PULMONARY APPLICATION

Program Staff & Competencies

- Clinical Competency Guidelines for Pulmonary Rehabilitation Professionals: AACVPR Position Statement

The American Association of Cardiovascular and Pulmonary Rehabilitation (AACVPR) recognizes that interdisciplinary health care professionals providing pulmonary rehabilitation services need to have certain core competencies. This statement updates the previous clinical competency guidelines for pulmonary rehabilitation professionals, and it complements the AACVPR's Guidelines for Pulmonary Rehabilitation Programs. These competencies provide a common core of 13 professional and clinical competencies inclusive of multiple academic and clinical disciplines. The core competencies include patient assessment and management; dyspnea assessment and management; oxygen assessment, management, and titration; collaborative self-management; adherence; medication and therapeutics; non-chronic obstructive pulmonary diseases; exercise testing; exercise training; psychosocial management; tobacco cessation; emergency responses for patient and program personnel; and universal standard precautions.


- AACVPR Guidelines for Pulmonary Rehabilitation Programs, 4th Edition
  - Appendix C pages 159-165
  - Appendix F pages 173-176

- ACCP/AACVPR Evidence-Based Guidelines for Pulmonary Rehabilitation

- National Guideline Clearinghouse, COPD Part III., Pulmonary Rehabilitation, June 2008
  - A direct comparison of the American College of Chest Physicians/American Association of Cardiovascular and Pulmonary Rehabilitation (ACCP/AACVPR), Global Initiative for Chronic Obstructive Lung Disease (GOLD), the National Collaborating Centre for Chronic Conditions, and Singapore Ministry of Health (SMOH) recommendations for pulmonary rehabilitation of patients with COPD is provided within.
Individualized Treatment Plan

- **AACVPR Guidelines for PR- 4th Ed.**
  - Patient Assess. – pgs 11-19
  - Developing Individual Ed. – pgs 21-30
  - Exercise Assess./Train.- pgs 31-49
  - Psychosocial Assess./Train. – pgs 53-60:112
  - Disease Specific Assess./Train. – pgs 77-99
  - Assessment & Goals – pgs 111-112
  - Document Initial Eval – pg 122
  - Nutrition Assess. Sample form – pg 139
  - Sample ITP form – pgs 143-147

- **An Official American Thoracic Society/European Respiratory Society Statement: Key Concepts and Advances in Pulmonary Rehabilitation Executive Summary**
The Statement updates the 2006 document with new data on the science and application of pulmonary rehabilitation, including its effectiveness in acutely ill individuals with chronic obstructive pulmonary disease, and in individuals with other chronic respiratory diseases. The important role of pulmonary rehabilitation in chronic disease management is highlighted. In addition, the role of health behavior change in optimizing and maintaining benefits is discussed.

**Medical Emergencies**

**Cardiopulmonary Arrest**

A. Fatality rate with CR and importance of staff preparation for emergencies.
   

B. Nonphysicians providing ACLS; Importance of debriefings; team checklists for resuscitation.
   

C. Identify arrest and essential first steps in emergent care.
   

D. Airway management
   

E. Breathing and a pulse but nonresponsive.
   

F. BLS and ACLS Protocols
Angina/Chest Pain

A. ACLS Protocol

   a. Advanced Cardiovascular Life Support 2011. American Heart Association. Figure 15, pg. 52; Figure 19, pg. 61; Figure 27 pg. 80

B. Importance of Early Diagnosis of STEMI and Prehospital Management of Acute Coronary Syndrome


Acute Dyspnea

A. BLS and ACLS Management for Respiratory Arrest with a pulse


B. Definition; Evaluation and Treatment


C. Guidelines for Emergent Management

   a. Marx: Rosen’s Emergency Medicine, 7th ed. Chapter 17; 124-131; Figure 17.1 p 129 and 17.2 p 130

Tachycardia

A. ACLS Protocols

B. **Evaluating Patient: stable or unstable**


C. **Management**


**Bradycardia**

A. **ACLS Protocol**


B. **Evaluating Patient: stable or unstable**


C. **Management**


**Hypertension**

A. **Blood Pressure Response to Exercise; When to Stop Exercise**


B. **When to refer to Emergency Department versus outpatient management**

   a. Marx: Rosen's Emergency Medicine, 7th ed. Chapter 82; 1079-1081; 1084
Hypotension
A. Normal Blood Pressure Response to Exercise; When to Stop Exercise

B. General Management if Unstable

Hyperglycemia
A. General Management

B. Need for monitoring glucose pre and post exercise

C. Pre exercise and Post exercise Management

Hypoglycemia
A. General Management

B. Need for monitoring glucose pre and post exercise

C. Pre exercise and Post exercise Management

1. Surveillance for developing clinical problems is vital to preventing potential emergencies that can occur in the pulmonary rehab setting. It is important for all clinical staff to be able to identify that a problem even exists and know how to prevent it from getting worse. Staff members need to know the physiologic effects of exercise on the following clinical issues so they can defer, stop or decrease intensity of exercise as appropriate. Policies should define the problems and the initial interventions that should be taken including when to defer, stop or decrease the intensity of the exercise.

2. Staff members need to know the basic steps for immediate and emergent care for each of these clinical issues that they can provide within their scope of licensing and when to involve the supervising physician. Policies should include not only the ACLS/BLS emergency protocols but augmented policies that address what to do in cases that are pre-emergent. Policies should address staff training in BLS/ACLS.

3. Policies should address each of these issues in cases where emergent care and transfer requiring 911 occurs:
   a. Attending to the other pulmonary rehab patients who are concurrently present;
   b. Supplying appropriate documents and communicating with the accepting physician upon transfer of the patient;
   c. Debriefing the staff.

Emergency Preparedness

Exercise Prescription

- AACVPR 27th Annual Meeting Proceedings - Program Certification 2014

- AACVPR Guidelines for Pulmonary Rehabilitation Programs, 4th Edition Exercise Assessment & Training pages 31-49:111


- For more information on: Mode, frequency, duration, & intensity see the ACSM Guidelines for Exercise Testing and Prescription 9th edition.

- Benefits of Intensive Treadmill Exercise Training on Cardiorespiratory Function and Quality of Life in Patients With Pulmonary Hypertension
  - Pulmonary rehabilitation improves functional capacity, cardiorespiratory function, and general medical and PH specific HRQoL in patients with group 1 pulmonary hypertension. Participants were randomized to either an education only (EDU) or education/exercise group (EXE). The EXE group underwent 10 weeks of aerobic exercise training at intensities and volumes commonly seen in outpatient pulmonary rehabilitation in the United States. Significant improvements were noted in the EXE group, as noted above, without change in the EDU group.

  - Dyspnea is a common and often debilitating symptom that affects up to 50% of patients admitted to acute, tertiary care hospitals and a quarter of patients seeking care in ambulatory settings. The presence of dyspnea is a potent predictor of mortality, often surpassing common physiological measurements in predicting the clinical course of a patient. Respiratory discomfort may arise from a wide range of clinical conditions, but also may be a manifestation of poor cardiovascular fitness in our increasingly sedentary population. Diagnosis and treatment of the underlying cause of dyspnea is the preferred
and most direct approach to ameliorating this symptom, but there are many patients for whom the cause is unclear or for whom dyspnea persists despite optimal treatment.

The purpose of this document is to update the 1999 ATS Consensus Statement on Dyspnea to provide clinicians and investigators with a picture of recent advances in this field with emphasis on the following areas:

- Mechanisms underlying dyspnea,
- Instruments used to measure dyspnea,
- The clinical approach to the patient who complains of breathlessness,
- The treatment of dyspnea that persists despite maximal treatment of underlying pathological processes responsible for the breathing discomfort,
- Topics that should be the focus of future research if we are to make additional advances in our understanding and treatment of this problem.

- American Journal of Respiratory and Critical Care Medicine February 2012 Vol 185, Iss. 4, pp 435-452 DOI: 10.1164/rccm.201111-2042S
- The Effects of Pulmonary Rehabilitation in the National Emphysema Treatment Trial*
  - The National Emphysema Treatment Trial provided an opportunity to evaluate pulmonary rehabilitation in a large cohort of patients who were treated in centers throughout the United States. Within are outcomes related to a total of 1,218 patients with severe emphysema underwent pulmonary rehabilitation before and after randomization to lung volume reduction surgery (LVRS) or continued medical management.
- PR Outcomes Resource Guide (Toolkit): SECTION 1: FUNCTIONAL STATUS/EXERCISE CAPACITY


Functional Status/Exercise Capacity

- AACVPR Pulmonary Rehab Outcomes Resource Guide
- AACVPR Guidelines for PR – 4th Ed
  - Patient Centered Outcomes – pgs 67:69:75:123
- The Official American Thoracic Society/European Respiratory Society Statement: Key Concepts and Advances in Pulmonary Rehabilitation (see above)

Dyspnea Measurement

- AACVPR Guidelines for PR – 4th Ed
  - Patient Centered Outcomes – pgs 69-71:7:1235
- AACVPR Pulmonary Rehab Outcomes Resource Guide

Quality of Life

- AACVPR Pulmonary Rehabilitation Resource Guide: [link here] Kullan – please add appropriate link
- AACVPR Pulmonary Rehab Outcomes Resource Guide

Service Outcomes Assessment
Commonly used calculations for outcomes analyses

1) Calculating the mean (average) value of a range of values
   a) Sum the scores/values for all patients in the sample
   b) Divide by the number of patients in the sample
   c) Round the number to the nearest whole number or tenth, depending on the precision of the original measure.

*Example: The scores on the QLI Global scale for 6 PR patients were 23, 25, 19, 22, 27, and 23. The mean score is:
   \[(23+25+19+22+27+23)/6=23.2\]

2) Calculating the change in two values expressed as a percent
   a) Subtract the initial value from the final value
   b) Divide the result by the initial value
   c) Multiply by 100 to convert to a percent value
   d) The change is either positive or negative, depending on the relationship between the initial and final values.

*Example: Mrs. Smith weighed 213 lbs at entry into PR. At discharge she weighed 204 lbs. Therefore, she lost 9 lbs. The percent change from her initial weight was:
   \[(204-213)/213=-0.042\]
   
   \[ -0.042 \times 100 = -4.2\% \] Mrs. Smith lost 4.2% of her initial body weight.

*Example: The mean 6-minute walk distance for 35 PR patients at program entry was 879 feet. The mean distance for these patients at discharge was 1076 feet. The percent change for the group was:
   \[(1076-879)/879=0.224\]
   
   \[ 0.224 \times 100 = +22.4\% \] increase in 6-minute walking distance for this group.
Quality Improvement
There are no resources in the How-To-Kit