease likely to interfere with safe driving?

Consider disqualification if history of two or more spontaneous pneumothoraxes on one side & no successful surgical intervention

Air within the pleural space surrounding the lungs is called a pneumothorax. This may occur through trauma or spontaneously due to an underlying disease. The medical history and physical exam will provide details of the event that caused the traumatic pneumothorax. For a pneumothorax that occurs as a complication of an underlying disease, the medical examiner should base their driving status determination according to the medical guidelines for that disease. When making a qualification determination, the ME should consider whether there has been complete recovery and x-ray confirmation documented by the treating provider. The x-ray should show that there is no air in the pleural space or the mediastinum. Also, is the driver asymptomatic, without any chest pain or shortness of breath? If the driver had surgical pleurodesis, they must meet the pulmonary parameters or medical guidelines.

Cor Pulmonale



- Enlargement of the right ventricle
- Secondary to disorders affecting lung structure or function
 - Pulmonary hypertension
 - Hypoxic pulmonary vasoconstriction

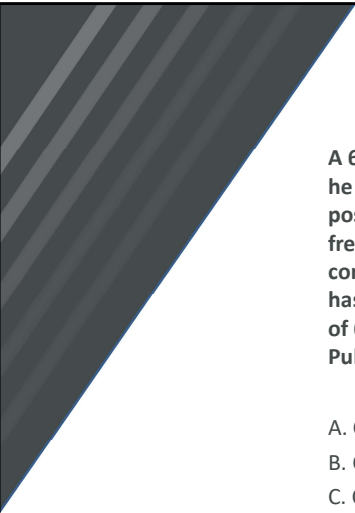
Symptoms:

- Dizziness
- Hypotension
- Syncope
- Side effects from vasodilators

ME Considerations:

- Has treatment with vasodilators been shown to be adequate, effective, safe, and stable?
- Are side effects likely to interfere with safe driving?

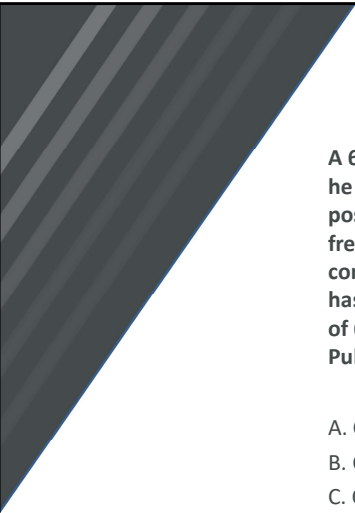
Cor Pulmonale is enlargement of the right ventricle, typically caused by pulmonary hypertension or hypoxic pulmonary vasoconstriction. The major risks to driving are dizziness, hypotension, syncope, and the side effects from vasodilators. When making the qualification determination, the ME should consider whether treatment with vasodilators has been shown to be adequate, effective, safe, and stable? Are side effects likely to interfere with safe driving?



A 62-year-old male presents for a recertification examination with a history of COPD. He reports that he smokes a pack and a half of cigarettes daily and that he feels totally fine. Auscultation reveals positive findings. He is slightly hypertensive and overweight. During the examination he has a frequent nonproductive cough. Upon receiving medical records from the driver's pulmonologist, it confirms his diagnosis of COPD, and it is revealed that there has been a few occasions this year that he has suffered vasovagal syncope as a result from coughing. His pulmonary function test shows a FEV1 of 65%, FVC of 61% and a FEV/FVC ratio of 65%. His ABG PaO₂ was 65mmHg below 5000 feet and Pulse Ox was 92%. The examiner should:

- A. Certify the driver for 6 months
- B. Certify the driver for 1 year
- C. Certify the driver for 2 years
- D. Disqualify the driver

A 62-year-old male presents for a recertification examination with a history of COPD. He reports that he smokes a pack and a half of cigarettes daily and that he feels totally fine. Auscultation reveals positive findings. He is slightly hypertensive and overweight. During the examination he has a frequent nonproductive cough. Upon receiving medical records from the driver's pulmonologist, it confirms his diagnosis of COPD, and it is revealed that there has been a few occasions this year that he has suffered vasovagal syncope as a result from coughing. His pulmonary function test shows a FEV1 of 65%, FVC of 61% and a FEV/FVC ratio of 65%. The driver lives below 5000 feet and his ABG PaO₂ was 65mmHg, and Pulse Ox was 92%. The examiner should A, certify the driver for 6 months. B, certify the driver for 1 year. C, certify the driver for 2 years. Or D, disqualify the driver.



A 62-year-old male presents for a recertification examination with a history of COPD. He reports that he smokes a pack and a half of cigarettes daily and that he feels totally fine. Auscultation reveals positive findings. He is slightly hypertensive and overweight. During the examination he has a frequent nonproductive cough. Upon receiving medical records from the driver's pulmonologist, it confirms his diagnosis of COPD, and it is revealed that there has been a few occasions this year that he has suffered vasovagal syncope as a result from coughing. His pulmonary function test shows a FEV1 of 65%, FVC of 61% and a FEV/FVC ratio of 65%. His ABG PaO2 was 65mmHg below 5000 feet and Pulse Ox was 92%. The examiner should:

- A. Certify the driver for 6 months
- B. Certify the driver for 1 year
- C. Certify the driver for 2 years
- D. Disqualify the driver

The correct answer is **D**. Although the driver passes the pulmonary function test, he suffers from COPD with cough syncope and is automatically disqualified.


The correct answer is **D**. Although the driver passes the pulmonary function test, he suffers from COPD with cough syncope and is automatically disqualified.



**Driver presents with the condition noted in this image.
What is the next best step?**

- Clubbing of the fingers is associated with pulmonary and cardiac diseases
 - Order PFT or refer to pulmonologist

If a medical examiner noticed the following abnormality during a medical exam for a commercial driver, what would be the next best step? This picture indicates clubbing of the fingers which is associated with pulmonary and cardiac diseases. The medical examiner should consider ordering a pulmonary function test or refer the driver to a pulmonologist.

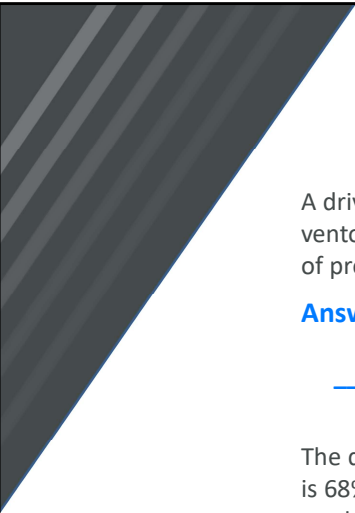


On history the ME notices the driver has asthma, and the driver lists an albuterol inhaler among his meds. On questioning, he admits he uses it several times per day, especially during spring and summer. He has not seen his PCP in a few years. He has been hospitalized twice in the last 6 months for his asthma, ending up on a ventilator during the last hospitalization. Should this driver be certified and for how long?

Disqualify.

- Asthma is not well controlled and may interfere with safe operation of a CMV
- Advise driver to see PCP and possibly pulmonologist who may be able to provide treatment to effectively control asthma

On the medical history, the medical examiner notices the driver has asthma and lists an albuterol inhaler among his medications. On questioning, the driver admits he uses it several times per day, especially during the spring and summer. The driver reports he has not seen his PCP in a few years. He has been hospitalized twice in the last six months due to his asthma, ending up on a ventilator on the last hospitalization. Should the medical examiner certify this driver to drive, and for how long? This driver should be disqualified from driving due to the driver's asthma condition not being well controlled and may interfere with safe operation of a commercial motor vehicle. The medical examiner should refer the driver to his PCP and possibly a pulmonologist who may be able to provide effective treatment. Once treated effectively, the driver could be certified to drive.



A driver with exercise-induced asthma is controlled with an inhaler (albuterol, proventil, ventolin) before any aerobic activity. To qualify, what must their FEV1 be greater than in % of predicted?

Answer: 65%

The driver presents for examination 3 months post spontaneous pneumothorax. His FEV1 is 68%. The records provided indicate that this is the second spontaneous pneumothorax on the same side. There was no surgical intervention.

Can this driver be certified? If not, when can they become certified?

Answer: Disqualify. The driver should not be considered if no surgical procedure has been done to prevent recurrence.

A driver with exercise-induced asthma is controlled with an inhaler (Albuterol, Proventil or Ventolin) before any aerobic activity. What must their FEV1 be greater than in percentage of predicted FEV1 to qualify? The drivers FEV1 must be greater than or equal to 65% of their predicted FEV1. The driver presents for examination three months post spontaneous pneumothorax. Their FEV is 68%. The records indicate that this is the driver's second spontaneous pneumothorax on the same side. There was no surgical intervention. Can this driver be certified? If not, when can they become certified? This driver should be disqualified from driving. The driver should not be considered to drive until the driver has had the surgical procedure to prevent reoccurrence.



This is the end of Module 5.