

AACVPR

American Association of Cardiovascular
and Pulmonary Rehabilitation

Promoting Health & Preventing Disease

AACVPR Guidelines for Pulmonary Rehabilitation Programs (4th Edition)

Gerene Bauldoff, PhD, RN, FAACVPR
The Ohio State University

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DISCLOSURE INFORMATION

Session Description

- This session will provide a review of the 4th edition of the recently published Pulmonary Rehabilitation (PR) Guidelines and evidence-based outcomes for PR.

Objectives

- Identify the changes in the pulmonary rehabilitation guideline recommendations
- Describe how evidence-based outcomes can be applied to PR programming

Co-Editors:
Richard ZuWallack, MD and
Rebecca H. Crouch, PT, DPT, CCS*

Writing Committee Members

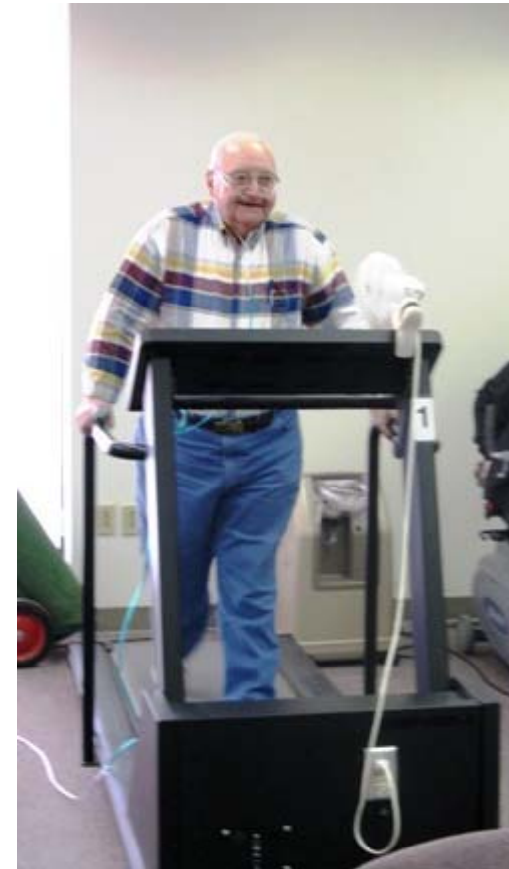
- **Linda Nici, MD**
- **Bonnie Fahy, RN, MN***
- **Paula Meek, PhD**
- **Suzanne Lareau, RN, MSN**
- **Carolyn Rochester, MD**
- **Jonathan Raskin, MD**
- **Neil MacIntyre, MD***
- **Chris Garvey, RN, MSN, NP***
- **Kathleen Stewart, PT, DPT, CCS**
- **Joseph Norman, PT, PhD, CCS**
- **Gerilynn Connors, BS, RRT***
- **Lana Hilling, RCP, RRT***
- **Jane Reardon, RN, MSN, CS***

* = FAACVPR

- Interdisciplinary group of writers: Physicians, Nurses, Physical Therapists, Respiratory Therapists, Exercise Physiologists
- Nationally recognized experts in the field of Pulmonary Rehabilitation
- A primary author navigated each chapter revision or writing
- All chapters reviewed by the writing committee and several outside reviewers
- Writing committee met on 5 occasions over 2 years to complete the book

Chapter 1: Overview of PR

- Definition of PR
- ACCP/AACVPR Evidence-based PR Guidelines summary
- History of Pulmonary Rehabilitation



Chapter 2: Selecting and Assessing the PR Candidate

- Conditions appropriate for PR
- Patient assessment:
 - Interview
 - Medical history
 - Diagnostic tests
 - Symptom assessment
 - Musculoskeletal and exercise assessment
 - Pain assessment
 - ADL assessment
 - Nutrition assessment
 - Educational assessment
 - Psychosocial assessment
- Goal development and rehabilitation potential

Chapter 2: Common Conditions Leading to PR Referral

- Dyspnea, fatigue, and chronic respiratory symptoms
- Impaired health-related quality of life
- Decreased functional performance
- Decreased occupational performance
- Difficulty performing ADLs
- Difficulty with medical regimen
- Psychosocial problems related to underlying respiratory illness
- Nutritional depletion
- Increased use of medical resources: hospitalizations, ED, MD visits
- Gas exchange abnormalities including hypoxemia

Chapter 3: Collaborative Self-Management Education



- Developing an individualized educational program
- Educational content
 - Useful internet web site addresses
 - Sample document for self-management education
 - Sample of COPD action plan
 - End of life planning

Chapter 3: Sample Educational Topics

- Normal physiology/pathophysiology
- Medical test interpretation
- Breathing strategies
- Secretion clearance
- Medications (including oxygen)
- Respiratory devices
- Benefits of exercise
- ADLs
- Nutrition
- Irritant avoidance
- Exacerbation recognition and management
- Leisure activities
 - Travel and oxygen
 - Sexuality
- Coping with chronic disease
- End of life planning

Chapter 4: Exercise Assessment and Training

- Types of exercise tests
- Testing forms
- Exercise assessment equipment
- Functional performance assessment
- Mechanisms of exercise intolerance in chronic respiratory disease
- Rationale for exercise training in chronic respiratory disease
- Emergency procedures
- Documentation
- Preparing the home exercise program

Chapter 4: Exercise Assessment

- Goal:
 - Quantify exercise capacity before beginning program
 - Establish baseline for outcomes
 - Helps to determine patient-specific goals
 - Exercise prescription
 - Detect exercise-induced hypoxemia; O₂ titration
 - Evaluate for non-pulmonary exercise limitations
 - Detect underlying cardiac abnormalities
 - Screen for exercise-induced bronchospasm

Chapter 4: Assessment Tests

- Walk distance tests
 - 6MW
 - Shuttle walk
- Incremental maximal test
- Submaximal exercise test
- Functional performance assessment



Chapter 4: Incremental Maximal Exercise Test



- Performed on treadmill or stationary bicycle
- Ramped or incremental increases in exercise load (i.e. 15-25 watts/min)
- Symptom-limited testing criteria:
 - Ventilatory limits
 - Gas exchange limits
 - Cardiovascular limits
 - Other limits
 - Musculoskeletal, metabolic, peripheral vascular, psychological

Chapter 4: Exercise Training

- Skeletal muscle dysfunction is a key factor in exercise intolerance
- Physical deconditioning is consequence of more sedentary lifestyle to avoid dyspnea
 - Leads to downward spiral
- Rationale of exercise addresses the skeletal muscle dysfunction
 - Supervised exercise addresses patient's fear of dyspnea

Chapter 4: Principles of Exercise

- Encompass both upper-extremity and lower-extremity endurance training
 - Aerobic exercise at high or low intensity
- Strength training
- ? Respiratory muscle training
- Duration, frequency, intensity of exercise should be included in exercise prescription
 - 3-5 times/week for 4-12 weeks
 - Ultimate goal of 30 minutes endurance exercise within couple weeks of beginning program

Chapter 4: Exercise Types

- Upper- and lower-extremity training
 - Need to exercise muscles used in ADLs
 - Lower-extremity training involves large muscle groups
 - Walking, stationary bike, stair climbing, swimming
 - Improves ambulatory stamina, balance and ADL performance
 - Upper-extremity training improves arm muscle endurance and strength
 - Support (arm ergometry) or unsupported (dowel rod)
 - Can trigger dysynchronous breathing
 - Caution in patients with osteoporosis (increased risk for thoracic vertebrae fracture) and post-thoracic surgery patients (usually none before 6 weeks post-operatively)

Chapter 4: Exercise Types

- Strength training improves muscle strength
 - Examples:
 - Hand and ankle weights, free weights, machine weights, elastic resistance, and own body weight (stair climbing, squats)
 - Start with lower weights and higher repetitions
 - Cautious progression in weights for safety
- Flexibility, posture and body mechanics
 - Goal to increase range of motion, improve balance
- Respiratory muscle training
 - Not supported by ACCP/AACVPR Guidelines as essential to PR
 - Types include flow resistive devices, threshold loading training, and isocapnic hyperventilation

Chapter 5: Psychosocial Assessment and Intervention

- Prevalence of psychosocial concerns in the chronic respiratory disease population
- Assessment of psychosocial concerns
 - Screening for depression and anxiety
- Motivation
- Self-efficacy
- Interventions for psychosocial concerns
 - Building support system
- Section addressing smoking cessation
 - Pharmacology and nicotine replacement therapies

Chapter 5: Psychological Assessment Tools

- Depression
 - Geriatric Depression Scale (GDS)
 - 15 item tool, yes/no questions, 5 or greater triggers further evaluation
 - Center for Epidemiological Studies Depression Scale (CES-D)
 - 20-item tool, 0 (rarely) to 3 (most of the time) scale, score < 16 normal, 16-24 indicates borderline depressive symptoms, > 24 triggers immediate referral
- Anxiety: Frequently present with depression
 - General anxiety disorder 7 (GAD-7)
 - 7-item tool, 0-3 scale; 8th question re: distress of symptoms; ≥ 5 indicates mild anxiety, ≥ 10 triggers referral
 - Penn State Worry Questionnaire (PSWQ-A)
 - 16-item tool, 1-4 scale; ≤ 30 normal for 16 item version
- Cognitive impairment
 - Mini-mental state examination

Chapter 6: Patient Centered Outcomes

- Outcome areas for pulmonary patients
- Timing and analyzing outcomes
- Common outcome measurement tools
- Table of dyspnea measures
- Table of HRQoL measures
- Other possible outcome measures
 - Functional performance and home-based activity
 - Patient adherence
 - Weight modification
 - Mortality
 - Health care utilization
 - Patient satisfaction

Chapter 6: Outcome Examples

Outcome	Areas Measured	Types of Measures
Exercise capacity	Distance walked Oxygen consumption	6MW Shuttle walk Exercise stress test
Symptoms	Dyspnea Fatigue	Symptom-specific questionnaires Domains of HRQoL or functional status questionnaires
Health-related quality of life	Several domains, varies by questionnaire (physical function, emotional function, mastery or impact and symptoms)	Generic questionnaires Disease-specific questionnaires

Chapter 6: Outcome Tool Examples

Outcome	Tool Examples
Dyspnea	BDI/TDI, Borg, UCSD SOBQ, VAS
Fatigue	Borg, CRQ fatigue subscale, PFSDQ-M subscale, VAS
HRQoL (Disease-specific)	CRQ, SGRQ, SOLQ
HRQoL (Generic)	SF-36

Chapter 6: Other Outcomes

- Home-based activity
- Psychological outcomes
- Patient adherence
- Knowledge and self-efficacy
- Smoking cessation
- Weight modification
- Health care utilization
- Mortality
- Patient satisfaction

Chapter 7: Disease-Specific Approaches in PR

- Conditions other than COPD PR indications
 - Asthma
 - Cystic fibrosis
 - Interstitial lung disease
 - Obesity-related respiratory disease
 - Pulmonary hypertension
 - Chest wall and neuromuscular disorders
 - Lung cancer
 - The surgical patient
 - Lung volume reduction surgery
 - Lung transplantation
 - Co-existing cardiac disease

Chapter 7: Examples of Program Modifications

- Asthma
 - Adherence to therapy focus, proper inhaler technique
 - Warm-up with beta-agonist bronchodilator
- Cystic fibrosis and bronchiectasis
 - Airway clearance techniques
 - Nutritional education
 - Antibiotics use
- Interstitial lung disease
 - More exercise intolerance, more hypoxemia
 - Focus on oxygen therapy and medications

Chapter 7: Examples of Program Modifications

- Obesity-related respiratory disorders
 - Need for bariatric assistive equipment (walkers, scales, weight equipment)
 - Wide, armless chairs to accommodate obese patients
 - Nutritional referral, low-impact exercise alternatives
- Pulmonary Hypertension
 - Close supervision of exercise, assess/teach symptoms (dizziness, palpitations, change in BP)
 - No disruption of IV vasodilators
 - Many programs use telemetry for these patients

Chapter 7: Examples of Program Modifications

- Chest wall and neuromuscular disorders
 - Example diseases:
 - Restrictive chest wall disease (kyphoscoliosis, pneumoplasty)
 - Neuromuscular disease with respiratory involvement
 - Muscular dystrophy
 - Parkinson's disease
 - Multiple sclerosis
 - Myasthenia gravis
 - Amyotrophic lateral sclerosis
 - Shorter training sessions, careful strength training (increased risk for muscle injury), orthotics, airway clearance, energy conservation techniques

Chapter 7: Examples of Program Modifications

- Lung cancer
 - Deconditioning worse with chemo/radiation therapy
 - Fatigue significant symptom
 - Nutritional instruction re: cachexia
- Surgical patients
 - Lung volume reduction
 - PR required before and after MC approved surgery
 - Lung transplant
 - Pre-transplant vs. post-transplant
 - Analgesia before exercise early post-op, no strenuous upper extremity exercise x 6 weeks

Chapter 8: Program Management

- Interdisciplinary team
- Physician's role in PR
- Staffing requirements
- Staff competencies and responsibilities
- Program content and structure
 - Facilities and equipment
 - Emergency procedures and equipment
 - Program performance measures
 - Documentation
- Reimbursement
- Strategies for program success

Chapter 8: Core PR Team

- Medical director
- PR Coordinator
 - Physical therapist (PT)
 - Nurse (RN)
 - Respiratory Therapist (RT)
- PR Specialist
 - PT, RN, RT
 - Exercise physiologist
- Other resource professionals
 - Clinical psychologist
 - Dietitian or nutritionist
 - Social worker
 - Pharmacist
 - Recreational therapist
 - Nurse practitioner
 - Chaplain

Chapter 9: AACVPR PR Certification

- Resources for certification
 - Certification Center 1- (312) 321-5146
 - AACVPR.org website
- Certification process
- Staffing ratios
- Documentation overview
 - In program management
 - Initial assessments
 - Outcomes
- Required data

AACVPR Certification

- Achievement of:
 - Quality
 - Performance
 - Outcomes
 - Safety

Resources for Certification

- *PR Guidelines 4th Edition*
- AACVPR Clinical Competency Guidelines for PR Professionals
JCRP, 2007; 27: 355-358
- *ACSM Guidelines for Exercise Testing and Prescription, 8th Edition*
- *ACSM Resource Manual for Guidelines for Exercise Testing and Prescription, 6th Edition*
- American Thoracic Society/European Respiratory Society
Statement on Pulmonary Rehabilitation. *AJRCCM* 2006; 173:
1390-1413
- Pulmonary Rehabilitation: Joint ACCP/AACVPR Evidence-
based Clinical Practice Guidelines. *CHEST*, 2007; 131 (5 supp):
4S-42S

AACVPR Outcome Changes for 2012

- Evolving to an evidence-based model
- Requirements will change from “domains” to evidence-based outcomes including:
 - Function/exercise capacity
 - 6MW pre- and post- PR program
 - Quality of life
 - See validated tools in resource section
 - Symptoms
 - Dyspnea
- Service requirement unchanged
- Programs need to start to use this model January 2011
- Education/resources to help transition to new outcomes

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AACVPR APPLICANT MANUAL PULMONARY CERTIFICATION AND RECERTIFICATION

Program dates

Application opens December 1

Application closes February 28

Review begins March 1

Review closes May 31

Notifications by July 31

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Manual available at:

<http://www.aacvpr.org/Portals/0/certification/2011/AACVPR%20C2%20Pulmonary%20Manual.pdf>