

Pulmonary Rehabilitation for Chronic Obstructive Pulmonary Disease: A Scientific and Political Agenda

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Pulmonary rehabilitation (PR) is the standard of care for patients suffering chronic obstructive pulmonary disease (COPD). This report describes and defines PR and reviews the evidence regarding the efficacy of PR. COPD management guidelines that include PR have been published by the European Respiratory Society, the American Thoracic Society, and the British Thoracic Society, and those guidelines were supported by evidence-based guidelines published jointly by the American College of Chest Physicians and the American Association of Cardiovascular and Pulmonary Rehabilitation. The Global Initiative for Chronic Obstructive Lung Disease, which is also evidence-based, included the recommendation for referral to PR. Despite those recommendations, the availability of comprehensive PR programs (defined as being compliant with national practice standards) is limited. In the United States the lack of a national policy for PR reimbursement has led to differences in compensation among insurance providers, based on differences in the Local Medical Review Policies established by the "fiscal intermediaries." Since 1998 the American Association for Respiratory Care, the American College of Chest Physicians, the American Thoracic Society, and the National Association for Medical Direction of Respiratory Care have jointly lobbied for clear, consistent guidelines from the United States Health Care Financing Administration (HCFA, which was recently renamed the Centers for Medicare and Medicaid Services [CMS]). In 2002 new Medicare/Medicaid billing codes ("G codes") became available for billing PR procedures, but unfortunately the instructions for the use of those codes differ among the Local Medical Review Policies. There has been little success in the effort to establish a national coverage policy for PR. The respiratory therapist holds a unique role in PR. In the respiratory therapist's training curriculum PR is specifically addressed, making the respiratory therapist an asset to the multidisciplinary PR team. With their many clinical opportunities for making contact with COPD patients and physicians, respiratory therapists can be effective advocates for PR. *Key words: pulmonary rehabilitation, guidelines, reimbursement, respiratory, therapist.* [Respir Care 2004;49(1):28-36. © 2004 Daedalus Enterprises]

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Introduction

Since the American Thoracic Society (ATS) defined pulmonary rehabilitation (PR) in 1981,¹ the acceptance of PR as an effective therapeutic intervention has grown within the pulmonary medicine community. Those involved in the delivery of PR services consider PR a standard of care for many patients with chronic obstructive pulmonary disease (COPD). The remainder of the medical community, patients who are potential participants in PR, and those responsible for establishing reimbursement criteria are not as aware of the efficacy of PR.

This report reviews the global acceptance of the value of PR, the supporting scientific evidence, the lack of program availability, issues of reimbursement, and the role of the respiratory therapist (RT) in PR. The lack of program availability and reimbursement issues preclude many patients from participating in PR.

What Is Pulmonary Rehabilitation?

Effective December 2, 2002, the American Association for Respiratory Care (AARC) Board of Directors approved the following as their updated Pulmonary Rehabilitation Statement:

A program of pulmonary rehabilitation is a multifaceted continuum of services designed for persons with pulmonary disease and their families. As a component of respiratory disease management, the goals of pulmonary rehabilitation are to restore patients to their highest possible level of independent function and to improve their quality of life. Pulmonary rehabilitation, generally conducted by a multi-disciplinary team of specialists, should be included in the overall management of patients with respiratory disease to assist in alleviating symptoms and optimizing health. The respiratory therapist, by virtue of specialized education and interest in the individual's respiratory care, is a key partner in a successful rehabilitation program.²

This position statement by the AARC agreed with and expanded the 1999 ATS definition of PR, which reads:

Pulmonary rehabilitation is a multidisciplinary program for patients with chronic respiratory impairment that is individually tailored and designed to optimize physical and social performance and autonomy.³

International Support for Pulmonary Rehabilitation

Guidelines for the management of COPD that support the inclusion of PR in the treatment plan were published

by the European Respiratory Society in August 1995,⁴ by the ATS in November 1995,⁵ and by the British Thoracic Society (BTS) in December 1997.⁶ Additionally, statements that specifically address PR were published by the ATS in 1999¹ and the BTS in 2001.⁷ Both of these PR-specific statements were based on critically reviewed research and expert opinion and they agreed that PR is indicated for COPD patients who are symptomatic, as manifested by dyspnea and/or restriction in ability to perform daily activities, and referral should not be based solely on severity of lung disease as measured by forced expiratory volume in the first second (FEV₁). The ATS and BTS statements, as well as a systematic research overview by Lacasse et al,⁸ concur on the essential components of a PR program (Table 1).

Evidence-Based Guidelines for Pulmonary Rehabilitation

Pulmonary Rehabilitation Evidence-Based Guidelines were published in 1997 as a joint effort of the American College of Chest Physicians (ACCP) and the American Association of Cardiovascular and Pulmonary Rehabilitation (AACVPR).^{9,10} Similar to the PR statements by the ATS and BTS, the ACCP/AACVPR guidelines stated

Table 1. Essential Components of Pulmonary Rehabilitation

<u>Physical/Exercise Training</u>
Upper and lower extremities
Endurance training
Strength training
<u>Comprehensive Education for Patient and Family, Including Psychosocial and Behavioral Interventions</u>
Normal lung function
Pathophysiology of lung disease
Breathing strategies
Proper use of medications, including oxygen
Bronchial hygiene
Benefits of exercise
Energy conservation and work simplification techniques
Nutritional advice
Irritant avoidance and prevention and control of respiratory infections
Indications for calling the health care provider
Leisure, travel, and sexuality
Coping with chronic lung disease and end-of-life planning
Panic control
<u>Outcome Assessment</u>
Measurement of disability
Exercise testing
Dyspnea
Measurement of handicap (social impact of the disease)
Health-related quality of life
Functional performance

PULMONARY REHABILITATION FOR CHRONIC OBSTRUCTIVE PULMONARY DISEASE

Table 2. ACCP/AACVPR Explanation of Letter Grades Designating the Overall Strength of the Evidence for Each Recommendation

Grade	Description
A	Evidence from well-designed, well-conducted, controlled trials with statistically significant results
B	Evidence from observational studies or controlled trials with less consistent results
C	Expert opinion supports the guideline recommendation though the available research does not have consistent results and controlled trials are lacking

ACCP = American College of Chest Physicians
AACVPR = American Association of Cardiovascular and Pulmonary Rehabilitation
(Adapted from References 9 and 10.)

that, “pulmonary rehabilitation is appropriate for any patient with stable disease of the respiratory system and disabling symptoms. Even patients with severe disease can benefit if they are selected appropriately and if realistic goals are set.” The 3 important features of successful rehabilitation identified in the guidelines are: (1) individualization of the program to the patient’s needs and goals, (2) delivery of care by a multidisciplinary team, and (3) attention to the patient’s psychological and pathophysiologic problems. The goal of PR is de-

finied as achieving and maintaining the participant’s maximum level of independence and functioning within his or her community. Patients are to be encouraged to become more involved in providing their own care and less dependent on the traditional health care delivery system. It was recognized that rather than focusing only on reversing the disease process, PR attempts to lessen the disability.

In addition to providing the preceding recommendations, the purpose of the ACCP/AACVPR guidelines was to conduct evidence-based review of the research on PR. A letter grade designating the strength of the evidence was assigned to each recommendation. Table 2 defines the grading scale and Table 3 summarizes the recommendations and their evidence grades.

The ACCP/AACVPR guidelines reiterate what Dr Christopher Clark wrote in *Lancet* in 1996:

[PR] is a multidisciplinary “continuum of services” because causes of disability in COPD patients are clearly multidimensional. For example, exercise limitation cannot be assumed to be simply due to breathlessness. A cascade of factors, such as deteriorating nutritional status, impaired skeletal muscle function, the impact of upper extremity exercise on ventilation, and poor psychosocial functioning, all contribute to a vicious cycle of deconditioning and

Table 3. ACCP/AACVPR Recommendations and Evidence Grades Regarding Pulmonary Rehabilitation for COPD Patients

Pulmonary Rehabilitation Component	Recommendations Regarding COPD Patients	Evidence Grade
Lower extremity training	Patients who undergo a lower-extremity exercise training program consistently improve exercise tolerance, without evidence of adverse effects. An exercise training program for the ambulation muscles is recommended.	A
Upper extremity training	Upper extremities strength and endurance training improves arm function. Arm exercises are safe and should be included in the pulmonary rehabilitation program.	B
Ventilatory muscle training	The evidence does not support the routine use of ventilatory muscle training as an essential therapeutic component in pulmonary rehabilitation.	B
Psychosocial, behavioral, and educational interventions and outcomes	The evidence does not support short-term psychological interventions as single therapies. Longer-term psychological interventions may be of benefit. Despite the lack of evidence expert opinion supports the inclusion of educational and psychosocial interventions as essential components of a comprehensive pulmonary rehabilitation program.	C
Dyspnea	Pulmonary rehabilitation improves dyspnea.	A
Quality of life	Pulmonary rehabilitation improves health-related quality of life.	B
Health care utilization	Pulmonary rehabilitation reduces the number of hospitalizations and the number of days of hospitalization.	B
Survival	Pulmonary rehabilitation may improve survival.	C

ACCP = American College of Chest Physicians
AACVPR = American Association of Cardiovascular and Pulmonary Rehabilitation
COPD = chronic obstructive pulmonary disease
(Adapted from References 9 and 10.)

negativity that can be falsely ascribed to progression of the underlying disease.¹¹

GOLD's Pulmonary Rehabilitation Guidelines

The United States National Heart, Lung, and Blood Institute and the World Health Organization thought that the diagnosis, treatment, and prevention of COPD was receiving inadequate attention from the health care community and government officials, relative to the pervasiveness of the disease, so in 1998 the former organizations brought together COPD experts to formulate the Global Initiative for Chronic Obstructive Lung Disease (GOLD). The aims of GOLD are to enhance the prevention and management of COPD through a worldwide effort of individuals involved in all facets of health care and health care policy. The GOLD report,¹² which was originally published in March 2001 and updated in July 2003, contains evidence-based recommendations for the management of stable COPD. GOLD specifically recommends PR for patients with moderate-to-very-severe COPD (Table 4).

According to GOLD the general goals for PR are to “reduce symptoms, improve quality of life, and increase physical and emotional participation in everyday activities.”¹² Like the ACCP/AACVPR guidelines, GOLD findings and recommendations are rated by the quality of the supporting evidence. Table 5 describes GOLD's letter-grade system for designating the overall strength of the evidence for recommendations. Table 6 lists the benefits of PR and their associated evidence grades. These goals and benefits are achieved by the inclusion of 3 essential components in PR: education, exercise training, and nutrition counseling. The specific goals of patient education are to ensure that the COPD patient understands the nature

Table 4. GOLD Recommendations Regarding Pulmonary Rehabilitation

COPD Stage	Characteristics	Recommendation
II: Moderate	FEV ₁ /FVC < 70% FEV ₁ 50–80% of predicted With or without chronic symptoms	Initiate pulmonary rehabilitation
III: Severe	FEV ₁ /FVC < 70% FEV ₁ 30–50% of predicted With or without chronic symptoms	Initiate pulmonary rehabilitation
IV: Very Severe	FEV ₁ /FVC < 70% FEV ₁ < 30% of predicted or FEV ₁ < 50% of predicted plus chronic respiratory failure or right heart failure	Initiate pulmonary rehabilitation

GOLD = Global Initiative for Chronic Obstructive Lung Disease
 COPD = chronic obstructive pulmonary disease
 FEV₁ = forced expiratory volume in the first second
 FVC = forced vital capacity

Table 5. GOLD Letter-Grade System for Designating the Overall Strength of the Evidence for Recommendations

- A: Randomized controlled trials and rich body of data
- B: Randomized controlled trials but limited body of data
- C: Nonrandomized trials and observational studies
- D: Panel consensus judgment

GOLD = Global Initiative for Chronic Obstructive Lung Disease (Adapted from Reference 12.)

of the disease, understands the risk factors for disease progression, and values his or her role and the health care providers' roles in achieving optimal health management and outcomes. Education must be individualized to the patient's needs and environment. GOLD's recommended components of an education program concur with those listed in Table 1. As described in the ACCP/AACVPR guidelines,^{9,10} specific contributions of education to the outcomes achieved in PR remain unclear. GOLD states that studies indicate that patient education alone does not improve exercise performance or lung function.

GOLD addresses the mode, frequency, duration, and intensity of exercise training and program length. Methods of exercise testing include treadmill, bicycle ergometer, simple walk test, or shuttle walk. Training frequency (daily to weekly), duration (10–45 min), and intensity (50% of peak oxygen consumption to maximum tolerated and target heart rate) are measured. The minimum duration of an effective rehabilitation program is 2 months. Program length may depend on available resources. The longer the program, the more effective the results.¹²

Table 6. Benefits of Pulmonary Rehabilitation for COPD Patients

Benefit	Evidence Grade*
Improves exercise capacity	A
Reduces perceived intensity of breathlessness	A
Can improve health-related quality of life	A
Reduces the number of hospitalizations and number of days hospitalized	A
Reduces anxiety and depression associated with COPD	A
Strength and endurance training of upper limbs improves arm function	B
Benefits extend well beyond the immediate period of training	B
Improves survival	B
Respiratory muscle training is beneficial, especially when combined with general exercise training	C
Psychosocial intervention is helpful	C

COPD = chronic obstructive pulmonary disease
 *The evidence is graded per the GOLD (Global Initiative for Chronic Obstructive Lung Disease) evidence-rating system.
 (Adapted from Reference 12.)

Unlike the ACCP/AACVPR guidelines,^{9,10} GOLD specifically addresses the importance of nutritional counseling in PR. Weight, either overweight or underweight, can be a problem for a COPD patient. Nutritional status is an important determinant of symptoms, disability, and prognosis.

GOLD discusses the importance of assessment and follow-up, leading to the recommendation to perform baseline and follow-up assessments of all participants. Initial assessment tools used to determine appropriateness for entry into PR include the detailed history, physical examination, and spirometry before and after bronchodilator. The preceding evaluation tools are not to be used for outcome assessment. The baseline and outcome measures that should be assessed at program admission and discharge are: assessment of exercise capacity; measurement of health status and impact of breathlessness; and, in patients with muscle wasting, assessment of inspiratory and expiratory muscle strength and lower-limb strength.

The availability of the GOLD recommendations is of great value to health care providers. The *GOLD Pocket Guide to COPD Diagnosis, Management, and Prevention*,¹³ published in April 2001, and the *GOLD Patient Education Guide*,¹⁴ published in May 2002, are available on the Internet (at <http://www.goldcopd.com>). Unfortunately, though PR is described as a standard of care in other GOLD documents, there is no mention of PR in the GOLD Patient Education Guide.

Availability of Pulmonary Rehabilitation Programs

Pulmonary rehabilitation programs can be found in the out-patient, in-patient, and home settings. The site is not an issue if the essential components are provided (see Table 1), safety is assured, and appropriate staff are available. Programs that provide PR services to COPD patients in each of the 3 settings have all been shown to improve exercise capacity.¹⁵⁻¹⁷ In Europe more PR programs are conducted in the in-patient setting (65%) than the out-patient setting (55%), whereas in North America 98% of programs are in the out-patient setting.¹⁸ In the United States PR is least expensive in the out-patient setting.

The PR location depends on the patient's needs, availability of resources, and reimbursement.¹⁹ Some insurance carriers allow the COPD patient to attend PR only once a lifetime. To be assured that the program complies with established national standards for PR programs, the potential PR participant should be referred to a program that is capable of satisfying the requirements to attain national certification. Since 1998 AACVPR has been the only organization that has a process of evaluating and certifying PR programs. By achieving AACVPR national certification, a PR program has confirmed that required administrative-related items are included in its policies and pro-

cedures and that it is in substantial compliance (defined as 85% of the time) with respect to patient-care items.²⁰ Table 7 lists examples of the required standards.

As of June 2003, 285 PR programs have received national certification²¹ and 475 PR programs are listed in the AACVPR program directory, which is available to members of the association. This is far fewer programs than are needed to meet the rehabilitation requirements of the current (and growing) number of COPD patients. Many medical professionals incorrectly believe that PR programs can exist only in tertiary health care facilities. PR programs can successfully provide PR in most any community setting if the program director and medical director use the AACVPR Clinical Practice Guideline: Pulmonary Rehabilitation²² and AACVPR's Guidelines for Pulmonary Rehabilitation Programs.²³ Reimbursement issues and lack of adequate numbers of qualified personnel to staff PR programs prevent PR access for many COPD patients.

Political and Reimbursement Aspects of Pulmonary Rehabilitation

PR services, like cardiac rehabilitation services, are considered by Medicare to be "incident to physician services"

Table 7. Examples of Required Standards for AACVPR Pulmonary Rehabilitation Program Certification

Annual performance evaluation of staff, including objectives
Written preventive maintenance records for all program equipment
Procedures for recording and reviewing all incidents and accidents
Staff meetings, minutes, and attendance lists (minimum 4/yr)
Evidence of a signed physician referral
Evidence of an initial evaluation on all patients
Evidence of exercise prescription approved by medical staff
Emergency in-services documented (recommend 2-4/yr)
At least one outcome measure in each of clinical, behavioral, and health domains
Smoking history and present status
Nutritional assessment
Functional capacity assessment to evaluate patient's exercise tolerance, hypoxemia, and use of supplemental oxygen
Educational assessment of patient's and family's needs
Written, individualized care plan and projected outcomes and goals
Exercise conditioning based on oxygen saturation and exercise prescription
Use of symptoms scale to rate dyspnea and fatigue
Education sessions (individualized or group) and patient-training components
Feedback provided to physician on regular basis
A discharge summary that documents interventions and patient progress in the rehabilitation program is provided to the referring physician(s)

AACVPR = American Association of Cardiovascular and Pulmonary Rehabilitation
(Adapted from Reference 20.)

Table 8. Medicare/Medicaid Billing Codes (“G Codes”)

Code	Description
G0237	Therapeutic procedures to increase strength or endurance of respiratory muscles. Procedures are face-to-face, one-on-one, each 15 minutes (includes monitoring).
G0238	Therapeutic procedures to improve respiratory function, other than procedures described by G0237. Procedures are one-on-one, face-to-face, each 15 minutes (includes monitoring).
G0239	Therapeutic procedures to improve respiratory function. Procedures have ≥ 2 patients treated simultaneously, face-to-face, (includes monitoring).

(Data from Reference 32.)

under Title XVIII, Section 1862(s)(2)(B) of the Social Security Act. As of 1981 Medicare reimbursed these services if the services were “reasonable and necessary.” Reimbursement of cardiac rehabilitation has caused little controversy because clearly stated reimbursement criteria are included in the Medicare Coverage Issues Manual.²⁴ Unfortunately for PR providers and recipients, there is no clear policy from CMS that addresses nationwide reimbursement guidelines for PR services.²⁵ Without a policy from CMS, despite clear benefits from participation in PR,^{9,10,12} the local fiscal intermediaries (FIs [insurance carriers that contract with CMS to administer Medicare]) have the option of whether to develop a Local Medical Review Policy (LMRP) for PR.²⁶ An LMRP outlines what services are covered, what conditions define medical necessity, and how to bill for the service. Many private insurance companies mirror LMRPs for their reimbursement guidelines. When determining the FI that is responsible for the LMRP for your PR program, refer to your business office. One cannot assume that your FI is the same FI that is responsible for a PR facility across town. For example, in Phoenix, Arizona, Mutual of Omaha and Blue Cross Blue Shield of Arizona are both FIs, each have their own LMRP for PR, and the LMRPs are dissimilar. Access to LMRPs is available on the Internet^{27,28} but with the constant potential for change, check with your FI’s Internet home page for current information.²⁹

The ability of each FI to determine to what degree PR is reimbursed in the facilities they serve is problematic. Even though CMS sets the dollar amount for reimbursement of each charge code, the FI determines which codes can be used for PR services, and the coverage ranges from generous to nonexistent. Some FIs have discouraged PR by choosing not to write an LMRP or, as is the case with Blue Cross Blue Shield of Wyoming,³⁰ by writing an LMRP that specifically denies PR coverage for their Medicare recipients.

Further confounding the inequity of Medicare coverage of PR services was a statement presented to the House

Ways and Means Committee Subcommittee on Health by a HCFA administrator in 1997.³¹ The HCFA administrator, in explaining to Congress the rationale for what would become the National Emphysema Treatment Trial (NETT), cited that the initial NETT protocol required patients to receive surgery and/or “maximal medical therapy.” The “maximal medical therapy” was PR, and Medicare would reimburse the PR.

By 1998 these blatant reimbursement discrepancies caught the attention of the AARC, ACCP, ATS, and the National Association for Medical Direction of Respiratory Care. These organizations formed a PR task force and requested the establishment of a national coverage policy for PR. On the local level, because of absolute denial of reimbursement for PR services, PR professionals and patients in Arizona contacted their congressmen with the goal of having their local FI develop an LMRP for PR that would provide access to services and reimbursement. This local document was successfully developed and instituted on October 1, 1999.

Unfortunately, the national effort has met multiple obstacles. In the summer of 1999, at the request of HCFA, a task force of FI medical directors presented to HCFA a template for a national PR coverage policy. In February 2000 the PR task force, with members from the national organizations listed above, was asked to comment on the template developed by the FI medical directors. Their comments were submitted to HCFA in March 2000. In that same month HCFA distributed a memorandum to FIs that stated that there is no clear benefit category for PR programs but that HCFA could allow Medicare coverage for various *components* of PR. What HCFA disallowed was coverage of PR *programs*. HCFA subsequently admitted there were factual errors in that memorandum but never formally notified FIs of such. As a result of the memorandum, multiple FIs that had allowed PR now refused coverage. Pressure on HCFA from PR professionals for the clarification of PR coverage guidelines continued.

In the fall of 2000 Congress mandated the Medicare Payment Advisory Commission (MEDPAC) to conduct a study to determine under what conditions cardiac rehabilitation and PR should be reimbursed. The PR task force met with MEDPAC in the spring of 2001 and presented evidence-based research and references for use in the MEDPAC study. Later in 2001 the PR task force learned that the MEDPAC study would not be completed. The reason given was that HCFA informed MEDPAC that the PR community never asked for a formal decision on a coverage policy. Though it is true that a *formal* request was never submitted, during this time the PR task force was meeting with HCFA and the task force was told that a request was not necessary.²⁵

Late in 2001 CMS proposed 3 new charge codes for use in PR. Descriptions of these “G codes” (Medicare/Medic-

aid billing codes) appeared in the Federal Register under the Final Rule for the 2002 Physician Fee Schedule.³² CMS typically assigns G codes to services that are not adequately described in the American Medical Association's Current Procedural Terminology (CPT) coding system. G codes had been used in the NETT study and can be used to track the use of specific procedures. Table 8 describes the G codes assigned to PR, which became effective April 1, 2002.

Reimbursement of the G codes was addressed in the November 30, 2002, Federal Register.³³ The G codes are designated to "crosswalk" to Ambulatory Patient Classification (APC) 970. In another section of the same document,³⁴ APC 970 is designated as a "new technology APC" and is generally reimbursed at \$25.00, though the amount depends on geographic location. If the reimbursement is \$25.00, of that, \$5.00 is the patient's responsibility as a co-pay. Because the G codes contain a "T-status indicator," each additional APC 970 charged per day has the reimbursement rate of 50% of the allowed base rate. For example, if 2 G0237 charges were submitted the same day for the same patient, the first code would be paid at \$25.00 and the second at \$12.50. It may be permissible to charge multiple G codes to a single patient on a single day, depending on services rendered and allowances dictated in the LMRP. With the establishment of the G codes, an FI cannot deny payment for these codes simply because there is no LMRP.³⁵ Most FIs have revised their LMRPs to reflect the inclusion of the G codes, yet some FIs continue to refuse to develop an LMRP for PR. In this situation, providers of PR have no guidance in the development of PR service guidelines.

Currently, quiet optimism is prevailing among PR professionals. During the ATS International Conference in May 2003 the final report from the NETT was presented. No PR-specific outcome data were communicated, but the CMS representative alluded to a national coverage policy for PR in the setting of lung-volume-reduction surgery (LVRS). It is the desire of PR providers and PR participants that CMS not restrict access to PR services only to potential LVRS candidates.

During his weekly radio address to the nation on June 6, 2003,³⁶ President George W Bush stated, "For nearly 4 decades Medicare has been the binding commitment of a caring society. We must renew that commitment by providing our seniors with the preventive care and new medicines that are transforming health care in our country." If CMS attains this goal, national coverage for PR should be forthcoming.

On August 20, 2003, CMS released the Coverage Decision Memorandum for Lung Volume Reduction Surgery.³⁷ The coverage decision did not include the term "pulmonary rehabilitation" but states "LVRS is reasonable and necessary only if preceded and followed by a program

of diagnostic and therapeutic services consistent with those provided in the NETT." Preoperatively, the duration of those services must be 6–10 weeks and include no less than 16 but no more than 20 sessions, each session lasting at least 2 hours. Postoperatively, within 8–9 weeks of LVRS, the patient is to receive 6–10 additional sessions.

A coverage decision memorandum usually precedes a National Coverage Determination by 6–9 months. The National Coverage Determination will instruct the local FI of the process to be used in processing claims. Until the issuance of the National Coverage Determination, the reimbursement rates for "a program of diagnostic and therapeutic services" for LVRS candidates will be unknown. Also remaining unknown is whether CMS will cover PR services for non-LVRS patients.

Respiratory Therapists' Role in Pulmonary Rehabilitation

The RT has multiple associations with PR. By definition, PR is "generally conducted by a multi-disciplinary team of specialists" and "the RT, by virtue of specialized education and interest in the individual's respiratory care, is a key partner in a successful rehabilitation program."² The entry-level curriculum for respiratory therapy technicians, as outlined by the AARC, includes 30 hours of instruction devoted specifically to PR.³⁸ This formal instruction in PR gives the RT a solid knowledge base on which to build and become proficient in PR clinical competencies that focus on assessment, intervention, and outcome evaluation.³⁹ Despite the RT being a likely member of the PR team, only 27% (130/475) of the programs listed in the AACVPR program directory identified an RT as the Pulmonary Program Director. Only 27% (76/285) of the PR programs certified by the AACVPR list an RT as the clinical contact.²¹

Another very valuable role for the RT is as PR advocate. The RT has more contact with COPD patients than most other medical disciplines. This access to patients who could benefit from PR, either through in-patient, out-patient, or home-care contact, provides the opportunity for the RT to introduce the patient to the concept of PR. The RT is also in an opportune position to educate physicians, other health care providers, and facility administrators about the clinically proven benefits of PR. Increased awareness of the benefits of PR, including fewer hospital days,⁴⁰ may be influential in improving reimbursement standards and increasing program development.

Summary

PR is recognized as a standard of care for COPD patients. Patients who, despite optimal medical management, remain dyspneic and/or limited in their ability to perform

activities of daily living should be evaluated for referral to PR. The referral should not be based solely on FEV₁. These recommendations are clearly stated in evidence-based reviews of the literature^{9,10,13} and PR-specific statements.^{3,7}

Despite the growing number of COPD patients, the availability of comprehensive PR programs is limited. This constraint is largely a result of the lack of reimbursement for PR services. Lack of reimbursement is also reflected in the inability to recruit and retain qualified PR staff. Reimbursement issues, as they relate to PR, have been discussed in Washington DC for 20 years, but the wheels turn slowly. With the recent establishment of the G codes specific to PR services and the completion of the NETT, which designated PR as "maximal medical therapy," the hope is that a national Medicare coverage policy for PR services is forthcoming from CMS. A national policy would eliminate the possibility of some states choosing total or partial denial of coverage for PR services.

The RT has a unique role with respect to PR. RTs receive PR-specific instruction in their educational curriculum, making them valued members of the multi-disciplinary PR team. With their knowledge of the benefits of patient participation in a comprehensive PR program and their frequent interactions with COPD patients and physicians, RTs can be an effective advocate for PR.

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Discussion

MacIntyre: Medicare is in a quandary regarding PR. Many meetings with CMS have ended with the statement that there is no benefit category for rehabilitative or preventive services in the Social Security Act that established Medicare. That's the law: they cannot provide preventive or rehabilitative services—period. Now they try to fudge around that and they *try* to help by allowing us to do the component billing you mentioned. This is what most PR programs do.

One of the most interesting parts of the NETT study wasn't a major feature of the report. It was the fact that about 15% of the patients bailed out of the NETT program after they finished a PR program; they felt so good they said, "Nuts to this experimental surgery idea!" And that caught Medicare's attention, because they could pay a few thousand dollars for a PR program or they could pay many thousands of dollars for a lung-volume-reduction surgery. That's a no-brainer!

So Medicare is sort of caught in this quandary now of recognizing that PR works, that it's cost-effective, and that it may keep people away from the expensive lung-volume-reduction surgery, and yet at the same time they have to abide by the statute that tells them they can't pay for preventive or rehabilitative services. I'm not sure

how they're going to get themselves out of that box. It appears that doctors and other professionals at CMS would, in general, like to help, but they're in a bureaucracy, and trying to work through the system is a problem.

Fahy: Neil, a question back to you. In March or April of 2003 the Pulmonary Rehabilitation Task Force submitted a letter asking CMS to look at PR in general. What's the status of that request?

MacIntyre: I think it's in the same review process as LVRS. I don't know what they're going to do. I think they'd like to make a single statement that includes LVRS and PR, but they surprise me more often than they don't.

Wedzicha: In the United Kingdom, PR programs are scarcer than they are in the United States. One problem I have with PR is organization of the service. For instance, you said that in Arizona patients have only one go at it—I assume you meant one course of PR. Now there is some evidence that PR maintenance programs do work, and the number of COPD patients is increasing and the health burden is enormous. It is difficult to see how we can cope with delivering PR to everybody who'll need it and offering PR maintenance. Where I work in East

London, we have a lot of COPD, and there's no way our resources can stretch to cover all the patients who need PR and keep them in a maintenance program.

Fahy: In July 2003 the revised version of GOLD¹ included that a PR program should be a minimum of 2 months long to be effective, and the longer the program, the more effective it is. What we do in our program is allow the patients to continue in maintenance PR. That's a self-pay situation, but I have patients who have been coming for 13 years. Yes, there are going to be lots of patients potentially referred to PR, but a lot of those self-select themselves out because they don't have the transportation or they just don't think anything can be done for them.

And yet some of the patients who benefit the most from PR are those whose family members drag them in; they wheel them in a wheelchair and say to the patient, "I am not taking you home until you talk to this woman." And they end up being some of my biggest advocates, going out and telling doctors, "Why don't you refer all your patients to PR?" I would love to see how many patients I could accommodate in my program. I think those of us in PR would welcome those huge numbers, and then we would set

up satellite PR programs. That would be great!

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Enright: Do you know the mix of referrals? Is it all pulmonary doctors or are some self-referrals from patients or from primary care doctors?

Fahy: To get insurance coverage, our patients must be referred by a physician. Some patients call me and say they've heard about PR from a neighbor, and I say, "Call your doctor." I've never had a doctor who said, "No, you can't go," though there are many doctors who just don't think of referring to PR. I receive referrals from pulmonologists, general practitioners, oncologists, and others. We do PR before and after thoracic surgery, and the patients come to PR with various chronic lung diseases, not just COPD.

Enright: Since you're only doing it in the out-patient setting, do you believe you're missing a "teachable moment" when the patient is having an exacerbation in the hospital?

Fahy: Yes and no. We get referrals to see in-patients, and my staff and I go and introduce ourselves so the patient knows who we are when we call, after they're discharged, to discuss enrollment in PR. Many times the patient won't remember ever meeting PR staff. We do a little bit of teaching during the hospital visit, maybe pursed-lip breathing or review of inhaler sequence. But I have found that during an exacerbation isn't really when they want to learn. They just want to be less dyspneic. The in-patient interaction can be a sample of what is offered in PR.

Enright: Is your PR certification list available to patients on the Internet?

Fahy: Yes. It is at <http://www.aacvpr.org>, under "Program Certification Search."

Marlow: Do you know how many states reimburse for PR now? In Ohio we do have reimbursement.

Fahy: All of the states except Wyoming have reimbursement by at least one FI that covers that state, but there are multiple FIs that can cover one state; so a hospital on one side of town may get reimbursed, while a hospital on the other side of town does not.

Marlow: PR needs a multidisciplinary team. We have 5 PR programs at our institution and they all have respiratory therapists involved with them. But are most PR programs made up of such a diverse group? Do you know of any surveys of what staff members are usually involved in PR programs?

Fahy: "Multidisciplinary" can mean the referring doctor and the PR coordinator, which can be a physical therapist, such as in Dr MacIntyre's program. I'm a nurse and I run my program. RTs run some programs. Occupational therapists run some. So "multidisciplinary" can be as few as 2 staff. I have exercise physiologists and nurses who are very important team members in my program, as well as an occupational therapist, a dietician, and a social worker, who deliver lectures.

Hill: It's remarkable that the major source of income is to bill for breathing techniques, when in fact breathing techniques are among the PR program components least supported by evidence. Do you think there is any convincing evidence that breathing techniques are of real value? And how important do you think it is, other than

getting reimbursed, that they be part of a PR program?

Fahy: I think instruction in breathing techniques is incredibly important. Breathing techniques are the foundation for PR. Rik Gosselink has asserted that abdominal breathing actually increases work of breathing,¹ and Breslin et al asserted that even pursed lip breathing can increase dyspnea.² But clinically, I have not witnessed that, and when the 1999 PR statement³ was published, we included that breathing techniques are controversial. I said to the writing committee, "I'm not going to cite assertions that breathing techniques don't work, because if you talk to many of my patients, they'll say that breathing techniques are the most beneficial portion of the educational sessions—even my patients with interstitial disease, as well as my COPD patients." I think most of all that breathing techniques give patients something to focus on and some control over their breathing.

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Hill: I have supervised PR programs and I know what patients say, but what studies convincingly show that breathing techniques actually add something? The last time I looked at this question, I read the Cochrane analysis¹ on it and there just wasn't much evidence to support it. Do you know of any?

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Fahy: Yes. Rik Gosselink wrote an excellent review of the literature, which supports the inclusion of breathing techniques for control of dyspnea in the PR curriculum.¹

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Shrake:* To expand on the issue of reimbursement woes, from the perspective of a former hospital administrator, when you look at how hospitals are reimbursed, most hospitals have 70–95% of their patients on some sort of fixed payment. So when you're looking at the cost-benefit ratios of programs, in-patient programs save money by getting patients out of the hospital quicker, so you can make a profit. In the United States, PR programs are 98% out-patient programs so the dichotomy we have with our health care reimbursement system is that we have out-patient programs that, if they work well, keep patients out of the hospital and minimize the readmissions for which hospitals get reimbursed again. That's the continued frustration with how our system is structured, and hopefully you can continue your lobbying efforts in Washington DC to try to correct that.

Mannino: The United States government still has an active lawsuit against the tobacco industry, and I think tobacco-settlement funds should go to tobacco-related health expenses, such as COPD case-finding, spirometry, PR, and perhaps screening for lung cancer.

MacIntyre: But that's not what states do with windfalls.

Mannino: Yes, the lawsuit from the states is one thing, but the federal government still has an active suit underway. I don't know if it's going to disappear after the next election, but it's still active now. There's talk that if it does settle, it will be in the range of \$250 billion, similar to the settlement in the lawsuit from the states.