Health Benchmarks® Program
Clinical Quality Indicator Specification 2011

Measure Title	USE OF SPIROMETRY TESTING IN THE ASSESSMENT AND DIAGNOSIS OF COPD
Disease State	COPD
Indicator Classification[1]	Diagnosis
Strength of Recommendation[2]	B
Organizations Providing Recommendation	American Association for Respiratory Care American Thoracic Society Institute for Clinical Systems Improvement National Heart, Lung and Blood Institute World Health Organization
Clinical Intent	To ensure that all members 40 years of age and older with a new diagnosis or newly active chronic obstructive pulmonary disease (COPD) receive an appropriate spirometry test to confirm the diagnosis within a clinically appropriate timeframe.

Background

Disease Burden

- In 2003, COPD was responsible for 15.4 million office visits. In 2007, total annual costs were estimated to exceed $42.6 billion ($26.7 billion for direct healthcare costs). Furthermore, COPD is the fourth leading cause of death in the US and is projected to be the third leading cause of death by the year 2020.[1]
- In 2007, approximately 12 million U.S. adults were estimated to have COPD.[1] However, an estimated additional 12 million adults have undiagnosed COPD.[1]
- There is a strong relationship between severity of COPD and the cost of care. As disease progresses, the distribution of cost of care changes.[2]
- Prevalence of COPD increases with age and has been shown to be higher in people 40 years and older than those younger than 40.[2]

Reason for Indicated Intervention or Treatment

- Despite evidence-based guidelines, awareness and understanding of COPD is lacking regarding key COPD guideline criteria, recommendations, and implementation of treatment strategies.[1, 3]
- COPD is often misdiagnosed as asthma. This is problematic because guidelines for assessment and management of the two diseases are quite different.[4]
- The peer-reviewed journal of the American College of Chest Physicians (CHEST) states, “Although there is no cure for COPD, early detection is important for effective disease management. A predominant number of patients with early stage COPD receive initial medical care through primary care physicians; however, many remain undiagnosed because their physicians do not regularly screen for the disease. Without the use

of spirometry by primary care physicians, nearly half of patients with COPD will remain undiagnosed."[4]

- Spirometers represent an effective and objective way to measure the volume and flow of air that can be inhaled and exhaled.[5]

Evidence Supporting Intervention or Treatment

- In one large trial, physicians were asked prior to and following presentation of spirometry test results if they thought airflow obstruction was present and if they planned to change management based on the results. A new diagnosis of unsuspected airflow obstruction was made by the physician in 93 patients (9%), and a prior diagnosis of airflow obstruction was removed after spirometry in 115 patients (11%). After viewing the spirometry results, physicians reported that they would change patient management in 154 patients (15%).[6]
- Despite the favorable evidence, several studies report underutilization of spirometry to confirm COPD diagnosis. One retrospective claims study of 66,744 patients found that only 33.7% were given a spirometry test (inclusive of confirmatory tests and acute exacerbations).[7] Another study of 5,039 COPD patients found a similar frequency at 32% testing.[8]

Clinical Recommendations

- The American Thoracic Society/European Respiratory Society strongly favor confirmation of COPD by spirometry, which allows physicians to also assess the severity of disease.[9]
- The Institute for Clinical Systems Improvement supports the use of spirometry to establish diagnosis and evaluate severity of COPD.[10]
- The National, Heart, Lung, and Blood Institute and the World Health Organization organized the Global Initiative for Chronic Obstructive Lung Disease (GOLD) which also recommends that patients diagnosed with COPD should receive confirmation through spirometry. For the diagnosis and assessment of COPD as quoted by the GOLD Initiative, “spirometry is the gold standard because it is the most reproducible, standardized, and objective way of measuring airflow limitation."[2]

Source

Healthcare Effectiveness Data and Information Set (HEDIS®) 2011 Technical Specification for Physician Measurement

Denominator

Denominator Definition

Continuously enrolled members ages 42 or older by the end of the measurement year who had a new diagnosis or newly active chronic obstructive pulmonary disease (COPD) in the 1 year period starting 6 months prior to the measurement year.

Denominator Index Date

First instance of members diagnosed with chronic bronchitis in an outpatient setting during the 1 year period starting 6 months prior to the measurement year or members diagnosed with emphysema in an outpatient setting during the 1 year period starting 6 months prior to the measurement year or members

	diagnosed with COPD in an outpatient setting during the 1 year period starting 6 months prior to the measurement year or the first instance of the discharge date of (i.e., THRUDATE) members diagnosed with chronic bronchitis in an inpatient setting during the 1 year period starting 6 months prior to the measurement year or members diagnosed with emphysema in an inpatient setting during the 1 year period starting 6 months prior to the measurement year or members diagnosed with COPD in an inpatient setting during the 1 year period starting 6 months prior to the measurement year. *Note: If the member has one claim where DOS is used as the index date and one claim where discharge date is used as the index date set the index date to whichever occurs first in history.*
Denominator Encounters/Claims Criteria	CPT-4 code(s): 92002-92014, 99201-99205, 99211-99215, 99217-99220, 99221-99223, 99231-99233, 99238, 99239, 99241-99245, 99251-99255, 99281-99285, 99291, 99304-99310, 99315, 99316, 99318, 99324-99328, 99334-99337, 99341-99345, 99347-99350, 99384-99387, 99394-99397, 99401-99404, 99411, 99412, 99420, 99429, 99455, 99456 ICD-9 diagnosis code(s): 491.xx, 492.x, 496 UB revenue code(s): 010x, 0110-0114, 0118, 0119, 0120-0124, 0128, 0129, 0130-0134, 0138, 0139, 0140-0144, 0148, 0149, 0150-0154, 0158, 0159, 016x, 019x, 020x-021x, 045x, 051x, 0520-0529, 055x, 057x-059x, 066x, 072x, 080x, 082x-085x, 088x, 0981, 0982, 0983, 0987

Denominator Exclusion

Denominator Exclusion Definition	Members with any COPD related diagnosis during the 1-730 days prior to the date of service of the first instance of denominator criteria.
Denominator Exclusion Claims Criteria	CPT-4 code(s): 92002-92014, 99201-99205, 99211-99215, 99217-99220, 99221-99223, 99231-99233, 99238, 99239, 99241-99245, 99251-99255, 99281-99285, 99291, 99304-99310, 99315, 99316, 99318, 99324-99328, 99334-99337, 99341-99345, 99347-99350, 99384-99387, 99394-99397, 99401-99404, 99411, 99412, 99420, 99429, 99455, 99456 ICD-9 diagnosis code(s): 491.xx, 492.x, 496 UB revenue code(s): 010x, 0110-0114, 0118, 0119, 0120-0124, 0128, 0129, 0130-0134, 0138, 0139, 0140-0144, 0148, 0149, 0150-0154, 0158, 0159, 016x, 019x, 020x-021x, 045x, 051x, 0520-0529, 055x, 057x-059x, 066x, 072x, 080x, 082x-085x, 088x, 0981, 0982, 0983, 0987

Numerator

Numerator Definition	Members who received spirometry testing in the 730 days prior through 180 days after the index date (inclusive of the index date).

Numerator Claims Criteria	CPT-4 code(s): 94010, 94014-94016, 94060, 94070, 94375, 94620

Physician Attribution

Physician Attribution Description	Score all physicians who diagnosed the member with chronic bronchitis or COPD 0-180 days after the index date (inclusive of the index date).

References

1. Fromer, et al., *A review of the GOLD guidelines for the diagnosis and treatment of patients with COPD.* Int J Clin Pract, 2008. **62**(8): p. 1219-36.
2. Rabe, K.F., et al., *Global strategy for the diagnosis, management, and prevention of chronic obstructive pulmonary disease: GOLD executive summary.* Am J Respir Crit Care Med, 2007. **176**(6): p. 532-55.
3. Tsagaraki, et al., *Pharmacotherapeutic management of COPD patients in Greece--adherence to international guidelines.* J Clin Pharm Ther, 2006. **31**(4): p. 369-74.
4. Buffels, J., et al., *Office spirometry significantly improves early detection of COPD in general practice: the DIDASCO Study.* Chest, 2004. **125**(4): p. 1394-9.
5. Lee, T.A., B. Bartle, and K.B. Weiss, *Spirometry Use in Clinical Practice Following Diagnosis of COPD.* Chest, 2006. **129**(6): p. 1509-15.
6. Dales, R.E., et al., *Spirometry in the primary care setting: influence on clinical diagnosis and management of airflow obstruction.* Chest, 2005. **128**(4): p. 2443-7.
7. Lee, et al., *Spirometry use in clinical practice following diagnosis of COPD.* Chest, 2006. **129**(6): p. 1509-15.
8. Han, et al., *Spirometry utilization for COPD: how do we measure up?* Chest, 2007. **132**(2): p. 403-9.
9. *Standards for the Diagnosis and Management of Patients with COPD*. 2004, American Thoracic Society/ European Respiratory Society New York City.
10. ICSI, *Diagnosis and management of chronic obstructive pulmonary disease (COPD).* I.f.C.S. Improvement, Editor. 2009, Institute for Clinical Systems Improvement: Bloomington, MN. p. 51.

[1] **Indicator Classification** (Adapted from HEDIS® technical specifications)

Diagnosis	Measures applicable to patients receiving diagnostic workups for a symptom or condition that delineate appropriate laboratory or radiological testing to be performed (e.g., evaluation of thyroid nodule; pregnancy test in patients with vaginal bleeding or abdominal pain).
Effectiveness of Care	
Prevention	Measures applicable to asymptomatic individuals that are designed to prevent the onset of the targeted condition (e.g., immunizations).
Screening	Measures applicable to asymptomatic patients who have risk factors or pre-clinical disease, but in whom the condition has not become clinically apparent (e.g., pap smears; screening for elevated blood pressure).
Disease Management	Measures applicable to individuals diagnosed with a condition that are part of the treatment or management of the condition (e.g., cholesterol reduction in patients with diabetes; radiation therapy following breast conserving surgery; appropriate follow-up after acute event).
Medication Monitoring	Measures applicable to patients taking medications with narrow therapeutic windows and / or potential preventable significant side effects or adverse reactions (e.g., thyroid stimulating hormone (TSH) testing after levothyroxine dose change; hepatic enzyme monitoring for patients using antimycotic pharmacotherapy).
Medication Adherence	Measures applicable to patients taking medications for chronic conditions that are designed to assess patient adherence to medication (e.g., adherence to lipid lowering medication).
Utilization	Measures applicable to patients receiving treatment for a symptom or condition that advocate appropriate utilization of laboratory and pharmaceutical resources (e.g., conservative use of imaging for low back pain; inappropriate use of antibiotics for viral upper respiratory infection).

[2] **Strength of Recommendation**

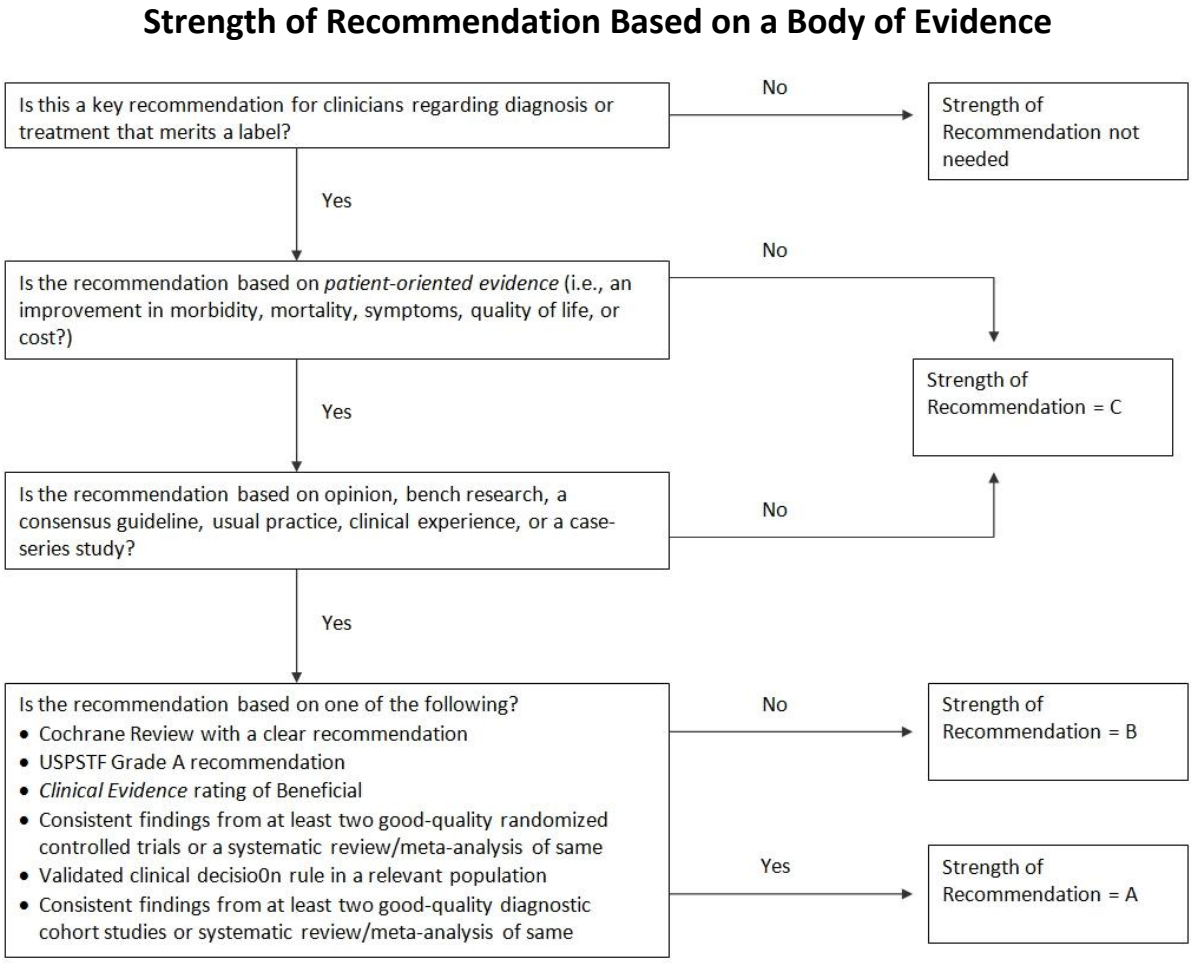

FIGURE 2. Algorithm for determining the strength of a recommendation based on a body of evidence (applies to clinical recommendations regarding diagnosis, treatment, prevention, or screening). While this algorithm provides a general guideline, authors and editors may adjust the strength of recommendation based on the benefits, harms, and costs of the intervention being recommended. (USPSTF = U.S. Preventive Services Task Force)