

# Disability in respiratory medicine

## Abstract

Respiratory disease has a great impact in the workplace, is a major cause of morbidity and mortality and frequent source of temporary disability. They have created several guides for estimating bodily harm by different scientific societies, but although they are widely used, are not without controversy. Criticisms are based on the low level of evidence of its recommendations (most come from expert opinion) and the lack of internal consistency.

**Keywords:** disability, disability assessment, evaluation of respiratory impairment, respiratory diseases, lung function, respiratory medicine, pneumology, social security, medical insurance, physical injury, high complexity foundation

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Jose Bruno De Lema

High Complexity Foundation, Spain

**Correspondence:** Jose Bruno De Lema, High Complexity Foundation, Paseo de la montana # 14 bajo. granollers 08402, Pereira, Barcelona, Spain, Email [delemalarre@gmail.com](mailto:delemalarre@gmail.com)

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## Editorial

Respiratory disease is one of the first of the 5 causes of mortality worldwide; being one of the most common causes of temporary incapacity. The consumption of snuff, pollutants and early exposure to allergens; cause patients with bronchial asthma chronic obstructive pulmonary disease (COPD); or very frequent and at younger ages; thus the working lives of these people may be compromised and reduced; taking into account the social security systems worldwide are increasingly demanding a period of longer trading; to obtain an economic benefit. Unfortunately; the assessment of body damage in respiratory medicine; is usually done in chronic conditions where acute phenomena become considered less weight; those pathologies with an intermittent pattern (crisis); which present the greatest difficulty to be estimated.

The assessment and determination of a position of employment or disability; and the degree or magnitude of the process is an issue that concerns not only the specialist; but the doctor and the state administration and the legal part; comprising the process. It is postulated; the need for an expert; objective and based on standardized tests for diagnosis. Given the significant labor and socio-economic implications of the statement of disability; it is necessary to emphasize the need for the available arsenal and use scientific studies to demonstrate in a measurable and reproducible (both execution and interpretation by other observers) to state the conclusions disability status.

Moreover; do not associate the diagnosis of a disease; as an indication of incapacity. From there; it is the most significant part; estimating the functional reserve and restrictions on the work performed by the patient regularly.

Because it evaluates the sick person; but also is determining whether or not your work environment is causing their condition; or it can be an aggravation of an already established or just if it is within your abilities the power to perform the work assigned to a suitable way; both from the functional point of view and also in productivity considerations company expected. Studies comparing the presence of symptoms with objective measurement of lung function have shown a poor correlation; which is accentuated in some groups of patients applying for disability. Imaging tests; although they have an important role in the diagnosis of disease; not predict functional impairment. And it is in the functional approach to the study of respiratory disease where you must insist.

Within the study of pulmonary function; spirometry is the test to calculate the ventilatory capacity. The maneuvers for determination of forced vital capacity and forced expiratory volume in one second require patient cooperation; something which can be complex. There are Spanish and European regulations available for the implementation of this and other pulmonary function tests. Spirometry requires trained technicians; who must ensure proper understanding and patient cooperation. The spirometric values distinguish obstructive ventilatory defect and its measurement should be obtained after administration of a bronchodilator. The suspicion of a restrictive ventilatory defect requires the measurement of other lung volumes (total lung capacity and residual volume) for proper assessment. The determination of static lung volumes and inspiratory and expiratory pressures; recognized the extent of respiratory impairment in the presence of neuromuscular disease; obesity and disorders of the thoracic cage.

Other parameters provided spirometry as the maximum mean flow (FEF25-75%; FEF50%); which are not considered relevant to assess the loss of function component variability and its dependence on voluntary effort; yet; in the absence of change in forced expiratory volume in one second; only to be valued as a probabilistic risk assessment. The measurement of diffusion capacity after transfer of carbon monoxide to appreciate the functional status of the alveolar-capillary membrane. Their status depends on several factors and is affected by various diseases. Can be modified; depending on the integrity of the alveolar surface (emphysema); the situation of the vascular bed (pulmonary hypertension; pulmonary thromboembolism); the thickness of the interstitial membrane (pulmonary fibrosis) and hemoglobin concentration. Quantification of pulmonary diffusion is a sensitive variable in the effect on gas exchange; but does not discriminate on the possible etiology. In patients with diffuse interstitial lung disease; diffusion capacity is a key to the assessment and is closely related to exercise capacity.

When respiratory disease causes outbreaks; the severity assessment should be performed in the inter-crises periods; but must take into account the frequency; duration and severity of acute episodes; which should be well documented. Spirometry and diffusion capacity; along with the symptoms reported by the patient; according to the guidelines recommended by various scientific societies scales values allow classify the severity of functional impairment in most diseases. Sometimes respiratory disease responsible for disability caused by specific agents in the workplace and is then considered "occupational

disease". A detailed work history different jobs; the intensity and duration of exposure to fumes; gases; dusts and / or toxic and the relationship of symptoms to occupational exposure; part of the information to be collected. Knowledge of the characteristics of the job is also of interest. Another reason to identify the occupational origin of the disease is that in these cases; the incapacity can happen absence of permanent functional impairment and one associated with your job.

In the evaluation of permanent disability; if we consider strictly the physician's role; it could end with the issuance of a diagnosis of disease and identification of functional impairment that occurs. However; these data and those obtained in labor history; the doctor may also deduct the impact of the disease on the welfare and quality of life of individuals; assisting in the subsequent decision-making team of disability evaluation. In most cases; the ability to do a job is determined by the tolerance. Thus; the measurement of maximal oxygen uptake during exercise testing is considered the benchmark for assessing work capacity. Quantification can assess cardiac; respiratory and metabolic response of the organism. The control variables during performance (heart rate; blood pressure; ECG; blood pressure; oxygen; etc.) have diagnostic and prognostic value; assesses the impairment of gas exchange in interstitial disease; detect exercise-induced bronchospasm identifies the presence of heart disease or lack of training. However; the stress test has some drawbacks related to their limited availability and use of healthcare resources; which prevent their systematic use for assessing work capacity. The pulmonary function tests at rest provide indirect evidence to assess exercise capacity and in the absence of a maximal exercise test seem useful tools and with a degree of predictive value; which may to some extent assess tolerance.

Several scientific societies; including the American Medical Association (AMA) American Thoracic Society (ATS) and British Thoracic Society (BTS) have published guidelines and several recommendations for the assessment of work capacity according to

the severity of functional impairment. Although tools are widely used; are not without controversy. Criticisms are based on the low level of evidence of its recommendations (most come from expert opinion) and the lack of internal consistency. Yet almost all guidelines agree sufficient to assess the majority of cases; the results of spirometry and lung diffusing reserving the use of stress testing for selected cases in which pulmonary function at rest may underestimate ; an existing disorder.

The proposed ATS exercise testing in individuals with normal spirometry and diffusion or with a slight alteration to manifest symptoms during work. Subsequently; other authors have stressed the absence of a close relationship between function at rest and exercise testing; and recommended its use in the evaluation of patients with mild to moderate COPD when a lack of correlation is observed between symptoms and pulmonary function at rest. Most studies with functional measures have focused on the relationship between VO<sub>2</sub> and heart rate in the laboratory and later have controlled mind; heart rate during the workday for indirect estimates of VO<sub>2</sub>; thus it has been observed that in most jobs the energy demand is intermittent throughout the day. Assuming that a worker can maintain for most of the workday a rate of 40-60% of VO<sub>2</sub> max; the quantification of this may be a criterion for the suitability of an individual to a particular job. More recent studies suggest the mathematical estimation of VO<sub>2</sub> from the test 6MW a submaximal exercise test is easy to perform and increased security. The distance traveled during this time is directly and significantly with the ability to perform activities of daily living; in addition to its utility in the prognosis of various diseases and perhaps help to understand the impact of COPD on working capacity.

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### Conflict of interest

The author declares no conflict of interest.