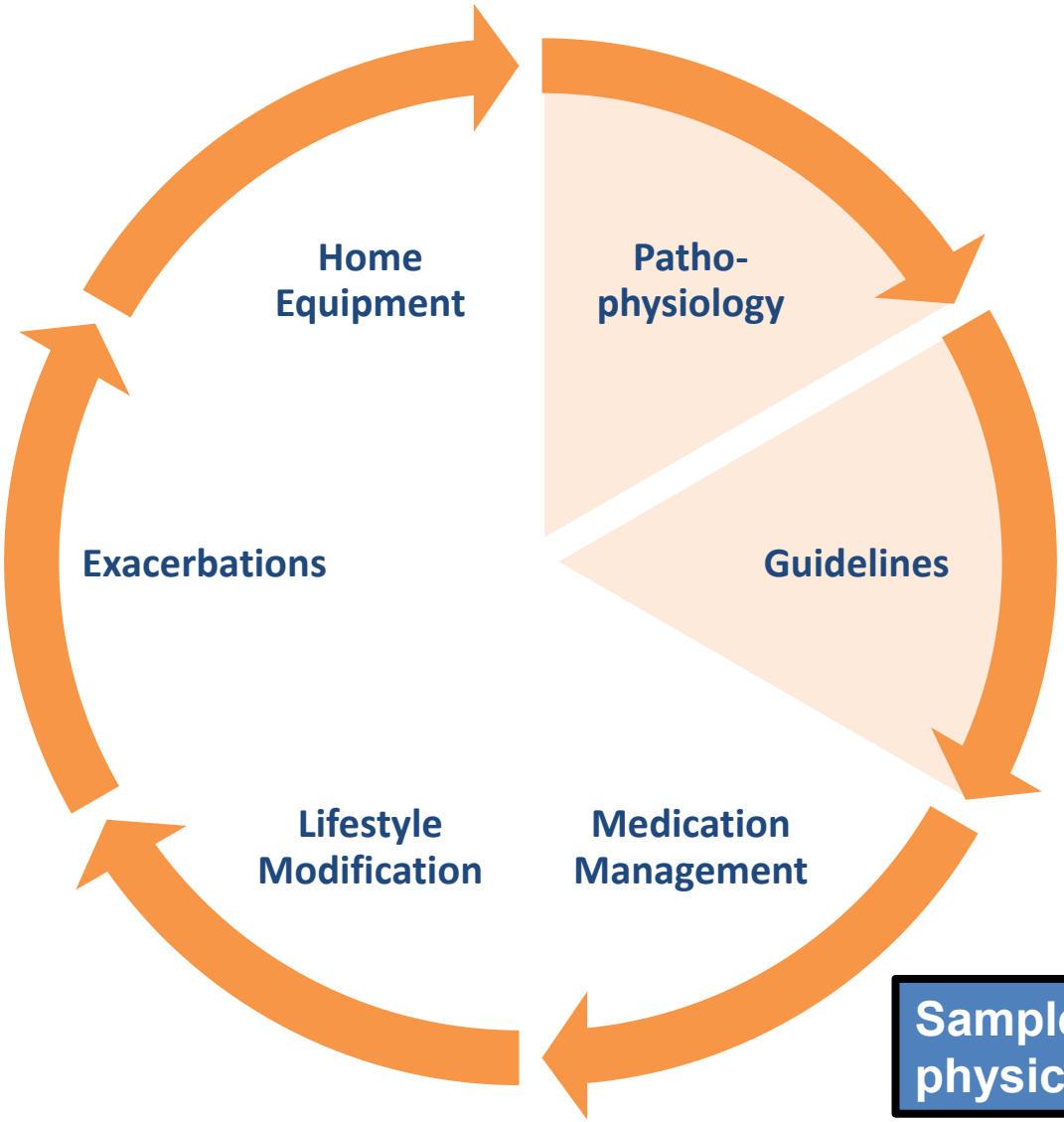
Chronic Obstructive Pulmonary Disease

CareOregon Pharmacy

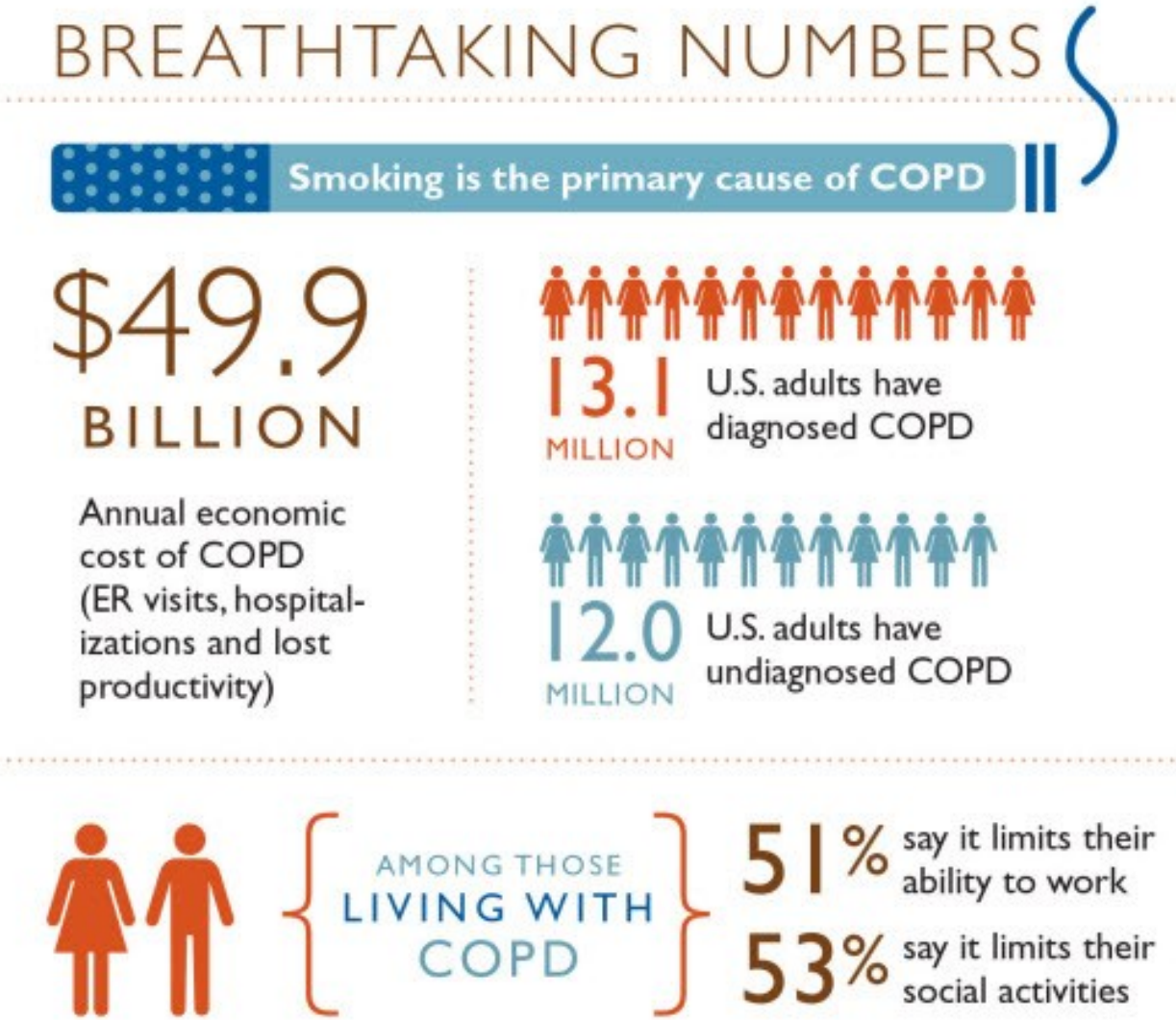
Abridged sample of presentation content

CareOregon®
better together

www.careoregon.org | facebook.com/careoregon | twitter.com/careoregon



Sample of physician's slides



Source: www.hopkinsmedicine.org

What is COPD?

Chronic Obstructive Pulmonary Disease

- Preventable and treatable disease
  - characterized by persistent airflow limitation (narrowing of the small airways)
  - progressive and associated with an enhanced chronic inflammatory response in the airways and the lung to noxious particles or gases

Global Strategy for the Diagnosis, Management and Prevention of COPD,
Global Initiative for Chronic Obstructive Lung Disease (GOLD) 2015. Available from: http://www.goldcopd.org/.

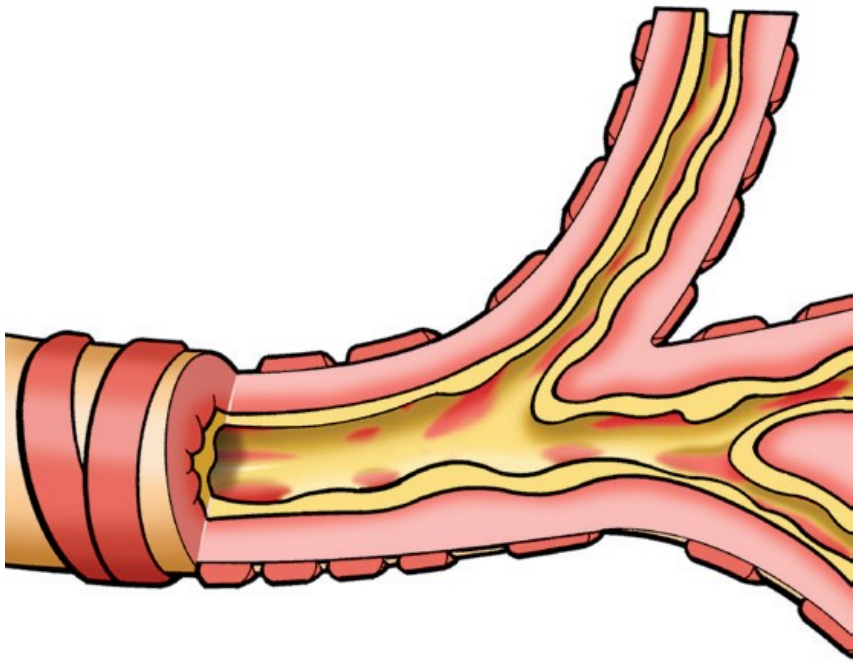
What will a COPD patient feel like?

- Shortness of breath, especially during physical activities
- Wheezing
- Chest tightness
- A chronic, productive cough, typically in the morning
  - **produces sputum that may be clear, white, yellow or greenish**
- Blueness of the lips or fingernail beds (cyanosis)
- Frequent respiratory infections
- Lack of energy
- Unintended weight loss (in later stages)

What causes COPD?

- Tobacco smoking.
  - **About 20% of chronic smokers will develop COPD**.
  - The more years you smoke and the more packs you smoke, the greater your risk.
- Genetic susceptibility to the disease-Alpha-1-antitrypsin deficiency
  - only about 1% of all COPD

Chronic inflammation results in structural changes that narrow the small airways



- Walls of the airways become inflamed, swell, and clog with mucus.
- This partly or completely blocks the airway, making it hard to move air in and out of the lungs.

Global Strategy for the Diagnosis, Management and Prevention of COPD, Global Initiative for Chronic Obstructive Lung Disease (GOLD) 2015. Available from: http://www.goldcopd.org/.

COPD vs. Asthma

	COPD	Asthma
Age on onset	Typically age > 40	Typically in childhood
Smoking history	Usually	Not causal
Family history	No	Yes
Clinical symptoms	Persistent and progressive	Intermittent and variable
Cough	Usually productive cough in the morning	Usually dry cough at night
Sputum production	Frequently in the morning	Infrequent unless poorly controlled
Reversibility of airflow obstruction	No- not fully reversible after short-acting bronchodilator	Yes- mostly reversible after short-acting bronchodilator
Exacerbations	Frequency increases with disease severity	Common at all levels
Inflammation Process	Neutrophil and no mast cell activation	Eosinophil and mast cell activation

Epidemiology of COPD

- 3rd leading cause of death in the US
- One death every 4 minutes
- 12 million people are diagnosed with COPD
  - Under-recognized and under-diagnosed
  - An additional 12 million have undiagnosed COPD

http://www.nhlbi.nih.gov/health/educational/copd/what-is-copd/index.htm
http://www.lung.org/lung-disease/copd/resources/facts-figures/COPD-Fact-Sheet.html

COPD Severity in patients with $FEV_1/FVC < 0.70$

GOLD staging	Severity	FEV_1
GOLD 1	Mild	$FEV_1 \geq 80\%$ predicted
GOLD 2	Moderate	$50\% \leq FEV_1 < 80\%$ predicted
GOLD 3	Severe	$30\% \leq FEV_1 < 50\%$ predicted
GOLD 4	Very Severe	$FEV_1 < 30\%$ predicted

Need Spirometry: based on post-bronchodilator FEV_1

Global Strategy for the Diagnosis, Management and Prevention of COPD, Global Initiative for Chronic Obstructive Lung Disease (GOLD) 2015. Available from: http://www.goldcopd.org/.

Patient Classification

Patient Group	Characteristic	COPD Severity	Exacerbations per year	CAT	mMRC
A	Low Risk Less Symptoms	GOLD 1-2	≤ 1	< 10	0-1
B	Low Risk More Symptoms	GOLD 1-2	≤ 1	≥ 10	≥ 2
C	High Risk Less Symptoms	GOLD 3-4	≥ 2	< 10	0-1
D	High Risk More Symptoms	GOLD 3-4	≥ 2	≥ 10	≥ 2

Symptom Classification:

- CAT: COPD Assessment Test
- mMRC: The Modified British Medical Research Council scale- only looks at breathlessness- **CAT is preferred**

Low Risk

Patient Group	Characteristic	COPD Severity	Exacerbations per year	CAT	mMRC
A	Low Risk Less Symptoms	GOLD 1-2	≤ 1	< 10	0-1
B	Low risk More Symptoms	GOLD 1-2	≤ 1	≥ 10	≥ 2
C	High Risk Less Symptoms	GOLD 3-4	≥ 2	< 10	0-1
D	High Risk More Symptoms	GOLD 3-4	≥ 2	≥ 10	≥ 2

Low risk: ≤1 per year exacerbations *and* no hospitalization for exacerbation

Global Strategy for the Diagnosis, Management and Prevention of COPD, Global Initiative for Chronic Obstructive Lung Disease (GOLD) 2015. Available from: http://www.goldcopd.org/.

High Risk

Patient Group	Characteristic	COPD Severity	Exacerbations per year	CAT	mMRC
A	Low Risk Less Symptoms	GOLD 1-2	≤ 1	< 10	0-1
B	Low risk More Symptoms	GOLD 1-2	≤ 1	≥ 10	≥ 2
C	High Risk Less Symptoms	GOLD 3-4	≥ 2	< 10	0-1
D	High Risk More Symptoms	GOLD 3-4	≥ 2	≥ 10	≥ 2

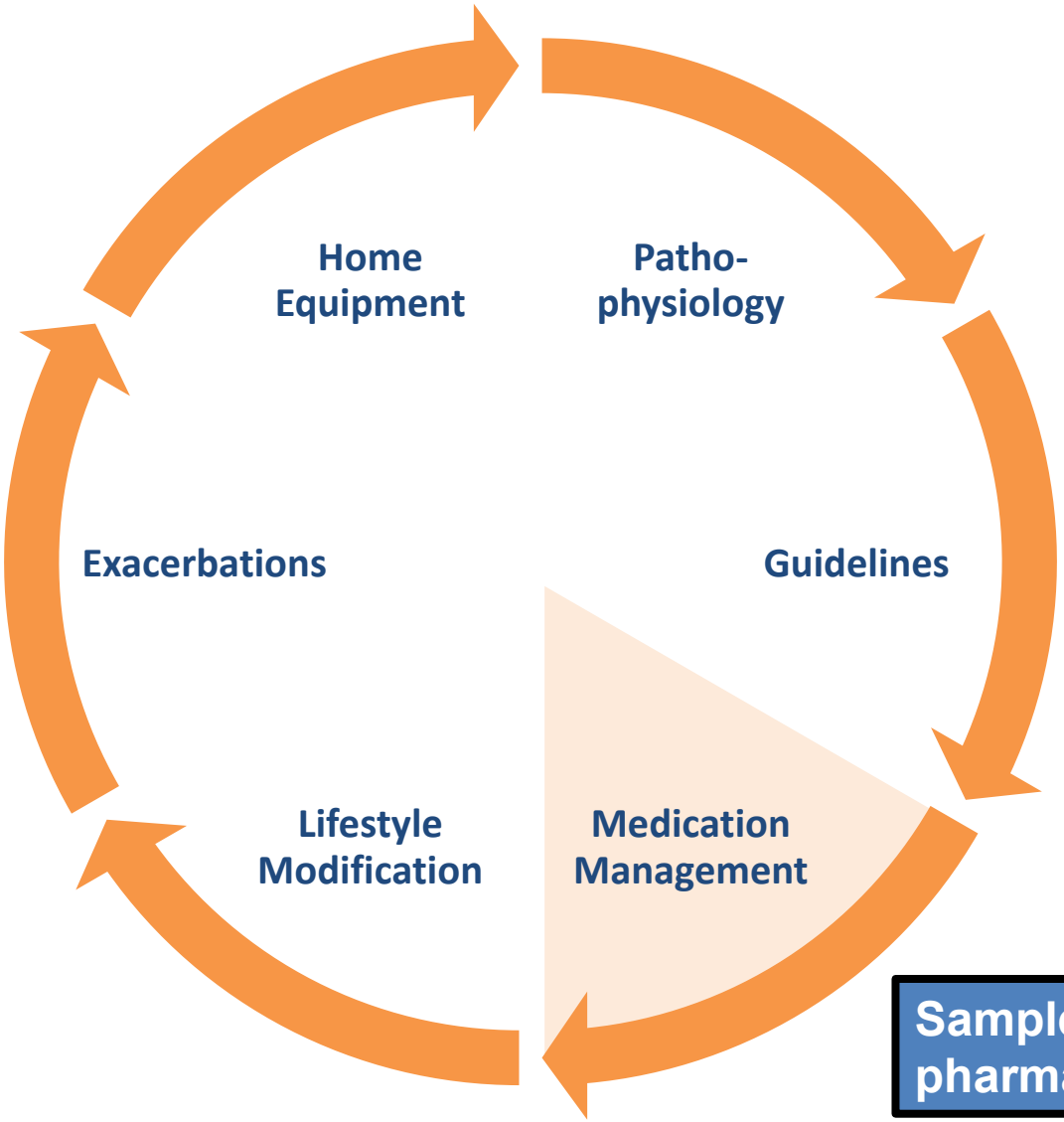
High risk: ≥ 2 exacerbations per year *or* ≥ 1 with hospitalization

Global Strategy for the Diagnosis, Management and Prevention of COPD, Global Initiative for Chronic Obstructive Lung Disease (GOLD) 2015. Available from: http://www.goldcopd.org/.

COPD complications

- **Exacerbations**: acute event with worsening respiratory symptoms and leads to change in medication
  - Poor prognosis and increased risk of death
    - Associated with rapid decline of lung function
    - Decreased quality of life
  - In-hospital mortality rate of 2-5%
  - 30-day mortality rate of 3-9%
  - 90-day mortality rate of >15%

Global Strategy for the Diagnosis, Management and Prevention of COPD, Global Initiative for Chronic Obstructive Lung Disease (GOLD) 2015. Available from: http://www.goldcopd.org/.AHRQ



Sample of pharmacist's slides

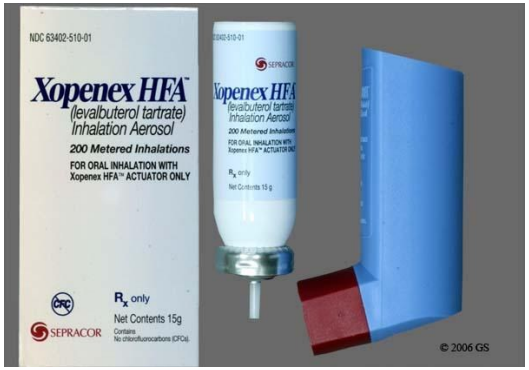
Treatment options

- **Bronchodilators** - Relax airway smooth muscle and improve lung emptying
  - **B_2-Agonists**
    - Short-acting
    - Long-acting
  - **Anticholinergics**
    - Short-acting
    - Long-acting
  - **Methylxanthines**
- **Corticosteroids**
  - Inhaled
  - systemic
- **Combination products**
  - B_2-Agonists/anticholinergic
  - B_2-Agonists/corticosteroids

Short acting β_2-Agonists

"Rescue Medication"

Medication	Typical Dosing	Delivery device	Side effects
Albuterol (ProAir, ProAir Respiclick, Ventolin, Proventil)	2 puffs every 4-6 hrs as needed	Aerosol inhaler Dry powder nebulizer	tremors, resting sinus tachycardia, palpitations, insomnia
Levalbuterol (Xopenex)	2 puffs every 4-6 hrs as needed	Aerosol inhaler nebulizer	



Long acting β_2-Agonists (LABA)

Medication	Typical Dosing	Delivery Device	Side effects
Formoterol (Foradil)	1 inhalation (12 mcg) twice daily	Aerolizer inhaler Nebulizer	tremors, palpitations, insomnia, dry mouth, headache
Salmeterol (Serevent)	1 inhalation (50 mcg) twice daily	Dry powder inhaler	
Olodaterol (Striverdi Respimat)	2 inhalations once daily	Soft-mist inhaler	
Arformoterol (Brovana)	12 mcg twice daily	Nebulizer	
Indacaterol (Arcapta)	75 mcg daily	Capsule for inhalation	
Vilanterol	Not available as single product- combination product with fluticasone and umeclidinium		

Inhaled corticosteroids (ICS)

Place in therapy: repeated exacerbations

Patient Group	Characteristic	COPD Severity	Exacerbations per year	CAT	mMRC
C	High Risk Less Symptoms	GOLD 3-4	≥ 2	< 10	0-1
D	High Risk More Symptoms	GOLD 3-4	≥ 2	≥ 10	≥ 2

Clinical benefits:

- improves symptoms, lung function, and quality of life, and reduces the frequency of exacerbations in COPD patients with an FEV1 < 60% predicted
- does not modify the long-term decline of FEV1 nor mortality in patients with COPD

Phosphodiesterase inhibitor

- Roflumilast (Daliresp)
- Relaxes airway smooth muscle cells and decreases activity of inflammatory cells and mediators (TNF-α and IL-8)
  - For severe COPD to reduce exacerbations
  - Should be used with at least one long-acting bronchodilator
  - Conflicting studies

Oral corticosteroid

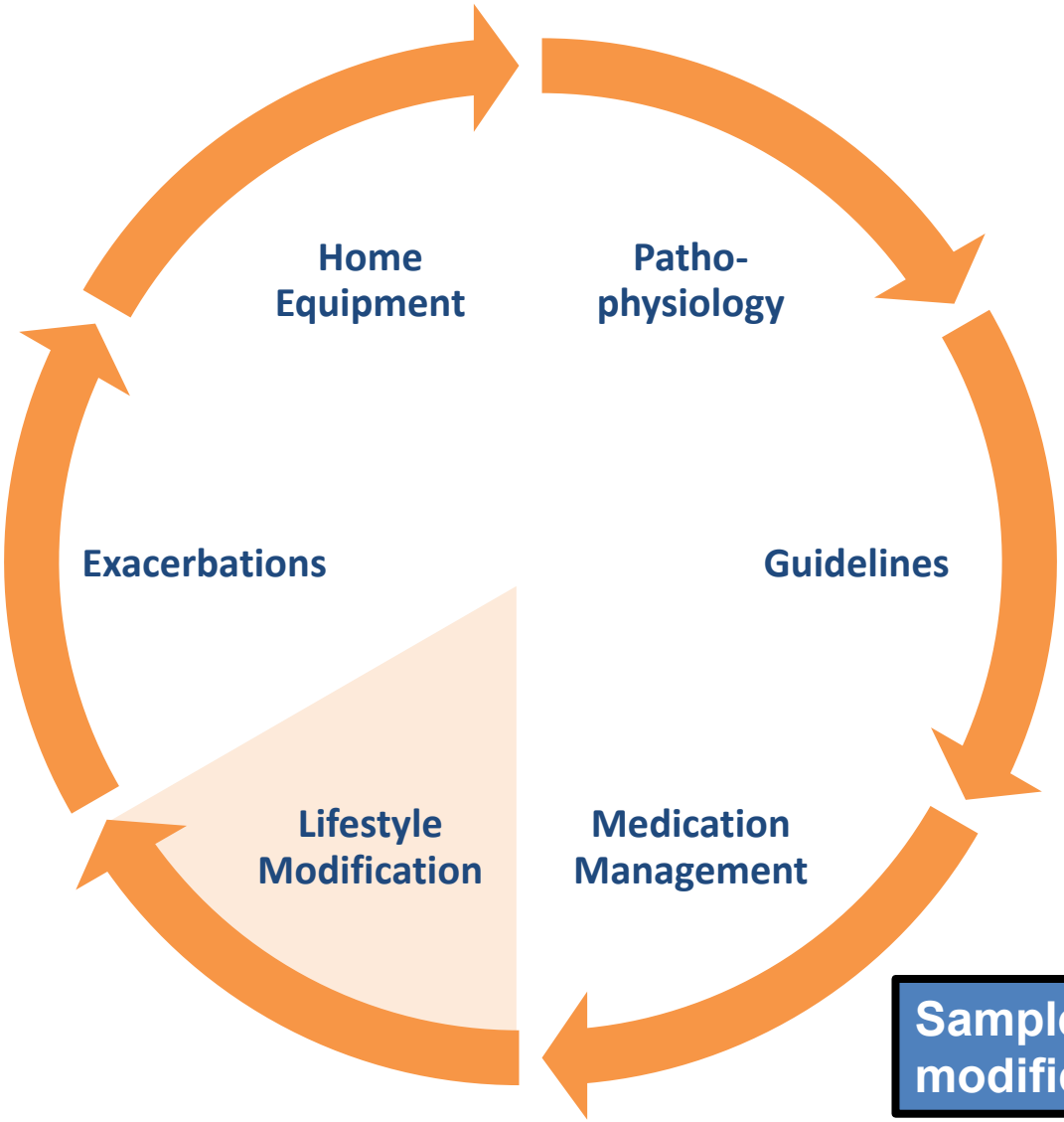
Prednisone 40 mg a day for 5 days

- Shortens recovery time, length of hospital stay, improves FEV_1 for exacerbations
- Adverse effects: increases appetite, moodiness, increases in blood sugars
- Patient can be reminded to take in the morning
- Taper not needed

Health Maintenance

- Vaccinations
  - Yearly influenza
  - Pneumococcal
- Smoking Cessation
  - Greatest capacity to influence the natural history of COPD
  - All patients should be encouraged to quit

Global Strategy for the Diagnosis, Management and Prevention of COPD, Global Initiative for Chronic Obstructive Lung Disease (GOLD) 2015. Available from: http://www.goldcopd.org/.



Sample of lifestyle modification slides

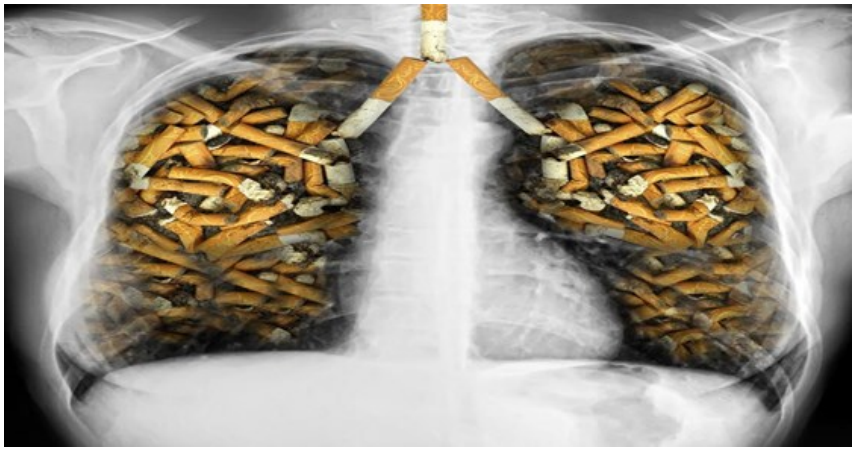
Quitting is Hard

50% of people who recover from lung cancer surgery start smoking again afterwards.

Source: FDA

The average person attempts to quit eight to eleven times before succeeding.

Source: U.S. Department of Health and Human Services. Women and Smoking. A Report of the Surgeon General, Centers for Disease Control.



Resources To Help You Quit

CareOregon covers several medications to help people quit smoking, as well as enrollment in the **Quit** For Life program.

Call toll-free any day from 5 a.m. to 9 p.m.

866-784-8454

Reasons to Quit

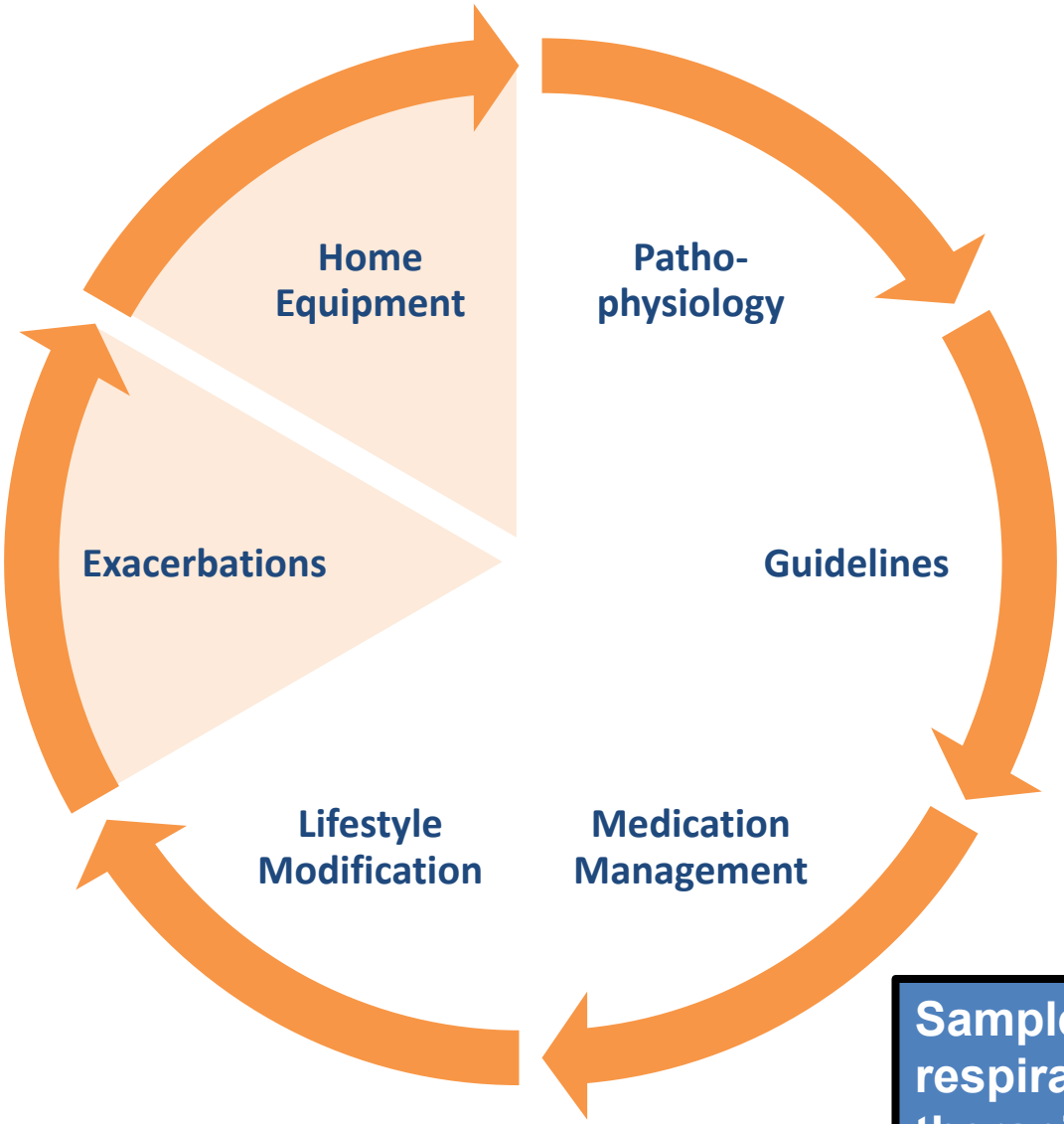
- My risk of cancer, heart attacks, chronic lung disease, stroke, cataracts, and other diseases will drop.
- My blood pressure will go down.
- I'll look better. My skin will be more hydrated and less wrinkled, my teeth will look less yellow and my fingers won't be stained with nicotine.
- I'll save money.
- My hair, clothes, car, and home won't reek of smoke.
- I'll have more energy.
- I'll set a better example for my kids, friends, and family.
- I'll live longer.

Traditional Counseling

- Advice given, patient expected to listen, follow instructions.
- Can increase resistance to change.
- Makes patient defensive.

Motivational Interviewing

- Patient does most of the talking.
- Help patient understand their own motivation for change.
- Patient is the expert on their personal circumstances.



Sample of respiratory therapist's slides

What is an “exacerbation” and what are the typical causes?

- An exacerbation is a worsening of the patients cough, shortness of breath, or sputum that is beyond the normal day to day variations.
- The main cause of an exacerbation is usually a **viral or bacterial infection**.
- **Smoking, improper use of an inhaler, and poor adherence to drug therapy** are also commonly seen as causes.

Think about the possibility of an empty inhaler

Empty Inhaler Usage

- The method of floating an inhaler is no longer the correct way to tell if its empty. The change in propellant has made it impossible to tell by floating or shaking to feel for contents.
- The only way to tell is by using a counter or manually recording puffs taken.
- This change has led to an increase in the accidental use of empty inhalers.

Red Flags

- **Unusual sleepiness or confusion –** sleeping more during the day can be a big indicator of a problem.
- **Headaches/blurry vision –** An increase in the PaCO2 and low oxyger can both cause these symptoms.
- **Frequent nebulizer or inhaler use** with no/minimal relief from severe shortness of breath
- **Gray or blue skin tone –** most often seen in the nail beds and lips.

How Can a History of Trauma Impact COPD Patients?

- Claustrophobia (oxygen and CPAP/BIPAP masks)
- Anxiety (abnormally high with attacks/exacerbations)
- Difficulty with self calming techniques
- Substance abuse (may impact ability to follow through with meds/therapy)

Everyone should use a spacer!

Without a spacer more than 80% of the medication deposits in the mouth and throat *without ever reaching the lungs*.

Thank you!

CareOregon®

better together

www.careoregon.org | facebook.com/careoregon | twitter.com/careoregon