THE CHANGING LANDSCAPE OF PULMONARY REHAB

ESSY MOVERMAN RRT, RCP, CTTS
THE HISTORY OF PULMONARY REHABILITATION

• 1960’s Alvan Barach MD saw a progressive improvement in exercise tolerance with reduction in dyspnea as a result of an exercise program.

• 1969 Thomas Petty established the first standardized out-patient program which included individualized instruction (disease management) and physical reconditioning.

• In 1974, the American College of Chest Physicians formulated a definition of Pulmonary Rehabilitation.

• In 1980 the American Thoracic Society issued an official statement describing PR components and benefits were specified.

• Exercise conditioning was defined as an essential component.
PULMONARY REHABILITATION - 1981

- “Pulmonary Rehabilitation is an art of medical practice wherein an individually tailored, multidisciplinary program is formulated which, through accurate diagnosis, therapy, emotional support and education, stabilizes or reverses both the physio- and psychopathology of pulmonary diseases and attempts to return the patient to the highest possible capacity allowed by his pulmonary handicap and overall life situation.”

THE OFFICIAL DEFINITION OF PULMONARY REHAB

• “Pulmonary Rehabilitation is a comprehensive intervention based on a thorough patient assessment followed by patient tailored therapies that include, but are not limited to, exercise training, education, and behavior change, designed to improve the physical and psychological condition of people with chronic respiratory disease and to promote the long-term adherence to health-enhancing behaviors.”

AMERICAN THORACIC SOCIETY (ATS) AND THE EUROPEAN RESPIRATORY SOCIETY (ERS) JUNE 2013
PULMONARY REHABILITATION
ROLLING VS CLOSED
REFERRAL PROCESS AND EVALUATION

Physician/NP/PA *

Medical records
- H & P
- Specialist(s)
- PFT
- EKG
- Phone screen

In-person evaluation
- History
- Meds, Nebs, Inhalers
- Smoking, occupational exposures
- Sleep, nutrition, coping
- Symptoms review
- Vital signs, breath sounds
- 6 MWT

Outcomes data
- SOB Questionnaire (UCSD Medical Center)
- Duke Activity Status Index (DASI)
- The Duke (QOL)

Goals
- Exercise goals
- Assessment
- Treatment plan
  - FITT
    - frequency, intensity, time, type
  - Modifications
STAFF

• Coordinator – RT
• PT
• Exercise Physiologist
• RT Cross-trained (3 PRN)
• Staff often pulled
THE WAY WE WERE……

EXERCISE SESSIONS (2 FUN-FILLED HOURS)
REIKI AND FREE WEIGHTS
LECTURE, SKILLS PRACTICE SESSION, DISCUSSION
EDUCATION TOPICS

- Breathing Re-training *
- Panic Control
- Self-Management
- Inhalers *
- Sleep Hygiene
- Inhaler Technique
- Energy Conservation
- Principles of Exercise
- Home Exercise Guidelines

- Respiratory Medications
- Home Oxygen
- Anatomy Physiology of the Lungs
- Coping
- Nutrition and Lung Disease
- Intimacy
- Advance Directives
- Traveling
- Treatment Options
- Bronchial Hygiene
INCHECK DIAL

Inhaler Resistance Range

- High
- Med High
- Medium
- Med Low
- Low
- pMDI

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<table>
<thead>
<tr>
<th>TOBACCO USE DISORDER IN PULMONARY REHAB</th>
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<tbody>
<tr>
<td>• Counseling must be part of your program</td>
</tr>
<tr>
<td>• Relationship established</td>
</tr>
<tr>
<td>• Ongoing contact</td>
</tr>
<tr>
<td>• Trust</td>
</tr>
<tr>
<td>• If patient unwilling to work on tobacco, not a candidate</td>
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<tr>
<td>• Staff needs to be trained in tobacco counseling</td>
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<tr>
<td>• UMass Medical School</td>
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<tr>
<td>• MaineHealth</td>
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<tr>
<td>• Preferably TTS/CTTS</td>
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<tr>
<td>• Vaping</td>
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IT’S NOT JUST COPD ANYMORE

- COPD
- Asthma
- Interstitial Lung Disease
- Pulmonary Fibrosis
- Dyspnea on Exertion
- Shortness of Breath
- Lung Cancer
- Pulmonary Hypertension
- Pre & Post Lung Transplant
- Covid Pneumonia*
- S/P Respiratory Failure
- S/P Respiratory Failure (Covid)*
- Hemi-diaphragm Paralysis
- Obstructive Sleep Apnea
……..AND THEN THERE WAS COVID

- Closed in March 2020
- What I did: screener on the night shift, fit tester by day, kept in contact with pulmonary patients
- What I realized: I don’t think you can return to acute care after almost 30 years
- Furloughed 5/2020

- Returned in August 2020
- What I did: worked in a primary care practice, answering phones, calling patients, booking appointments
- What I learned: I’m not good at that
- Returned to Pulmonary Fitness 8 weeks later
THE NEW NORMAL

- Masks for all
- Name tags on chairs
- Staff only handles clip board/pens
- Less equipment in gym
- Fewer patients per class
- Additional class
- No sharing BP cuffs or oximeters
- Telehealth option

- Duration of class reduced to 90 minutes
- Education now done during exercise
- Addition of Post-Acute Covid Rehab Program
- Waiting list for all programs
- Decreased number of staff
- No Maintenance class
- Cleaning, cleaning, cleaning
POST-COVID CONDITION
POST-COVID CONDITION

• Occurs in individuals with a history of probable or confirmed SARS-CoV-2 infection, usually 3 months from the onset of COVID-19 with symptoms that last for at least 2 months and cannot be explained by an alternative diagnosis.

• Common symptoms include fatigue, shortness of breath, cognitive dysfunction but also others, which generally have an impact on everyday functioning. Symptoms may be new onset, following initial recovery from an acute COVID-19 episode, or persist from the initial illness. Symptoms may also fluctuate or relapse over time.

World Health Organization 10/2021
MULTI-DISCIPLINARY CONSENSUS GUIDANCE STATEMENT
POST-ACUTE SEQUELAE OF COVID

BREATHING DISCOMFORT AND RESPIRATORY SEQUELAE

COMMON SYMPTOMS
• SOB at rest
• Disproportionate SOB with activity
• Chest discomfort
• Cough, congestion
• Limited activity tolerance

RECOMMENDATIONS
• Earlier evaluation
• Diagnosis
• Management
• Expanded assessment if symptoms not improving one month after onset

American Academy of Physical Medicine and Rehabilitation
INTEGRATING POST-ACUTE COVID PATIENTS INTO PULMONARY PROGRAM

- Different needs
- Different approach
- Different goals

- Group support – recognizing the fear and anxiety
- Focus on muscles of respiration
- Interval exercise, frequent rests
MONADNOCK COMMUNITY HOSPITAL
POST-ACUTE COVID REHABILITATION PROGRAM

PROGRAM SPECIFICS

- 4-week program meeting 3 days a week; increased visits if needed, up to 20 visits.
- Total number of patients referred: 16
- Total number of patients participating: 11 and 1 additional patient attending only 4 sessions due to high insurance co-pays
- Patients were referred by their PCP.
- 50% of the participants required more than 4 weeks
- Ages ranged from 20’s – 70’s
- Some were treated as out-patients, some hospitalized, intubated and trached
- Some were vaccinated, some not. 2 contracted Covid twice
PROGRAM NUT’S AND BOLT’S

REFERRAL EVALUATION

CARDOVASCULAR EXERCISE
- Interval exercise
- Supplemental O2 if indicated
- SaO2, HR, BP monitored

SKILLS
- Breathing Techniques
  - Diaphragmatic
  - Pursed Lip
- Breathing Exercises
  - Localized Expansion
  - Sniffing
- Humming
- Yawn to Smile
- Incentive Spirometer
- IMT

EDUCATION
- Proning
- Inhaler Use
- Coping
- Energy Conservation
- Home Exercise Program
EXERCISE

- Interval with rests as needed
- SaO2, HR, B/P monitoring
- Supplemental O2 as indicated
- Inhaler pre-medicate as indicated
- Weights
- Stretching
SKILLS

• Breathing Techniques

Pursed Lip Breathing

Improves ventilation
Decreases air trapping
Keeps the airways open longer and decreases the work of breathing
Prolongs exhalation to slow the breathing rate
Relieves shortness of breath
Causes general relaxation
SKILLS

• Diaphragmatic Breathing
  Strengthens the diaphragm
  Improves stability of the core muscles
  Slows the breathing rate
  Lowers heart rate and blood pressure
  Reduces oxygen demand
  Promotes relaxation
SKILLS
INCENTIVE SPIROMETER

Used to encourage the patient to inhale to lung capacity through maximal inspiration aided with visual feedback.
SKILLS
INSPIRATORY MUSCLE TRAINER

A form of resistance (weight) training which strengthens the muscles that you use to breathe.

Threshold IMT Respironics
YAWN TO SMILE

Incorporates motion with deep breathing, which helps increase coordination and build strength in the arms and shoulders. It also opens up the muscles in your chest to give the diaphragm space to expand.

1. Sit upright on the edge of your bed or in a sturdy chair.
2. Reach arms overhead and create a big stretching yawn.
3. Bring your arms down as you exhale and finish by smiling for 3 seconds.
4. Repeat for one minute
HUMMING

Reduces stress, lowers blood pressure and heart rate. Increases levels of nitric oxide, which promotes healing and dilates blood vessels. Improves air flow between the sinuses and the nasal cavity and improves sinus health.

1. Place your hands around the sides of your stomach.
2. With your lips closed and your tongue on the roof of your mouth, breathe in through your nose and pull air down into your stomach where your hands are. Try to spread your fingers apart with your breath.
3. Once your lungs are full, keep your lips closed and exhale while humming, making the “hmmmmmm” sound. Notice how your hands lower back down.
4. Again, inhale through your nose, then exhale through your nose while humming.
5. Repeat for one minute.
• Bouncing Back From Covid
  
  *John Hopkins Medicine / Rehabilitation Network*

• Support for Rehabilitation Self-Management after COVID-19-Related Illness
  
  *World Health Organization*
OUTCOMES MEASURED - PRE AND POST PROGRAM

- 6 Minute Walk Test  
  52% improvement in distance walked
- Shortness of Breath Questionnaire  
  31% decrease in shortness of breath
- Quality of Life  
  10% improvement in QOL
- Anxiety/Depression Index  
  9% decrease in anxiety/depression
On average, patients increased their walking distance by 400 feet (52%).
ALL PARAMETERS SHOWED IMPROVEMENT
Thank You!

QUESTIONS?