



# Asthma and COPD Treatment and Management

Dr. Sonal Shah (PharmD)  
Director Clinical Pharmacy  
UnitedHealthcare Community Plan of Texas

11/15/2023

United  
Healthcare®

# Prescription for Gratitude



## **Disclosure :**

**I have no actual or potential conflict of interest in relation to any product or service mentioned in this program or presentation.**



# Objectives

1. Understand what Asthma and COPD is
2. Discuss the pathophysiology of asthma and COPD
3. Clinical Presentation and diagnosis
4. Treatment guidelines and management of asthma and COPD
5. SDoH regarding asthma and COPD



• WORLD COPD DAY •

BREATHING IS LIFE  
ACT EARLIER

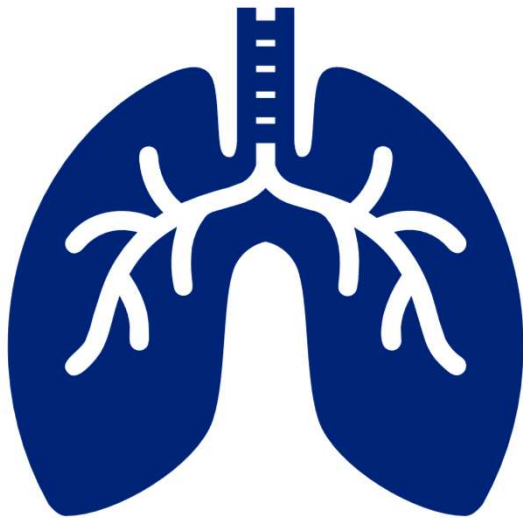


NOVEMBER 15, 2023

[www.goldcopd.org](http://www.goldcopd.org)



# Asthma and COPD as top diagnosis for Hospitalizations/Readmissions



- Asthma and COPD are one of the leading causes of hospital admissions in the United States.
- Tx UHC Medicaid, it is one of the top leading causes for PPV (potential preventable visits), PPA/PPR (potential preventable admission/readmissions)
- It is important topic to focus on to discuss strategies and best practices

## What is the difference in Asthma and COPD and treatment?

- a) Both affects adults and children
- b) Asthma affects adults and children
- c) COPD affects adults
- d) Both b and c



# Asthma/COPD

## Asthma

A condition in which a person's airways become inflamed, narrow and swell, which makes breathing difficult

Symptoms may include:

- Wheezing
- Shortness of breath
- Chest tightening
- Coughing

## COPD

Chronic obstructive pulmonary disease is a characterized as a group of diseases that cause airflow blockage and breathing related problems

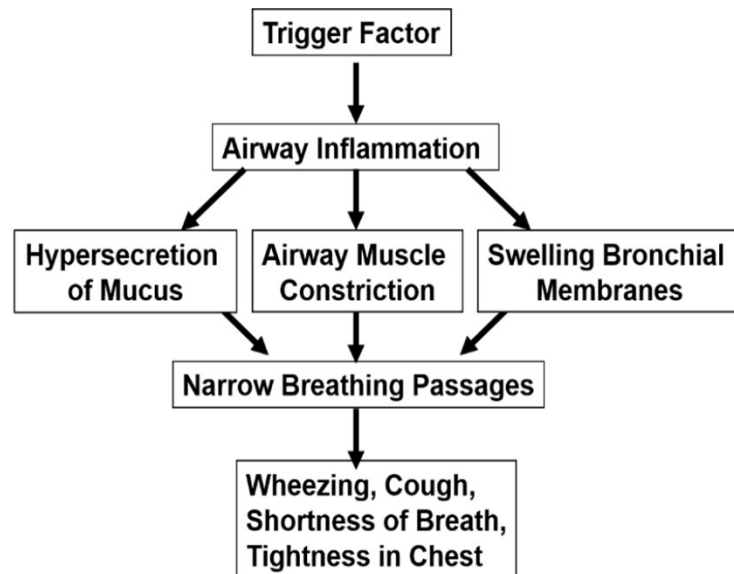
Symptoms may include:

- Wheezing
- Shortness of breath
- Coughing



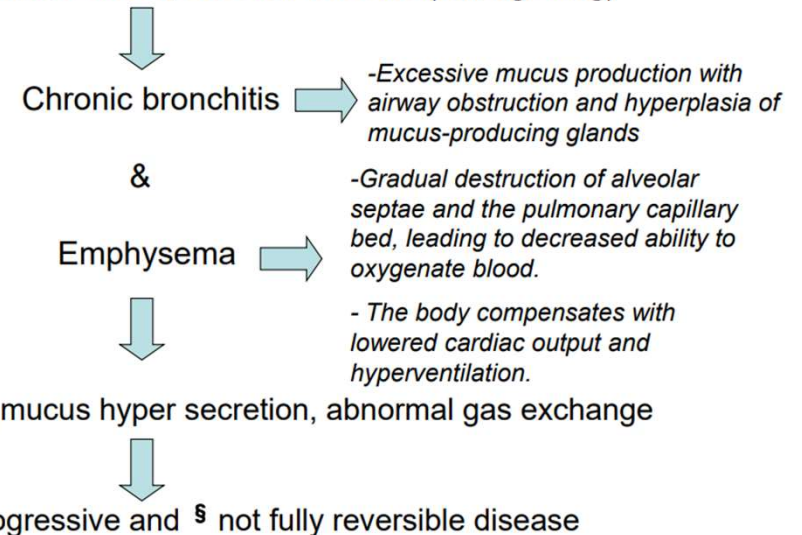
# Pathophysiology of Asthma/COPD

## Asthma



## COPD

§ Inflammation, Oxidative Stress, Excess Proteases (damage lung)



# Diagnosis of Asthma/COPD

## Asthma

### Clinical history

Review symptoms of asthma

### Detailed history/physical exam

### Testing

Spirometry → establishes airflow obstruction and reversibility

## COPD

### Clinical history

Chronic cough

Chronic sputum production (≥ 3 months in 2 consecutive years)

Dyspnea

w/ history of:

Inhalation exposure to tobacco

Occupational dust/chemicals

### Pulmonary function tests

Spirometry → necessary to confirm diagnosis

# Treatment of Asthma

## Rescuers

- Treatment of acute asthma
- Taken on an as needed basis
- Medications include:
  - SABAs
  - Systemic steroids
  - Anticholinergics
  - Low dose ICS

## Controllers

- Control asthma symptoms and prevent exacerbations
- Taken on a daily basis
- Medications include:
  - Inhaled steroids
  - LABAs/LAMAs
  - Leukotriene Modifying Agents

## What are the example of rescue inhalers ?

- A) Albuterol
- B) Ventolin
- C) Proair
- D) Proventil
- E) All of the above



# Asthma Pharmacotherapy

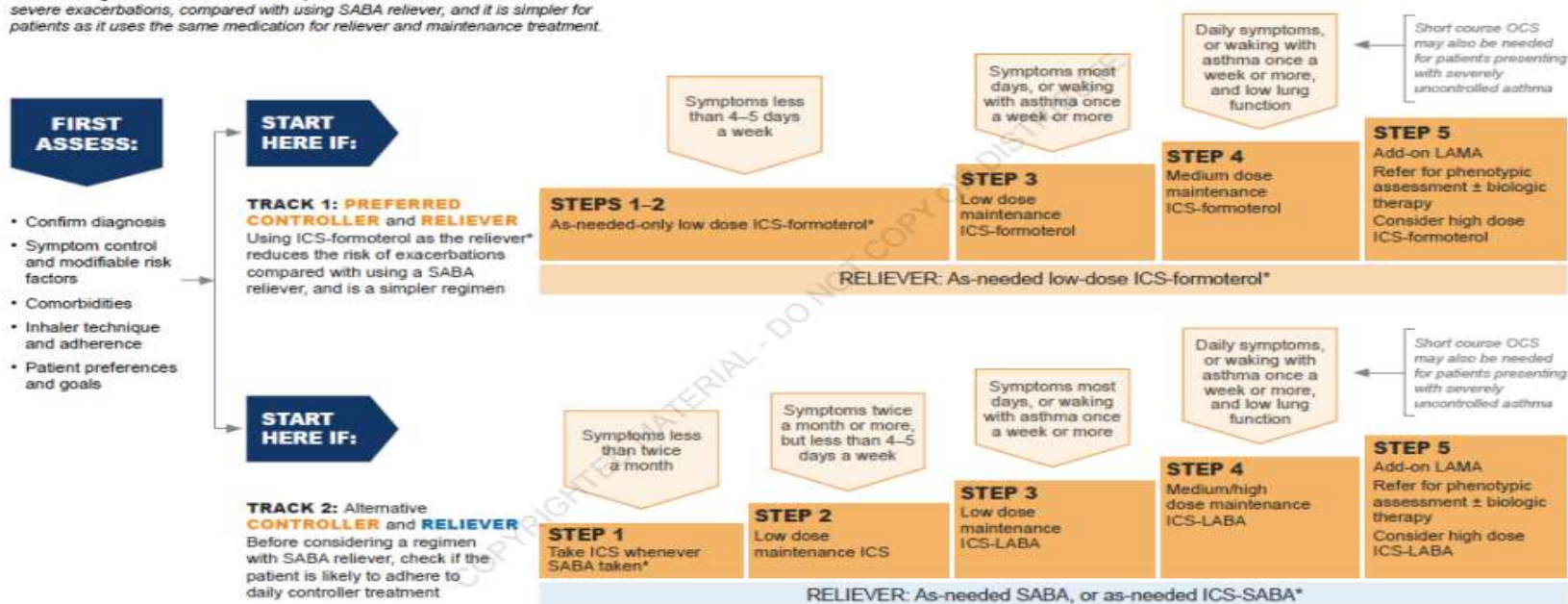
Drug Class	Examples	MOA	Adverse Effects	Monitoring
<b>SABAs</b>	-Albuterol (ProAir, Proventil, Ventolin) -Levalbuterol (Xopenex)	Act on beta 2 receptors to provide direct smooth muscle relaxation	-Increased heart rate -Fine tremor -Appetite suppression -Headache -Nausea -Sleep disturbances	-Reduction in asthma symptoms indicates efficacy
<b>ICSs</b>	-Beclomethasone (QVAR) - Budesonide (Pulmicort Flexhaler) -Fluticasone Propionate/Furoate (Flovent Diskus/Arnuity Ellipta)	-Reduce inflammatory mediators *Exact MOA not completely understood*	-Oral thrush -Hoarse voice -Growth suppression in children -Decreased bone mineral density -Infections (pneumonia)	-Reduced symptoms and improved pulmonary function tests indicate efficacy -Bone marrow density -Signs of infection
<b>ICS-LABAs</b>	-Budesonide/formoterol (Symbicort) -Fluticasone furoate/vilanterol (Breo Ellipta) -Fluticasone propionate/salmeterol (Advair Diskus)	-Addition of LABAs increase efficacy of ICS -LABAs used alone increase risk of asthma related death	*Same adverse effect profile of ICSs*	*Same as ICSs*
<b>LAMAs</b>	-Tiotropium bromide (Spiriva Respimat) -Fluticasone furoate/umeclidinium/vilanterol (Trelegy Ellipta)	Inhibition of the M3 receptor on airway smooth muscle → smooth muscle relaxation	Usually well tolerated -Urinary retention -Paradoxical bronchoconstriction -Dry mouth	-Reduced symptoms and improved pulmonary function tests indicate efficacy -Anticholinergic side effects
<b>Leukotriene-Modifying Agents</b>	-Montelukast (Singulair) -Zafirlukast (Accolate) -Zileuton (Zyflo CR)	-Blocking the binding of leukotrienes to CysLT1 receptors, which reduces bronchial smooth muscle contraction -Inhibition of lipoxygenase, the enzyme that converts arachidonic acid into leukotrienes (Zileuton)	-Severe behavioral changes -Eosinophilia and vasculitis (rare, but severe) -FDA box warning: serious risk of developing neuropsychiatric effect	-Improvement in asthma symptoms, pulmonary function tests and/or reduction in inhaled corticosteroid/beta-agonist use -Blood chemistry and liver function test monitoring -Neuropsychiatric symptoms during therapy

# Treatment of Asthma Gold guidelines

Box 3-7. Selecting initial treatment in adults and adolescents with a diagnosis of asthma

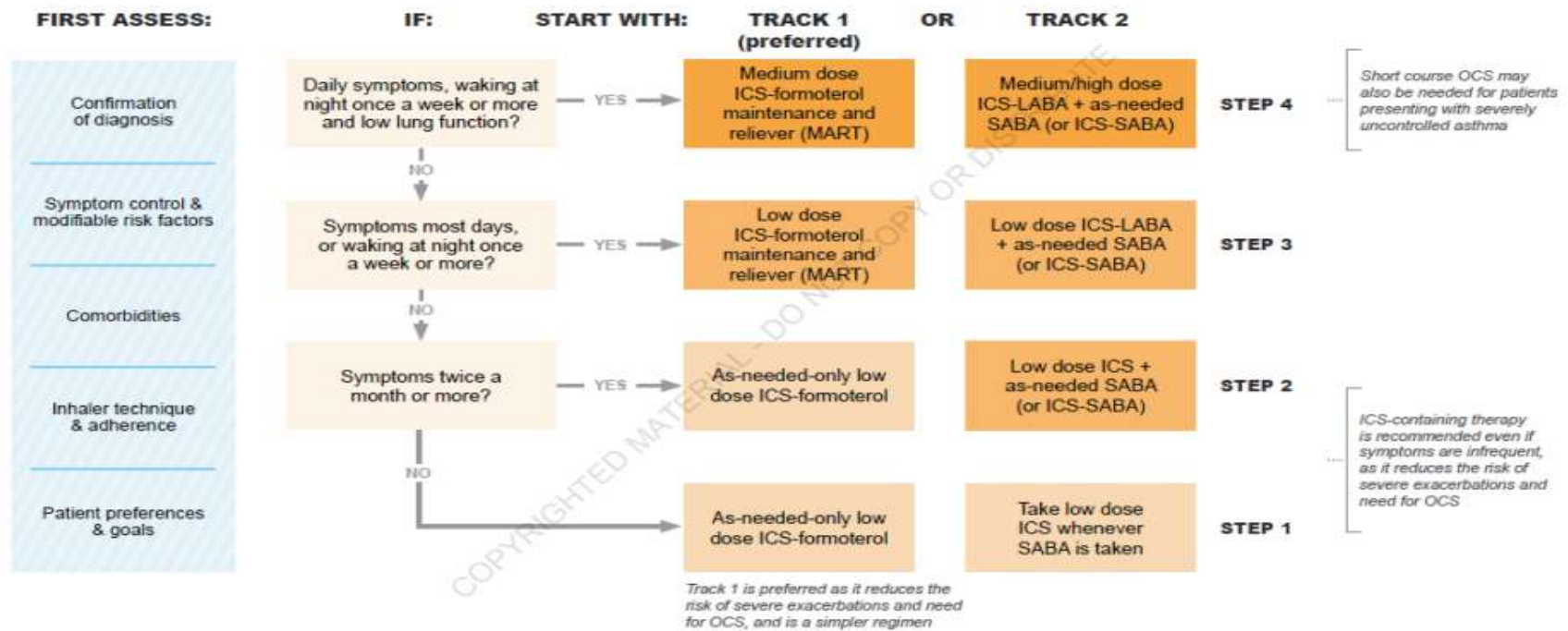
## GINA 2023 – STARTING TREATMENT in adults and adolescents with a diagnosis of asthma

Track 1 using ICS-formoterol reliever is preferred because it reduces the risk of severe exacerbations, compared with using SABA reliever, and it is simpler for patients as it uses the same medication for reliever and maintenance treatment.



Box 3-8. Flowchart for selecting initial treatment in adults and adolescents with a diagnosis of asthma

**GINA 2023 – STARTING TREATMENT**  
 in adults and adolescents 12+ years with a diagnosis of asthma



See list of abbreviations (p.21). See Box 3-14, p.67 for low, medium and high ICS doses for adults and adolescents. See Box 3-15, p.80, for Track 1 medications and doses.

# Are the same medicines uses for Asthma and COPD?

- A) Yes
- B) No





# Asthma management in Children 5 years and younger

Box 6-6. Personalized management of asthma in children 5 years and younger

## GINA 2023 – Children 5 years and younger

**Personalized asthma management:**  
Assess, Adjust, Review response

Symptoms  
Exacerbations  
Side-effects  
Risk factors  
Comorbidities  
Caregiver satisfaction



Exclude alternative diagnoses  
Symptom control & modifiable risk factors  
Comorbidities  
Inhaler technique & adherence  
Caregiver preferences and goals

Treat modifiable risk factors and comorbidities  
Non-pharmacological strategies  
Asthma medications  
Education & skills training

**Asthma medication options:**  
Adjust treatment up and down for individual child's needs

### PREFERRED CONTROLLER CHOICE

Other controller options (limited indications, or less evidence for efficacy or safety)

### RELIEVER

CONSIDER THIS STEP FOR CHILDREN WITH:

**STEP 1**  
(Insufficient evidence for daily controller)

Consider intermittent short course ICS at onset of viral illness

Infrequent viral wheezing and no or few interval symptoms

**STEP 2**  
Daily low dose inhaled corticosteroid (ICS) (see table of ICS dose ranges for pre-school children)

Daily leukotriene receptor antagonist (LTRA), or intermittent short course of ICS at onset of respiratory illness

Symptom pattern not consistent with asthma but wheezing episodes requiring SABA occur frequently, e.g.  $\geq 3$  per year. Give diagnostic trial for 3 months. Consider specialist referral.  
Symptom pattern consistent with asthma, and asthma symptoms not well-controlled or  $\geq 3$  exacerbations per year.

**STEP 3**  
Double 'low dose' ICS (See Box 6-7)

Low dose ICS + LTRA  
Consider specialist referral

Asthma diagnosis, and asthma not well-controlled on low dose ICS  
Before stepping up, check for alternative diagnosis, check inhaler skills, review adherence and exposures

**STEP 4**  
Continue controller & refer for specialist assessment

Add LTRA, or increase ICS frequency, or add intermittent ICS

As-needed short-acting beta<sub>2</sub>-agonist

See list of abbreviations (p.21). For ICS doses in children, see Box 6-7, p.184



# Treatment of COPD

## Relievers

- Bronchodilators to alleviate smooth muscle bronchoconstriction
  - B2 Adrenergic agonists
    - SABAs
    - LABAs
  - Anticholinergics

## Controllers (Preventers)

- Anti-inflammatory medications to decrease airway inflammation
  - Corticosteroids
  - Combination agents

# COPD Pharmacotherapy

## Bronchodilators

### $\beta_2$ adrenergic agonists

Short-acting (SABA): albuterol, levalbuterol, pirbuterol

Long-acting (LABA): salmeterol, formoterol, arformoterol  
indacaterol, vilanterol

### Anticholinergic agents

Short-acting: ipratropium

Long-acting: tiotropium  
aclidinium  
umeclidinium  
glycopyrrolate

## Glucocorticoids

Prednisone, prednisolone, methylprednisolone

Inhaled Corticosteroids (ICS):

mometasone,  
fluticasone, budesonide,  
beclomethasone

## Combination

Combivent (albuterol/ipratropium)

Advair (fluticasone/salmeterol)

Symbicort (budesonide/formoterol)

Trelegy (fluticasone/umeclidinium/vilanterol)

Breztri (budesonide/glycopyrrolate/formoterol fumarate)



## Commonly Used Maintenance Medications in COPD\*

Table 3.3

Generic Drug Name	Inhaler Type	Nebulizer	DELIVERY OPTIONS		Duration of Action
			Oral	Injection	
<b>BETA<sub>2</sub>-Agonists</b>					
<b>Short-acting (SABA)</b>					
Fenoterol	MDI	✓	pill, syrup		4-6 hours
Levalbuterol	MDI	✓			6-8 hours
Salbutamol (albuterol)	MDI & DPI	✓	pill, syrup, extended release tablet	✓	4-6 hours 12 hours (ext. release)
Terbutaline	DPI		pill	✓	4-6 hours
<b>Long-acting (LABA)</b>					
Arformoterol		✓			12 hours
Formoterol	DPI	✓			12 hours
Indacaterol	DPI				24 hours
Olodaterol	SMI				24 hours
Salmeterol	MDI & DPI				12 hours
<b>Anticholinergics</b>					
<b>Short-acting (SAMA)</b>					
Ipratropium bromide	MDI	✓			6-8 hours
Oxipropium bromide	MDI				7-9 hours
<b>Long-acting (LAMA)</b>					
Aclidinium bromide	DPI,				MDI 12 hours
Glycopyrronium bromide	DPI		solution	✓	12-24 hours
Tiotropium	DPI, SMI, MDI				24 hours
Umeclidinium	DPI				24 hours
Glycopyrrolate		✓			12 hours
Revefenacin		✓			24 hours
<b>Combination Short-Acting Beta<sub>2</sub>-Agonist Plus Anticholinergic in One Device (SABA+SAMA)</b>					
Fenoterol/ipratropium	SMI	✓			6-8 hours
Salbutamol/ipratropium	SMI, MDI	✓			6-8 hours
<b>Combination Long-Acting Beta<sub>2</sub>-Agonist Plus Anticholinergic in One Device (LABA+LAMA)</b>					
Formoterol/aclidinium	DPI				12 hours
Formoterol/glycopyrronium	MDI				12 hours
Indacaterol/glycopyrronium	DPI				12-24 hours
Vilanterol/umeclidinium	DPI				24 hours
Olodaterol/tiotropium	SMI				24 hours
<b>Methylxanthines</b>					
Aminophylline			solution	✓	Variable, up to 24 hours
Theophylline (SR)			pill	✓	Variable, up to 24 hours
<b>Combination of Long-Acting Beta<sub>2</sub>-Agonist Plus Corticosteroid in One Device (LABA+ICS)</b>					
Formoterol/beclometasone	MDI, DPI				12 hours
Formoterol/budesonide	MDI, DPI				12 hours
Formoterol/mometasone	MDI				12 hours
Salmeterol/fluticasone propionate	MDI, DPI				12 hours
Vilanterol/fluticasone furoate	DPI				24 hours
<b>Triple Combination in One Device (LABA+LAMA+ICS)</b>					
Fluticasone/umeclidinium/vilanterol	DPI				24 hours
Beclometasone/formoterol/glycopyrronium	MDI, DPI				12 hours
Budesonide/formoterol/glycopyrrolate	MDI				12 hours
<b>Phosphodiesterase-4 Inhibitors</b>					
Roflumilast			pill		24 hours
<b>Mucolytic Agents</b>					
Erdosteine			pill		12 hours
Carbocysteine†			pill		
N-acetylcysteine†			pill		

\*Not all formulations are available in all countries. In some countries other formulations and dosages may be available. †Dosing regimens are under discussion. MDI = metered dose inhaler; DPI = dry powder inhaler; SMI = soft mist inhaler. Note that glycopyrrolate & glycopyrronium are the same compound.

## Bronchodilators in Stable COPD

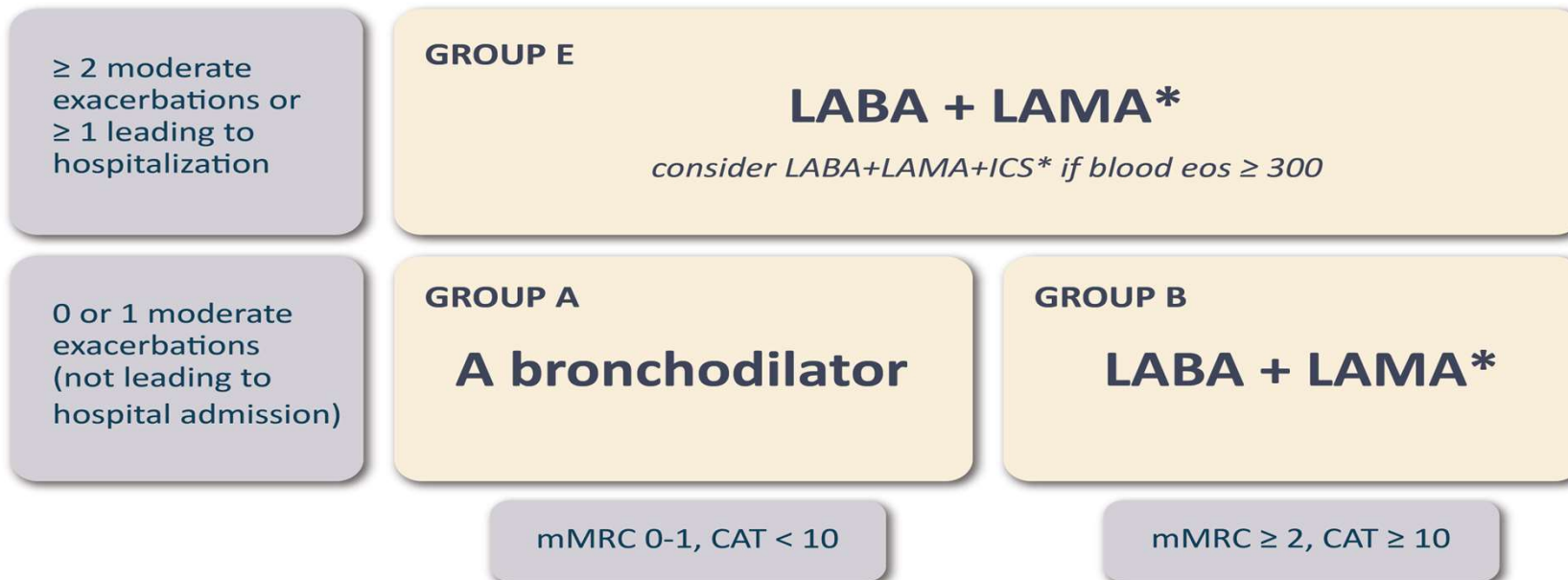
Table 3.4

- Inhaled bronchodilators in COPD are central to symptom management and commonly given on a regular basis to prevent or reduce symptoms (**Evidence A**)
- Regular and as-needed use of SABA or SAMA improves FEV1 and symptoms (**Evidence A**)
- Combinations of SABA and SAMA are superior compared to either medication alone in improving FEV1 and symptoms (**Evidence A**)
- LABAs and LAMAs significantly improve lung function, dyspnea, health status, and reduce exacerbation rates (**Evidence A**)
- LAMAs have a greater effect on exacerbation reduction compared with LABAs (**Evidence A**) and decrease hospitalizations (**Evidence B**)
- Combination treatment with a LABA and a LAMA increases FEV1 and reduces symptoms compared to monotherapy (**Evidence A**)
- Combination treatment with a LABA+LAMA reduces exacerbations compared to monotherapy (**Evidence B**)
- Tiotropium improves the effectiveness of pulmonary rehabilitation in increasing exercise performance (**Evidence B**)
- Theophylline exerts a small bronchodilator effect in stable COPD (**Evidence A**) and that is associated with modest symptomatic benefits (**Evidence B**)
- Single inhaler therapy may be more convenient and effective than multiple inhalers



# Initial Pharmacological Treatment

Figure 4.2



\*single inhaler therapy may be more convenient and effective than multiple inhalers  
Exacerbations refers to the number of exacerbations per year



## Factors to Consider when Initiating ICS Treatment

Figure 3.1

### Factors to consider when adding ICS to long-acting bronchodilators:

(note the scenario is different when considering ICS withdrawal)

#### STRONGLY FAVORS USE

History of hospitalization(s) for exacerbations of COPD<sup>#</sup>  
 ≥ 2 moderate exacerbations of COPD per year<sup>#</sup>  
 Blood eosinophils ≥ 300 cells/ $\mu$ L  
 History of, or concomitant asthma

#### FAVORS USE

1 moderate exacerbation of COPD per year<sup>#</sup>  
 Blood eosinophils 100 to < 300 cells/ $\mu$ L

#### AGAINST USE

Repeated pneumonia events  
 Blood eosinophils < 100 cells/ $\mu$ L  
 History of mycobacterial infection

<sup>#</sup>despite appropriate long-acting bronchodilator maintenance therapy (see Table 3.4 and Figure 4.3 for recommendations);

\*note that blood eosinophils should be seen as a continuum; quoted values represent approximate cut-points; eosinophil counts are likely to fluctuate.

Adapted from & reproduced with permission of the © ERS 2019: *European Respiratory Journal* 52 (6) 1801219; DOI: 10.1183/13993003.01219-2018 Published 13 December 2018



## Evidence Supporting a Reduction in Mortality with Pharmacotherapy and Non-pharmacotherapy in COPD Patients

Table 3.6

Therapy	RCT*	Treatment effect on mortality	Patient characteristics
<b>Pharmacotherapy</b>			
LABA+LAMA+ICS <sup>1</sup>	Yes	Single inhaler triple therapy compared to dual LABD therapy relative risk reduction: IMPACT: HR 0.72 (95% CI: 0.53, 0.99) <sup>1a</sup> ETHOS: HR 0.51 (95% CI: 0.33, 0.80) <sup>1b</sup>	Symptomatic people with a history of frequent and/or severe exacerbations
<b>Non-pharmacological Therapy</b>			
Smoking cessation <sup>2</sup>	Yes	HR for usual care group compared to intervention group (smoking cessation) HR 1.18 (95% CI: 1.02, 1.37) <sup>2</sup>	Asymptomatic or mildly symptomatic
Pulmonary rehabilitation <sup>3#</sup>	Yes	Old trials: RR 0.28 (95% CI 0.10, 0.84) <sup>3a</sup> New trials: RR 0.68 (95% CI 0.28, 1.67) <sup>3b</sup>	Hospitalized for exacerbations of COPD (during or ≤ 4 weeks after discharge)
Long-term oxygen therapy <sup>4</sup>	Yes	NOTT: ≥ 19 hours of continuous oxygen vs ≤ 13 hours: 50% reduction <sup>4a</sup> MRC: ≥ 15 hours vs no oxygen: 50% reduction <sup>4b</sup>	PaO <sub>2</sub> ≤ 55 mmHg or < 60 mmHg with <i>cor pulmonale</i> or secondary polycythemia
Noninvasive positive pressure ventilation <sup>5</sup>	Yes	12% in NPPV (high IPAP level) and 33% in control HR 0.24 (95% CI 0.11, 0.49) <sup>5</sup>	Stable COPD with marked hypercapnia
Lung volume reduction surgery <sup>6</sup>	Yes	0.07 deaths/person-year (LVRS) vs 0.15 deaths/person-year (UC) RR for death 0.47 (p = 0.005) <sup>6</sup>	Upper lobe emphysema and low exercise capacity

\*RCT with pre-specified analysis of the mortality outcome (primary or secondary outcome); #Inconclusive results likely due to differences in pulmonary rehabilitation across a wide range of participants and settings.

1. a) IMPACT trial (Lipson et al. 2020) and b) ETHOS trials (Martinez et al. 2021); 2. Lung Health Study (Anthonisen et al. 2005); 3. a) Puhan et al. (2011) and b) Puhan et al. 2016; 4. a) NOTT (NOTT, 1980) and b) MRC (MRC, 1981); 5. Kohlein trial (Kohlein et al. 2014); 6. NETT trial (Fishman et al. 2003)

ICS: inhaled corticosteroid; IPAP: inspiratory positive airway pressure; LABA: long-acting beta<sub>2</sub>-agonist; LABD: long-acting bronchodilator; LAMA: long-acting anti-muscarinic; LTOT: long-term oxygen therapy; NPPV: noninvasive positive pressure ventilation; LVRS: lung volume reduction surgery; UC: usual treatment control group.





## Other Pharmacological Treatments

Table 3.7

### Alpha-1 Antitrypsin Augmentation Therapy

- Intravenous augmentation therapy may slow down the progression of emphysema (**Evidence B**)

### Antitussives

- There is no conclusive evidence of a beneficial role of antitussives in people with COPD (**Evidence C**)

### Vasodilators

- Vasodilators do not improve outcomes and may worsen oxygenation (**Evidence B**)



## Oxygen Therapy and Ventilatory Support in Stable COPD

Table 3.10

### Oxygen Therapy

- The long-term administration of oxygen increases survival in patients with severe chronic resting arterial hypoxemia (**Evidence A**)
- In patients with stable COPD and moderate resting or exercise-induced arterial desaturation, prescription of long-term oxygen does not lengthen time to death or first hospitalization or provide sustained benefit in health status, lung function and 6-minute walk distance (**Evidence A**)
- Resting oxygenation at sea level does not exclude the development of severe hypoxemia when traveling by air (**Evidence C**)

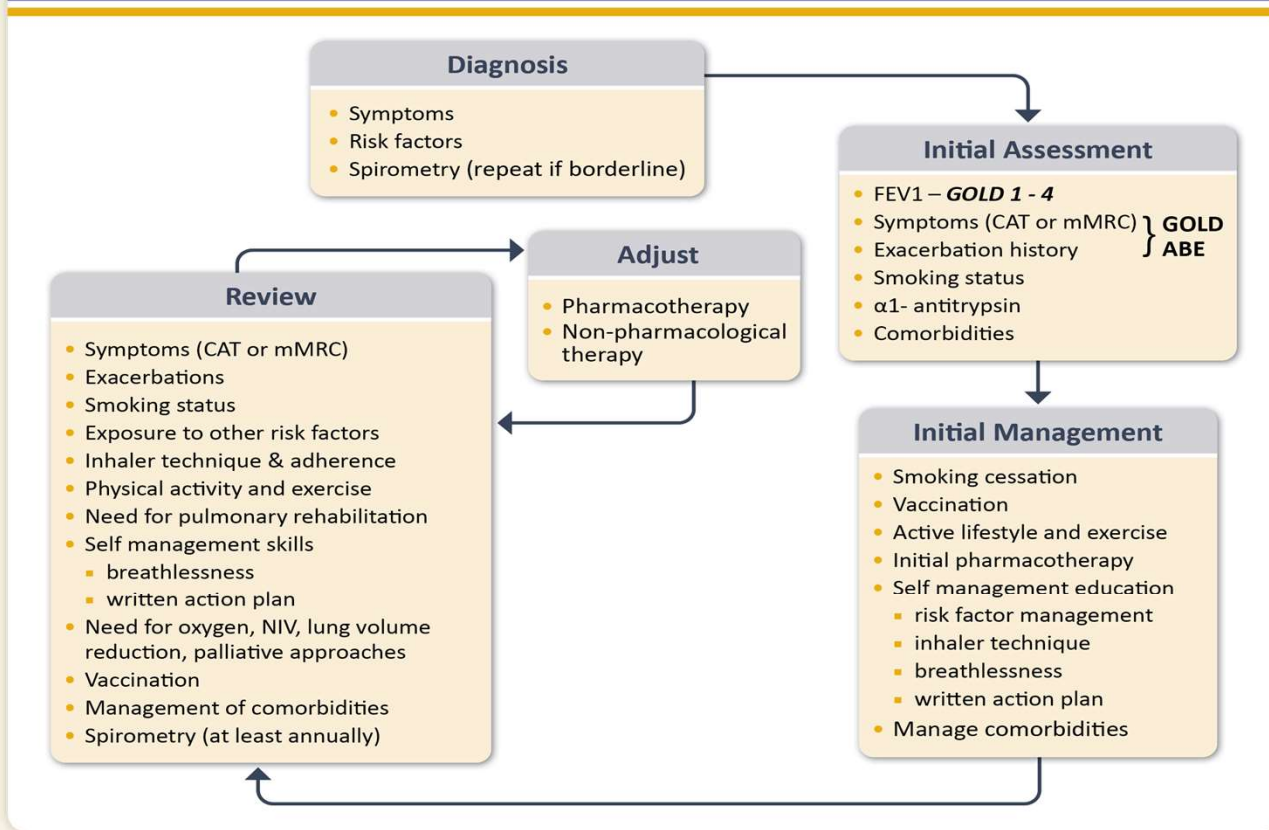
### Ventilatory Support

- NPPV may improve hospitalization-free survival in selected patients after recent hospitalization, particularly in those with pronounced daytime persistent hypercapnia ( $\text{PaCO}_2 > 53 \text{ mmHg}$ ) (**Evidence B**)



# Management of COPD

Figure 4.1



# Texas Medicaid PDL (Preferred drug list)

[Preferred Drugs | Vendor Drug Program](#)  
[txvendordrug.com](http://txvendordrug.com)

## GLUCOCORTICIDS, INHALED

**PA Criteria** (client must meet at least one of the listed PA criteria):

- Treatment failure with preferred drugs within any subclass
- Contraindication to preferred drugs
- Allergic reaction to preferred drugs
- Treatment of stage-four advanced, metastatic cancer and associated conditions

The following Clinical Prior Authorization applies **to all drugs** in the class:

- [Duplicate Therapy](#)

Hyperlinks specify Drug Utilization Review board-approved drug clinical prior authorization criteria.

PREFERRED AGENTS	NON-PREFERRED AGENTS
<b>GLUCOCORTICIDS</b>	
ASMANEX (mometasone)	ALVESCO (ciclesonide)
budesonide respules	ARMONAIR DIGIHALER ((fluticasone)
<b>FLOVENT DISKUS (fluticasone)</b>	ARNUITY ELLIPTA (fluticasone)
FLOVENT HFA (fluticasone)	ASMANEX HFA (mometasone)
PULMICORT FLEXHALER (budesonide)	fluticasone HFA
	PULMICORT respules (budesonide)
	QVAR (beclomethasone)
<b>GLUCOCORTICOID/BRONCHODILATOR COMBINATIONS</b>	
ADVAIR (fluticasone/salmeterol)	AIRDUO DIGIHALER (fluticasone/salmeterol)
DULERA (mometasone/formoterol)	AIRDUO RESPICLICK (fluticasone/salmeterol)
SYMBICORT (budesonide/formoterol)	BREO ELLIPTA (fluticasone/vilanterol)
	BREZTRI AEROSPHERE (budesonide/glycopyrrolate/formoterol)
	budesonide-formoterol
	fluticasone/salmeterol (Air Duo)
	fluticasone/vilanterol
	TRELEGY ELLIPTA (fluticasone/umeclidinium/vilanterol)
	WIXELA (fluticasone/salmeterol)

To verify formulary coverage for any drugs listed on PDL, search the Medicaid Formulary: [txvendordrug.com/formulary/formulary-search](http://txvendordrug.com/formulary/formulary-search). Unless otherwise specified, the listing of a particular brand or generic name includes all dosage forms of that drug.



## BRONCHODILATORS, BETA AGONIST

**PA Criteria** (client must meet at least one of the listed PA criteria):

- Treatment failure with preferred drugs within any subclass
- Contraindication to preferred drugs
- Allergic reaction to preferred drugs
- Treatment of stage-four advanced, metastatic cancer and associated conditions
- For drugs in a therapeutic class or subclass with no preferred option, the provider must obtain a PDL prior authorization

The following Clinical Prior Authorization applies **to all drugs** in the class:

- [Duplicate Therapy](#)

Hyperlinks specify Drug Utilization Review board-approved drug clinical prior authorization criteria.

PREFERRED AGENTS	NON-PREFERRED AGENTS
<b>INHALERS, SHORT-ACTING</b>	
PROAIR HFA (albuterol)	albuterol HFA
PROVENTIL HFA (albuterol)	levalbuterol
<a href="#">VENTOLIN</a> HFA (albuterol)	PROAIR DIGIHALER (albuterol)
<a href="#">XOPENEX</a> HFA (levalbuterol)	PROAIR RESPICLICK (albuterol)
<b>INHALERS, LONG-ACTING</b>	
<a href="#">SEREVENT</a> (salmeterol)	STRIVERDI RESPIMAT (olodaterol)
<b>INHALATION SOLUTION</b>	
albuterol	arformoterol
<a href="#">XOPENEX</a> (levalbuterol)	BROVANA (arformoterol)
	formoterol
	levalbuterol
	PERFORMOMIST (formoterol)
<b>ORAL</b>	
albuterol syrup	albuterol tablet
	albuterol ER
	terbutaline

## COPD AGENTS

**PA Criteria** (client must meet at least one of the listed PA criteria):

- Treatment failure with preferred drugs within any subclass
- Contraindication to preferred drugs
- Allergic reaction to preferred drugs
- Treatment of stage-four advanced, metastatic cancer and associated conditions
- For drugs in a therapeutic class or subclass with no preferred option, the provider must obtain a PDL prior authorization

The following Clinical Prior Authorization applies **to all drugs** in the class:

- [Duplicate Therapy](#)

Hyperlinks specify Drug Utilization Review board-approved drug clinical prior authorization criteria.

PREFERRED AGENTS	NON-PREFERRED AGENTS
<b>ANTICHOLINERGICS</b>	
ATROVENT HFA ( <a href="#">ipratropium</a> )	INCRUSE ELLIPTA (umeclidinium)
<a href="#">ipratropium</a> inhalation solution	LONHALA MAGNAIR (glycopyrrolate)
SPIRIVA HANDIHALER (tiotropium)	TUDORZA (aclidinium)
<a href="#">SPIRIVA RESPIMAT (tiotropium)</a>	
<b>ANTICHOLINERGIC-BETA AGONIST COMBINATIONS</b>	
albuterol/ <a href="#">ipratropium</a>	BEVESPI AEROSPHERE (glycopyrrolate/formoterol)
ANORO ELLIPITA (umeclidinium/vilanterol)	DUAKLIR PRESSAIR (aclidinium/formoterol)
COMBIVENT RESPIMAT (albuterol/ <a href="#">ipratropium</a> )	YUPELRI (revefenacin)
STIOLTO RESPIMAT (tiotropium/olodaterol)	
<b>PHOSPHODIESTERASE INHIBITORS</b>	
<a href="#">roflumilast</a>	DALIRESP (roflumilast)

# Ms. Smith's Member journey

Ms Smith :

20-year-old black female, diabetes, Asthma, and other chronic conditions  
and has been admitted to the hospital 3 times in 6 months for Asthmas exacerbation  
Asthma Therapy:

## VENTOLIN HFA AER (EMERGENCY)

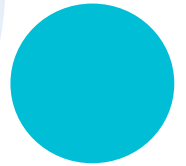
10/05/2023 (P) PRESCRIBER: 1467983379  
09/20/2023 (P) PRESCRIBER: 1467983379  
07/11/2023 (P) PRESCRIBER: 1467983379  
05/30/23 (P) PRESCRIBER: 1467983379  
04/24/23 (P) PRESCRIBER: 1750373379  
02/09/23 (P) PRESCRIBER: 1467983379  
10/03/22 (P) PRESCRIBER: 1467983379  
09/14/22 (P) PRESCRIBER: 1558025171

## FLOVENT HFA AER 110MC (MAINTENANCE)

06/05/23 (X) PRESCRIBER: 1356921530  
04/12/23 (X) PRESCRIBER: 1356921530  
02/08/23 (P) PRESCRIBER: 1356921530  
12/05/22 (P) PRESCRIBER: 1467983379  
11/01/22 (P) PRESCRIBER: 1467983379  
10/03/22 (P) PRESCRIBER: 1467983379

## Opportunities:

- has emergency inhaler on file, filled frequently
- there is a maintenance steroid (Flovent) on file but non adherent



# ICUE and Community Care pharmacy data

## ICUE :

- Log in
- History
- Pharmacy claims
- Populated by current date
- Ability to sort it by alphabetical order for medication history details
- Clinical interventions using the data

## Community Care :

- Pharmacy data
- Education for Current list, member reported medications
- Education to bring the current list and discuss barriers/concerns with the provider





# ICUE and Community care pharmacy information

Summary | Member Details | Providers | Medications | Conditions | Diagnosis | Allergies/Sensitivities | Gaps In Care (GIC) | Plan of Care | Assessments | **History** | More

HSC History | Program History | Correspondence | Engagement History | **Pharmacy Claims** | Other Claims

Member: [REDACTED]

## Pharmacy Claims History

Medication	Date of Service	Days Supply	Dispensed Qty	Route	Mail Order Indicator	Prescriber Name	Prescriber Specialty	Pharmacy Name	Source
Spironolact Tab 25mg	08-07-2023	90	90.000	ORAL	R	HALVORSEN, ANNE		Walgreens #4647	Optum Rx
Brimonidine Sol 0.2% Op	08-04-2023	25	5.000	OPHTHALMIC	R	SHEN, KEVIN		Walgreens #4647	Optum Rx
Metolazone Tab 5mg	08-03-2023	21	6.000	ORAL	R	HALVORSEN, ANNE		Walgreens #4647	Optum Rx
Cetirizine Tab 10mg	08-03-2023	30	30.000	ORAL	R	PAISAL, MUHAMMAD	PULMONARY DISEASE	Walgreens #4647	Optum Rx
Furosemide Tab 40mg	08-01-2023	30	30.000	ORAL	R	HALVORSEN, ANNE		Walgreens #4647	Optum Rx
Losartan Pot Tab 25mg	07-28-2023	90	180.000	ORAL	R	HALVORSEN, ANNE		Walgreens #4647	Optum Rx
Vitamin D Cap 1.25mg	07-27-2023	90	12.000	ORAL	R	GOEL, NAMRATA	NEPHROLOGY	Walgreens #4647	Optum Rx
Faxiga Tab 5mg	07-22-2023	30	30.000	ORAL	R	GOEL, NAMRATA	NEPHROLOGY	Walgreens #4647	Optum Rx
Brimonidine Sol 0.2% Op	07-13-2023	25	5.000	OPHTHALMIC	R	SHEN, KEVIN		Walgreens #4647	Optum Rx
Latanoprost Sol 0.005%	07-13-2023	75	7.500	OPHTHALMIC	R	SHEN, KEVIN		Walgreens #4647	Optum Rx
Furosemide Tab 40mg	06-30-2023	30	30.000	ORAL	R	HALVORSEN, ANNE		Walgreens #4647	Optum Rx
Pantoprazole Tab 40mg	06-27-2023	90	90.000	ORAL	R	HALVORSEN, ANNE		Walgreens #4647	Optum Rx
Cetirizine Tab 10mg	06-26-2023	30	30.000	ORAL	R	PAISAL, MUHAMMAD	PULMONARY DISEASE	Walgreens #4647	Optum Rx
Faxiga Tab 5mg	06-26-2023	30	30.000	ORAL	R	GOEL, NAMRATA	NEPHROLOGY	Walgreens #4647	Optum Rx
Furosemide Tab 40mg	05-31-2023	30	30.000	ORAL	R	HALVORSEN, ANNE		Walgreens #4647	Optum Rx
FUROSEMIDE 40 MG TABLET	05-30-2023	30	30.0						ImpactPro
FUROSEMIDE 40 MG TABLET	05-30-2023	30	30.0						ImpactPro
Carvedilol Tab 6.25mg	05-30-2023	90	180.000	ORAL	R	HALVORSEN, ANNE		Walgreens #4647	Optum Rx
Faxiga Tab 5mg	05-23-2023	30	30.000	ORAL	R	GOEL, NAMRATA	NEPHROLOGY	Walgreens #4647	Optum Rx
Metolazone Tab 5mg	05-15-2023	84	24.000	ORAL	R	HALVORSEN, ANNE		Walgreens #4647	Optum Rx
Budes/formot Aer 160-4.5	05-15-2023	90	30.600	INHALATION	R	PAISAL, MUHAMMAD	PULMONARY DISEASE	Walgreens #4647	Optum Rx
Cetirizine Tab 10mg	05-09-2023	30	30.000	ORAL	R	PAISAL, MUHAMMAD	PULMONARY DISEASE	Walgreens #4647	Optum Rx
Spironolact Tab 25mg	05-01-2023	90	90.000	ORAL	R	KALIFE, GERARDO	Cardiovascular Diseases	Walgreens #4647	Optum Rx
Brimonidine Sol 0.2% Op	04-26-2023	15	10.000	OTIC	R	HALVORSEN, ANNE		Walgreens #4647	Optum Rx



## Pharmacy Claims History

Medication ▲	Date of Service ▲	Days Supply ▲	Dispensed Qty ▲	Route ▲	Mail Order Indicator ▲	Prescriber Name ▲	Prescriber Specialty ▲	Pharmacy Name ▲	Source ▲
+ Albuterol Neb 1.25mg/3	04-24-2023	6	75.000	INHALATION	R	HALVORSEN, ANNE		Walgreens #4647	Optum Rx
+ Alprazolam Tab 0.5mg	04-24-2023	30	60.000	ORAL	R	HALVORSEN, ANNE		Walgreens #4647	Optum Rx
+ Alprazolam Tab 0.5mg	02-28-2023	30	60.000	ORAL	R	HALVORSEN, ANNE		Walgreens #4647	Optum Rx
+ Alprazolam Tab 0.5mg	12-13-2022	30	60.000	ORAL	R	HALVORSEN, ANNE		Walgreens #4647	Optum Rx
+ Alprazolam Tab 0.5mg	10-25-2022	30	60.000	ORAL	R	HALVORSEN, ANNE		Walgreens #4647	Optum Rx
+ Azithromycin Tab 250mg	04-24-2023	5	6.000	ORAL	R	HALVORSEN, ANNE		Walgreens #4647	Optum Rx
+ Azithromycin Tab 250mg	02-28-2023	6	6.000	ORAL	R	HALVORSEN, ANNE		Walgreens #4647	Optum Rx
+ Benzonatate Cap 100mg	02-28-2023	8	30.000	ORAL	R	HALVORSEN, ANNE		Walgreens #4647	Optum Rx
+ Benzonatate Cap 100mg	09-08-2022	7	30.000	ORAL	R	HALVORSEN, ANNE		Walgreens #4647	Optum Rx
+ Brimonidine Sol 0.2% Op	08-04-2023	25	5.000	OPHTHALMIC	R	SHEN, KEVIN		Walgreens #4647	Optum Rx
+ Brimonidine Sol 0.2% Op	07-13-2023	25	5.000	OPHTHALMIC	R	SHEN, KEVIN		Walgreens #4647	Optum Rx
+ Budes/formot Aer 160-4.5	05-15-2023	90	30.600	INHALATION	R	FAISAL, MUHAMMAD	PULMONARY DISEASE	Walgreens #4647	Optum Rx
+ Budes/formot Aer 160-4.5	02-18-2023	90	30.600	INHALATION	R	FAISAL, MUHAMMAD	PULMONARY DISEASE	Walgreens #4647	Optum Rx
+ Budes/formot Aer 160-4.5	01-22-2023	30	10.200	INHALATION	R	FAISAL, MUHAMMAD	PULMONARY DISEASE	Walgreens #4647	Optum Rx
+ Budes/formot Aer 160-4.5	12-24-2022	30	10.200	INHALATION	R	FAISAL, MUHAMMAD	PULMONARY DISEASE	Walgreens #4647	Optum Rx
+ Budes/formot Aer 160-4.5	11-20-2022	30	10.200	INHALATION	R	FAISAL, MUHAMMAD	PULMONARY DISEASE	Walgreens #4647	Optum Rx
+ Budes/formot Aer 160-4.5	10-24-2022	30	10.200	INHALATION	R	FAISAL, MUHAMMAD	PULMONARY DISEASE	Walgreens #4647	Optum Rx
+ Budes/formot Aer 160-4.5	09-09-2022	30	10.200	INHALATION	R	FAISAL, MUHAMMAD	PULMONARY DISEASE	Walgreens #4647	Optum Rx
+ CARVEDILOL 6.25 MG TABLET	10-24-2022	90	180.0						ImpactPro
+ Carvedilol Tab 6.25mg	05-30-2023	90	180.000	ORAL	R	HALVORSEN, ANNE		Walgreens #4647	Optum Rx
+ Carvedilol Tab 6.25mg	02-28-2023	90	180.000	ORAL	R	ALLISON, LESLIE	Family Practice	Walgreens #4647	Optum Rx
+ Carvedilol Tab 6.25mg	12-22-2022	90	180.000	ORAL	R	KALIFE, GERARDO	Cardiovascular Diseases	Walgreens #4647	Optum Rx
+ Carvedilol Tab 6.25mg	11-16-2022	30	60.000	ORAL	R	KALIFE, GERARDO	Cardiovascular Diseases	Walgreens #4647	Optum Rx



## Vaccination for Stable COPD

Table 3.2

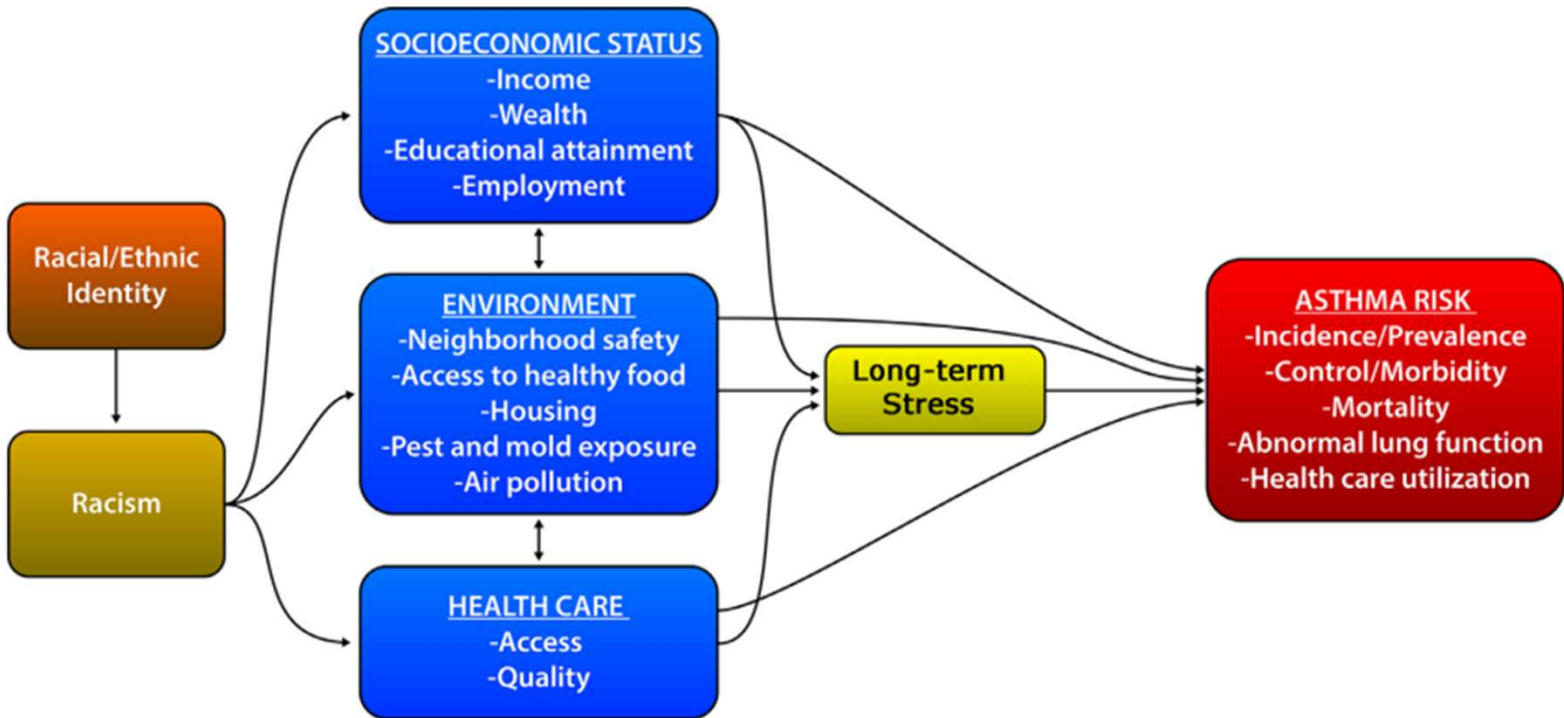
- Influenza vaccination is recommended in people with COPD (**Evidence B**)
- The WHO and CDC recommends SARS-CoV-2 (COVID-19) vaccination for people with COPD (**Evidence B**)
- The CDC recommends one dose of 20-valent pneumococcal conjugate vaccine (PCV20); or one dose of 15-valent pneumococcal conjugate vaccine (PCV15) followed by 23-valent pneumococcal polysaccharide vaccine (PPSV23) in people with COPD (**Evidence B**)
- Pneumococcal vaccination has been shown to reduce the incidence of community-acquired pneumonia and exacerbations in people with COPD (**Evidence B**)
- The CDC recommends Tdap (dTaP/dTPa) vaccination to protect against pertussis (whooping cough) for people with COPD that were not vaccinated in adolescence (**Evidence B**), and Zoster vaccine to protect against shingles for people with COPD over 50 years (**Evidence B**)



# Asthma and the SDoH

- SDoH: “non-medical factors that influence health outcomes”
  - Examples:
    - Place of birth
    - Where a person works/lives
    - Age
- There is increasing recognition that social determinants of health (SDoH), including socioeconomic status, physical environment, and health care, influence racial and ethnic asthma disparities
- Low income is linked to asthma prevalence, exacerbations, hospitalizations, and intensive care unit admission. Poor housing conditions, including exposure to pests, mold, and pollution, have been associated with increased risk of childhood asthma and asthma morbidity





**Figure 1.** The relationship of racism, SDoH, and asthma risk and disparity in the United States. SDoH, social determinants of health.



# COPD and the SDoH

- People living in lower income and socioeconomically disadvantaged communities are at a higher risk for developing COPD
- This can be attributed to greater exposure to environmental risk factors such as
- Examples include:
  - Biomass fuel use
  - Smoking tobacco
  - Lack of access to affordable healthcare
  - Limited access to education



# VAS benefits

Help for members with asthma or COPD for STARPLUS, STAR, STAR KIDS, CHIP, MMP :

- **Roach repellent wall plug-ins:** Members can request a 6-pack of roach repellent wall plug-ins. Terms: One pack per year. Members must be under active case management and have a diagnosis of asthma or COPD.
- **Hypoallergenic bedding:** Members can request 1 hypoallergenic mattress cover and 1 pillowcase. Terms: Members must be under case management for asthma or COPD. One mattress cover and pillowcase per year.\*
- Did you know... This idea came from members just like you. We get great ideas from people in our communities. That's why we're inviting you to join our Member Advisory Council. To register, call 1-888-887-9003 and ask to be transferred to a Member Advocate in your area. Helpful hints To learn more about asthma triggers, you can scan the QR code using the camera app on your smartphone to watch a short video or or search for additional information at [liveandworkwell.com](https://liveandworkwell.com).



# Summary

- Relationship building : Motivational interviewing and reflective listening
- Pharmacy claims for medication adherence and using correct inhaler techniques and use of action plans
- Provider and pharmacy collaboration
- Provide resources and tools
- Discuss SDOH opportunities
- Follow ups





# References

- Expert Panel Working Group of the National Heart, Lung, and Blood Institute (NHLBI) administered and coordinated National Asthma Education and Prevention Program Coordinating Committee (NAEPPCC), Cloutier et al. 2020 Focused Updates to the Asthma Management Guidelines: A Report from the National Asthma Education and Prevention Program Coordinating Committee Expert Panel Working Group. J Allergy Clin Immunol. 2020 Dec;146(6):1217-1270. Available at [www.nhlbi.nih.gov/guidelines/index.htm](http://www.nhlbi.nih.gov/guidelines/index.htm). Accessed March 1 2021.
- Global Strategy for Asthma Management and Prevention. Global Initiative for Asthma (GINA) 2022.
- <https://goldcopd.org/asthma-copd-asthma-copd-overlap-syndrome/>
- Vogelmeier CF, Criner GJ, Martinez FJ, Anzueto A, Barnes PJ et al. Global Strategy for the Diagnosis, Management, and Prevention of Chronic Obstructive Lung Disease 2017 Report: GOLD Executive Summary. Am J Respir Crit Care Med. 2017;195(5):557-582. doi: 10.1164/rccm.201701-0218PP
- Ly, L., Pascoe, A., Philip, J., Hudson, P., & Smallwood, N. (2023, September 30). Social determinants of advanced chronic respiratory interventions: a scoping review. European Respiratory Society.
- Asthma and the social determinants of health. Torie Grant, MD, MHS, Emily Croce, MSN, APRN, CPNP-PC, Elizabeth C. Matsui, MD, MHS, Published: October 18, 2021 DOI: <https://doi.org/10.1016/j.anai.2021.10.002>





**Thank You!**