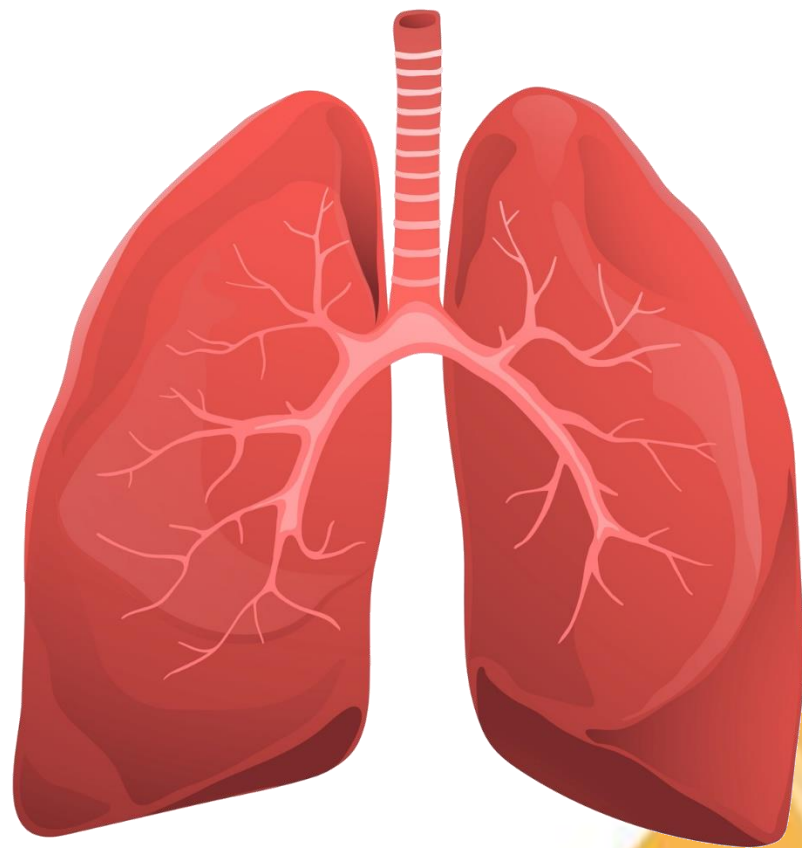


# COPD

## Chronic Obstructive Pulmonary Disease

### for Nursing

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# Chronic Obstructive Pulmonary Disease (COPD)

By the end of this lesson, you should understand:

- Disease process
- What residents can physically do
- Oxygen therapy
- Exercise and mobility
- Dietary needs
- Sleep and sleep disorders
- Warning signs



# Chronic Obstructive Pulmonary Disease

- Diseases that are all called “**COPD**” include:
  - ✓ Emphysema
  - ✓ Bronchitis/Bronchiectasis
  - ✓ Asthma

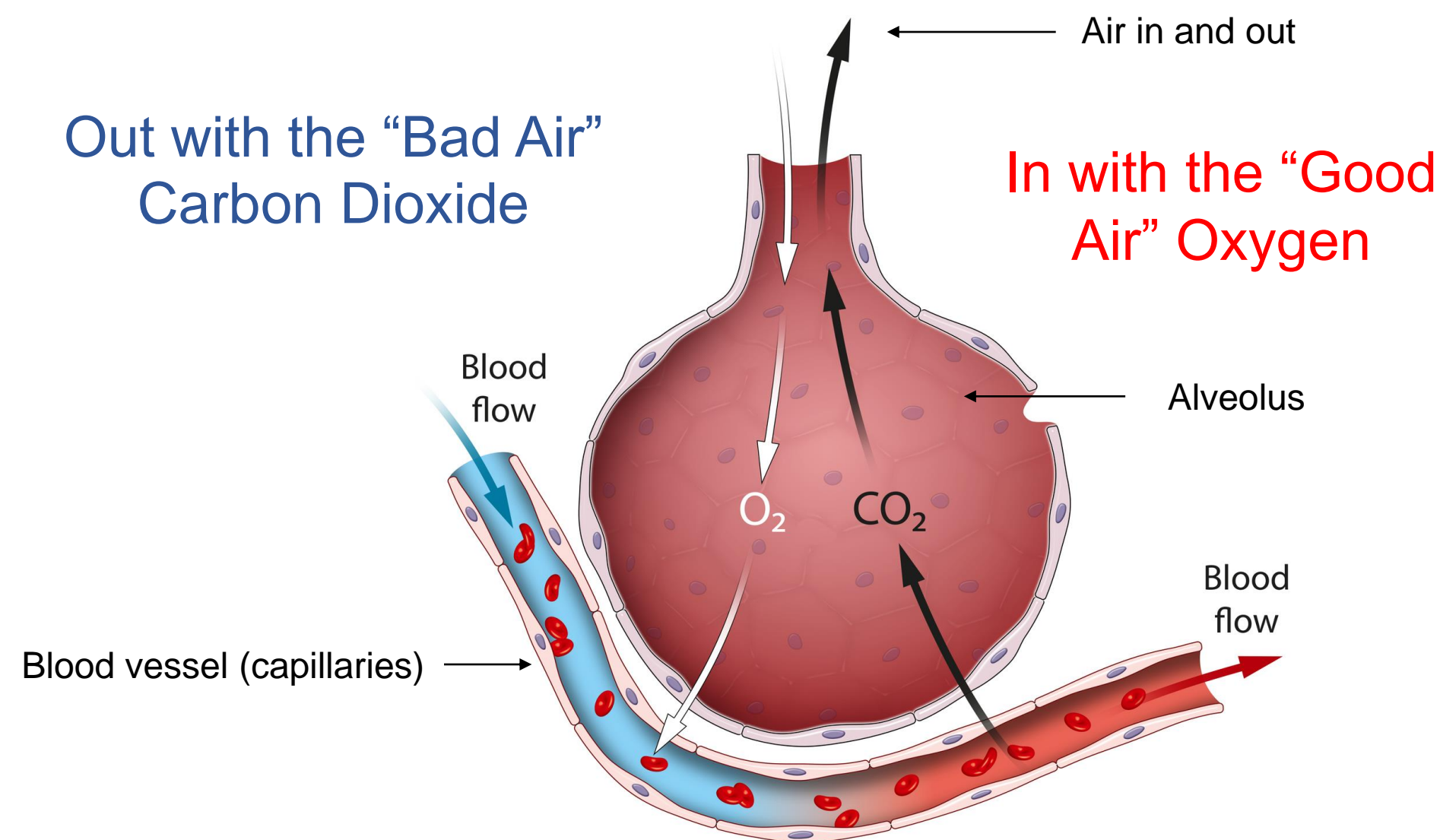
## COPD Effects on the Lungs

- The air sacs in the lungs (where oxygen goes into the blood) lose their ability to inflate and deflate.
- The individual air sacs break down, decreasing oxygenation.
- The airways become thicker and narrowed by inflammation.
- The airways produce more mucus.



## Alveoli or “Air Sacs”

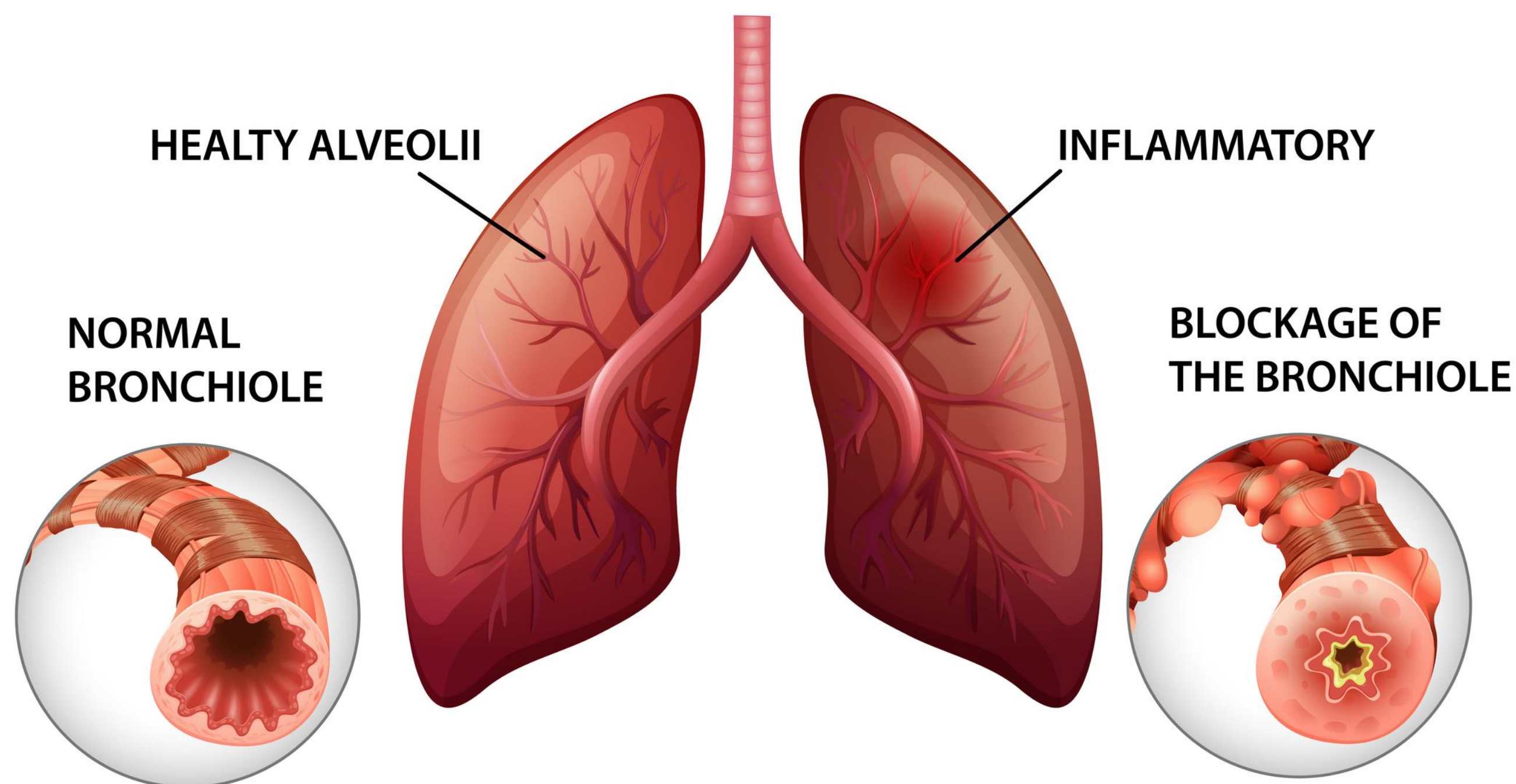
- This is where the oxygen (“good air”) goes from the lungs into the blood, and the carbon dioxide (“bad air”) goes from the blood into the lungs.
- “In with the good air and out with the bad air!”
- Healthy Lungs have 600 million Alveoli or Air Sacs



## How COPD Affects Breathing

- Airway narrowing makes it harder to inhale and exhale, increasing “work of breathing” or the feeling of “shortness of breath.”

## CHRONIC OBSTRUCTIVE PULMONARY DISEASE





## COPD Destroys the Alveoli “Air Sacs”

- As the disease gets worse the person loses more alveoli.
- When a person is told their lungs are functioning at 50% they may have lost half of their alveoli or “air sacs”
- Less healthy alveoli results in less **oxygen** getting into the blood and less **carbon dioxide** from being exhaled.

### Chronic Bronchitis

Clinical diagnosis; Daily productive cough for three months or more, in at least two consecutive years

- Overweight and cyanotic
- Elevated hemoglobin
- Peripheral edema
- Rhonchi and wheezing

### Emphysema

Pathological diagnosis; Permanent enlargement and destruction of airspaces distal to the terminal bronchiole

- Older and thin
- Severe dyspnea
- Quiet chest
- X-ray: hyperinflation with flattened diaphragms

## Common Symptoms of Residents with COPD:

- Constant cough, sometimes called a “smokers cough”
- Shortness of breath while doing normal daily activities like walking, bathing, cooking or cleaning.
- Inability to breath easily or take a deep breath.
- Excess mucus production, coughing up sputum or phlegm
- Wheezing



## How to Recognize a Change in Someone's Breathing

- Coughing more than normal
- Cough may produce more mucus than normal
- Mucus may be a different color than normal.
  - ✓ (Clear, white, thin mucus is normal)
  - ✓ Yellow or Green mucus is not normal and may indicate an infection.
- Fast breathing or difficulty breathing
- Noisy breathing, either a “wheezing” or “rattling” sound.
- Shortness of breath
  - ✓ When someone is “short of breath” it may be difficult to speak in full sentences.
  - ✓ Individuals that are “short of breath” may be less willing to participate in activities they enjoy.

## What Can You Do for a Resident with COPD?

You can address important factors that impact COPD:

- Smoking
- Triggers
- Exercise or activity
- Diet
- Medication
- Oxygen therapy
- Sleep



## Smoking

- 75% of persons with COPD smoke or have smoked.
- For individuals that use a nebulizer or inhaler, smoking blocks the benefit of their inhaled medication.
- Cigarette smoke paralyzes the natural mechanism of the lungs to clear secretions.
- Encourage all persons to quit or reduce the amount they smoke, with the ultimate goal to quit.
- Provide smoking cessation support with nicotine replacement therapy, patches, gum or lozenges.



## Triggers

- A trigger is unique to each person.
- It is important to identify triggers and avoid exposure.
- A trigger may be an allergy like pollen, or possibly to pets or dust. Any inhaled irritant may trigger an event of respiratory distress.
- Avoiding being outdoors during periods of high pollen can help.
- Using air conditioning rather than open windows can also help minimize pollen exposure.
- A trigger may occur with changes in the weather. Some people are affected by extreme heat, cold or humidity.
- Covering your face on a cold day can help warm air.
- Staying in air-conditioned areas during hot, humid days can be beneficial.





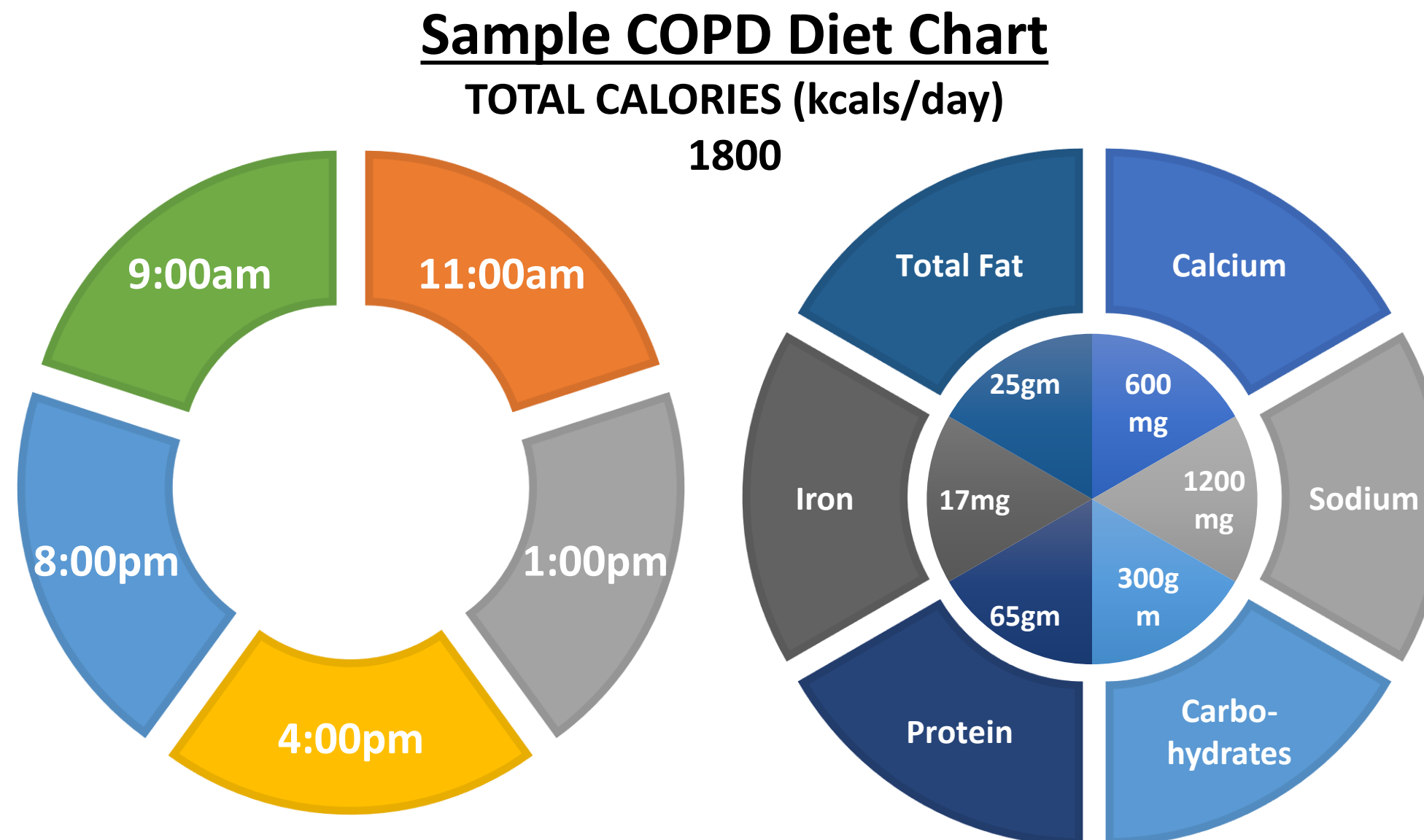
## Exercise and Activity

- While shortness of breath makes being active difficult, being inactive makes breathing issues worse.
- It is important that everyone is up and out of bed every day.
- You can lose 20% to 30% of your muscle strength by one week of bed rest.
- Residents with COPD should be encouraged to perform activities like bathing, dressing and eating independently whenever possible.



## Diet

- Nutrition is important for everyone, and it is no different for individuals with COPD.
- Individuals with COPD often benefit from eating smaller meals more frequently throughout the day.
- Large meals tend to restrict a patient's ability to take a deep breath make shortness of breath more likely.
- Persons with COPD should avoid carbonated beverages and foods high in carbohydrates.
- Individuals tend to do better with diets higher in protein and fats, as long as other medical conditions do not prevent this.





## Medications

- Individuals with COPD typically require strict compliance with medication usage.
- The person with COPD often is required to use the following medications:
  - ✓ Nebulizer
  - ✓ Inhaler
  - ✓ Metered Dose Inhaler (MDI) with spacer
  - ✓ Dry Powder Inhaler (DPI)



# Oxygen Therapy

- Nasal Cannula: 1-6 Liters per minute



Nasal Cannula

- Simple Mask: 6-8 Liters per minute



Simple Mask

- Non-rebreather Mask: 15 Liter per minute



Non-rebreather Mask

- Concentrators: These help purify room air and deliver oxygen to the individual. The filters must be inspected daily and cleaned weekly to ensure the concentrator functions correctly. Dirty filters can result in the individual getting less oxygen than prescribed by the physician.
- Humidity: Individuals that complain of a dry or bloody nose may feel better with humidity. The addition of a humidifier bottle should be done for anyone with dryness or a liter flow of 3 or more.



## Sleep and Sleep Disorders

- Sleep is very important for everyone.
- Individuals with COPD should follow physician orders for use of oxygen or CPAP at night and when napping.
- CPAP should be use whenever an individual is purposefully going to sleep, including naps!
- Obstructive Sleep Apnea or OSA is more common than most of us think.
- Individuals with sleep apnea may stop breathing hundreds of times per night.
- CPAP prevents the apneic events by supporting the airway and keeping it open.
- Apnea can result in decreased oxygenation and increase carbon dioxide.
- Compliance with CPAP use is very important in preventing exacerbations of respiratory diseases.



## Warning Signs for Residents

If your patient is showing any of these symptoms, report it to your nurse immediately:

- **Cyanosis:** Blue color around the lips or nail beds
- **Fast breathing:** Breathing faster than normal or greater than 30 breaths per minute.
- **Difficulty Speaking:** Unable to complete sentences or responding with one-word answers.
- **Oxygen saturation:** Lower than normal or less than 90%.
- **Sleepy:** Less responsive than normal.





## COPD - Quiz

1. COPD is a reversible disease.  
True                  False
2. The most common cause of COPD is environmental exposure.  
True                  False
3. COPD causes a destruction of the alveoli or air sacs, where oxygen crosses from the lung into the blood stream.  
True                  False
4. There is nothing we can do about COPD triggers.  
True                  False
5. Individuals with COPD should be encouraged to stay in their room or bed.  
True                  False

## COPD – Quiz, Continued

6. Individuals with COPD should eat 3 large meals a day.

True      False

7. Once an individual develops COPD, smoking cessation is no longer important.

True      False

8. Medications like nebulizers and inhalers must be used as prescribed, even if the individual is not complaining of shortness of breath.

True      False

9. Oxygen therapy must used as prescribed.

True      False

10. Individuals with sleep apnea should use their CPAP device anytime they plan on sleeping, including naps.

True      False



## Answers

1. **False** – COPD is not reversible, but the symptoms can be treated.
2. **False** – The most common cause of COPD is smoking.
3. **True** – COPD causes a destruction of the alveoli, causing difficult with breathing.
4. **False** – Recognizing COPD triggers can help patients to avoid them.
5. **False** – Individuals with COPD should be encouraged to get out of bed and engage in daily activities like eating, bathing, and getting dressed.
6. **False** – It is better for them to eat smaller, more frequent meals throughout the day.
7. **False** – Smoking paralyzes the natural mechanism of the lungs. Encourage residents to quit or reduce the amount they smoke gradually until they quit.
8. **False** - Individuals with COPD typically require strict compliance with medication usage.
9. **True** – It is important for patients to get the exact amount of oxygen prescribed by the physician.
10. **True** – CPAP should be used during any purposeful sleep, including naps.





# Certificate of Completion

TO

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FOR COMPETENCY IN COPD FOR NURSING

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