U.S. Preventive Services Task Force

Screening for Chronic Obstructive Pulmonary Disease: Recommendation Statement

As published by the U.S. Preventive Services Task Force.

This summary is one in a series excerpted from the Recommendation Statements released by the USPSTF. These statements address preventive health services for use in primary care clinical settings, including screening tests, counseling, and preventive medications.

The complete version of this statement, including supporting scientific evidence, evidence tables, grading system, members of the USPSTF at the time this recommendation was finalized, and references, is available on the USPSTF website at http://www.uspreventiveservicestaskforce.org/.

This series is coordinated by Sumi Sexton, MD, Associate Deputy Editor.

A collection of USPSTF recommendation statements published in *AFP* is available at http://www.aafp.org/afp/uspstf.

Summary of Recommendation and Evidence

The USPSTF recommends against screening for chronic obstructive pulmonary disease (COPD) in asymptomatic adults *(Table 1)*. **D recommendation.**

Rationale

IMPORTANCE

About 14% of U.S. adults aged 40 to 79 years have COPD, and it is the third leading cause of death in the United States.[1,2] Persons with severe COPD are often unable to participate in normal physical activity due to deterioration of lung function.

DETECTION

COPD is defined as airflow limitation that is not fully reversible. COPD is associated with an abnormal inflammatory response of the lung to harmful particles or gases. Diagnosis is based on postbronchodilator spirometry, which detects fixed airway obstruction; a forced expiratory volume in 1 second to forced vital capacity (FEV_1/FVC) ratio of less than 0.70 is the current criterion for a positive COPD diagnosis. Persons with COPD often, but not always, have symptoms such as dyspnea (difficulty breathing or shortness of breath), chronic cough, and chronic sputum production. Patients often have a history of exposure to risk factors such as cigarette smoke or heating fuels or occupational exposure to dusts or chemicals. Although postbronchodilator spirometry is required to make a definitive diagnosis, prescreening questionnaires can elicit current symptoms and previous exposures to harmful particles or gases.

BENEFITS OF DETECTION AND EARLY TREATMENT

The USPSTF found inadequate evidence that screening for COPD in asymptomatic persons using questionnaires or spirometry improves health outcomes.

HARMS OF DETECTION AND EARLY TREATMENT

The USPSTF found inadequate evidence on the harms of screening. However, given the lack of benefit of early detection and treatment, the opportunity cost associated with screening asymptomatic persons may be large. The amount of time and effort required to screen for COPD in asymptomatic persons (using screening spirometry with or without prescreening questionnaires) is not trivial.

USPSTF ASSESSMENT

The USPSTF determined that early detection of COPD, before the development of symptoms, does not alter the course of the disease or improve patient outcomes. The USPSTF concludes with moderate certainty that screening for COPD in asymptomatic persons has no net benefit. Thus, screening is not recommended in persons who do not have symptoms suggestive of COPD. The USPSTF recommends against screening for COPD in asymptomatic adults.

Clinical Considerations

PATIENT POPULATION UNDER CONSIDERATION

This recommendation statement applies to asymptomatic adults who do not recognize or report respiratory symptoms. It does not apply to at-risk persons who present to clinicians with symptoms such as chronic cough, sputum production, dyspnea, or wheezing. It also does not apply to persons with a family history of α_1-antitrypsin deficiency.

RISK ASSESSMENT

Exposure to cigarette smoke or toxic fumes increases the risk for COPD. Epidemiological

Table 1. Screening for Chronic Obstructive Pulmonary Disease: Clinical Summary of the USPSTF Recommendation

Population	Asymptomatic adults who do not present with respiratory symptoms
Recommendation	Do not screen for COPD. Grade: D
Risk assessment	Risk factors include history of exposure to cigarette smoke or heating fuels; occupational exposure to toxins, dusts, or industrial chemicals; exposure to environmental pollution, such as wood smoke and traffic pollutants; history of asthma or childhood respiratory tract infections; and α_1-antitrypsin deficiency.
Screening tests	Primary care screening involves either risk assessment via a formal prescreening questionnaire and, if positive, follow-up with diagnostic spirometry testing or screening spirometry administered without a bronchodilator and, if positive, follow-up with diagnostic spirometry testing.
Treatment and interventions	Medications used to treat COPD include long-acting β-agonists, inhaled corticosteroids, long-acting anticholinergics, and combination therapy with corticosteroids and long-acting β-agonists.
Balance of benefits and harms	The USPSTF concludes with moderate certainty that screening for COPD in asymptomatic persons has no net benefit.
Other relevant USPSTF recommendations	The USPSTF recommends that clinicians ask all adults about tobacco use, including pregnant women, and provide tobacco cessation interventions for those who use tobacco products. The USPSTF also recommends that clinicians provide interventions, including education or brief counseling, to prevent initiation of tobacco use in school-aged children and adolescents. These recommendations are available on the USPSTF website (http://www.uspreventiveservicestaskforce.org).

NOTE: *For a summary of the evidence systematically reviewed in making this recommendation, the full recommendation statement, and supporting documents, go to http://www.uspreventiveservicestaskforce.org/.*

COPD = chronic obstructive pulmonary disease; USPSTF = U.S. Preventive Services Task Force.

studies have found that 15% to 50% of smokers develop COPD.[3] More than 70% of all COPD cases occur in current or former smokers. Occupational exposure to toxins, dusts, or industrial chemicals contributes an estimated 15% of all COPD cases. Environmental pollution, including wood smoke and traffic pollutants, is also associated with increased risk for COPD. Nonmodifiable risk factors for COPD include history of asthma or childhood respiratory tract infections and α_1-antitrypsin deficiency.

SCREENING TESTS

Screening adults in primary care involves either risk assessment via a formal prescreening questionnaire and, if positive, follow-up with diagnostic spirometry testing or screening spirometry administered without a bronchodilator and, if positive, follow-up with diagnostic spirometry testing. Patients identified as high risk by a prescreening questionnaire or screening spirometry are referred for diagnostic spirometry testing. Diagnosis by spirometry requires persistent airway obstruction after administration of an inhaled bronchodilator, such as albuterol (i.e., postbronchodilator spirometry). COPD is diagnosed if the patient has a postbronchodilator FEV_1/FVC ratio of less than 0.70. Severity is defined by the percentage of predicted postbronchodilator FEV_1; 80% or more is mild, 50% to 79% is moderate, 30% to 49% is severe, and less than 30% is very severe.

OTHER APPROACHES TO PREVENTION

Prevention of exposure to cigarette smoke and other toxic fumes is the best way to

prevent COPD. Interventions to prevent the initiation of tobacco use are an effective way to prevent exposure to cigarette smoke. Current smokers should receive cessation counseling and be offered behavioral and pharmacological therapies to stop smoking.

USEFUL RESOURCES

The USPSTF recommends that clinicians ask all adults, including pregnant women, about tobacco use and provide tobacco cessation interventions for those who use tobacco products. The USPSTF also recommends that clinicians provide interventions, including education or brief counseling, to prevent initiation of tobacco use in school-aged children and adolescents. These recommendations and their supporting evidence are available on the USPSTF website (http://www.uspreventiveservicestaskforce.org).

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The "Other Considerations," "Discussion," "Update of Previous USPSTF Recommendation," and "Recommendations of Others" sections of this recommendation statement are available at http://www.uspreventiveservicestaskforce.org/Page/Document/UpdateSummaryFinal/chronic-obstructive-pulmonary-disease-screening.

REFERENCES

1. Kochanek KD, Murphy SL, Xu J, Arias E. Mortality in the United States, 2013. *NCHS Data Brief.* 2014;(178):1-8.
2. Tilert T, Dillon C, Paulose-Ram R, Hnizdo E, Doney B. Estimating the U.S. prevalence of chronic obstructive pulmonary disease using pre- and post-bronchodilator spirometry: the National Health and Nutrition Examination Survey (NHANES) 2007-2010. *Respir Res.* 2013;14:103.
3. Guirguis-Blake JM, Senger CA, Webber EM, Mularski RA, Whitlock EP. Screening for chronic obstructive pulmonary disease: a systematic evidence review for the U.S. Preventive Services Task Force. Evidence synthesis no. 130. AHRQ publication no. 14-05205-EF-1. Rockville, Md.: Agency for Healthcare Research and Quality; 2016. ■