

# MEDICATION COVERAGE POLICY

## PHARMACY AND THERAPEUTICS ADVISORY COMMITTEE

<b>POLICY:</b>	Asthma/COPD	<b>P&amp;T DATE</b>	6/20/2023
<b>CLASS:</b>	Respiratory Disorders	<b>REVIEW HISTORY</b> (MONTH/YEAR)	5/22, 2/21, 2/20, 2/19, 12/17,12/16, 5/15, 9/14, 2/13, 5/12
<b>LOB:</b>	Medi-Cal		

*This policy has been developed through review of medical literature, consideration of medical necessity, generally accepted medical practice standards, and approved by the HPSJ Pharmacy and Therapeutic Advisory Committee.*

Effective 1/1/2022, the Pharmacy Benefit is regulated by Medi-Cal Rx. Please visit <https://medi-calrx.dhcs.ca.gov/home/> for portal access, formulary details, pharmacy network information, and updates to the pharmacy benefit. All medical claims require that an NDC is also submitted with the claim. If a physician administered medication has a specific assigned CPT code, that code must be billed with the correlating NDC. If there is not a specific CPT code available for a physician administered medication, the use of unclassified CPT codes is appropriate when billed with the correlating NDC.

## OVERVIEW

Asthma is a reversible, chronic, inflammatory disorder that involves narrowing of the respiratory airways leading to wheezing, chest tightness, and shortness of breath. Inhaled corticosteroids are the mainstay of therapy and the goal of treatment is to reverse airway obstruction and maintain respiratory control. Chronic obstructive pulmonary disease (COPD) is another chronic airway disorder. Unlike asthma, COPD is not reversible. The goal of COPD management is to slow disease progression. COPD is managed with a combination of inhaled corticosteroids and anticholinergics. Some patients exhibit both features of asthma and COPD; this is called Asthma-COPD Overlap Syndrome (ACOS). The below criteria, limits, and requirements for asthma & COPD agents are in place to ensure appropriate use and to help members achieve control of their Asthma or COPD.

**Table 1: Available Asthma/COPD Medications**

CPT code	Generic Name (Brand Name)	Strength & Dosage form	Pharmacy Benefit	Medical Benefit (restrictions)
<b>Single Agents</b>				
<b>Short Acting Beta Agonist (SABA)</b>				
--	Albuterol	90 mcg/act	Yes	No
--	Albuterol (ProAir HFA, Proventil HFA, ProAir Digihaler (108 mcg/act), ProAir Respiclick, Ventolin HFA)	90 mcg/act	Yes	No
--	Albuterol Syrup	2 mg/5 mL Syrup	Yes	No
--	Albuterol Sulfate IR, ER Tablets (Vospire ER)	2 mg, 4 mg IR Tablet 4 mg, 8 mg ER Tablet	Yes	No
--	Ephedrine/ Guaifenesin Tablets (Primatene Asthma)	12.5/200 mg Tablets	Yes	No
--	Levalbuterol (Xopenex HFA)	45 mcg/act	Yes	No
--		Xopenex HFA	Yes	No
--	Metaproterenol	10 mg/5 mL Syrup, 10 mg, 20 mg Tablet	Yes	No
<b>Short Acting Anticholinergic (SAMA)</b>				
--	Ipratropium (Atrovent HFA)	17 mcg/act	Yes	No
--	Atrovent HFA	17 mcg/act	Yes	No

<b>Long Acting Beta Agonist (LABA)</b>				
--	Salmeterol Xinafoate (Serevent Diskus)	50 mcg/act	Yes	No
--	Formoterol Fumarate (Foradil)	12 mcg Inhalation Capsule	Yes	No
--	Indacaterol Maleate (Arcapta Neohaler)	75 mcg/act	Yes	No
--	Olodaterol Hydrochloride (Striverdi Respimat)	2.5 mcg/act	Yes	No
<b>Long Acting Anticholinergic (LAMA)</b>				
--	Tiotropium Bromide (Spiriva)	Handihaler: 18 mcg Inhalation Capsule Respimat: 2.5 mcg/act	Yes	No
--	Tiotropium Bromide (Spiriva Respimat)	1.25mcg/act	Yes	No
--	Aclidinium Bromide (Tudorza Pressair)	400 mcg/act	Yes	No
--	Glycopyrrolate (Seebri Neohaler)	15.6mcg	Yes	No
--	Umeclidinium Bromide (Incruse Ellipta)	62.5 mcg/act	Yes	No
<b>Inhaled Corticosteroid (ICS)</b>				
--	Beclomethasone dipropionate (Qvar Redihaler)	40 mcg/act 80 mcg/act	Yes	No
--	Budesonide (Pulmicort Flexhaler)	90 mcg/act	Yes	No
--	Budesonide (Pulmicort Flexhaler)	180 mcg/act	Yes	No
--	Ciclesonide (Alvesco)	80 mcg/act 160 mcg/act	Yes	No
--	Flunisolide (Aerospan)	80 mcg/act	Yes	No
--	Fluticasone furoate (Arnuity Ellipta)	100 mcg/act 200 mcg/act	Yes	No
--	Fluticasone propionate (Flovent HFA/Diskus)	Diskus: 50 mcg/act 100 mcg/act 250 mcg/act HFA: 44 mcg/act 110 mcg/act 220 mcg/act	Yes	No
--	Fluticasone propionate (ArmonAir Respiclick)	55 mcg 113 mcg 232 mcg	Yes	No
--	Mometasone furoate (Asmanex Twisthaler)	110 mcg/act (30 doses) 220 mcg/act (30, 60, or 120 doses)	Yes	No
--	Mometasone furoate (Asmanex HFA)	100 mcg/act 200 mcg/act	Yes	No

**Table 1: Available Asthma/COPD Medications (continued)**

CPT code	Generic Name (Brand Name)	Strength & Dosage form	Pharmacy Benefit	Medical Benefit (restrictions)
--	<b>Combination Agents</b>			
--	<b>Short Acting Combination</b>			
--	Ipratropium/Albuterol (Combivent Respimat)	20 mcg/100 mcg	Yes	No
--	<b>Long Acting Combination</b>			
--	Budesonide/Formoterol (Symbicort)	80 mcg/4.5mcg 160 mcg/4.5 mcg	Yes	No
--	Fluticasone/Salmeterol (AirDuo Respclick, Advair Diskus or HFA)	Respclick: 55/14 mcg 113/14 mcg 232/14 mcg	Yes	No
--		Diskus: 100 mcg/50 mcg 250 mcg/50 mcg 500 mcg/50 mcg  HFA: 45 mcg/21mcg 115 mcg/21mcg 230 mcg/21 mcg		No
--	Fluticasone/Vilanterol (Breo Ellipta)	100 mcg-25 mcg 200 mcg-25 mcg	Yes	No
--	Aclidinium/Formoterol (Duklir)	400 mcg - formoterol 12 mcg	Yes	No
--	Fluticasone, Umeclidinium, and Vilanterol (Trelegy Ellipta)	100 mcg/ 62.5 mcg/25 mcg	Yes	No
--	Mometasone/Formoterol (Dulera)	100 mcg-5mcg 200 mcg-5mcg	Yes	No
--	Tiotropium/ Otodaterol (Stiolto Respimat)	2.5 mcg-2.5 mcg	Yes	No
--	Umeclidinium/ Vilanterol (Anoro Ellipta)	62.5 mcg-25 mcg	Yes	No
--	Glycopyrrolate/ Indacaterol (Utibron Neohaler)	27.5 mcg-15.6 mcg	Yes	No
--	Glycopyrrolate/ Formoterol (Bevespi Aerosphere)	9 mcg-4.8 mcg	Yes	No
<b>Leukotriene Receptor Antagonist</b>				
--	Montelukast Sodium (Singulair)	4 mg, 5 mg Chewable Tablet	Yes	No
--		10 mg Tablet		
--	Zafirlukast (Accolate)	4 mg Oral Granules	Yes	No
--	Zafirlukast (Accolate)	10 mg, 20 mg Tablet	Yes	No
<b>5-Lipoxygenase Inhibitor</b>				
--	Zileuton (Zyflo, Zyflo CR)	600 mg Tablet 600 mg ER Tablet	Yes	No

<b>Xanthine/Phosphodiesterase Enzyme Inhibitor, Nonselective</b>				
--	Theophylline (Theo-24, Elixophyllin, Theochron)	80mg/15mL Oral Elixir/Solution 100 mg, 200 mg, 300 mg, ER Cap (Theo-24) 100 mg, 200 mg, 300 mg ER Tab (Theochron, 12-hr) 400 mg, 600 mg ER Tab (24-hr) 450 mg ER Tab (Theochron, 12-hr)	Yes	No
--	Theophylline (Theo-24)	400 mg ER Cap	Yes	No
<b>PDE-4 Inhibitor</b>				
--	Roflumilast (Daliresp)	250 mcg, 500 mcg Tablet	Yes	No
<b>Monoclonal Antibody, Anti-Asthmatic</b>				
--	Dupilumab (Dupixent)	200 mg/1.14 ml, 300 mg/2 ml syringe	Yes	No
J2357	Omalizumab (Xolair)	75 mg/ 0.5 ml, 150 mg/ ml syringes	Yes	Yes
J2182	Mepolizumab (Nucala)	100 mg Vial Autoinjector 100 mg/ml Prefilled syringes 100 mg/ml	Yes	Yes. PA, QL. See criteria below. Yes. PA, QL. See criteria below. Yes. PA, QL. See criteria below.
J0517	Benralizumab (Fasenra)	30mg Injection	Yes	Yes. PA, QL. See criteria below.
J2786	Reslizumab (Cinqair)	100 mg/10 mL IV Solution	Yes	Yes. PA, QL. See criteria below.
J2356	Tezepelumab (Tezspire)	210MG/1.91ML Prefilled Syringe	Yes	Yes. PA, QL. See criteria below.
<b>Solution for Nebulization</b>				
<b>Short Acting Beta Agonist (SABA)</b>				
--	Albuterol Sulfate	0.63 mg/3 mL 1.25 mg/3 mL 2.5 mg/0.5 mL (0.083%) 2.5 mg/3 mL 5 mg/mL (0.5%)	Yes	No
--	Levalbuterol Hydrochloride	0.31 mg/3 mL 0.63 mg/3 mL 1.25 mg/3 mL 1.25 mg/0.5 mL	Yes	No
<b>Short Acting Anticholinergic</b>				
--	Ipratropium Bromide	0.02% Nebulization Solution	Yes	No
<b>Long Acting Anticholinergic</b>				
--	Revefenacin (Yupelri)	175 mcg Nebulization solution	Yes	No
<b>Short Acting Combination</b>				
--	Ipratropium/Albuterol (Duoneb)	0.5 mg/3 mg (2.5 mg Base)/3 mL	Yes	No

Inhaled Corticosteroid				
--	Budesonide	0.25 mg/2 mL 0.5 mg/2 mL 1 mg/2 mL	Yes	No
Long Acting Antimuscarinic				
--	Glycopyrrolate (Lonhala Magnair)	25 mcg vial	Yes	No
Long-Acting Beta Agonist				
--	Formoterol Fumarate Dihydrate (Perforomist)	20 mcg/2 mL	Yes	No
--	Arformoterol (Brovana)	15 mcg/2 ml	Yes	No
General Inhalation Solutions				
--	Sodium chloride Vials	0.9%	Yes	No
--		Nebusal 3%	Yes	No
--		3%	Yes	No
--		Hyper-Sal 3.5%	Yes	No
--		Hyper-Sal 7% Vial	Yes	No
--		7%	Yes	No
Mast Cell Stabilizer				
--	Cromolyn Sodium	20 mg/2 mL	Yes	No
Medical Equipment				
Peak Air Peak Flow Meter, Spacer				
--	Peak Flow Meter	--	Yes	No
--	Inhaler, Assist Devices (Spacer, bag or reservoir, with or without mask, for use with metered dose inhaler)	Large Medium Small	Yes	No
Nebulizer				
E0570	Nebulizer machine	--	No	Yes, Restricted to HPSJ- preferred vendor.
Varies	Nebulizer accessories	--	No	Yes, Restricted to HPSJ- preferred vendor.

PA = Prior Authorization, QL = Quantity Limit

## EVALUATION CRITERIA FOR APPROVAL/EXCEPTION CONSIDERATION

Below are the coverage criteria and required information for agents with medical benefit restrictions. This coverage criteria has been reviewed and approved by the HPSJ Pharmacy & Therapeutics (P&T) Advisory Committee. For agents that do not have established prior authorization criteria, HPSJ will make the determination based on Medical Necessity criteria as described in HPSJ Medical Review Guidelines (UM06).

### Monoclonal Antibody

*Omalizumab (Xolair), Mepolizumab (Nucala), Reslizumab (Cinqair), benralizumab (Fasenra), Dupilumab (Dupixent)*

#### Omalizumab (Xolair)

- **Coverage Criteria:** For asthma, Xolair is reserved for poorly controlled moderate-severe allergic asthma patients with baseline serum IgE levels between 30-700 IU/ml, with FEV1 < 80% predicted, despite being compliant with dose-optimized medium to high-dose Inhaled Corticosteroids (ICS) + Long-Acting Beta-2 Agonist (LABA). Xolair must not be used as monotherapy.
- **Limits:** None
- **Required Information for Approval:** Patients must meet all of the following criteria:
  - Asthma classified as moderate to severe persistent asthma
  - Pretreatment level of IgE ≥30IU/ml and <700IU/ml

- Positive skin test of in vitro reactivity to at least 1 perennial aeroallergen
- Dose optimized inhaled corticosteroids and long-acting beta2-agonist without adequate asthma control (as evidenced by fill history and clinic documentation)
- **Other Notes:** Continuing approval will require updated clinic notes with documented therapeutic response in the form of improved symptomology. Perennial aeroallergens include: cat or dog dander, house-dust mites, and pollens. Evidence is limited for molds and cockroaches.<sup>2</sup>

### **Mepolizumab (Nucala)**

- ❑ **Coverage Criteria:** Nucala is reserved for patients ages 6 and older, with poorly controlled, severe eosinophilic asthma with baseline serum eosinophil counts of either  $\geq 150$  cells/ $\mu$ L at initiation of treatment or  $\geq 300$  cells/ $\mu$ L in the past 12 months AND 2 or more exacerbations in the past 12 months, despite being compliant with dose-optimized [1] High-dose Inhaled Corticosteroids (ICS) + [2] A second controller (e.g. Long-Acting Beta-2 Agonist (LABA), Long-Acting Muscarinic Antagonist (LAMA), leukotriene modifier, systemic corticosteroids). Must be prescribed by an allergist. Nucala must not be used as monotherapy.
- ❑ **Limits:** None
- ❑ **Required Information for Approval:** Patients must meet all of the following criteria:
  - Diagnosis of asthma
  - Eosinophil level of either  $\geq 150$  cells/ $\mu$ L at initiation of treatment or  $\geq 300$  cells/ $\mu$ L in the past 12 months
  - 2 or more exacerbations in the past 12 months, despite being compliant with dose-optimized [1] Inhaled Corticosteroids (ICS) + [2] A second controller (Long-Acting Beta-2 Agonist (LABA), Long-Acting Muscarinic Antagonist (LAMA), leukotriene modifier, systemic corticosteroids)

### **Benralizumab (Fasenra)**

- ❑ **Coverage Criteria:** Fasenra is reserved for patients ages 12 and older, with poorly controlled, severe eosinophilic asthma with baseline serum eosinophil counts of either  $\geq 150$  cells/ $\mu$ L at initiation of treatment or  $\geq 300$  cells/ $\mu$ L in the past 12 months AND 2 or more exacerbations in the past 12 months, despite being compliant with dose-optimized [1] High-dose Inhaled Corticosteroids (ICS) + [2] A second controller (e.g. Long-Acting Beta-2 Agonist (LABA), Long-Acting Muscarinic Antagonist (LAMA), leukotriene modifier, systemic corticosteroids). Must be prescribed by an allergist. Fasenra must not be used as monotherapy.
- ❑ **Limits:** None
- ❑ **Required Information for Approval:** Patients must meet all of the following criteria:
  - Diagnosis of asthma
  - Eosinophil level of either  $\geq 150$  cells/ $\mu$ L at initiation of treatment or  $\geq 300$  cells/ $\mu$ L in the past 12 months
  - 2 or more exacerbations in the past 12 months, despite being compliant with dose-optimized [1] Inhaled Corticosteroids (ICS) + [2] A second controller (Long-Acting Beta-2 Agonist (LABA), Long-Acting Muscarinic Antagonist (LAMA), leukotriene modifier, systemic corticosteroids)
- ❑ **Other Notes:** Initial approval is 6 months. Continuing Approval will require updated clinic notes with documented therapeutic response in the form of improved symptomology.

### **Reslizumab (Cinqair)**

- ❑ **Coverage Criteria:** Cinqair is reserved for patients ages 18 and older, with poorly controlled, severe eosinophilic asthma with baseline serum eosinophil counts of either  $\geq 150$  cells/ $\mu$ L at initiation of treatment or  $\geq 300$  cells/ $\mu$ L in the past 12 months AND 2 or more exacerbations in the past 12 months, despite being compliant with dose-optimized [1] High-dose Inhaled Corticosteroids (ICS) + [2] A second controller (e.g. Long-Acting Beta-2 Agonist (LABA), Long-Acting Muscarinic Antagonist (LAMA), leukotriene modifier, systemic corticosteroids). Must be prescribed by an allergist. Cinqair must not be used as monotherapy.
- ❑ **Limits:** None
- ❑ **Required Information for Approval:** Patients must meet all of the following criteria:

- Diagnosis of asthma
- Eosinophil level of either  $\geq 150$  cells/ $\mu\text{L}$  at initiation of treatment or  $\geq 300$  cells/ $\mu\text{L}$  in the past 12 months
- 2 or more exacerbations in the past 12 months, despite being compliant with dose-optimized [1] Inhaled Corticosteroids (ICS) + [2] A second controller (Long-Acting Beta-2 Agonist (LABA), Long-Acting Muscarinic Antagonist (LAMA), leukotriene modifier, systemic corticosteroids)

### Tezepelumab (Tezspire)

- **Coverage Criteria:** Tezspire is reserved for patients ages 12 and older, with **severe asthma** AND 2 or more exacerbations in the past 12 months, despite being compliant with dose-optimized [1] High-dose Inhaled Corticosteroids (ICS) + [2] A second controller (e.g. Long-Acting Beta-2 Agonist (LABA), Long-Acting Muscarinic Antagonist (LAMA), leukotriene modifier, systemic corticosteroids). Must be prescribed by an allergist. Tezspire must not be used as monotherapy. Must not be used with anti-IgE, anti-IL4, or anti-IL5 monoclonal antibody agents.
- **Limits:** None
- **Required Information for Approval:** Patients must meet all of the following criteria:
  - Diagnosis of asthma
  - 2 or more exacerbations in the past 12 months, despite being compliant with dose-optimized [1] Inhaled Corticosteroids (ICS) + [2] A second controller (Long-Acting Beta-2 Agonist (LABA), Long-Acting Muscarinic Antagonist (LAMA), leukotriene modifier, systemic corticosteroids)

Medical Equipment
<i>Nebulizer</i>

### **Nebulizer**

- **Coverage Criteria:** None
- **Limits:** 1 per lifetime
- **Required Information for Approval:** N/A

## ⊞ **CLINICAL JUSTIFICATION**

Diagnosis and treatment recommendations are based on the National Asthma Education and Prevention Program (NAEPP) 2007, Global Initiative for Asthma (GINA) 2022, Global Initiative for Chronic Obstructive Pulmonary Disease (GOLD) 2017 [ACOS] & 2022 [COPD], and International European Respiratory Society/American Thoracic Society (ERS/ATS) guidelines.<sup>1-5, 52</sup>

### **Asthma**

Asthma is a dynamic condition requiring constant assessment in order to provide optimal control of symptoms. The HPSJ formulary is designed to make controller agents accessible, as these are the mainstay of therapy according to NAEPP and GINA guidelines. Controller medications for asthma include inhaled corticosteroids, long-acting beta-2 agonists, leukotriene antagonists, theophylline, cromolyn, and zileuton. Concerns about the risks of using short-acting  $\beta_2$ -agonists (SABA) alone has led to the recent update in the Global Initiative for Asthma (GINA) recommendations. 2019 GINA updated guideline recommends either a symptom driven or daily inhaled corticosteroid treatment in all adults and adolescents with asthma.<sup>49</sup> Short acting-inhalers should only be used on an as-needed basis, and no longer recommended as a monotherapy. Frequent use of short-acting inhalers can be an indicator of poorly controlled asthma.

Currently there are 6 monoclonal antibodies Tezspire, Dupixent, Xolair, Nucala, Cinqair, and Fasenra, with FDA approved indication for asthma. Since NAEPP and GINA guidelines list these agents as add-on therapies for patients with severe, uncontrolled disease, they are reserved for patients who have failed ICS, LABA, LAMA, and leukotriene antagonists. Xolair, Nucala, Cinqair, Fasenara, and Dupixent are specifically indicated in patients with allergic asthma, and therefore requires additional lab testing to establish medical necessity.

### **Chronic Obstructive Pulmonary Disease (COPD)**

Spirometry remains vital for the diagnosis of COPD, therefore, HPSJ requires pulmonary function testing to ensure appropriate use. GOLD 2019 update recommends repeat of Spirometry on a separate occasion if post-bronchodilator FEV<sub>1</sub>/FVC ratio is between 0.6 and 0.8.<sup>41</sup> Based on updated GOLD COPD 2019 guidelines, blood eosinophil levels are required for certain COPD medications.

## REFERENCES

1. Global Initiative for Asthma. Global Strategy for Asthma Management and Prevention, 2016. Available from: [www.ginasthma.org](http://www.ginasthma.org).
2. National Heart, Lung, and Blood Institute. Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma. 2007. Available from: <http://www.nhlbi.nih.gov/files/docs/guidelines/asthgdln.pdf>.
3. Global Initiative for Chronic Obstructive Lung Disease. Global Strategy for the Diagnosis, Management, and Prevention of Chronic Obstructive Pulmonary Disease. 2017. Available from: [www.goldcopd.org](http://www.goldcopd.org).
4. Global Initiative for Chronic Obstructive Lung Disease. Diagnosis of Diseases of Chronic Airflow Limitation: Asthma COPD and Asthma-COPD Overlap Syndrome (ACOS). 2016. Available from: [www.goldcopd.org](http://www.goldcopd.org).
5. Chung KF, Wenzel SE, Brozek JL, et al. International ERA/ATS guidelines on definition, evaluation and treatment of severe asthma. *Eur Respir J*. 2014;43 (2): 343-373.
6. Food and Drug Administration. FDA News Release: FDA approves Nucala to treat severe asthma. <http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm471031.htm>. Updated November 6, 2015. Accessed September 18, 2016.
7. Nucala [Package Insert]. Philadelphia, PA: GlaxoSmithKline LLC; 2015.
8. Food and Drug Administration. FDA News Release: FDA approves Cinqair to treat severe asthma. <http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm491980.htm>. Updated March 23, 2016. Accessed September 23, 2016.
9. Cinqair [Package Insert]. Frazer, PA: Teva Respiratory, LLC; 2016.
10. Donohue JF. Systematic review comparing LABA, olodaterol, and indacaterol: limitations. *Int J Chron Obstruct Pulmon Dis*. 2014;9:1331-1335.
11. Cazzola M, Calzetta L, Matera MG. Beta2-adrenoreceptor agonists: current and future direction. *Br J Pharmacol*. 2011;163(1):4-17.
12. Roskell NS, Anzueto A, Hamilton A, Disse B, Becker K. Once-daily long-acting beta-agonists for chronic obstructive pulmonary disease: an indirect comparison of olodaterol and indacaterol. *Int J Chron Obstruct Pulmon Dis*. 2014;9:813-824.
13. Schurmann W, Schmidtmann S, Moroni P, Massey D, Qidan M. Respimat Soft Mist Inhaler versus Hydrofluoroalkane Metered Dose Inhaler: Patient Preference and Satisfaction. 2005;4(1):53-61.
14. Hodder R, Price D. Patient preferences for inhaler devices in chronic obstructive pulmonary disease: experience with Respimat Soft Mist Inhaler. *Int J Chron Obstruct Pulmon Dis*. 2009;4:381-390.
15. Cazzola M, Beeh KM, Price D, Roche N. Assessing clinical value of fast onset and sustained duration of action of long-acting bronchodilators for COPD. *Pulmonary Pharmacology and Therapeutics*. 2015;31:68-78.
16. Hannaway PJ, Hooper GD. Comparison study of sustained-release theophylline products: Slo-bid capsules versus Theo-DUR tablets in 20 children and young adults with asthma. *J Allergy Clin Immunol*. 1986;77(3):456-464.
17. Food and Drug Administration. FDA Drug Shortages: Current and Resolved Drug Shortages and Discontinuations Reported to FDA. [http://www.accessdata.fda.gov/scripts/drugshortages/dsp\\_ActiveIngredientDetails.cfm?AI=Theophylline%20Extended%20Release%20Tablets%20and%20Capsules&st=c&tab=tabs-1](http://www.accessdata.fda.gov/scripts/drugshortages/dsp_ActiveIngredientDetails.cfm?AI=Theophylline%20Extended%20Release%20Tablets%20and%20Capsules&st=c&tab=tabs-1). Updated August 16, 2016. Accessed September 26, 2016.
18. American Society of Health-System Pharmacists. Theophylline Extended-Release Tablets. <http://www.ashp.org/menu/DrugShortages/CurrentShortages/bulletin.aspx?id=1221>. Updated August 15, 2016. Accessed September 26, 2016.
19. Fasentra [Package Insert]. Wilmington, DE: AstraZeneca Pharmaceuticals LP; 2017.
20. AirDuo Respiclick [Package Insert]. Jerusalem, Israel: Teva Respiratory LLC; 2017.
21. ArmonAir Respiclick [Package Insert]. Jerusalem, Israel: Teva Respiratory LLC; 2017.
22. Seebri Neohaler (glycopyrrolate) [prescribing information]. East Hanover, NJ: Novartis Pharmaceuticals; January 2017.
23. Agusti A, de Teresa L, De Backer W, et al. A comparison of the efficacy and safety of once-daily fluticasone furoate/vilanterol with twice-daily fluticasone propionate/salmeterol in moderate to very severe COPD. *Eur Respir J*. 2014;43:763-72.
24. Dransfield MT, Crim CC, Feldman G, et al. Once-daily (OD) fluticasone furoate/vilanterol (FF/VI: 100/25 lg) compared with twice-daily (BD) Fluticasone propionate/salmeterol (FSC: 250/50 lg) in patients with COPD abstract no. A2432]. *Am J Respir Crit Care Med*. 2013;187.
25. Svedsater H, Stynes G, Wex J, et al. Once-daily fluticasone furoate/vilanterol versus twice daily combination therapies in asthma-mixed treatment comparisons of clinical efficacy. *Asthma research and practice*. 2016; 2:4. doi:10.1186/s40733-015-0016-0.
26. Stynes G, Svedsater H, Wex J, et al. Once-daily fluticasone furoate/vilanterol 100/25 mcg versus twice daily combination therapies in COPD – mixed treatment comparisons of clinical efficacy. *Respiratory Research*. 2015;16(1):25. doi:10.1186/s12931-015-0184-8.
27. Partridge MR, Schuermann W, Beckman O, et al. Effect on lung function and morning activities of budesonide/formoterol vs salmeterol/fluticasone in patients with COPD. *Ther Adv Respir Dis*. 2009;3(4):147-57.
28. Dransfield MT, Bourbeau J, Jones PW, et al. Once-daily inhaled fluticasone furoate and vilanterol versus vilanterol only for prevention of exacerbations of COPD: two replicate double-blind, parallel-group, randomised controlled trials. *Lancet Respir Med*. 2013;1:210-23.
29. Dransfield MT, Feldman G, Korenblat P, et al. Efficacy and safety of once-daily fluticasone furoate/vilanterol (100/25 mcg) versus twice-daily fluticasone propionate/salmeterol (250/50 mcg) in COPD patients. *Respir Med*. 2014;108:1171-79.
30. Agusti A, de Teresa L, De Backer W, et al. A comparison of the efficacy and safety of once-daily fluticasone furoate/vilanterol with twice-daily fluticasone propionate/salmeterol in moderate to very severe COPD. *Eur Respir J*. 2014;43(3):763-72.
31. Dahl R, Chuchalin A, Gor D, et al. EXCEL: a randomized trial comparing salmeterol/fluticasone propionate and formoterol/budesonide combinations in adults with persistent asthma. *Resp Med*. 2006; 100:1152-62.
32. FitzGerald MJ, Boulet LP, Follows RM. The CONCEPT trial: A 1-year, multicenter, randomized, double-blind, double-dummy comparison of a stable dosing regimen of salmeterol/fluticasone propionate with an adjustable maintenance dosing regimen of formoterol/budesonide in adults with persistent asthma. *Clin Ther*. 2005;27(4):393-406



33. Price DB, Williams AE, Yoxall S. Salmeterol/fluticasone stable-dose treatment compared to formoterol-budesonide adjustable maintenance dosing: impact on health-related quality of life. *Respir Res.* 2007;8:46.
34. Aalbers R, Backer V, Kava TT, et al. Adjustable maintenance dosing with budesonide/formoterol compared to fixed-dose salmeterol/fluticasone in moderate to severe asthma. *Curr Med Res Opin.* 2004;20(2):225-40.
35. Kuna P, Peters MJ, Manjra AI, et al. Effect of budesonide/formoterol maintenance and reliever therapy on asthma exacerbations. *Int J Clin Pract.* 2007;61(5):725-36
36. Palmqvist M, Arvidsson P, Beckman O, et al. Onset of bronchodilation with budesonide/formoterol and salmeterol/fluticasone in single inhalers. *Pulm Pharmacol Ther.* 2001;14(1):29-34.
37. Busse WW, Shah SR, Somerville L, et al. Comparison of adjustable- and fixed-dose budesonide/ formoterol pressurized metered-dose inhaler and fixed-dose fluticasone propionate/salmeterol dry powder inhaler in asthma patients. *J Allergy Clin Immuno.* 2008;121:1407-14.
38. Lasserson TJ, Ferrara G, Casali L. Combination fluticasone and salmeterol versus fixed dose combination budesonide and formoterol for chronic asthma in adults and children. *Cochrane Database of Systematic Reviews* 2011, Issue 12. Art. No.: CD004106. DOI: 10.1002/14651858.CD004106.pub4.
39. Bernstein DI, Hebert J, Cheema A, et al. Efficacy and Onset of Action of Mometasone Furoate/Formoterol and Fluticasone Propionate/Salmeterol Combination Treatment in Subjects With Persistent Asthma. *Allergy Asthma Clin Immunol.* 2011;7(1):21.
40. Woodcock A, Bleecker ER, Lötvall J, et al. Efficacy and safety of fluticasone furoate/vilanterol compared with fluticasone propionate/salmeterol combination in adult and adolescent patients with persistent asthma: a randomized trial. *Chest.* 2013;144(4):1222-9.
41. Global Initiative for Chronic Obstructive Lung Disease. *Global Strategy for the Diagnosis, Management, and Prevention of Chronic Obstructive Pulmonary Disease (2019 Report)*. Available from: <https://goldcopd.org/wp-content/uploads/2018/11/GOLD-2019-v1.7-FINAL-14Nov2018-WMS.pdf>
42. Global Initiative for Asthma. *Global Strategy for Asthma Management and Prevention, 2018*. Available from: [www.ginasthma.org](http://www.ginasthma.org).
43. Asthma and COPD – ACCP [https://www.accp.com/docs/bookstore/psap/p2017b2\\_sample.pdf](https://www.accp.com/docs/bookstore/psap/p2017b2_sample.pdf)
44. Dupixent package insert.
45. Evaluation of Dupilumab in Patients With Severe Steroid Dependent Asthma (VENTURE). *Clinical Trials.gov*. ClinicalTrials.gov Identifier: NCT02528214
46. CHEST Physician The Newspaper of the American College of Chest Physicians. Publish date: November 15, 2018. <https://www.mdedge.com/chestphysician/article/188986/asthma/fda-approves-primatene-mist-return>
47. American Lung Association Responds to FDA Approval of Primatene Mist Asthma Inhaler. <https://www.lung.org/about-us/media/press-releases/fda-approval-primatene.html>
48. AAFA Statement on FDA Approval of Primatene Mist for Mild Asthma, <https://www.aafa.org/media/2230/aafa-statement-of-fda-approval-of-primatene-mist-for-asthma.pdf>.
49. Reddel HK, FitzGerald JM, Bateman ED, et al. GINA 2019: a fundamental change in asthma management. *Eur Respir J* 2019; 53: 1901046 [<https://doi.org/10.1183/13993003.01046-2019>].
50. Archive of New Indications and Dosage Forms 2019. <https://www.drugs.com/new-indications-archive/april-2019.html>.
51. CenterWatch 2019 FDA Approved Drugs. <http://live.centerwatch.com/drug-information/fda-approved-drugs/>
52. Global Initiative for Asthma. *Global Strategy for Asthma Management and Prevention, 2020*. Available from: [www.ginasthma.org](http://www.ginasthma.org).
53. Global Initiative for Chronic Obstructive Lung Disease (GOLD). 2021 global strategy for prevention, diagnosis and management of COPD. <https://goldcopd.org/2021-gold-reports/>. Updated 2021. Accessed May 3, 2022.
54. Tezspire (tezepelumab) [prescribing information]. Thousand Oaks, CA: Amgen, Inc; December 2021.
55. Global Initiative for Asthma (GINA). 2023 global strategy for asthma management and prevention. <https://ginasthma.org/wp-content/uploads/2023/05/GINA-2023-Full-Report-2023-WMS.pdf>. Updated 2023. Accessed June 8, 2023.
56. Global Initiative for Chronic Obstructive Lung Disease (GOLD). 2023 global strategy for prevention, diagnosis and management of COPD. <https://goldcopd.org/2023-gold-report-2/>. Updated 2023. Accessed May 8, 2023.

## ✚ REVIEW & EDIT HISTORY

Document Changes	Reference	Date	P&T Chairman
Creation of Policy	Singulair Survey 7-06.doc	7/2006	Allen Shek PharmD BCPS
Update to Policy	ICS Review 9-06.doc	9/2006	Allen Shek PharmD BCPS
Update to Policy	Albuterol HFA 11-06.doc	11/2006	Allen Shek PharmD BCPS
Update to Policy	ICS-LABA combo status 9-07.doc	9/2007	Allen Shek PharmD BCPS
Update to Policy	Symbicort 9-11-07.doc	9/2007	Allen Shek PharmD BCPS
Update to Policy	Asthma_Xopenex 9-08.doc	9/2008	Allen Shek PharmD BCPS
Update to Policy	ICS Review 9-16-08.doc	9/2008	Allen Shek PharmD BCPS
Update to Policy	Spacer utilization.doc	3/2009	Allen Shek PharmD BCPS
Update to Policy	ICS post P&T Survey recap.doc	3/2009	Allen Shek PharmD BCPS
Update to Policy	Daliresp Monograph 11-20-12.doc	11/2012	Allen Shek PharmD BCPS
Update to Policy	Tudorza 5-21-2013.docx	5/2013	Allen Shek PharmD BCPS
Update to Policy	HPSJ Coverage Policy – Respiratory – Asthma & COPD 2015-05.docx	9/2015	Jonathan Szkotak, PharmD, BCACP
Update to Policy	HPSJ Coverage Policy – Respiratory – Asthma & COPD 2016-12.docx	12/2016	Johnathan Yeh, PharmD

Update to Policy	HPSJ Coverage Policy – Respiratory – Asthma & COPD 2017-12.docx	12/2017	Johnathan Yeh, PharmD
Update to Policy	HPSJ Coverage Policy – Respiratory – Asthma & COPD 2019-2.docx	2/2019	Matthew Garrett, PharmD
Update to Policy	HPSJ Coverage Policy – Respiratory – Asthma & COPD 2020-2.docx	2/2020	Matthew Garrett, PharmD
Update to Policy	HPSJ Coverage Policy – Respiratory – Asthma & COPD 2021-2.docx	2/2021	Matthew Garrett, PharmD
Update to Policy	Asthma & COPD	05/2022	Matthew Garrett, PharmD
Review of Policy	Asthma & COPD	06/2023	Matthew Garrett, PharmD

*Note: All changes are approved by the HPSJ P&T Committee before incorporation into the utilization policy*