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# Disability Programs



## Medical/Professional Relations

### Disability Evaluation Under Social Security (Blue Book- September 2008)

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### 3.00 Respiratory System - Adult

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#### Section

#### 3.00 Respiratory System

##### 3.01

Category of Impairments, Respiratory System

A. Introduction. The listings in this section describe impairments resulting from respiratory disorders based on symptoms, physical signs, laboratory test abnormalities, and response to a regimen of treatment prescribed by a treating source. Respiratory disorders along with any associated impairment(s) must be established by medical evidence. Evidence must be provided in sufficient detail to permit an independent reviewer to evaluate the severity of the impairment.

##### 3.02

Chronic pulmonary insufficiency

Many individuals, especially those who have listing-level impairments, will have received the benefit of medically prescribed treatment. Whenever there is evidence of such treatment, the longitudinal clinical record must include a description of the treatment prescribed by the treating source and response in addition to information about the nature and severity of the impairment.

##### 3.03

Asthma

##### 3.04

Cystic Fibrosis

##### 3.06

Pneumoconiosis

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##### 3.07

Bronchiectasis

It is important to document any prescribed treatment and response, because this medical management may have improved the individual's functional status. The longitudinal record should provide information regarding functional recovery, if any.

##### 3.08

Mycobacterial, mycotic, and other chronic persistent infections of the lung

Some individuals will not have received ongoing treatment or have an ongoing relationship with the medical community, despite the existence of a severe impairment(s). An individual who does not receive treatment may or may not be able to show the existence of an impairment that meets the criteria of these listings.

##### 3.09

Cor pulmonale secondary to chronic pulmonary vascular hypertension

Even if an individual does not show that his or her impairment meets the criteria of these listings, the individual may have an impairment(s) equivalent in severity to one of the listed impairments or be disabled because of a limited residual functional capacity.

**3.10**  
Sleep-related  
breathing  
disorders

**3.11**  
Lung transplant

Unless the claim can be decided favorably on the basis of the current evidence, a longitudinal record is still important because it will provide information about such things as the ongoing medical severity of the impairment, the level of the individual's functioning, and the frequency, severity, and duration of symptoms. Also, the asthma listing specifically includes a requirement for continuing signs and symptoms despite a regimen of prescribed treatment.

Impairments caused by chronic disorders of the respiratory system generally produce irreversible loss of pulmonary function due to ventilatory impairments, gas exchange abnormalities, or a combination of both. The most common symptoms attributable to these disorders are dyspnea on exertion, cough, wheezing, sputum production, hemoptysis, and chest pain.

Because these symptoms are common to many other diseases, a thorough medical history, physical examination, and chest x-ray or other appropriate imaging technique are required to establish chronic pulmonary disease. Pulmonary function testing is required to assess the severity of the respiratory impairment once a disease process is established by appropriate clinical and laboratory findings.

Alterations of pulmonary function can be due to obstructive airway disease (e.g., emphysema, chronic bronchitis, asthma), restrictive pulmonary disorders with primary loss of lung volume (e.g., pulmonary resection, thoracoplasty, chest cage deformity as in kyphoscoliosis or obesity), or infiltrative interstitial disorders (e.g., diffuse pulmonary fibrosis). Gas exchange abnormalities without significant airway obstruction can be produced by interstitial disorders.

Disorders involving the pulmonary circulation (e.g., primary pulmonary hypertension, recurrent thromboembolic disease, primary or secondary pulmonary vasculitis) can produce pulmonary vascular hypertension and, eventually, pulmonary heart disease (cor pulmonale) and right heart failure. Persistent hypoxemia produced by any chronic pulmonary disorder also can result in chronic pulmonary hypertension and right heart failure.

Chronic infection, caused most frequently by mycobacterial or mycotic organisms, can produce extensive and progressive lung destruction resulting in marked loss of pulmonary function. Some disorders, such as bronchiectasis, cystic fibrosis, and asthma, can be associated with intermittent exacerbations of such frequency and intensity that they produce a disabling impairment, even when pulmonary function

during periods of relative clinical stability is relatively well-maintained.

Respiratory impairments usually can be evaluated under these listings on the basis of a complete medical history, physical examination, a chest x-ray or other appropriate imaging techniques, and spirometric pulmonary function tests. In some situations, most typically with a diagnosis of diffuse interstitial fibrosis or clinical findings suggesting cor pulmonale, such as cyanosis or secondary polycythemia, an impairment may be underestimated on the basis of spirometry alone.

More sophisticated pulmonary function testing may then be necessary to determine if gas exchange abnormalities contribute to the severity of a respiratory impairment. Additional testing might include measurement of diffusing capacity of the lungs for carbon monoxide or resting arterial blood gases.

Measurement of arterial blood gases during exercise is required infrequently. In disorders of the pulmonary circulation, right heart catheterization with angiography and/or direct measurement of pulmonary artery pressure may have been done to establish a diagnosis and evaluate severity. When performed, the results of the procedure should be obtained. Cardiac catheterization will not be purchased.

These listings are examples of common respiratory disorders that are severe enough to prevent a person from engaging in a gainful activity. When an individual has a medically-determinable impairment that is not listed, an impairment which does not meet a listing, or a combination of impairments no one of which meets a listing, we will consider whether the individual's impairment or combination of impairments is medically equivalent in severity to a listed impairment.

Individuals who have an impairment(s) with a level of severity which does not meet or equal the criteria of the listings may or may not have the residual functional capacity (RFC) which would enable them to engage in substantial gainful activity. Evaluation of the impairment(s) of these individuals will proceed through the final steps of the sequential evaluation process.

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B. Mycobacterial, mycotic, and other chronic persistent infections of the lung. These disorders are evaluated on the basis of the resulting limitations in pulmonary function. Evidence of chronic infections, such as active mycobacterial diseases or mycoses with positive

cultures, drug resistance, enlarging parenchymal lesions, or cavitation, is not, by itself, a basis for determining that an individual has a disabling impairment expected to last 12 months.

In those unusual cases of pulmonary infection that persist for a period approaching 12 consecutive months, the clinical findings, complications, therapeutic considerations, and prognosis must be carefully assessed to determine whether, despite relatively well-maintained pulmonary function, the individual nevertheless has an impairment that is expected to last for at least 12 consecutive months and prevent gainful activity.

C. Episodic respiratory disease. When a respiratory impairment is episodic in nature, as can occur with exacerbations of asthma, cystic fibrosis, bronchiectasis, or chronic asthmatic bronchitis, the frequency and intensity of episodes that occur despite prescribed treatment are often the major criteria for determining the level of impairment.

Documentation for these exacerbations should include available hospital, emergency facility and/or physician records indicating the dates of treatment; clinical and laboratory findings on presentation, such as the results of spirometry and arterial blood gas studies (ABGS); the treatment administered; the time period required for treatment; and the clinical response.

Attacks of asthma, episodes of bronchitis or pneumonia or hemoptysis (more than blood-streaked sputum), or respiratory failure as referred to in paragraph B of 3.03, 3.04, and 3.07, are defined as prolonged symptomatic episodes lasting one or more days and requiring intensive treatment, such as intravenous bronchodilator or antibiotic administration or prolonged inhalational bronchodilator therapy in a hospital, emergency room or equivalent setting.

Hospital admissions are defined as inpatient hospitalizations for longer than 24 hours. The medical evidence must also include information documenting adherence to a prescribed regimen of treatment as well as a description of physical signs. For asthma, the medical evidence should include spirometric results obtained between attacks that document the presence of baseline airflow obstruction.

D. Cystic fibrosis is a disorder that affects either the respiratory or digestive body systems or both and is responsible for a wide and variable spectrum of clinical manifestations and complications. Confirmation of the diagnosis is based upon an elevated sweat sodium

concentration or chloride concentration accompanied by one or more of the following: the presence of chronic obstructive pulmonary disease, insufficiency of exocrine pancreatic function, meconium ileus, or a positive family history.

The quantitative pilocarpine iontophoresis procedure for collection of sweat content must be utilized. Two methods are acceptable: the "Procedure for the Quantitative Iontophoretic Sweat Test for Cystic Fibrosis" published by the Cystic Fibrosis Foundation and contained in, "A Test for Concentration of Electrolytes in Sweat in Cystic Fibrosis of the Pancreas Utilizing Pilocarpine Iontophoresis," Gibson, I.E., and Cooke, R.E., *Pediatrics*, Vol. 23:545, 1959; or the "Wescor Macroduct System." To establish the diagnosis of cystic fibrosis, the sweat sodium or chloride content must be analyzed quantitatively using an acceptable laboratory technique. Another diagnostic test is the "CF gene mutation analysis" for homozygosity of the cystic fibrosis gene.

The pulmonary manifestations of this disorder should be evaluated under 3.04. The nonpulmonary aspects of cystic fibrosis should be evaluated under the digestive body system (5.00). Because cystic fibrosis may involve the respiratory and digestive body systems, the combined effects of the involvement of these body systems must be considered in case adjudication.

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E. Documentation of pulmonary function testing. The results of spirometry that are used for adjudication under paragraphs A and B of 3.02 and paragraph A of 3.04 should be expressed in liters (L), body temperature and pressure saturated with water vapor (BTPS). The reported one-second forced expiratory volume ( $FEV_1$ ) and forced vital capacity (FVC) should represent the largest of at least three satisfactory forced expiratory maneuvers. Two of the satisfactory spirograms should be reproducible for both pre-bronchodilator tests and, if indicated, post-bronchodilator tests.

A value is considered reproducible if it does not differ from the largest value by more than 5 percent or 0.1 L, whichever is greater. The highest values of the  $FEV_1$  and FVC, whether from the same or different tracings, should be used to assess the severity of the respiratory impairment. Peak flow should be achieved early in expiration, and the spirogram should have a smooth contour with gradually decreasing flow

throughout expiration. The zero time for measurement of the FEV<sub>1</sub> and FVC, if not distinct, should be derived by linear back-extrapolation of peak flow to zero volume. A spirogram is satisfactory for measurement of the FEV<sub>1</sub> if the expiratory volume at the back-extrapolated zero time is less than 5 percent of the FVC or 0.1 L, whichever is greater.

The spirogram is satisfactory for measurement of the FVC if maximal expiratory effort continues for at least 6 seconds, or if there is a plateau in the volume-time curve with no detectable change in expired volume (VE) during the last 2 seconds of maximal expiratory effort.

Spirometry should be repeated after administration of an aerosolized bronchodilator under supervision of the testing personnel if the pre-bronchodilator FEV<sub>1</sub> value is less than 70 percent of the predicted normal value. Pulmonary function studies should not be performed unless the clinical status is stable (e.g., the individual is not having an asthmatic attack or suffering from an acute respiratory infection or other chronic illness). Wheezing is common in asthma, chronic bronchitis, or chronic obstructive pulmonary disease and does not preclude testing.

The effect of the administered bronchodilator in relieving bronchospasm and improving ventilatory function is assessed by spirometry. If a bronchodilator is not administered, the reason should be clearly stated in the report. Pulmonary function studies performed to assess airflow obstruction without testing after bronchodilators cannot be used to assess levels of impairment in the range that prevents any gainful work activity, unless the use of bronchodilators is contraindicated. Post-bronchodilator testing should be performed 10 minutes after bronchodilator administration.

The dose and name of the bronchodilator administered should be specified. The values in paragraphs A and B of 3.02 must only be used as criteria for the level of ventilatory impairment that exists during the individual's most stable state of health (i.e., any period in time except during or shortly after an exacerbation).

The appropriately labeled spirometric tracing, showing the claimant's name, date of testing, distance per second on the abscissa and the distance per liter (L) on the ordinate, must be incorporated into the file. The manufacturer and model number of the device used to measure and record the spirogram should be stated.

The testing device must accurately measure both time and volume, the latter to within 1 percent of a 3 L calibrating volume. If the spirogram was generated by any means other than direct pen linkage to a mechanical displacement-type spirometer, the testing device must have had a recorded calibration performed previously on the day of the spirometric measurement.

If the spirometer directly measures flow, and volume is derived by electronic integration, the linearity of the device must be documented by recording volume calibrations at three different flow rates of approximately 30 L/min (3 L/6 sec), 60 L/min (3 L/3 sec), and 180 L/min (3 L/sec). The volume calibrations should agree to within 1 percent of a 3 L calibrating volume. The proximity of the flow sensor to the individual should be noted, and it should be stated whether or not a BTPS correction factor was used for the calibration recordings and for the individual's actual spiograms.

The spirogram must be recorded at a speed of at least 20 mm/sec, and the recording device must provide a volume excursion of at least 10 mm/L. If reproductions of the original spirometric tracings are submitted, they must be legible and have a time scale of at least 20 mm/sec and a volume scale of at least 10 mm/L to permit independent measurements. Calculation of  $FEV_1$  from a flow-volume tracing is not acceptable; i.e., the spirogram and calibrations must be presented in a volume-time format at a speed of at least 20 mm/sec and a volume excursion of at least 10 mm/L to permit independent evaluation.

A statement should be made in the pulmonary function test report of the individual's ability to understand directions as well as his or her effort and cooperation in performing the pulmonary function tests.

The pulmonary function tables in 3.02 and 3.04 are based on measurement of standing height without shoes. If an individual has marked spinal deformities (e.g., kyphoscoliosis), the measured span between the fingertips with the upper extremities abducted 90 degrees should be substituted for height when this measurement is greater than the standing height without shoes.

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F. Documentation of Chronic Impairment of Gas Exchange.

1. Diffusing capacity of the lungs for carbon monoxide (DLCO). A diffusing capacity of the lungs for carbon monoxide study should be purchased in cases in which there is documentation of chronic pulmonary disease, but the existing evidence, including properly performed spirometry, is not adequate to establish the level of functional impairment.

Before purchasing DLCO measurements, the medical history, physical examination, reports of chest x-ray or other appropriate imaging techniques, and spirometric test results must be obtained and reviewed because favorable decisions can often be made based on available evidence without the need for DLCO studies. Purchase of a DLCO study may be appropriate when there is a question of whether an impairment meets or is equivalent in severity to a listing, and the claim cannot otherwise be favorably decided.

The DLCO should be measured by the single breath technique with the individual relaxed and seated. At sea level, the inspired gas mixture should contain approximately 0.3 percent carbon monoxide (CO), 10 percent helium (He), 21 percent oxygen (O<sub>2</sub>), and the balance, nitrogen. At altitudes above sea level, the inspired O<sub>2</sub> concentration may be raised to provide an inspired O<sub>2</sub> tension of approximately 150 mm Hg. Alternatively, the sea level mixture may be employed at altitude and the measured DLCO corrected for ambient barometric pressure. Helium may be replaced by another inert gas at an appropriate concentration.

The inspired volume (VI) during the DLCO maneuver should be at least 90 percent of the previously determined vital capacity (VC). The inspiratory time for the VI should be less than 2 seconds, and the breath-hold time should be between 9 and 11 seconds. The washout volume should be between 0.75 and 1.00 L, unless the VC is less than 2 L. In this case, the washout volume may be reduced to 0.50 L; any such change should be noted in the report. The alveolar sample volume should be between 0.5 and 1.0 L and be collected in less than 3 seconds. At least 4 minutes should be allowed for gas washout between repeat studies.

A DLCO should be reported in units of ml CO, standard temperature, pressure, dry (STPD)/min/mm Hg uncorrected for hemoglobin concentration and be based on a single-breath alveolar volume determination. Abnormal hemoglobin or hematocrit values, and/or carboxyhemoglobin levels should be reported along with diffusing capacity.

The DLCO value used for adjudication should represent the mean of at least two acceptable measurements, as defined above. In addition, two acceptable tests should be within 10 percent of each other or 3 ml CO(STPD)min/mm Hg, whichever is larger. The percent difference should be calculated as:  $100 \times (\text{test 1} - \text{test 2}) / \text{average DLCO}$ .

The ability of the individual to follow directions and perform the test properly should be described in the written report. The report should include tracings of the VI, breath-hold maneuver, and VE appropriately labeled with the name of the individual and the date of the test. The time axis should be at least 20 mm/sec and the volume axis at least 10 mm/L. The percentage concentrations of inspired O<sub>2</sub> and inspired and expired CO and He for each of the maneuvers should be provided. Sufficient data must be provided, including documentation of the source of the predicted equation, to permit verification that the test was performed adequately, and that, if necessary, corrections for anemia or carboxyhemoglobin were made appropriately.

2. Arterial blood gas studies (ABGS). An ABGS performed at rest (while breathing room air, awake and sitting or standing) or during exercise should be analyzed in a laboratory certified by a State or Federal agency. If the laboratory is not certified, it must submit evidence of participation in a national proficiency testing program as well as acceptable quality control at the time of testing. The report should include the altitude of the facility and the barometric pressure on the date of analysis.

Purchase of resting ABGS may be appropriate when there is a question of whether an impairment meets or is equivalent in severity to a listing, and the claim cannot otherwise be favorably decided. If the results of a DLCO study are greater than 40 percent of predicted normal but less than 60 percent of predicted normal, purchase of resting ABGS should be considered. Before purchasing resting ABGS, a program physician, preferably one experienced in the care of patients with pulmonary disease, must review all clinical and laboratory data short of this procedure, including spirometry, to determine whether obtaining the test would present a significant risk to the individual.

3. Exercise testing. Exercise testing with measurement of arterial blood gases during exercise may be appropriate in cases in which there is documentation of chronic pulmonary disease, but full development, short of exercise testing, is not adequate to establish if the impairment meets or is equivalent in severity to a

listing, and the claim cannot otherwise be favorably decided.

In this context, "full development" means that results from spirometry and measurement of DLCO and resting ABGS have been obtained from treating sources or through purchase. Exercise arterial blood gas measurements will be required infrequently and should be purchased only after careful review of the medical history, physical examination, chest x-ray or other appropriate imaging techniques, spirometry, DLCO, electrocardiogram (ECG), hematocrit or hemoglobin, and resting blood gas results by a program physician, preferably one experienced in the care of patients with pulmonary disease, to determine whether obtaining the test would present a significant risk to the individual.

Oximetry and capillary blood gas analysis are not acceptable substitutes for the measurement of arterial blood gases. Arterial blood gas samples obtained after the completion of exercise are not acceptable for establishing an individual's functional capacity.

Generally, individuals with a DLCO greater than 60 percent of predicted normal would not be considered for exercise testing with measurement of blood gas studies. The exercise test facility must be provided with the claimant's clinical records, reports of chest x-ray or other appropriate imaging techniques, and any spirometry, DLCO, and resting blood gas results obtained as evidence of record. The testing facility must determine whether exercise testing presents a significant risk to the individual; if it does, the reason for not performing the test must be reported in writing.

4. Methodology. Individuals considered for exercise testing first should have resting arterial blood partial pressure of oxygen ( $P_{O_2}$ ), resting arterial blood partial pressure of carbon dioxide ( $PCO_2$ ) and negative log of hydrogen ion concentration (pH) determinations by the testing facility. The sample should be obtained in either the sitting or standing position. The individual should then perform exercise under steady state conditions, preferably on treadmill, breathing room air, for a period of 4 to 6 minutes at a speed and grade providing an Oxygen consumption of approximately 17.5 ml/kg/ min (5 METs).

If a bicycle ergometer is used, an exercise equivalent of 5 METs (e.g., 450 kpm/min, or 75 watts for a 176 pound (80 kilogram) person) should be used. If the individual is able to complete this level of exercise without achieving listing-level hypoxemia, then he or she should be exercised at higher workloads to

determine exercise capacity. A warm-up period of treadmill walking or cycling may be performed to acquaint the individual with the exercise procedure. If during the warm-up period the individual cannot achieve an exercise level of 5 METs, a lower workload may be selected in keeping with the estimate of exercise capacity.

The individual should be monitored by ECG throughout the exercise and in the immediate post-exercise period. Blood pressure and an ECG should be recorded during each minute of exercise. During the final 2 minutes of a specific level of steady state exercise, an arterial blood sample should be drawn and analyzed for oxygen pressure (or tension) ( $PO_2$ ), carbon dioxide pressure (or tension) ( $PCO_2$ ), and pH. At the discretion of the testing facility, the sample may be obtained either from an indwelling arterial catheter or by direct arterial puncture.

If possible, in order to evaluate exercise capacity more accurately, a test site should be selected that has the capability to measure minute ventilation,  $O_2$  consumption, and carbon dioxide ( $CO_2$ ) production. If the claimant fails to complete 4 to 6 minutes of steady state exercise, the testing laboratory should comment on the reason and report the actual duration and levels of exercise performed. This comment is necessary to determine if the individual's test performance was limited by lack of effort or other impairment (e.g., cardiac, peripheral vascular, musculoskeletal, neurological).

The exercise test report should contain representative ECG strips taken before, during and after exercise; resting and exercise arterial blood gas values; treadmill speed and grade settings, or, if a bicycle ergometer was used, exercise levels expressed in watts or kpm/min; and the duration of exercise. Body weight also should be recorded. If measured,  $O_2$  consumption (STPD), minute ventilation (BTPS), and  $CO_2$  production (STPD) also should be reported. The altitude of the test site, its normal range of blood gas values, and the barometric pressure on the test date must be noted.

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G. Chronic cor pulmonale and pulmonary vascular disease. The establishment of an impairment attributable to irreversible cor pulmonale secondary to chronic pulmonary hypertension requires documentation by signs and laboratory findings of right

ventricular overload or failure (e.g., an early diastolic right-sided gallop on auscultation, neck vein distension, hepatomegaly, peripheral edema, right ventricular outflow tract enlargement on x-ray or other appropriate imaging techniques, right ventricular hypertrophy on ECG, and increased pulmonary artery pressure measured by right heart catheterization available from treating sources).

Cardiac catheterization will not be purchased. Because hypoxemia may accompany heart failure and is also a cause of pulmonary hypertension, and may be associated with hypoventilation and respiratory acidosis, arterial blood gases may demonstrate hypoxemia (decreased  $PO_2$ ),  $CO_2$  retention (increased  $PCO_2$ ), and acidosis (decreased pH). Polycythemia with an elevated red blood cell count and hematocrit may be found in the presence of chronic hypoxemia.

P-pulmonale on the ECG does not establish chronic pulmonary hypertension or chronic cor pulmonale. Evidence of florid right heart failure need not be present at the time of adjudication for a listing (e.g., 3.09) to be satisfied, but the medical evidence of record should establish that cor pulmonale is chronic and irreversible.

H. Sleep-related breathing disorders. Sleep-related breathing disorders (sleep apneas) are caused by periodic cessation of respiration associated with hypoxemia and frequent arousals from sleep. Although many individuals with one of these disorders will respond to prescribed treatment, in some, the disturbed sleep pattern and associated chronic nocturnal hypoxemia cause daytime sleepiness with chronic pulmonary hypertension and/or disturbances in cognitive function. Because daytime sleepiness can affect memory, orientation and personality, a longitudinal treatment record may be needed to evaluate mental functioning.

Not all individuals with sleep apnea develop a functional impairment that affects work activity. When any gainful work is precluded, the physiologic basis for the impairment may be chronic cor pulmonale. Chronic hypoxemia due to episodic apnea may cause pulmonary hypertension (see 3.00G and 3.09). Daytime somnolence may be associated with disturbance in cognitive vigilance. Impairment of cognitive function may be evaluated under organic mental disorders (12.02).

I. Effects of obesity. Obesity is a medically determinable impairment that is often associated with disturbance of the respiratory system, and disturbance

of this system can be a major cause of disability in individuals with obesity. The combined effects of obesity with respiratory impairments can be greater than the effects of each of the impairments considered separately. Therefore, when determining whether an individual with obesity has a listing-level impairment or combination of impairments, and when assessing a claim at other steps of the sequential evaluation process, including when assessing an individual's residual functional capacity, adjudicators must consider any additional and cumulative effects of obesity.

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### 3.01 Category of Impairments, Respiratory System

#### 3.02 Chronic pulmonary insufficiency

**A.** Chronic obstructive pulmonary disease due to any cause, with the FEV<sub>1</sub> equal to or less than the values specified in table I corresponding to the person's height without shoes. (In cases of marked spinal deformity, see 3.00E.);

**Table I**

Height without Shoes (centimeters)	Height without Shoes (inches)	FEV <sub>1</sub> Equal to or less than (L,BTPS)
154 or less	60 or less	1.05
155-160	61-63	1.15
161-165	64-65	1.25
166-170	66-67	1.35
171-175	68-69	1.45
176-180	70-71	1.55
181 or more	72 or more	1.65

**or**

**B.** Chronic restrictive ventilatory disease, due to any cause, with the FVC equal to or less than the values specified in Table II corresponding to the person's height without shoes. (In cases of marked spinal

deformity, see 3.00E.);

**Table II**

<b>Height without Shoes (centimeters)</b>	<b>Height without Shoes (inches)</b>	<b>FVC Equal to or less than (L,BTPS)</b>
154 or less	60 or less	1.25
155-160	61-63	1.35
161-165	64-65	1.45
166-170	66-67	1.55
171-175	68-69	1.65
176-180	70-71	1.75
181 or more	72 or more	1.85

**or**

C. Chronic impairment of gas exchange due to clinically documented pulmonary disease. With:

1. Single breath DLCO (see 3.00FI) less than 10.5 ml/min/mm Hg or less than 40 percent of the predicted normal value. (Predicted values must either be based on data obtained at the test site or published values from a laboratory using the same technique as the test site. The source of the predicted values should be reported. If they are not published, they should be submitted in the form of a table or nomogram); or

2. Arterial blood gas values of PO<sub>2</sub> and simultaneously determined PCO<sub>2</sub> measured while at rest (breathing room air, awake and sitting or standing) in a clinically stable condition on at least two occasions, three or more weeks apart within a 6-month period, equal to or, less than the values specified in the applicable table III-A or III-B or III-C:

**Table III-A**

(Applicable at test sites less than 3,000 feet above sea level)

<b>Arterial PCO<sub>2</sub> (mm Hg) and</b>	<b>Arterial PO<sub>2</sub> Equal to or Less than (mm Hg)</b>
30 or below	65
31 . . . . .	64
32 . . . . .	63
33 . . . . .	62
34 . . . . .	61
35 . . . . .	60
36 . . . . .	59
37 . . . . .	58
38 . . . . .	57
39 . . . . .	56
40 or above	55

**Table III-B**

(Applicable at test sites 3,000 through 6,000 feet  
above sea level)

<b>Arterial PCO<sub>2</sub> (mm Hg) and</b>	<b>Arterial PO<sub>2</sub> Equal to or Less than (mm Hg)</b>
30 or below	60
31 . . . . .	59
32 . . . . .	58
33 . . . . .	57
34 . . . . .	56
35 . . . . .	55
36 . . . . .	54

37 . . . . .	53
38 . . . . .	52
39 . . . . .	51
40 or above	50

**Table III-C**

(Applicable at test sites over 6,000 feet above sea level)

<b>Arterial PCO<sub>2</sub> (mm Hg) and</b>	<b>Arterial PO<sub>2</sub> equal to or less than (mm Hg)</b>
30 or below .	55
31 . . . . . .	54
32 . . . . . .	53
33 . . . . . .	52
34 . . . . . .	51
35 . . . . . .	50
36 . . . . . .	49
37 . . . . . .	48
38 . . . . . .	47
39 . . . . . .	46
40 or above	45

**or**

3. Arterial blood gas values of PO<sub>2</sub> and simultaneously

determined  $\text{PCO}_2$  during steady state exercise breathing room air (level of exercise equivalent to or less than 17.5 ml  $\text{O}_2$  consumption/kg/min or 5 METs) equal to or less than the values specified in the applicable table III-A or III-B or III-C in 3.02 C2.

**3.03 Asthma.** With:

A. Chronic asthmatic bronchitis. Evaluate under the criteria for chronic obstructive pulmonary disease in 3.02A;

**or**

B. Attacks (as defined in 3.00C), in spite of prescribed treatment and requiring physician intervention, occurring at least once every 2 months or at least six times a year. Each in-patient hospitalization for longer than 24 hours for control of asthma counts as two attacks, and an evaluation period of at least 12 consecutive months must be used to determine the frequency of attacks.

**3.04 Cystic fibrosis.** With:

A. An  $\text{FEV}_1$  equal to or less than the appropriate value specified in table IV corresponding to the individual's height without shoes. (In cases of marked spinal deformity, see. 3.00E.);

**or**

B. Episodes of bronchitis or pneumonia or hemoptysis (more than bloodstreaked sputum) or respiratory failure (documented according to 3.00C, requiring physician intervention, occurring at least once every 2 months or at least six times a year. Each inpatient hospitalization for longer than 24 hours for treatment counts as two episodes, and an evaluation period of at least 12 consecutive months must be used to determine the frequency of episodes;

**or**

C. Persistent pulmonary infection accompanied by superimposed, recurrent, symptomatic episodes of increased bacterial infection occurring at least once every 6 months and requiring intravenous or nebulization antimicrobial therapy.

**Table IV**

(Applicable only for evaluation under

## 3.04A - cystic fibrosis)

Height without Shoes (centimeters)	Height without Shoes (inches)	FEV <sub>1</sub> Equal to or less than (L,BTPS)
154 or less	60 or less	1.45
155-159	61-62	1.55
160-164	63-64	1.65
165-169	65-66	1.75
170-174	67-68	1.85
175-179	69-70	1.95
180 or more	71 or more	2.05

**3.05** [Reserved.]

**3.06 *Pneumoconiosis*** (demonstrated by appropriate imaging techniques). Evaluate under the appropriate criteria in 3.02.

**3.07 *Bronchiectasis*** (demonstrated by appropriate imaging techniques). With:

A. Impairment of pulmonary function due to extensive disease. Evaluate under the appropriate criteria in 3.02;

or

B. Episodes of bronchitis or pneumonia or hemoptysis (more than bloodstreaked sputum) or respiratory failure (documented according to 3.00C), requiring physician intervention, occurring at least once every 2 months or at least six times a year. Each inpatient hospitalization for longer than 24 hours for treatment counts as two episodes, and an evaluation of at least 12 consecutive months must be used to determine the frequency of episodes.

**3.08 *Mycobacterial, mycotic, and other chronic***

***persistent infections of the lung*** (see 3.00B).  
Evaluate under the appropriate criteria in 3.02.

**3.09 *Cor pulmonale secondary to chronic pulmonary vascular hypertension.*** Clinical evidence of cor pulmonale (documented according to 3.00G) with:

A. Mean pulmonary artery pressure greater than 40 mm Hg;

or

B. Arterial hypoxemia. Evaluate under the criteria in 3.02C2.

**3.10 *Sleep-related breathing disorders.***  
Evaluate under 3.09 (chronic cor pulmonale), or 12.02 (organic mental disorders).

**3.11 *Lung transplant.*** Consider under a disability for 12 months following the date of surgery; thereafter, evaluate the residual impairment.

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