

## CHRONIC RESPIRATORY DISEASE PREAMBLE

Chronic respiratory disease includes conditions that may result in hypoxemia and chronic respiratory failure. Chronic obstructive pulmonary disease (COPD) refers to those pulmonary diseases characterized by obstruction to the outflow of breath, as measured by expiratory flow rates, and includes emphysema, chronic bronchitis, and some forms of chronic asthma. Restrictive respiratory diseases are distinct in limitation of expansion of the lung and include any type of pulmonary fibrosis, chronic infection with scarring, dust deposition, etc. Although the pathology is different, a final common pathway for both types of respiratory disease will be breathlessness, hypoxia, infections, eventual pulmonary insufficiency, and finally respiratory failure. Additionally, other disease processes such as congestive heart failure, cor pulmonale, pulmonary hypertension, among other disease processes can lead to chronic hypoxia.

Most studies of driving ability and COPD have focused on the neuropsychological effects of hypoxia. Classic studies in the 1980's found difficulties in COPD patients on complex cognitive testing. Grant and colleagues (1982)<sup>A</sup> studied 203 severely hypoxic patients (mean PO<sub>2</sub> of 51) and matched controls, and found 42% with cognitive difficulties in the study group compared to 14% in the controls. These did not correlate well with standard pulmonary function tests (PFT's). A second study by Prigatano (1983)<sup>B</sup> confirmed the same type of cognitive limits in slightly less hypoxic patients, mean PO<sub>2</sub> of 66. A meta-analysis<sup>C</sup> done by several of these researchers in 1987 found that neuropsychological effects were correlated with level of hypoxia.

Studies using driving simulators,<sup>D, E</sup> done by European researchers, have confirmed that even mildly hypoxic patients have perceptual difficulties and perform less well than controls. Few studies however have shown higher crash rates among COPD patients, although some Utah driver data<sup>F</sup> suggests that persons with any pulmonary condition are at higher risk of crashes.

A recent large trial testing long-term treatment with supplemental oxygen in COPD patients with moderate resting desaturation (89-93%) or moderate exercise induced hypoxia was performed.<sup>G</sup> There was no significant improvement in time to death or hospitalizations with supplemental oxygen. In addition, there was no significant difference in measures of quality of life. Thus, at this time there would not be an expectation for these patients to require oxygen with driving, if their resting O<sub>2</sub> Sat > 88%.

Restrictive respiratory diseases or any other disease process (CHF, pulmonary hypertension, cor pulmonale, etc.) could be subject to the same driving restrictions when hypoxic respiratory failure develops.

Shorter review periods are beneficial in persons with higher class of disease or those requiring oxygen (even nocturnal or partial use) given that such persons are prone to exacerbations worsening their daily status, prone to gradual decline, and prone to experience difficulty with stressful driving conditions. Those who cannot maintain adequate oxygenation with supplementation should not drive.

**FUNCTIONAL ABILITY PROFILE**  
**Chronic Respiratory Disease<sup>1</sup>**

<b>Profile Levels</b>	<b>Degree of Impairment/ Potential for At Risk Driving</b>	<b>Condition Definition / Example</b>	<b>Interval for Review and Other Actions</b>
1.	No diagnosed condition	No history of chronic respiratory disease	N/A
2.	Condition fully recovered	Any respiratory condition, recovered or cured; or  Minimal, reversible, episodic, controlled pulmonary condition.	N/A
3.	Active impairment  (Profile levels are intended to describe potential for at risk driving; they are NOT consistent with clinical definitions for mild, moderate or severe.)	Chronic respiratory disease <sup>2</sup>	
	a. Mild risk	COPD, restrictive respiratory diseases or other disease processes with mild dyspnea, able to maintain O <sub>2</sub> Sat 89% or greater on room air, at rest.	4 years
	b. Moderate risk	COPD, restrictive respiratory diseases or other disease processes with moderate dyspnea, O <sub>2</sub> Sat 88% or less, or PaO <sub>2</sub> 55 or less on room air, but able to maintain <i>O<sub>2</sub> Sat 89% or greater on oxygen supplementation</i> ; or  Exercise or sleep induced O <sub>2</sub> sat 88% or less but able to maintain 89% at rest on room air.	2 year  If O <sub>2</sub> sat less than 88% (on room air) while at rest must use O <sub>2</sub> while driving.  Note: Those with only sleep or exercise induced hypoxia are not required to use O <sub>2</sub> while driving.

	<p>c. Severe risk</p>	<p>COPD, restrictive respiratory diseases or other disease processes with severe dyspnea and/or hypoxia that cannot be controlled to maintain O<sub>2</sub> Sat 89% or greater, or PaO<sub>2</sub> 56 or greater on oxygen at rest; or</p> <p>New condition with poorly controlled hypoxia, unable to maintain O<sub>2</sub> sat at 89% or above, under investigation.</p>	<p>No driving</p>
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<sup>1</sup> For further discussion regarding CHRONIC RESPIRATORY DISEASE, please refer to PREAMBLE at the beginning of this section.

<sup>2</sup> Specify the diagnosis