



Kaiser Foundation Health Plan of Washington

Clinical Review Criteria Pulmonary Rehabilitation

- COPD
- Chronic Pulmonary Lung Disease
- Emphysema

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Criteria

For Medicare Members

Clinical review is no longer required

For Non-Medicare Members

Clinical review is no longer required

The following information was used in the development of this document and is provided as background only. It is provided for historical purposes and does not necessarily reflect the most current published literature. When significant new articles are published that impact treatment option, Kaiser Permanente will review as needed. This information is not to be used as coverage criteria. Please only refer to the criteria listed above for coverage determinations.

Background

The American Thoracic Society and the European Respiratory Society define pulmonary rehabilitation as "an evidence-based, multidisciplinary, and comprehensive intervention for patients with chronic respiratory diseases who are symptomatic and often have decreased daily life activities. Integrated into the individualized treatment of the patient, pulmonary rehabilitation is designed to reduce symptoms, optimize functional status, increase participation, and reduce health care costs through stabilizing or reversing systemic manifestations of the disease. Comprehensive pulmonary rehabilitation programs include patient assessment, exercise training, and psychosocial support".

Individuals with chronic obstructive pulmonary disease (COPD) constitute the largest population of those referred for pulmonary rehabilitation. COPD is defined as a slowly progressive disease of the airways characterized by airflow limitation and loss of lung function that is not fully reversible. Pulmonary rehabilitation may also be of value for other patients who have respiratory symptoms associated with reduced functional capacity or health-related quality of life (Celli 2008; Nici 2006).

The American Academy of Chest Physicians and the American Association of Cardiovascular and Pulmonary Rehabilitation updated their guideline on pulmonary rehabilitation in 2007. The new guideline accepts the above definition of pulmonary rehabilitation. This guideline considers the three most important features of a successful pulmonary rehabilitation program to be: a multidisciplinary approach, individual assessment and goal-setting, and paying attention to physical functioning and social functioning. The guideline recommends at least 6 weeks of pulmonary rehabilitation; however, no specific combination of program components is recommended (Ries 2007).

Medical Technology Assessment Committee (MTAC)

Pulmonary Rehabilitation

05/01/2000: MTAC REVIEW

Evidence Conclusion: Although there is some evidence that specific pulmonary rehabilitation programs have lasting benefits for selected patients (Guell et al., Griffiths et al.), conclusions cannot be drawn about the effectiveness of pulmonary rehabilitation in general for the following reasons: Each pulmonary rehabilitation program has different components (see attached table): study methodologies do not permit conclusions about which component or components affect outcomes. Each pulmonary rehabilitation program is a different length and has a different intensity (see attached table): it is not possible to draw conclusions about what length or intensity is necessary to improve outcomes. Study methodologies do not permit conclusions about whether the pulmonary rehabilitation program itself or other factors such as the social support provided by program participation affects outcomes. Most programs have small sample sizes and results may be unreliable. Replications of individual programs are not available. The results of programs are not necessarily generalizable to other populations. For example, the Guell et al. study was conducted only with men and results may not be generalizable to women. Most of the early studies examining the effectiveness of PR were of poor quality (as reported in the meta-analysis by Cambach et al.) The ideal evidence, which does not currently exist, would be well conducted RCTs that examine different combinations of PR program components (e.g. education alone, education+exercise, exercise alone, etc.). In addition, there needs to be sufficient numbers of participants and data for the entire population of interest (i.e. both men and women).

Articles: The literature search yielded 73 articles. There were 8 randomized controlled trials (RCTs) and 2 meta-analyses. Five RCTs were excluded because of one of the following reasons: The groups compared were not directly relevant to this review (in-patient vs. out-patient PR, PR vs. lung surgery); had a small sample size (total n < 50); or were included in the meta-analysis that was selected for review.

Articles selected for critical appraisal include: The more recent meta-analysis: Cambach, W, Wagenaar, RC, Koelman, TW, van Keimpema, T, Kemper, HCG. The long-term effects of pulmonary rehabilitation in patients with asthma and chronic obstructive pulmonary disease: A research synthesis. Arch Phys Med Rehabil 1999; 80: 103-111. See [Evidence Table](#). Griffiths, TL, Burr, ML, Campbell, IA et al. results at one year of outpatient multidisciplinary pulmonary rehabilitation: a randomized controlled trial. Lancet 2000; 355: 362-8. See [Evidence Table](#). Guell, R, Casan, P, Belda, J et al. Long-term effects of outpatient rehabilitation of COPD: a randomized trial. Chest 2000; 117: 976-83. See [Evidence Table](#). Wedzicha, JA, Bestall, JC, Garrod, R et al. Randomized controlled trial of pulmonary rehabilitation in severe chronic obstructive pulmonary disease patients, stratified with the MRC dyspnoea scale. Eur Respir J 1999; 12: 363-9. See [Evidence Table](#).

The evidence failed MTAC evaluation criteria due to the lack of a standard definition of pulmonary rehabilitation and the paucity of rigorous studies.

Pulmonary Rehabilitation

12/01/2008: MTAC REVIEW

Evidence Conclusion: The best evidence on the efficacy of pulmonary rehabilitation for COPD is a Cochrane review of randomized controlled trials (Lacasse et al., 2006). PR was defined as a program of at least 4 weeks' duration that included exercise therapy, with the optional addition of education or psychosocial support. The meta-analysis did not specify whether programs included individualized assessment or a multidisciplinary team, so it is not clear how many programs met the criteria defined for this review. Pooled analyses in the Cochrane report found significantly better functional exercise capacity, maximal exercise capacity and quality of life in patients randomized to PR compared to usual care. Limitations of the evidence included in the Cochrane review include:

Most of the published RCTs were small, and of low-quality. None were rated by the Cochrane reviewers as high-quality. No data were reported on long-term effectiveness of PR. Most studies reported findings at the end of the active intervention. The outcomes reported were exercise capacity and quality of life. There are insufficient data on the impact of PR on the rate of exacerbations and hospitalizations. The comparison intervention in the Cochrane review was usual care, the content of which varied from study to study. Thus, we cannot draw conclusion on which components of PR might be effective. Another limitation of the body of evidence is that RCTs comparing PR to sham PR programs are not available. Therefore, we cannot determine whether PR programs per se are effective or whether there is a 'placebo effect' of participating in a program believed by patients to be beneficial. One RCT (Sewell et al., 2005) suggests that an individually tailored exercise program, a key feature of pulmonary rehabilitation, may not be any more effective than a general exercise program in which all participants perform the same exercise. The Sewell study did not find statistically significant differences in functional ability or exercise performance in patients with COPD randomly assigned to receive a 7-week PR program of education plus a general or individualized exercise program. The Sewell study is not conclusive—sample size calculations were not reported, and it may have been underpowered. In conclusion: The evidence on pulmonary rehabilitation for COPD has important limitations. RCTs were small and of low quality, outcome data are short-term and are only available for exercise capacity and quality of life, and a placebo effect of participating in a PR program cannot be ruled out. There are no RCTs comparing some PR program meeting criteria established for this review

and a less-intensive intervention. It is important to know whether a comprehensive PR program that includes individualized assessment and involves a multi-disciplinary team is more effective than a less resource-intensive intervention such as an exercise program. There is insufficient evidence on the effectiveness of pulmonary rehabilitation for conditions other than COPD.

Articles: The ideal study is a double-blind randomized controlled trial comparing pulmonary rehabilitation to a sham rehabilitation program (i.e. a program of similar intensity without the therapeutic content under evaluation). No studies meeting these criteria were identified. However, there was one relatively large RCT (Sewell et al., 2005) that compared an individualized exercise program to a general exercise program for COPD. The general exercise program could be considered a type of sham and could allow for blinding of participants. Other than a sham-controlled trial, the next best design is a study comparing two PR programs with a different combination of components, especially if one of the PR programs met the definition for this review. One small RCT was identified that compared exercise only, exercise plus activity training and exercise plus didactic education (Norweg et al., 2005). This study, however, was excluded due to the small number of participants. A third type of comparison intervention is "usual care". Since the previous MTAC review, a Cochrane review of randomized controlled trials comparing pulmonary rehabilitation to usual care for patients with COPD has been published (Lacasse et al., 2006). No large, well-conducted RCT on PR versus any comparison intervention published after the Cochrane review was identified. The search did not yield any randomized controlled trials or meta-analyses that evaluated pulmonary rehabilitation for any lung condition other than COPD. The Cochrane review and one RCT were critically appraised: Lacasse Y, Goldstein R, Lasserson TJ, Martin S. Pulmonary rehabilitation for chronic obstructive pulmonary disease. *Cochrane Database of Systematic Reviews* 2006. Issue 4. See [Evidence Table](#). Sewell L, Singh SJ, Williams JEA et al. Can individualized rehabilitation improve functional independence in elderly patients with COPD? *Chest* 2005; 128: 1194-1200. See [Evidence Table](#).

The use of pulmonary rehabilitation in the treatment of COPD, chronic pulmonary lung disease and emphysema does not meet the *Kaiser Permanente Medical Technology Assessment Criteria*.

Pulmonary Rehabilitation

12/20/2010: MTAC REVIEW

Evidence Conclusion: A recent meta-analysis that evaluated the effectiveness of pulmonary rehabilitation after an acute exacerbation of COPD found that compared to usual care, subjects in the pulmonary rehabilitation intervention had fewer hospital admissions. However, only 3 studies with a total of 93 subjects were included in the meta-analysis (Puhan 2009).

Pulmonary Rehabilitation vs. Usual Care				
Outcome	# of studies	# of subjects	Odds Ratio (95% CI)	NNT (95% CI)
Hospital admission	3	93	0.13 (0.04 to 0.35)	3* (2 to 4)

*NNT over 34 weeks

Conclusion: Evidence from a meta-analysis that included small studies of moderate quality suggests that pulmonary rehabilitation is effective at reducing hospital admissions in patients with an acute exacerbation of COPD.

Articles: Only randomized controlled trials, meta-analyses, and clinical trials were included in the review. Studies were excluded if they were: community based; if they did not have sufficient statistical power to detect a difference in one of the main outcomes; or if they did address one of the main outcome measures (hospitalizations or emergency department visits). The following study was critically appraised: Puhan M, Scharplatz M, Troosters T, Walters ED and Steurer J. Pulmonary rehabilitation following exacerbation of chronic obstructive pulmonary disease. *Cochrane Database Syst Rev.* 2009, Issue 1. Art No.: CD005305. DOI: 10.1002/14651858. CD005305.pub2. See [Evidence Table](#).

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Applicable Codes

Medically necessary review is no longer required:

CPT® or HCPC Codes	Description
94625	Physician or other qualified health care professional services for outpatient pulmonary rehabilitation; without continuous oximetry monitoring (per session)
94626	Physician or other qualified health care professional services for outpatient pulmonary rehabilitation; with continuous oximetry monitoring (per session)
G0237	Therapeutic procedures to increase strength or endurance of respiratory muscles, face-to-face, one-on-one, each 15 minutes (includes monitoring)
G0238	Therapeutic procedures to improve respiratory function, other than described by G0237, one-on-one, face-to-face, per 15 minutes (includes monitoring)
G0239	Therapeutic procedures to improve respiratory function or increase strength or endurance of respiratory muscles, two or more individuals (includes monitoring)
S9473	Pulmonary rehabilitation program, nonphysician provider, per diem *S codes not covered by Medicare

***Note:** Codes may not be all-inclusive. Deleted codes and codes not in effect at the time of service may not be covered.

**To verify authorization requirements for a specific code by plan type, please use the [Pre-authorization Code Check](#).

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Date Created	Review Date	Date Last Revised
01/16/2009	02/10/2011 ^{MDCRPC} , 12/06/2011 ^{MDCRPC} , 10/02/2012 ^{MDCRPC} , 08/06/2013 ^{MPC} , 01/07/2014 ^{MPC} , 11/04/2014 ^{MPC} , 09/01/2015 ^{MPC} , 07/05/2016 ^{MPC} , 05/02/2017 ^{MPC} , 03/06/2018 ^{MPC} , 03/05/2019 ^{MPC} , 03/03/2020 ^{MPC} , 03/02/2021 ^{MPC} , 03/01/2022 ^{MPC} , 03/07/2023 ^{MPC}	03/01/2022

^{MDCRPC} Medical Director Clinical Review and Policy Committee
^{MPC} Medical Policy Committee

Revision History	Description
07/05/2016	Added NCD
09/03/2015	Changed Medicare link
11/17/2016	Added LCA A52770
09/07/2017	Clinical Review no longer required
03/01/2022	Updated applicable codes.