COPD Management – Educating Patients on More Than Medication

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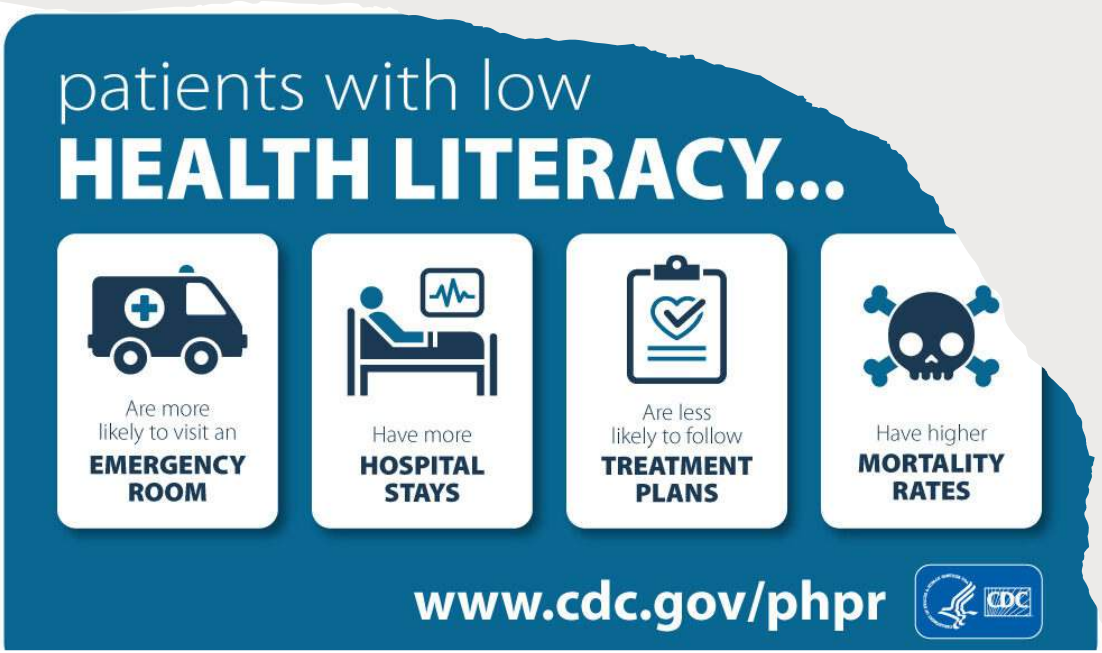
Objective

- Improving Outcomes with Oxygen Therapy
- How to Optimize Inhaler Device Selection
- Expanding NIV Therapy to Home Use
- Reducing Respiratory Infections via Airway Clearance
- Enhancing Pulmonary Rehab Participation
- The Importance of Educating on Using an Incentive Spirometry at Home
- Increasing Smoking Cessation Success Rates
- Improve End-of-Life Care Planning

The Challenge of Chronic Disease Education



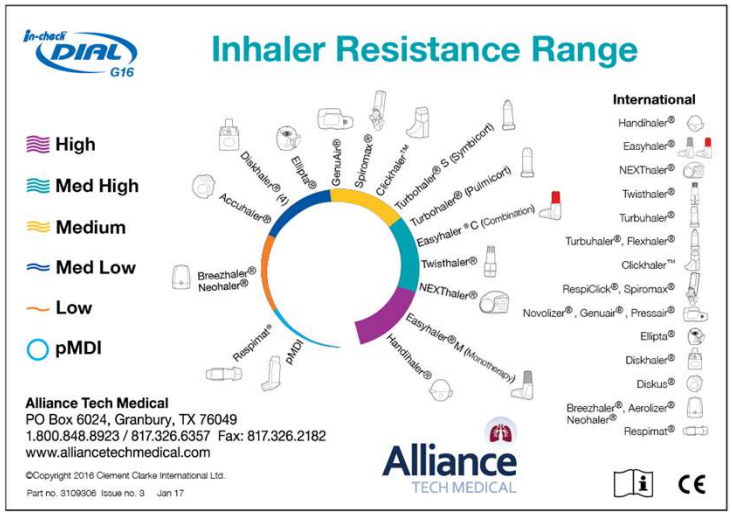
- **Diagnosis Shock:** New chronic disease diagnoses often lead to information overload and poor initial understanding.
- **Low Health Literacy:** A significant portion of the US population (36%) has limited health literacy skills. Chronic disease patients are particularly vulnerable.
- **Health Literacy Risk Factors:** Low socioeconomic status, age, language barriers, and reliance on public assistance are associated with lower health literacy.
- **Chronic Disease Prevalence:** Nearly half of Americans have at least one chronic disease; most have multiple. Doctor visits are short, limiting education time.
- **Effective Education:** Combine visual (65% of learners are visual), auditory (reading), and kinesthetic learning techniques. Visual aids dramatically improve understanding.
- **Self-Management Education:** Empower patients through self-management education and coaching, moving beyond simple information delivery to support personalized action.

Oxygen Therapy

- Oxygen was the first treatment shown to prolong life in COPD patient
- **Research Overview:** A 16-year study with 87 participants used oxygen at 2 L/min for 15 hours daily, including overnight.
- **Results:** Life expectancy increased by 3 years for those using oxygen compared to those who did not.
- **Benefit:** Nocturnal oxygen supplementation in patients with severe hypoxemia enhances life expectancy and reduces mean Pulmonary Artery pressures
- **Target Oxygen Saturation:** Maintain levels between 88-92%.
    - **Theories on Oxygen Saturation:**
        - **Decreases Hypoxic Drive:**
            - Low oxygen levels stimulate the need to ventilate, reducing CO_2 buildup.
        - **Risk of Excess Oxygen:**
            - Too much oxygen can reverse natural hypoxic pulmonary vasoconstriction.

Spacer Use and Inhaler Technique

- **Study Overview:**
  - Conducted with **175 patients** using a total of **192 inhalers**.
  - Only **2.86%** of patients used their inhalers correctly.
- **Impact of Exacerbations:**
  - During exacerbations, patients experience changes in inspiratory capacity, hindering proper medication deposition in the lungs.
- **Benefits of Using a Spacer:**
  - Increases medication delivery to the lungs by **70%**.
  - Minimizes inhaler side effects from mouth and throat deposits
- **In-Check DIAL Tool:**
  - An inhaler assessment tool designed to simulate the resistance of Dry Powder Inhalers (DPI) and Metered Dose Inhalers (MDI).
  - Assesses patient ability to achieve the **optimal flow rate** necessary for effective medication delivery.



Acute Respiratory Failure in COPD Patients

Acute Respiratory Failure: significantly increases mortality rates, both initially and within 12 months.

- **Survival and Risks:**
  - Patients who survive acute respiratory failure face:
    - **79.9%** increased risk of readmission.
    - **49%** chance of death within one year.
- **Benefits of Non-Invasive Ventilation (NIV):**
  - **NIV AVAPS** (Average Volume Assured Pressure Support):
    - Reduces mortality risk to **12%**.
    - Improves quality of life.
- **Continuous Positive Airway Pressure (CPAP):**
  - Keeps airways open and reduces resistance.
  - May increase dynamic pulmonary hyperinflation, especially in patients with inspiratory muscle weakness; alternative therapies should be considered.
- **Bilevel Positive Airway Pressure (BiPAP):**
  - Combines inspiratory and expiratory pressures, making volume dependent.
  - Can lead to asynchrony and intolerance, decreasing compliance.
- **AVAPS Benefits:**
  - Greater reduction in **PaCO2** levels.
  - Improved tolerance and synchronization.
  - Decreased daytime **PaCO2** using mouthpiece ventilation.

<u>How to identify NIV is needed beyond the hospital</u>
Does the patient have high CO2 levels?

Is the patient feeling tired throughout the day or having difficulty sleeping?

Two or more COPD admissions within the last 6 months

Airway clearance Device

- **Understanding Bronchiectasis:**
  - Often underdiagnosed in COPD patients
  - 20-69% of patient have Bronchiectasis and COPD Overlap syndrome.
  - Progression results in recurrent respiratory infections, inflammation, and mucus buildup, causing wheezing, coughing, and shortness of breath.
  - Daily mucus clearance can provide significant relief.
- **2020 Study Data (18,000 Bronchiectasis Patients over 2 Years):**
  - **62%** decrease in yearly hospitalizations.
  - **63%** increase in ability to clear lungs.
  - **13%** decrease in antibiotic use.
  - **45%** increase in respiratory health.
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<u>How to identify a patient needs CPT at home</u>

Does the patient have frequent PNA?

Productive cough? OPEP not helping?

Trouble getting the mucus out?

Could they have bronchiectasis?

Pulmonary Rehab

Pulmonary rehab is a comprehensive, holistic approach tailored to each patient's abilities based on a thorough assessment.

- Focuses on behavioral changes and enhancing both physical and psychological conditioning.
- Optimal benefits are achieved with **6-8 weeks** of sessions, twice weekly.

Enrollment Criteria:

- Diagnosis of **moderate to very severe COPD**.
- Confirmation of pulmonary function tests (PFT) post-bronchodilator.
- Referral from the treating provider.

Key Components of PR:

- **Exercise Training:**
  - Increases endurance.
  - Retrains breathing patterns.

Outcomes:

- Most effective strategy for improving:
  - Shortness of breath.
  - Health status.
  - Exercise tolerance.
- Reduces readmissions and future hospitalizations.
- Decreases symptoms of anxiety and depression.

Sit to Stand

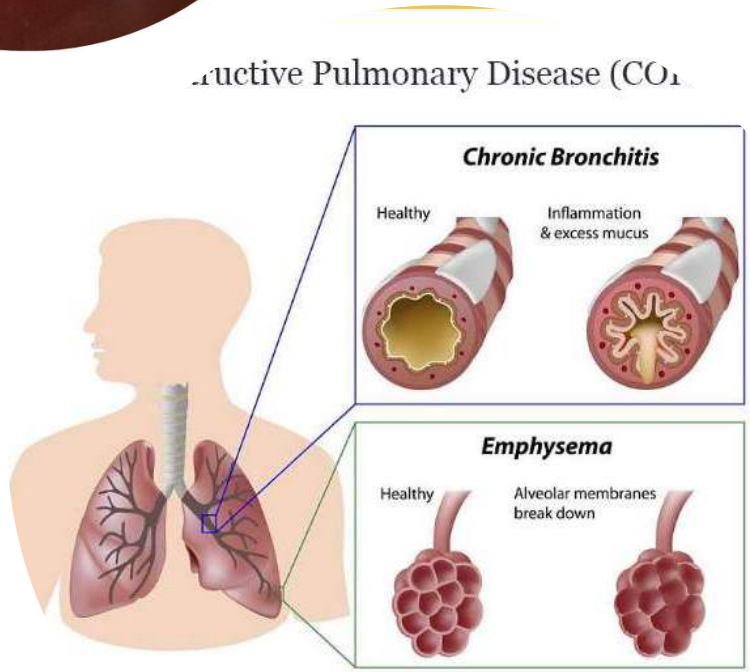
1. Sit on a flat surface; align your feet, knees and hips so you're sitting up tall.
2. Place the feet behind the knees, push up with the arms, and then stand in one fluid motion.
3. Safely lower yourself back to the original seated position.

Complete two to three sets of 10 reps with two to five minute rest in-between.

Breathing Tips:
*Exhale with exertion
-Exhale during the upward movement phase.
-Inhale during the downward movement phase.

Long-term Use: Incentive spirometry in COPD Management

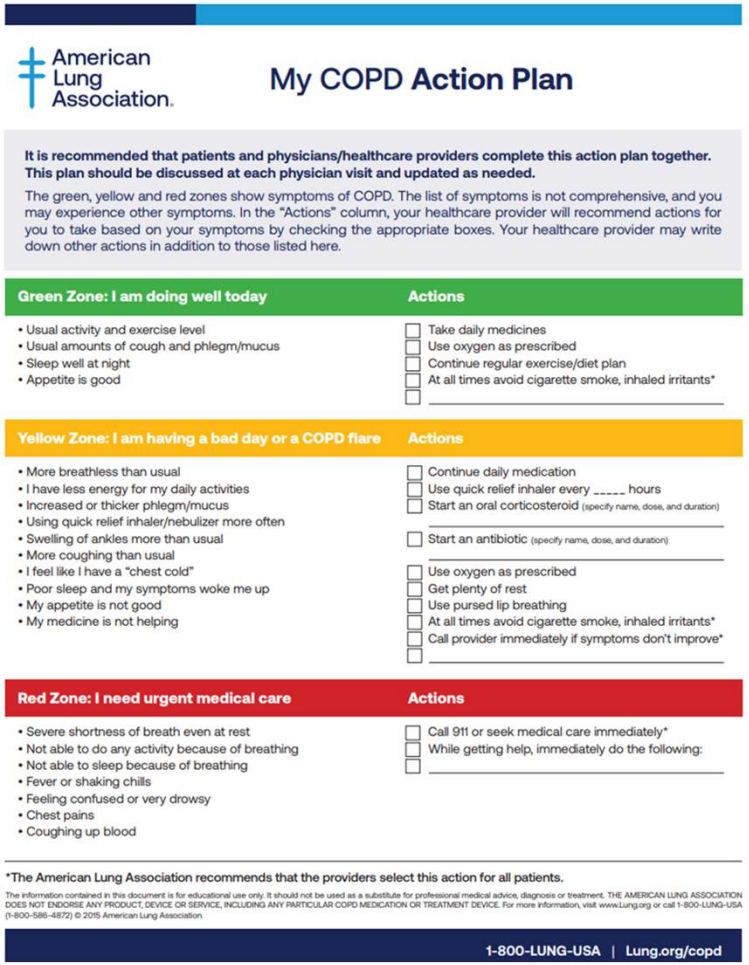
- **Improved Lung Function**
- **Atelectasis Prevention**
- **Increased Oxygen Saturation**
- **Mucus Clearance**
- **Enhanced Exercise Tolerance**
- **Strengthened Respiratory Muscles**
- **Reduced Symptoms**
- **Enhanced Recovery Post-Exacerbation**
- **Encourages Compliance**



COPD Action Plan

<u>Teaching Self management</u>

Evidence suggests programs teaching self- management skills are more effective than information only. Teaching individuals to actively identify challenges and solve for symptoms and problems associated with illness decrease and controlling health care cost.



American Lung Association.

My COPD **Action Plan**

It is recommended that patients and physicians/healthcare providers complete this action plan together. This plan should be discussed at each physician visit and updated as needed.

The green, yellow and red zones show symptoms of COPD. The list of symptoms is not comprehensive, and you may experience other symptoms. In the "Actions" column, your healthcare provider will recommend actions for you to take based on your symptoms by checking the appropriate boxes. Your healthcare provider may write down other actions in addition to those listed here.

Green Zone: I am doing well today	**Actions**
• Usual activity and exercise level • Usual amounts of cough and phlegm/mucus • Sleep well at night • Appetite is good	☐ Take daily medicines ☐ Use oxygen as prescribed ☐ Continue regular exercise/diet plan ☐ At all times avoid cigarette smoke, inhaled irritants* ☐ _____

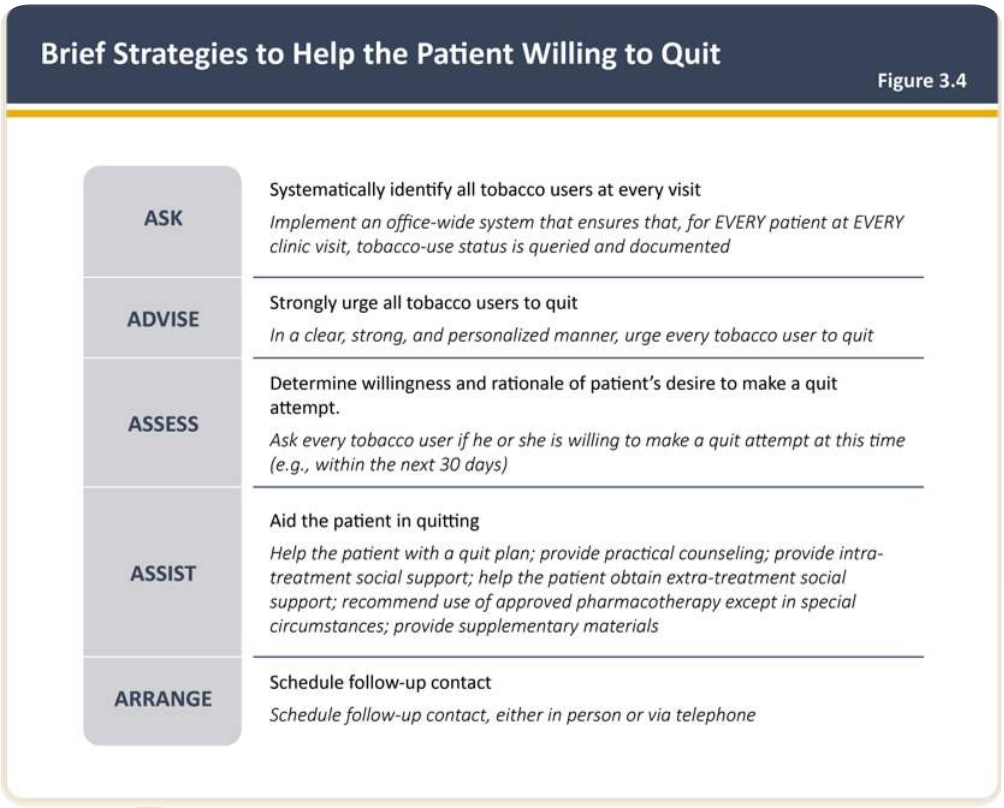
Yellow Zone: I am having a bad day or a COPD flare	**Actions**
• More breathless than usual • I have less energy for my daily activities • Increased or thicker phlegm/mucus • Using quick relief inhaler/nebulizer more often • Swelling of ankles more than usual • More coughing than usual • I feel like I have a "chest cold" • Poor sleep and my symptoms woke me up • My appetite is not good • My medicine is not helping	☐ Continue daily medication ☐ Use quick relief inhaler every _____ hours ☐ Start an oral corticosteroid (specify name, dose, and duration) _____ ☐ Start an antibiotic (specify name, dose, and duration) _____ ☐ Use oxygen as prescribed ☐ Get plenty of rest ☐ Use pursed lip breathing ☐ At all times avoid cigarette smoke, inhaled irritants* ☐ Call provider immediately if symptoms don't improve* ☐ _____

Red Zone: I need urgent medical care	**Actions**
• Severe shortness of breath even at rest • Not able to do any activity because of breathing • Not able to sleep because of breathing • Fever or shaking chills • Feeling confused or very drowsy • Chest pains • Coughing up blood	☐ Call 911 or seek medical care immediately* ☐ While getting help, immediately do the following: ☐ _____

*The American Lung Association recommends that the providers select this action for all patients.

1-800-LUNG-USA | Lung.org/copd

Smoking Cessation



Brief Strategies to Help the Patient Willing to Quit

Figure 3.4

ASK	Systematically identify all tobacco users at every visit *Implement an office-wide system that ensures that, for EVERY patient at EVERY clinic visit, tobacco-use status is queried and documented*
ADVISE	Strongly urge all tobacco users to quit *In a clear, strong, and personalized manner, urge every tobacco user to quit*
ASSESS	Determine willingness and rationale of patient's desire to make a quit attempt. *Ask every tobacco user if he or she is willing to make a quit attempt at this time (e.g., within the next 30 days)*
ASSIST	Aid the patient in quitting *Help the patient with a quit plan; provide practical counseling; provide intra-treatment social support; help the patient obtain extra-treatment social support; recommend use of approved pharmacotherapy except in special circumstances; provide supplementary materials*
ARRANGE	Schedule follow-up contact *Schedule follow-up contact, either in person or via telephone*

Addiction is only 20% physical and 80% psychological

- Physical dependance- Withdrawals symptoms and cravings
    - Critical period last 2-3 weeks
- Psychological addiction- Complex relationship between smoking and feelings ie; sadness, stress, anxiety, social situations and activities such as driving, eating, and waking up
        - Critical period last 3-12 months
- There are 7 FDA approved medications to treat nicotine addiction. Nicotine replacement gum, patches, lozenges, nasal sprays, oral inhalers, Varenicline, Bupropion
- The package insert has some incorrect information for example: "Nicotine patch is not recommended for people who are currently smoking". Studies show conclusively that the most effective way to use the patch is to start use prior to quitting. Called the pre-quit treatment. Smoking while using NRT is now supported by the FDA
- Vaping is not a good alternative to smoking- Chemicals when looked at individually have been linked to negative health effects

Nutrition

- Weight loss and disease-rated malnutrition is common in-patient wit COPD affects upwards of 35%
- Malnourished patients with COPD have been found to have greater hyperinflation, poorer lung diffusion, diaphragm dysfunction and reduced exercise tolerance further deconditioning of the body
- Patient with BMI <21 kg/m require delayed ventilator weaning , double re-intubation rates, longer hospitalizations and poor survival
- COPD caused chronic systematic inflammation causing extrapulmonary effects to occur such as muscle dysfunction, weight loss, osteoporosis, and cardiovascular disease

Tip for nutrition

- Eat 5 to 6 small meals a day and avoid foods that cause gas. Gas or bloating can make it harder to breathe
- Choose the right high protein-rich food
  - Example: nuts, nut butter, beans, peas lentils, canned chicken tune or salmon, eggs or Greek yogurt
- Choose high fat food (They produce less CO2 waste when digested)
  - Example: Avocados/guacamole, olives, heart healthy oils, fish
- Diets high in cards like sugar starch and fibers can increase CO2 waste and contribute to increased Co2 retention (example white bread, sweets, chips). Choose complex carbs
  - Example Whole grains, brown rice, quinoa, potatoes
- Drink enough fluids each day, unless your provider asks for limits
- Limit foods that are high in salt. Salt retains fluid, and this extra fluid makes it harder to breathe

Palliative Care

Palliative care is specialized medical care for people living with a serious illness. This care focuses on providing relief from symptoms and stress for the patient and family. This extra layer of support is based on the needs of the patient, not on the patient's prognosis and is appropriate at any age and any stage in a serious illness.

Frequently Asked Questions

Q. How do I know if palliative care is right got me?

A. Palliative care may be right got you if you have a serious illness. Serious illnesses include but are not limited to: lung disease, heart disease, cancer, kidney disease and many more. Palliative care support is appropriate at any age and stage of a serious illness and can be alongside a curative treatment

Q. What does the palliative care team do?

A. Palliative care focuses on understanding your needs and goals to improve your quality of life.

Palliative care will:

- Help you better understand your disease and diagnosis
- Help clarify your treatment goals and options
- Understand and support your ability to cope with your illness
- Assist in difficult conversations with family
- Support and assist in making medical decisions

Hospice

5 most common principal diagnoses for hospice

1. Dementia – Alzheimer's, Parkinson's
2. Respiratory Illness
3. Circulatory/ Heart Illness
4. Stroke
5. Cancer

Speaking about Hospice to attending physician, patient and family

- Use language like "Goals of care" and/ "Treatment Goals" instead of "Hospice/Palliative/ End of Life".

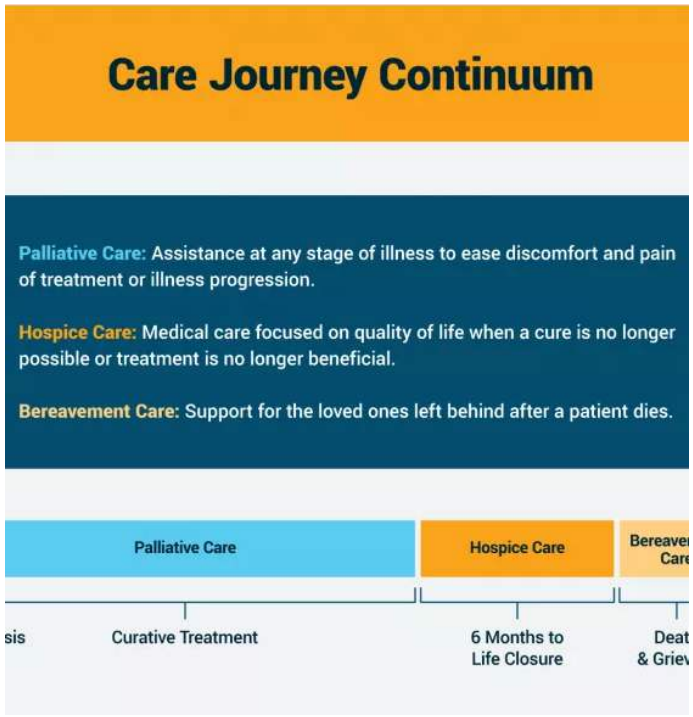
Start the conversation when:

- Recurrent pulmonary infections and/or exacerbations
- FEV1<30% (GOLD guidelines)
- PCO2 >50 Chronic Hypercapnic Respiratory Failure
- Oral Steroid dependent
- Dyspnea at rest
- Debilitating fatigue
- Frequent ER Visits or hospitalization related to pulmonary diagnosis or major comorbidities

Q. How is Palliative different from Hospice?

- A. Palliative care can begin at any stage of disease and is given alongside treatment. Palliative care focuses on treatment goals and support such as emotional, spiritual, mental, and physical. Hospice care is compassionate comfort care for people facing terminal illness with an estimate six month or less to live. Hospice is often chosen when a disease in no longer curable, focusing on treating the symptoms of illness such as nauseas, pain, or shortness of breath.

- Death is not a guaranteed outcome of hospice in 2019 17.4% of Medicare participants where discharged alive in 2019



Takeaway

- 98% Do patients do not take their inhalers correctly
- Using a Spacer with an inhaler will increase deposition by 70%
- NIV-AVAPS specifically can decreased the mortality risk in someone who has chronic respiratory failure and increase their quality of life.
- Standardizing IS use in COPD patient can improve Pao2, respiratory function, blood gases and diaphragmatic function.
- The average person has 9 failed quit attempts before success- Never stop trying!
- Smoking while using NRT is now supported by the FDA- A person will self titrate nicotine to reach what then need to avoid withdrawal symptoms
- Pulmonary Rehabilitation has been shown to be the most effective therapeutic strategy to improve shortness of breath, health statues and exercise tolerance
    - Optimal benefits can be achieved after 6-8 weeks twice weekly.

Questions

References

- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2254573/#:~:text=Average%20length%20of%20visits%20was,part%20spoke%20was%2055%20seconds.
- https://www.asbestos.com/support/hospice/statistics/
- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4103232/
- https://ejb.springeropen.com/articles/10.1186/s43168-023-00185-7#:~:text=The%20results%20showed%20that%20in,in%20a%20COPD%20management%20program
- https://alliancetechmedical.com/check-dial-training-device/