

# COPD Medications and Surgical Options

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Dr. Stephanie LaBedz, MD

# Objectives

For patients with Chronic Obstructive Pulmonary Disease:

- Describe the importance of vaccines and smoking cessation
- Discuss inhaled and oral medications
- Review the role of oxygen therapy
- Describe current surgical options for severe COPD



RESPIRATORY  
HEALTH  
ASSOCIATION

LIVING BETTER TOGETHER

Influenza vaccine reduces serious illness  
and death in COPD patients

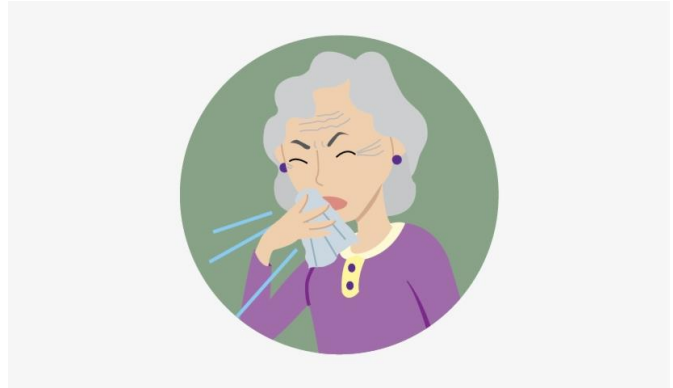
# Prevention Immunizations

- Flu
  - Influenza vaccine every year
- Pneumonia
  - One time dose with PCV20
- COVID-19
  - Covid vaccine every year
- Whooping cough (Tdap)
- Shingles (Zoster)
- Respiratory Syncytial Virus (RSV)



# Respiratory Syncytial Virus

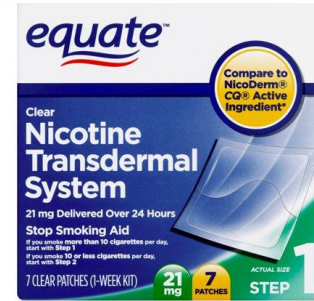
- Airborne virus
- Symptoms
  - Mild
  - Severe
- Vaccine
  - >60 years old
  - High Risk
  - One time dose
- Shared clinical decision-making



**Stopping smoking adds years of life and slows the decline in lung function!**

# Quit Smoking Medications

- If you are still smoking:
  - Use combinations of medications and higher doses
  - Coverage
  - Proper use
  - Seek treatment AND behavioral support
    - 1-866-QUIT-YES
    - Smokefree.gov
    - BecomeAnEX.org
    - Group, Courage to Quit
    - Individual, UI Health
- Vaping or Pouches?



# Inhaled medications for COPD

- Cornerstone of COPD treatment
- Delivered via inhaler or nebulizer devices
- Types of medications
  - Bronchodilators: open airways by relaxing muscles around the airways
  - Anti-inflammatory: reduce inflammation in the airways
- All patients with COPD should be prescribed at least one inhaler



# Benefits of inhaled medications

- Reduce symptoms
- Improve lung function
- Improve quality of life
- Reduce risk of COPD flare up or exacerbation
- Reduce risk of hospitalization from COPD

# Controller vs. Reliever


## Controller inhaler

- Keeps symptoms under control and prevents flare ups
- Use every day, even when you don't have symptoms
- May not feel an effect from the inhaler right away
- May need more than one controller inhaler

## Reliever inhaler

- Used as needed for relief of symptoms
- Don't need to use if you don't have any symptoms
- Will feel an effect from the inhaler within minutes
- Can use again 4-6 hours later if symptoms return

# Inhaler options



## Asthma and COPD Medicines

### Quick Reliever Medicines

#### Short-Acting Beta<sub>2</sub>-Agonists (SABA)

<b>Albuterol Sulfate HFA</b>	<b>Albuterol Sulfate Neb</b>	<b>ProAir<sup>®</sup> Digihaler<sup>™</sup></b>	<b>ProAir<sup>®</sup> RespiClick</b>	<b>Proventil<sup>®</sup> HFA</b>	<b>Ventolin<sup>®</sup> HFA</b>	<b>Xopenex HFA<sup>®</sup></b>	<b>Xopenex<sup>®</sup> Neb</b>
albuterol sulfate 90 mg	0.66 mg/3 mL, 2.20 mg/3 mL, 3.30 mg/3 mL	albuterol sulfate 117 mg	albuterol sulfate 117 mg	albuterol sulfate 120 mg	albuterol sulfate 90 mg	albuterol sulfate 90 mg	albuterol sulfate 0.21 mg/3 mL, 0.63 mg/3 mL, 1.26 mg/3 mL


#### Short-Acting Muscarinic Antagonists (SAMA)

<b>Atrivent<sup>®</sup> HFA</b>	<b>Atrivent<sup>®</sup> Neb</b>
ipratropium bromide 17 mg	ipratropium bromide 200/500 mg

#### Short-Acting Combinations (SABA-SAMA)

<b>DuoNeb<sup>®</sup></b>	<b>Combivent RespiMat<sup>®</sup></b>
albuterol sulfate and ipratropium bromide 0.21 mg/3 mL, 0.63 mg/3 mL, 1.26 mg/3 mL	albuterol sulfate and ipratropium bromide 200/500 mg

### How-To Videos



### Maintenance/Controller Medicines

#### Inhaled Corticosteroids (ICS) asthma only

<b>Alvesco<sup>®</sup> HFA</b>	<b>ArmonAir<sup>®</sup> RespiClick<sup>®</sup></b>	<b>Arnuity<sup>®</sup> Ellipta<sup>®</sup></b>	<b>Asmanex<sup>®</sup> HFA</b>	<b>Asmanex<sup>®</sup> Twisthaler<sup>®</sup></b>	<b>Budesonide Inhalation Suspension</b>	<b>Flovent<sup>®</sup> Diskus<sup>®</sup></b>	<b>Flovent<sup>®</sup> HFA</b>	<b>Pulmicort<sup>®</sup> Flexhaler<sup>®</sup></b>	<b>Pulmicort Respules<sup>®</sup></b>	<b>QVAR<sup>®</sup> Redihaler<sup>®</sup></b>
budesonide 90/180 mg	budesonide propionate 100/200 mg	budesonide formate 100/200 mg	budesonide formate 100/200 mg	budesonide formate 100/200 mg	0.25 mg/2 mL, 0.5 mg/2 mL, 1 mg/2 mL	budesonide propionate 50/100/225 mg	budesonide propionate 44/110/220 mg	budesonide 90/180 mg	budesonide inhalation suspension 0.25 mg/2 mL, 0.5 mg/2 mL, 1 mg/2 mL	budesonide formate 40/80 mg

#### Combination Therapy (Inhaled Corticosteroid - Long-Acting Beta<sub>2</sub>-Agonists) (ICS-LABA)

<b>Advair Diskus<sup>®</sup></b>	<b>Advair<sup>®</sup> HFA</b>	<b>AirDuo<sup>®</sup> RespiClick<sup>®</sup></b>	<b>Breo<sup>®</sup> Ellipta<sup>®</sup></b>	<b>Symbicort<sup>®</sup></b>	<b>Dulera<sup>®</sup></b>	<b>Wixela<sup>™</sup> Inhub<sup>™</sup></b>	<b>Triple Therapy (ICS-LABA-LAMA)</b>				
budesonide propionate and salmeterol 100/20, 200/20, 300/20 mg	budesonide propionate and salmeterol 40/2, 10/2, 20/2 mg	budesonide propionate and salmeterol 55/14, 10/14, 20/14 mg	budesonide and formoterol 100/25, 200/25 mg	budesonide and formoterol fumarate dihydrate 80/4, 160/4 mg	budesonide formate and formoterol fumarate dihydrate 200, 200, 200/5 mg	budesonide propionate and salmeterol 100/20, 200/20, 300/20 mg	<table border="1" style="width: 100%; border-collapse: collapse; font-size: 8px;"> <tr> <td style="width: 15%;"><b>Trelegy Ellipta<sup>®</sup></b></td> <td style="width: 15%;"><b>Bretri<sup>®</sup> Aerosphere<sup>®</sup></b></td> </tr> <tr> <td>budesonide, formoterol fumarate dihydrate, and vilanterol 100 mg/6.2 mg/25 mg, 200 mg/6.2 mg/25 mg</td> <td>budesonide propionate, formoterol fumarate dihydrate, and vilanterol 100/6.2 mg</td> </tr> </table>	<b>Trelegy Ellipta<sup>®</sup></b>	<b>Bretri<sup>®</sup> Aerosphere<sup>®</sup></b>	budesonide, formoterol fumarate dihydrate, and vilanterol 100 mg/6.2 mg/25 mg, 200 mg/6.2 mg/25 mg	budesonide propionate, formoterol fumarate dihydrate, and vilanterol 100/6.2 mg
<b>Trelegy Ellipta<sup>®</sup></b>	<b>Bretri<sup>®</sup> Aerosphere<sup>®</sup></b>										
budesonide, formoterol fumarate dihydrate, and vilanterol 100 mg/6.2 mg/25 mg, 200 mg/6.2 mg/25 mg	budesonide propionate, formoterol fumarate dihydrate, and vilanterol 100/6.2 mg										

### Long-Acting Muscarinic Antagonists (LAMA)


<b>Incruse<sup>®</sup> Ellipta<sup>®</sup></b>	<b>Lonhala Magnair<sup>®</sup></b>	<b>Spiriva<sup>®</sup> HandiHaler<sup>®</sup></b>	<b>Spiriva<sup>®</sup> RespiMat<sup>®</sup></b>	<b>Tudorza<sup>®</sup> Pressair<sup>®</sup></b>	<b>Yupelri<sup>®</sup> Neb</b>	<b>Brovans<sup>®</sup> Neb</b>	<b>Perforomist<sup>®</sup> Neb</b>	<b>Serevent<sup>®</sup> Diskus<sup>®</sup></b>	<b>Striverdi<sup>®</sup> RespiMat<sup>®</sup></b>	<b>LAMA-LABA COPD only</b>								
acetylcholinesterase inhibitor 62.5 mg	acetylcholinesterase inhibitor 25 mg/1 mL	acetylcholinesterase inhibitor 18 mg	acetylcholinesterase inhibitor 1.26 mg	acetylcholinesterase inhibitor 400 mg	acetylcholinesterase inhibitor 175 mg/3 mL	acetylcholinesterase inhibitor 15 mg	acetylcholinesterase inhibitor 30 mg	acetylcholinesterase inhibitor 90 mg	acetylcholinesterase inhibitor 2.2 mg	<table border="1" style="width: 100%; border-collapse: collapse; font-size: 8px;"> <tr> <td style="width: 15%;"><b>Anoro<sup>®</sup> Ellipta<sup>®</sup></b></td> <td style="width: 15%;"><b>Bevesi<sup>®</sup> Aerosphere<sup>®</sup></b></td> <td style="width: 15%;"><b>Duakir<sup>®</sup> Pressair<sup>®</sup></b></td> <td style="width: 15%;"><b>Stiolto<sup>®</sup> RespiMat<sup>®</sup></b></td> </tr> <tr> <td>acetylcholinesterase inhibitor and formoterol fumarate dihydrate 50/2, 62.5/2.5 mg</td> <td>acetylcholinesterase inhibitor and formoterol fumarate dihydrate 94.8 mg</td> <td>acetylcholinesterase inhibitor and formoterol fumarate dihydrate 400/12 mg</td> <td>acetylcholinesterase inhibitor and formoterol fumarate dihydrate 2.2/2.2 mg</td> </tr> </table>	<b>Anoro<sup>®</sup> Ellipta<sup>®</sup></b>	<b>Bevesi<sup>®</sup> Aerosphere<sup>®</sup></b>	<b>Duakir<sup>®</sup> Pressair<sup>®</sup></b>	<b>Stiolto<sup>®</sup> RespiMat<sup>®</sup></b>	acetylcholinesterase inhibitor and formoterol fumarate dihydrate 50/2, 62.5/2.5 mg	acetylcholinesterase inhibitor and formoterol fumarate dihydrate 94.8 mg	acetylcholinesterase inhibitor and formoterol fumarate dihydrate 400/12 mg	acetylcholinesterase inhibitor and formoterol fumarate dihydrate 2.2/2.2 mg
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### Add-On Medicines

<b>Monoclonal Antibody (biologics, injection)</b>	<b>PDE4 Inhibitor</b>	<b>Leukotriene Receptor Antagonists (LTRA)</b>									
<table border="1" style="width: 100%; border-collapse: collapse; font-size: 8px;"> <tr> <td><b>Cinqair<sup>®</sup></b> omalizumab 100 mg</td> <td><b>Dupixent<sup>®</sup></b> dupilumab 100/200/300 mg</td> <td><b>Fasenra<sup>®</sup></b> saracatinib 30 mg</td> </tr> <tr> <td><b>Nucala<sup>®</sup></b> mepolizumab 100 mg</td> <td><b>Tezspire<sup>™</sup></b> tezepelumab 210 mg</td> <td><b>Xolair<sup>®</sup></b> omalizumab 75/150 mg</td> </tr> </table>	<b>Cinqair<sup>®</sup></b> omalizumab 100 mg	<b>Dupixent<sup>®</sup></b> dupilumab 100/200/300 mg	<b>Fasenra<sup>®</sup></b> saracatinib 30 mg	<b>Nucala<sup>®</sup></b> mepolizumab 100 mg	<b>Tezspire<sup>™</sup></b> tezepelumab 210 mg	<b>Xolair<sup>®</sup></b> omalizumab 75/150 mg	<table border="1" style="width: 100%; border-collapse: collapse; font-size: 8px;"> <tr> <td><b>Daliresp<sup>®</sup></b> roflumetastat 200/500 mg</td> </tr> </table>	<b>Daliresp<sup>®</sup></b> roflumetastat 200/500 mg	<table border="1" style="width: 100%; border-collapse: collapse; font-size: 8px;"> <tr> <td><b>Singulair<sup>®</sup></b> montelukast sodium 4.5/10 mg</td> <td><b>Zyflo<sup>®</sup></b> zileuton ER 600 mg</td> </tr> </table>	<b>Singulair<sup>®</sup></b> montelukast sodium 4.5/10 mg	<b>Zyflo<sup>®</sup></b> zileuton ER 600 mg
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### Use a valved holding chamber/spacer

All HFA inhalers should be used with a compatible valved holding chamber/spacer.




### Definitions

- ICS = Inhaled Corticosteroid
- ICS-LABA or LAMA-LABA = Combination Therapy
- ICS-LABA-LAMA = Triple Therapy
- LABA = Long-Acting Beta<sub>2</sub>-Agonist
- LAMA = Long-Acting Muscarinic Antagonist
- LTRA = Leukotriene Receptor Antagonist
- SABA = Short-Acting Beta<sub>2</sub>-Agonist
- SAMA = Short-Acting Muscarinic Antagonist
- SMART = Single Maintenance and Reliever Therapy

Disease States: A Asthma C COPD G Generic S SMART Therapy

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# Inhaler options



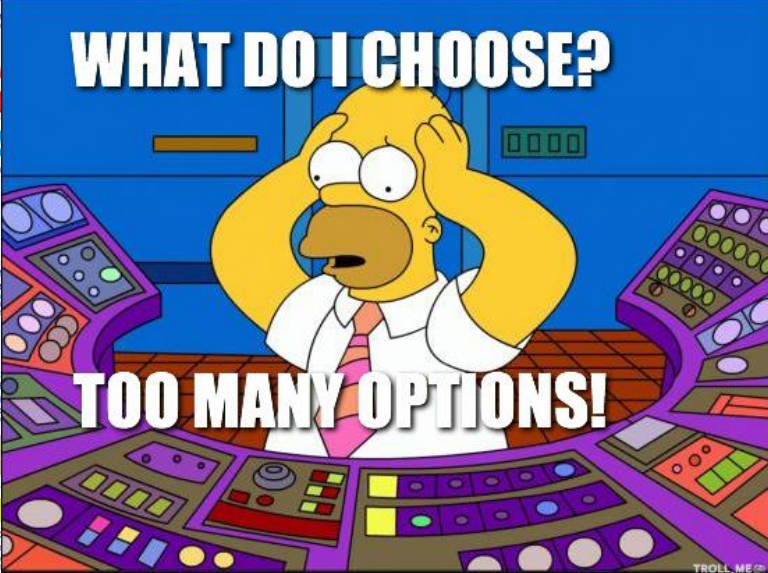
American Lung Association.

## Asthma and COPD Medicines

How-To Videos



# WHAT DO I CHOOSE?



# TOO MANY OPTIONS!

**Quick Reliever Medicines**

**Short-Acting Beta<sub>2</sub>-Agonists (SABA)**

<b>Albuterol Sulfate HFA</b>	<b>Albuterol Sulfate Neb</b>	<b>ProAir HFA</b>
0.09 mg/actuation	0.63 mg/2 mL, 2.5 mg/2 mL	117 mg

**Maintenance/Controller Medicines**

**Inhaled Corticosteroids (ICS) asthma**

<b>Advair Diskus HFA</b>	<b>ArmonAir<sup>™</sup> RespiClick<sup>™</sup></b>
budesonide and formoterol	budesonide propionate
60/180 mg	50/132/222 mg

**Combination Therapy (Inhaled Corticosteroid and Long-Acting Muscarinic Antagonist)**

<b>Advair Diskus<sup>®</sup></b>	<b>Advair<sup>®</sup> HFA</b>
budesonide propionate and formoterol	budesonide propionate and formoterol fumarate dihydrate
100/50, 200/50, 300/50 mg	45/21, 115/21, 230/21 mg

**Long-Acting Muscarinic Antagonists**

<b>Incruse<sup>®</sup> Ellipta<sup>®</sup></b>	<b>Lonhala Magnair<sup>®</sup></b>	<b>Spiriva HandiHaler<sup>®</sup></b>
acetylcholinesterase inhibitor	tiotropium bromide	tiotropium bromide
62.5 mg	25 mg/1 mL	18 mg


**Add-On Medicines**

**Monoclonal Antibody biologics, injections**

<b>Cinqair<sup>®</sup></b>	<b>Dupixent<sup>®</sup></b>	<b>Xolair<sup>®</sup></b>
omalizumab	dupilumab	omalizumab
150 mg	300 mg/200 mg	75/150 mg

<b>Nucala<sup>®</sup></b>	<b>Tezspire<sup>™</sup></b>	<b>Xolair<sup>®</sup></b>
mepolizumab	tezepelumab	omalizumab
100 mg	210 mg	75/150 mg

**How-To Videos**



**Port Respules<sup>®</sup>**

rescue inhaler

0.3 mg/2 mL, 1 mg/2 mL

**QVAR<sup>®</sup> Redihaler<sup>™</sup>**

budesonide

400/8 mg

**Combination Therapy (ICS-LABA-LAMA)**

**Breztri Aerosphere<sup>®</sup>**

budesonide propionate, formoterol fumarate dihydrate, tiotropium bromide

100/50/8 mg

**Duakir<sup>®</sup> Pressair<sup>®</sup>**

budesonide and formoterol

400/12 mg

**Stiolto<sup>®</sup> Respimat<sup>®</sup>**

tiotropium bromide and balmofen

2.2/2.2 mg

**TROLL MEDS**

- LAMA = Long-Acting Muscarinic Antagonist
- LTRA = Leukotriene Receptor Antagonist
- SABA = Short-Acting Beta<sub>2</sub>-Agonist
- SAMA = Short-Acting Muscarinic Antagonist
- SMART = Single Maintenance and Reliever Therapy

Disease States: A Asthma C COPD G Generic S SMART Therapy

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# Inhalers - what to consider

- Insurance coverage/formulary
- Cost
- Frequency of dosing
- Number of inhalers
- Type of inhaler device
- Preferences






# Inhaler technique is important!


- Did you know that 50-80% of patients with COPD do not use their inhalers correctly?
- Ask your doctor or pharmacist to show you how to use your inhalers.
- Ask your doctor or pharmacist to give you feedback on your inhaler technique.



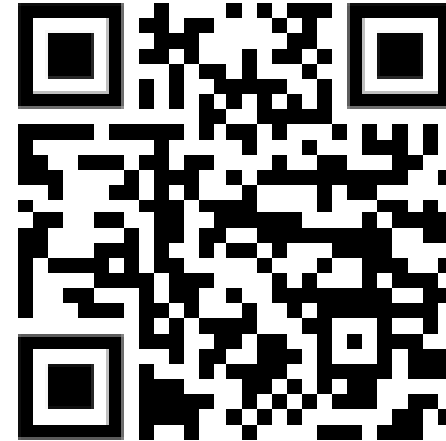
# Resources for inhaler technique

 RESPIRATORY HEALTH ASSOCIATION

## SPACERS AND METERED DOSE INHALERS

 Using MDIs and Spacers

- 1 Remove all food, candy, and gum from your mouth.
- 2 Stand up straight.  
Remove the cap from your inhaler and spacer. Make sure to clean out any dust or fuzz so there is nothing inside.
- 3 Shake the inhaler for 5 seconds.
- 4 Place the inhaler into the spacer. Take a deep breath in and out.
- 5 Put the spacer in your mouth and seat your lips tightly around the mouthpiece.
- 6 Press down on your inhaler and take a long, slow breath in.
- 7 Hold your breath for 10 seconds, then breathe out.
- 8



<https://resphealth.org/news/library/>

[use-inhalers.com](https://use-inhalers.com)

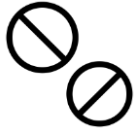
# Review your medication

- Do I feel better since starting my new medication?
- Have I been in the doctor's office, ED, or hospital less since starting my new medication?
- Do I ever miss doses of my medication?
- Can I afford to buy the medication each month?
- Am I using the inhaler device correctly?

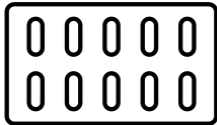


# Oral medication for COPD

## Roflumilast



## Azithromycin



- Oral medications (i.e., pills) are prescribed for some patients with COPD who have frequent flare ups or exacerbations
- Benefit: decrease number of COPD flare ups
- Do not improve symptoms
- Side effects are more common compared to inhaled medications
- Not all patients with COPD benefit from these medications – talk to your doctor!

# Medication updates

- New medications currently under FDA review to treat COPD
  - Dupilumab
  - Ensifentrine

# Oxygen therapy for COPD

## Short-term oxygen therapy (STOT)

- Prescribed during acute respiratory illness when oxygen levels are low.
- May only need for a few weeks or months until fully recovered.
- Recommend having oxygen levels rechecked within 1 month to determine if you still need to use oxygen.
- Important to follow directions about when to use oxygen and how much oxygen to use.
- Safety first! Do not smoke while using oxygen or use around flame

# Oxygen therapy for COPD

## Long-term oxygen therapy (LTOT)

- Indicated for patients with stable COPD with low oxygen levels.
- Benefit: increases survival in those with **severely** low oxygen levels at rest.
  - Studies do not show a benefit for using oxygen long-term in those whose oxygen levels are moderately low or only decreases with physical activity.
- Oxygen needs may change over time. Should have oxygen levels rechecked regularly and change Rx for oxygen as needed.
- Need to plan ahead if you travel!

RHA oxygen therapy & travel document →



# Oxygen equipment



**Compressed Gas Cylinders**

A 5-8 in    B 12 in    C 11 in    D 16 in    E 26 in    H 22-52 in

**Liquid Oxygen**

Portable Canister      Reservoir plus Portable Canister

**Portable Oxygen Concentrators**

**Stationary Oxygen Concentrators**

Home Fill Unit on Top

**Portable Cylinders**

Portable E      Portable D

# Surgical options for COPD

- Lung volume reduction surgery (LVRS)
  - Areas of severe emphysema are surgically removed.
  - Improves exercise capacity and survival in a **highly selective** group of patients with COPD.
  - Individual outcomes are highly variable, and LVRS may increase mortality in some patients.
- Bronchoscopic lung volume reduction (BLVR)
  - Improves lung function and exercise capacity in **highly selective** group of patients with COPD.
  - High complication rates.
- Lung transplantation
  - Should be considered in those who have advanced, progressive disease despite maximal medical therapy and are not candidates for LVRS.
  - Evaluation at lung transplant center is necessary to determine if someone is a good candidate for transplant.

# Helpful Resources

- Medication list
  - [http://www.safemedication.com/safemed/MyMedicineList/MyMedicineList\\_1.aspx](http://www.safemedication.com/safemed/MyMedicineList/MyMedicineList_1.aspx)
- COPD action plan and Inhaler technique
  - Respiratory Health Association <https://resphealth.org/news/library/>
  - COPD Foundation <https://www.copdfoundation.org/Learn-More/Educational-Materials-Resources/Downloads.aspx#MyCOPDActionPlan>
  - <http://use-inhalers.com/>
  - American Lung Association <https://www.lung.org/help-support/education-programs>
- Quit smoking
  - <https://smokefree.gov/>
  - Courage to Quit <https://resphealth.org/healthy-lungs/quit-smoking/i-want-to-quit-smoking/rha-courage-to-quit/>
  - University of Illinois Tobacco Treatment Center 312-413-4244

\*\*Global Initiative for Chronic Obstructive Lung Disease <https://goldcopd.org/>

# Key Take Away Points

- Get your flu vaccine every year!
- Use medications to help with cravings for cigarettes if you still smoke.
- Inhaled medications are recommended for all patients with COPD. Treatment should be personalized and modified as needed.
- Oral medications, oxygen, bronchoscopic, and surgical treatments should be considered in select patients.
- Let your doctor and pharmacist know if your goals are not being met with your current COPD medications. There may be other options!



# How can we help?

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