Outpatient Pulmonary Rehabilitation

Description

Pulmonary rehabilitation (PR) is a multidisciplinary approach to reducing symptoms and improving quality of life in patients with compromised lung function. PR programs generally include a patient assessment followed by therapeutic interventions including exercise training, education, and behavior change.

OBJECTIVE

The objective of this evidence review is to evaluate whether the use of pulmonary rehabilitation in patients with various lung conditions improves net health outcomes.

POLICY STATEMENT

A single course of pulmonary rehabilitation in the outpatient ambulatory care setting may be considered medically necessary for treatment of chronic pulmonary disease for patients with moderate-to-severe disease who are experiencing disabling symptoms and significantly diminished quality of life despite optimal medical management.

A single course of pulmonary rehabilitation may be considered medically necessary in an outpatient ambulatory care setting as a preoperative conditioning component for those considered appropriate candidates for lung volume reduction surgery (see evidence review 7.01.71) or for lung transplantation (see evidence review 7.03.07).

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Pulmonary rehabilitation programs are considered **medically necessary** following lung transplantation.

Pulmonary rehabilitation programs are considered **investigational** following other types of lung surgery, included but not limited to lung volume reduction surgery and surgical resection of lung cancer.

Multiple courses of pulmonary rehabilitation are considered **investigational**, either as maintenance therapy in patients who initially respond, or in patients who fail to respond, or whose response to an initial rehabilitation program has diminished over time.

Home-based pulmonary rehabilitation programs are considered **investigational**.

Pulmonary rehabilitation programs are considered **investigational** in all other situations.

**POLICY GUIDELINES**

A pulmonary rehabilitation outpatient program is a comprehensive program that generally includes team assessment, patient training, psychosocial intervention, exercise training, and follow-up. The overall length of the program and the total number of visits for each component may vary from program to program.

Team assessment includes input from a physician, respiratory care practitioner, nurse, and psychologist, among others.

Patient training includes breathing retraining, bronchial hygiene, medications, and proper nutrition.

Psychosocial intervention addresses support system and dependency issues.

Exercise training includes strengthening and conditioning, and may include stair climbing, inspiratory muscle training, treadmill walking, cycle training (with or without ergometer), and supported and unsupported arm exercise training. Exercise conditioning is an essential component of pulmonary rehabilitation. Education in disease management techniques without exercise conditioning does not improve health outcomes of patients who have chronic obstructive pulmonary disease.

Follow-up to a comprehensive outpatient pulmonary rehabilitation program may include supervised home exercise conditioning.

Candidates for pulmonary rehabilitation should be medically stable and not limited by another serious or unstable medical condition. Contraindications to pulmonary rehabilitation include severe psychiatric disturbance (eg, dementia, organic brain syndrome), and significant or unstable medical conditions (eg, heart failure, acute cor pulmonale, substance abuse, significant liver dysfunction, metastatic cancer, disabling stroke).

**BENEFIT APPLICATION**

Experimental or investigational procedures, treatments, drugs, or devices are not covered (See General Exclusion Section of brochure).

**FDA REGULATORY STATUS**

Not applicable.

**RATIONALE**

**Summary of Evidence**

**Chronic Pulmonary Disease Rehabilitation**

For individuals with moderate-to-severe COPD who receive a single course of outpatient PR, the evidence includes numerous RCTs and systematic reviews. Relevant outcomes are symptoms, functional outcomes, and quality of life. The published studies found improved outcomes (ie, functional ability, quality of life) in patients with moderate-to-severe COPD who underwent a comprehensive PR program in the outpatient setting. Among the many randomized trials, the structure of the PR programs varied, so it is not possible to provide guidance on the optimal components or duration of a PR program. The evidence is sufficient to determine that the technology results in a meaningful improvement in the net health outcome.

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For individuals with idiopathic pulmonary fibrosis who receive a single course of outpatient PR, the evidence includes an RCT. Relevant outcomes are symptoms, functional outcomes, and quality of life. Neither of the 2 RCTs identified in a 2010 systematic review reported on functional outcomes, but uncontrolled studies have reported improvements in functional outcomes. The evidence is insufficient to determine whether the technology results in a meaningful improvement in the net health outcome.

For individuals with bronchiectasis who receive a single course of outpatient PR, the evidence includes RCTs, systematic reviews, and observational data. Relevant outcomes are symptoms, functional outcomes, and quality of life. A systematic review of 4 RCTs on PR for patients with bronchiectasis found that some, but not all, outcomes improved more with PR than with nonexercise control conditions immediately after the intervention. The evidence is insufficient to determine the effects of the technology on health outcomes.

**Preparation for Lung Surgery**

For individuals with scheduled lung surgery for volume reduction, transplantation, or resection who receive a single course of outpatient PR, the evidence includes RCTs and observational studies. Relevant outcomes are symptoms, functional outcomes, and quality of life. No published RCTs were identified. The case series evaluated a comprehensive PR program after LVRS in 49 patients who had not received preoperative PR. Health-related quality of life was higher at 3 to 6 months and 12 to 18 months postsurgery. The series did not provide data on patients who underwent LVRS and did not have postoperative PR, or patients who had preoperative PR. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals who have had lung transplantation who receive a single course of outpatient PR, the evidence includes RCTs, systematic reviews, and observational studies. Relevant outcomes are symptoms, functional outcomes, and quality of life. One small RCT has evaluated a comprehensive PR program in patients who had undergone thoracotomy for lung cancer. The trial was terminated early, had a high dropout rate, and reported mixed findings. An exercise-only intervention in patients who had lung cancer surgery had mixed findings and did not determine that the technology results in a meaningful improvement in the net health outcome.

For individuals who have had lung resection who receive a single course of outpatient PR, the evidence includes RCTs and observational studies. Relevant outcomes are symptoms, functional outcomes, and quality of life. Higher at 3 to 6 months and 12 to 18 months postsurgery. The series did not provide data on patients who underwent LVRS and did not have postoperative PR, or patients who had preoperative PR. The evidence is insufficient to determine the effects of the technology on health outcomes.

**Repeat or Maintenance Rehabilitation**

For individuals who have had an initial course of PR who receive repeat or maintenance outpatient PR, the evidence includes RCTs. Relevant outcomes are symptoms, functional outcomes, and quality of life. There are only a few RCTs, and many of them have methodologic limitations and/or did not report clinically significant outcomes. The evidence is insufficient to determine the effects of the technology on health outcome.

**Home-Based Rehabilitation**

For individuals who have an indication for outpatient PR who receive a single course of home-based PR, the evidence includes RCTs and systematic reviews. Relevant outcomes are symptoms, functional outcomes, and quality of life. Most studies of home-based PR have methodologic limitations and/or did not report clinically significant outcomes. The evidence is insufficient to determine the effects of the technology on health outcome.

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based PR have compared outcomes with standard care. Very few have compared home-based PR with the hospital- or clinic-based PR, and the available studies are mostly of low quality. The evidence is insufficient to determine the effects of the technology on health outcome.

SUPPLEMENTAL INFORMATION

Practice Guidelines and Position Statements

American Thoracic Society and European Respiratory Society

A 2015 joint statement on pulmonary rehabilitation (PR) was issued by the American Thoracic Society and the European Respiratory Society. The statement included the following relevant conclusions:

- "PR has demonstrated physiological, symptom-reducing, psychosocial, and health economic benefits in multiple outcome areas for patients with chronic respiratory diseases."
- "The evidence indicates that patients who benefit from PR include not only persons with moderate to severe airflow limitation but also those with mild to moderate airflow limitation with symptom-limited exercise tolerance, those after hospitalization for COPD exacerbation, and those with symptomatic non-COPD respiratory conditions."
- "Patients graduating from a PR program stand to benefit from a home, community-based, or program-based maintenance exercise program to support the continuation of positive exercise behavior."

American College of Physicians

Joint guidelines on the management of COPD were issued in 2011 by the American College of Physicians, the American College of Chest Physicians, American Thoracic Society, and European Respiratory Society. The guidelines recommended that: "clinicians should prescribe pulmonary rehabilitation for symptomatic patients with an FEV₁ <50% predicted (Grade: strong recommendation, moderate-quality evidence). Clinicians may consider pulmonary rehabilitation for symptomatic or exercise-limited patients with an FEV₁ >50% predicted (Grade: weak recommendation, moderate-quality evidence)."

American College of Chest Physicians

In 2007, joint guidelines on PR for COPD and other chronic respiratory diseases were issued by American College of Chest Physicians and the American Association of Cardiovascular and Pulmonary Rehabilitation (see Table 1).

Table 9. Pulmonary Rehabilitation Guidelines for Chronic Respiratory Diseases

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>GOR</th>
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<tr>
<td>A program of exercise training of the muscles of ambulation is recommended as a mandatory component of pulmonary rehabilitation for patients with COPD</td>
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<tr>
<td>Pulmonary rehabilitation improves the symptom of dyspnea and improves health-related quality of life in patients with COPD</td>
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<tr>
<td>Six to 12 weeks of pulmonary rehabilitation produces benefits in several outcomes that decline gradually over 12 to 18 months</td>
<td>1A</td>
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<tr>
<td>Both low- and high-intensity exercise training produce clinical benefits for patients with COPD</td>
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Unsupported endurance training of the upper extremities is beneficial in patients with COPD and should be included in pulmonary rehabilitation programs

Higher-intensity exercise training of the lower extremities produces greater physiologic benefits than lower-intensity training in patients with COPD

Evidence does not support the routine use of inspiratory muscle training as an essential component of pulmonary rehabilitation

Education should be an integral component of pulmonary rehabilitation; it should include information on collaborative self-management and prevention and treatment of exacerbations

Pulmonary rehabilitation is beneficial for some patients with chronic respiratory diseases other than COPD

COPD: chronic obstructive pulmonary disease; GOR: grade of recommendation.

U.S. Preventive Services Task Force Recommendations

Not applicable

Medicare National Coverage

In 2007, the Centers for Medicare & Medicaid Services affirmed its position that a national coverage determination for PR is not appropriate.

REFERENCES


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### POLICY HISTORY - THIS POLICY WAS APPROVED BY THE FEP® PHARMACY AND MEDICAL POLICY COMMITTEE ACCORDING TO THE HISTORY BELOW:

<table>
<thead>
<tr>
<th>Date</th>
<th>Action</th>
<th>Description</th>
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<tbody>
<tr>
<td>December 2011</td>
<td>New policy</td>
<td>Policy updated with literature review. References 6, 19-23 added; other references renumbered or removed. No change in policy statements.</td>
</tr>
<tr>
<td>March 2013</td>
<td>Replace policy</td>
<td>Policy updated with literature review through November 21, 2013. References 1, 5, 9, 12, 20, 23 and 24 added; other references renumbered or removed. Statement added that pulmonary rehabilitation programs are considered investigational in all other situations.</td>
</tr>
<tr>
<td>March 2014</td>
<td>Replace policy</td>
<td>Policy updated with literature review through December 15, 2014. References 6, 9-11, and 22-27 added. Statements added the pulmonary rehabilitation is considered medically necessary following lung transplantation and investigational following other types of lung surgery.</td>
</tr>
<tr>
<td>September 2016</td>
<td>Replace policy</td>
<td>Policy updated with literature review through January 11, 2018; references 3, 12, 14, 18, 21, 28, 30 and 36 added; reference 25 updated. Policy statements unchanged; statements reordered to align evidence summary.</td>
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