Performance Measure for Improvement in Health-related Quality of Life 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 increase their health-related quality of life score (HRQoL) as measured by a valid and reliable instrument after participating in pulmonary rehabilitation (PR).

DEFINITIONS:
Assessment of health-related quality of life (HRQoL):
- Should be performed within one week of PR program entry and again within one week of PR program completion.
- Is conducted using a valid and reliable instrument such as the Chronic Respiratory Disease Questionnaire (CRQ), the St. George’s Respiratory Questionnaire (SGRQ), or the COPD Assessment Test (CAT).
- 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.
- Additional information is available in the AACVPR PR Outcomes Resource Guide/Toolkit (2016)

Examples of Reasonable Accommodations:
- Read instrument instructions and questions to patient
- Fill in instrument answers as directed by the patient

Recommended Disease-Specific Instruments:

- **Chronic Respiratory Disease Questionnaire (CRQ)**
  The CRQ is a 20-item instrument that measures physical- functional and emotional limitations due to chronic lung diseases, including COPD and ILD. It has been primarily applied in rehabilitation trials of COPD (1). However, Holland and colleagues reported improvement in CRQ scores in ILD following exercise training (2). Tools include an interviewer lead CRQ (3), a self-report CRQ (4) and a standardized CRQ self-report (5). The patient is asked to recall the five most important activities that caused breathlessness over past two weeks. A total score as well as individual subscale scores can be calculated. The tool is provider or self-administered. The domains include dyspnea, fatigue, emotion, and mastery. The **MCID for each domain is 0.5**. MID of 0.5-1.0 has been used (6). Self-report tool should be scored by each domain (dyspnea, fatigue, emotion and mastery). The CRQ has been shown to be sensitive to bronchodilator treatment. The tool has not yet been shown to be responsive to long-term disease progression.

- **St. George’s Respiratory Questionnaire (SGRQ)**
  The SGRQ was developed to measure health status in patients with respiratory disease, e.g. COPD, asthma and ILD (7). Domains include symptoms (frequency and severity of respiratory symptoms), activity (effects on and adjustment of everyday activities), and impact on social and
psychological functioning The SGRQ is widely used in clinical trials as a secondary endpoint to assess the effects of treatment, management and interventions on health status in COPD. More recent adoption has occurred in ILD trials. Section I (symptoms) is a 5-point Likert scale. Sections II (activity) and III (impacts) are dichotomous (yes or no answers). Each item is weighted based on empirical data. Scores range from 0 - 100, with higher scores indicating poorer health. A missing answer is considered as if the patient had answered "no" (indicating better health -status) (8). The tool is self-administered. The most commonly used MCID is 4 (8).

The SGRQ has been shown to be reliable and valid in COPD, asthma and ILD (9-11). A COPD-specific version (8) and IPF-specific version (10) are available. Results may be influenced by subjects' sex, age, education, and co-morbidities (12). There is significant correlation between SGRQ and FEV1, FVC, resting SaO2, 6MWD, MRC, anxiety scores, and depression scores. The SGRQ demonstrated greater ability to discriminate among different levels of severity stages of COPD than generic measures of health (13).

- **COPD Assessment Test (CAT)**
The 8-item questionnaire that uses a 6-point likert-type scale asking questions about cough, mucus congestion, chest tightness, exertional dyspnea, ADL limitation, confidence in leaving the home, sleep quality and energy level. It is scored from 0 to 40, with higher scores indicating greater levels of limitation (14-16). The CAT has been initially validated in prospective studies conducted in the USA and Europe and in China but is globally applicable. A recent systematic review of 36 studies support the validity and reliability of the CAT (17). While titled the COPD Assessment test, Nagata and colleagues report that the CAT is valid and reliable for use with interstitial lung disease patients (18). The CAT has been translated and validated for use in more than 50 languages other than English. Only validated translations of the CAT should be used. Sensitive to changes related to pulmonary rehabilitation (19). Available at: [http://www.catestonline.org/images/pdfs/CATest.pdf](http://www.catestonline.org/images/pdfs/CATest.pdf).

While Nagata and colleagues (17) note that the MCID is to be determined, others have reported 2 points as a reliable estimate (20, 21).

**NUMERATOR:**
Number of with a primary, clinician diagnosed, COPD or ILD, regardless of other diagnoses, who have participated in PR and have been found to improve their HRQOL score by the minimum clinical important difference (MCID – AACVPR PR Outcomes Toolkit) as measured by the Chronic Respiratory Disease Questionnaire (CRQ – 0.5 units) , St. George’s Respiratory Questionnaire (SGRQ – 4 units), the COPD Assessment Test (CAT – 2 units) at the beginning and 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 CRQ, SGRQ, or CAT to assess HRQOL at PR program entry and PR program completion, and who have completed at least 10 PR sessions within a 3 month period. Note that the PR Program may be 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

ATTRIBUTION:
PR program staff

SOURCES OF DATA:
Medical record or other database (e.g., administrative, clinical, registry)

RATIONALE:
Health-related QOL has been studied, reported, and accepted as important and relevant outcome measure and marker for disability/health in patients with COPD and ILD. HRQOL is strongly associated with severity of COPD and ILD (22). Multiple organ and disease-specific instruments have been described with strong psychometrics (validity and reliability). According to the ACCP/AACVPR Evidence-based guidelines, PR has shown to improve health-related quality of life with a Recommendation level 1, strength of evidence A (highest possible rating in the ACCP rating system (23). McCarthy and colleagues report in the updated Cochrane systematic review that significant improvement was noted in 4 important domains for quality of life (24). Effects were found to be larger than the MCID for both the CRQ and SGRQ (24). A new Cochrane Systematic Review also supports PR positive impact on HRQOL in ILD (25). The GOLD Guidelines (26) recommend that pulmonary rehabilitation be a part of the treatment plan for patients with moderate to severe COPD. Recent Cochrane systematic reviews also report that exercise therapy improves HRQOL in ILD (25) and non-malignant dust related diseases that fall under the ILD umbrella (27).

REFERENCES:


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