LEGACY
HEALTH PARTNERS

Spirometry vs. Complete PFT: Which one, when?

Clinical Collaboration Guide

Right patient, right service, right time

Background: Evaluation of cough and dyspnea often include pulmonary function testing. There are several different options for different components of pulmonary function testing, and some significant cost difference between these tests. This guide is intended to help providers select the most appropriate and cost-effective test for a pulmonary workup.

Last Reviewed: February 2024 – **FINAL**	
Erika Mosesón, MD	Legacy Medical Group
Stephanie Coates, MD	The Vancouver Clinic
Jeff Robinson, MD	The Oregon Clinic

Scope: These guidelines are intended for the evaluation of ambulatory patients with chronic respiratory complaints. The target audience is primary care providers as well as other specialties who may be seeing patients with respiratory complaints, such as cardiology, pulmonary, or others.

Test	**Clinical Notes**
Spirometry (FEV1/FVC, FEV1 and FVC w or w/o bronchodilator)	***First line test for suspected Asthma or COPD- e.g. clinical presence of cough, wheezing, chest tightness, nocturnal symptoms.*** Initial evaluation of: • Chronic cough and history of tobacco use • Dyspnea with respiratory symptoms such as cough, wheeze, chest tightness • Wheezing on exam • History of inhalational drug use and respiratory symptoms (i.e., tobacco, marijuana) • To establish a Dx of COPD for preop assessment if not already diagnosed. Not needed routinely in preop evaluation if the diagnosis is already established. • Order bronchodilator testing if history of tobacco use or if has never had spirometry. Not always necessary if doing follow up testing- ie evaluating whether disease has progressed significantly, etc.
Spirometry Pre/Post Bronchodilator	• Spirometry which returns to normal after bronchodilator is strongly suggestive of asthma over COPD. • A negative bronchodilator response does not preclude a trial of bronchodilator therapy in the appropriate clinical scenario, as many patients will still have a clinical response to bronchodilator therapies despite this result. •
Complete PFT (Spirometry + Lung Volumes and DLCO)	***Indicated for a more general dyspnea evaluation or less classic airway symptoms such as wheezing*** • Diffusing capacity is a measure of gas transfer across the pulmonary capillary membrane and can be affected by pulmonary vascular disease (CHF, PH, liver disease); alveolar destruction (pulmonary fibrosis, emphysema); and is impacted by anemia (accounted for by Hb measurement as part of testing). • Order if concern for drug toxicity e.g. amiodarone, etc. • Order if patient hypoxemic or for concern about a parenchymal issue

Methacholine Challenge Test	***Evaluation for asthma in the setting of normal spirometry*** • Spirometry is repeated with sequential increases in administered methacholine nebulized solution; the dose of methacholine correlated to a 20% drop in FEV1 is targeted but may not be achieved. • Bronchial hyperreactivity is seen across a spectrum of respiratory diseases and can be induced in asymptomatic patients as well. • The probability that a positive methacholine challenge test reflects asthma is increased if bronchial hyperreactivity is seen at lower doses of methacholine. • Inhalers often need to be held for prolonged period prior to methacholine testing
Max Inspiratory Pressure/Max Expiratory Pressure (MIP/MEP)	***Not generally used in primary care - used when looking for evidence of generalized skeletal muscle weakness (both MIP and MEP low) or isolated diaphragmatic weakness (MIP low).*** • Not a first-line test, used in follow-up to previous testing, or in the context of MS or other muscular disorders. • These are relatively insensitive measures of respiratory muscle strength. • Both measures are additionally negatively impacted by poor effort, obesity, advanced age, female sex, smoking or poor nutritional status.
6-minute walk test	Often included as an adjunct to lung function testing to either monitor progression of disease or response to therapy and to evaluate for exercise-induced hypoxia OR for testing prior to valves, etc other procedures. Not routinely needed for most diseases. Also, this is NOT an O2 qualification test, and RTs do not do O2 qualification when 6 min walk testing ordered. Generally not ordered routinely by primary care

Frequency of Testing:

Baseline: All patients with suspected Asthma or COPD should have spirometry done at time of diagnosis to confirm diagnosis.

For COPD with rapidly clinically progressive symptoms, consider follow-up testing in 6 months to determine rate of progression. Otherwise, only repeat testing if there are persistent clinical changes (not acute exacerbations).

There is no role for routine follow-up testing in COPD or Asthma.

Contact: If you have questions or comments about this guide or are interested in the development of future collaboration guides, please contact LHP medical director Albert Chaffin, M.D., at achaffin@lhs.org.

Disclaimer: No guideline can anticipate all the unique circumstances of patient care, and as such, there are times when good clinical judgement will result in or require deviation from this guideline. In those settings, the reason for such deviation from this guideline should be documented in the medical record.