Performance Measure for Improvement in Dyspnea at Completion of Pulmonary Rehabilitation (PR)

**MEASURE DESCRIPTION:**

The percentage of patients with a primary diagnosis of COPD or Interstitial Lung Disease (ILD), regardless of other diagnoses, who are found to improve their global perception of dyspnea by the MCID, as measured by a valid and reliable instrument after participating in pulmonary rehabilitation (PR).

**DEFINITIONS:**

Assessment of dyspnea:

- Should be performed within one week of PR program entry and again within one week of PR program completion.
- Is conducted using the Modified Medical Research Council Scale (mMRC), the University of California, San Diego Shortness of Breath Questionnaire (USCD SOBQ), or the Baseline and Transition Dyspnea Indices (BDI/TDI)
- Will include impact based on the change in score. The minimum clinical important difference (MCID) for the specific tool will be used as the unit of measure.

Examples of Reasonable Accommodations:

- Read instrument instructions and questions to patient
- Fill in instrument answers as directed by the patient

Recommended Disease-Specific Instruments:

- **Modified Medical Research Council Scale (mMRC)**
  The mMRC is a single question instrument where the patient selects a grade on a 5-point scale (rating 0-4, with higher grade indicating more dyspnea) that describes everyday situations or activity levels provoking breathlessness (dyspnea) and impairment (1). The scale requires recall. The mMRC has been widely used to describe cohorts and stratify interventions including PR in COPD. It has been used for more than 50 years. The mMRC is the only dyspnea instrument identified in the Global Obstructive Disease Initiative Guidelines (2). Drawbacks of the mMRC include lack of precise limits leading to potential for low sensitivity to change from interventions (3) and relatively scarce data on validation, responsiveness, and sensitivity (4). The mMRC is in the public domain. **The MCID is one unit.** This one unit change indicates a change in disability (5).

- **University of California San Diego Shortness of Breath Questionnaire (UCSD SOBQ)**
  The UCSD SOBQ is a 24-item instrument which assesses the occurrence of shortness of breath on a 6-point scale during 21 activities of daily living (ADLs) associated with varying levels of exertion. If the activity is not performed, the patient estimates their rating (6). The score ranges from 0 to 120; a higher score is associated with greater dyspnea with ADLs. The questionnaire is easily administered. It has been shown to be sensitive to various interventions. High level of reliability and validity have been reported (7). Swigris and colleagues reported validity for the UCSD SOBQ in ILD patients to measure dyspnea over time (8). The UCSD SOBQ is copyrighted by UCSD and is currently free (with permission and acknowledgement) for education and research
purposes by non-profit organizations. For commercial use or for-profit use, UCSD requires an agreement and charges a negotiable fee. The MCID is reported as 5 points (9).

- **Baseline Dyspnea Index (BDI) / Transitional Dyspnea Index (TDI)**
  Both the BDI and TDI are 24-item instruments that are interviewer administered. The BDI rates severity of dyspnea at single point in time. The TDI assesses changes from baseline dyspnea (10). The BDI scale rates dyspnea on a 5 point scale: 0 = severe, to 4 = un-impaired. The BDI range is 1-12. The TDI uses 7 point scale from -3 (major deterioration) to +3 (major improvement). The tool has baseline and transition dyspnea ratings. The scale rates according to functional impairment, magnitude of the task and the magnitude of effort (10). BDI significantly correlates with the dyspnea diary (DD) score and SGRQ symptom and activity components TDI also with changes in DD, SGRQ symptom and activity scores. Construct validity established by the association between baseline FEV1 and BDI and ΔFEV1 with the TDI. (11). The tool requires permission. Users are required to complete and sign a User Agreement. A fee may be incurred depending on context of use. The MCID of 1 unit has been reported (assessed relative to physician’s global evaluation) (11).

**NUMERATOR:**

Number of patients with a primary, clinician diagnosed, COPD or ILD, regardless of other diagnoses, who have participated in PR and have been found to improve their dyspnea score by the minimum clinical important difference (MCID – AACVPR PR Outcomes Toolkit) as measured by the Modified Medical Research Council Scale (mMRC – 1 unit), the University of California San Diego Shortness of Breath Questionnaire (USCD SOBQ – 5 points), or the Baseline and Transition Dyspnea Indices (BDI/TDI – 1 unit) from the beginning to the end of PR.

**DENOMINATOR:**

All patients with a primary, clinician diagnosis of COPD or ILD, regardless of other diagnoses, who are able to complete a mMRC, UCSD SOBQ, or BDI/TDI to assess dyspnea at PR program entry and PR program completion, who have completed at least 10 PR sessions within a 3 month period. However, the PR program can run longer than 3 months.

**Denominator Exclusions**
- Inability to complete the dyspnea instruments with reasonable accommodations
- Presence of comprehension limitation that precludes completion of the instrument
- Lack of availability of the tool used by the PR program in a language understood by the patient

**PERIOD OF ASSESSMENT:**

Up to twelve months

**ATRIBUTION:**

PR program staff
**SOURCES OF DATA:**

Medical record or other database (e.g., administrative, clinical, registry)

**RATIONALE:**

Dyspnea is the primary disabling symptom of chronic lung disease—and the most common. It is the cardinal symptom when a diagnosis of COPD or interstitial lung disease (ILD) is made. A complex phenomenon that varies from person to person, this unpleasant, persistent labored breathing is triggered by increased ventilation secondary to increased work of breathing. However, dyspnea is more than just a physiologic phenomenon. It also has psychophysiological components, triggered by such factors as anxiety and fear. Dyspnea is an important and relevant outcome measure in patients with COPD and ILD. Multiple instruments have been described to measure a patient’s global level of dyspnea, with established validity and reliability. According to the ACCP/AACVPR Evidence-based guidelines, pulmonary rehabilitation has been shown to improve dyspnea with a Recommendation level 1, strength of evidence A (highest possible rating in the ACCP rating system). Two Cochrane systematic reviews demonstrate that pulmonary rehabilitation improves dyspnea symptoms in patients with COPD and ILD. The GOLD Guidelines recommend that pulmonary rehabilitation be a part of the treatment plan for patients with moderate to severe COPD.

**REFERENCES:**


Initial Version: 01/16/16
Prior versions (01/20/16 V2; 02/18/16 V3; 02/22/16 V4; 08/26/16 V5; 09/08/16 V6; 09/25/16 V7; 10/17/16 V8)
Current version: 03/28/17 V9