



Screening for Chronic Obstructive Pulmonary Disease Using Spirometry: Recommendation Statement.

The U.S. Preventive Services Task Force (USPSTF) recommends against screening adults for chronic obstructive pulmonary disease (COPD) using spirometry. **D**

COPD is the fourth leading cause of death in the United States, and it affects more than 5 percent of the adult U.S. population..

COPD is characterized by airflow limitation that is not fully reversible, is usually progressive, and is associated with an abnormal inflammatory response of the lung to noxious particles or gases. The diagnosis of COPD is based on objective airflow limitation, defined as a forced expiratory volume in one second (FEV1)/forced vital capacity ratio of less than 0.70 with less than 12 percent reversibility, in association with risk factors (e.g., smoking history) and/or symptoms (e.g., chronic sputum production, wheezing, dyspnea).

Good evidence indicates that history and clinical examination are not accurate predictors of airflow limitation. Fair evidence indicates that most persons with airflow obstruction do not recognize or report symptoms. Fair evidence also indicates that fewer than 10 percent of persons identified by screening spirometry have severe or very severe COPD using current diagnostic criteria.

All persons with COPD, including those with mild or moderate illness, would benefit from smoking cessation and annual influenza vaccination. However, fair evidence shows that providing persons who smoke with spirometry results does not independently improve cessation rates. And although fair evidence suggests that influenza vaccination reduces COPD exacerbations, no studies have examined whether performing spirometry increases influenza vaccination rates.

Good evidence suggests that pharmacologic therapy prevents exacerbations of COPD (e.g., worsening of symptoms, requiring medical care) but does not affect hospitalizations or all-cause mortality among symptomatic persons who have smoked in the past, who are 40 years and older, and who have severe or very severe COPD (FEV1 less than 50 percent predicted).

Fair evidence shows that pharmacologic therapy and pulmonary rehabilitation improve respiratory-related health status measures, but the relationship of these measures to clinically meaningful functional outcomes is not well established. Fair evidence also shows that supplemental oxygen reduces mortality in persons with resting hypoxia.

It is unknown whether persons who do not recognize or report symptoms but who meet spirometric criteria for a diagnosis of severe to very severe COPD would benefit from



pharmacologic treatment to the same degree as symptomatic persons, or at all. Benefits experienced by persons who do not recognize or report symptoms are unlikely to be greater than benefits in symptomatic persons.

The evidence suggests that the potential benefit of spirometry-based screening for COPD is the prevention of one exacerbation or more by treating patients with previously undetected airflow obstruction. By definition, an exacerbation requires medical care. Although an unknown proportion of patients who present with clinical symptoms of an exacerbation does not receive a COPD diagnosis, the incremental benefit of early detection over clinical diagnosis for the remainder of patients would be, at most, a deferral of the first exacerbation.

These incremental benefits are judged to be no greater than small.

The opportunity costs (time and effort required by patients and the health care system) associated with screening for COPD using spirometry are large even in populations at higher risk. The physical performance of spirometry has not been associated with adverse effects. Fair evidence indicates that spirometry can lead to substantial overdiagnosis of COPD in persons older than 70 years who have never smoked, and that it produces fewer false-positive results in other healthy adults.

Good evidence suggests that pharmacologic therapies are associated with adverse effects, including oropharyngeal candidiasis, easy bruising, dry mouth, urinary retention, and sinus tachycardia.

These harms are judged to be no less than small.

The USPSTF concludes that there is at least moderate certainty that screening for COPD using spirometry has no net benefit.

Clinical Considerations:

Patient population: This recommendation applies to healthy adults who do not recognize or report respiratory symptoms to a physician. It does not apply to persons with a family history of alpha1-antitrypsin deficiency. For persons who present to physicians reporting chronic cough, increased sputum production, wheezing, or dyspnea, spirometry would be indicated as a diagnostic test for COPD, asthma, and other pulmonary diseases.

Risk assessment: Screening for COPD would theoretically benefit adults with a high probability of severe airflow obstruction who might benefit from inhaled therapies. Risk factors for COPD



include current or past tobacco use, exposure to occupational and environmental pollutants, and older age. However, even in groups with the greatest prevalence of airflow obstruction, hundreds of patients would need to be screened with spirometry to defer one exacerbation. For example, under the best-case assumptions about response to therapy, an estimated 455 adults between 60 and 69 years of age would need to be screened to defer one exacerbation.

Screening tests: Spirometry can be performed in a primary care physician's office or in a pulmonary testing laboratory. The USPSTF did not review evidence comparing the accuracy of spirometry performed in primary care versus referral settings.

Other approaches to prevention: Regardless of the presence or absence of airflow obstruction, all persons who currently smoke should receive smoking cessation counseling and be offered pharmacologic therapies demonstrated to increase cessation rates. All patients 50 years and older should be offered influenza vaccine annually. All patients 65 years and older should be offered pneumococcal vaccine.

Useful resources: The USPSTF strongly recommends that physicians screen all adults for tobacco use and provide tobacco cessation interventions for those who use tobacco products. The USPSTF recommendation on counseling to prevent tobacco use, along with supporting evidence, is available on the Agency for Healthcare Research and Quality Web site (<http://www.ahrq.gov/clinic/uspstf/uspstbac.htm>).