


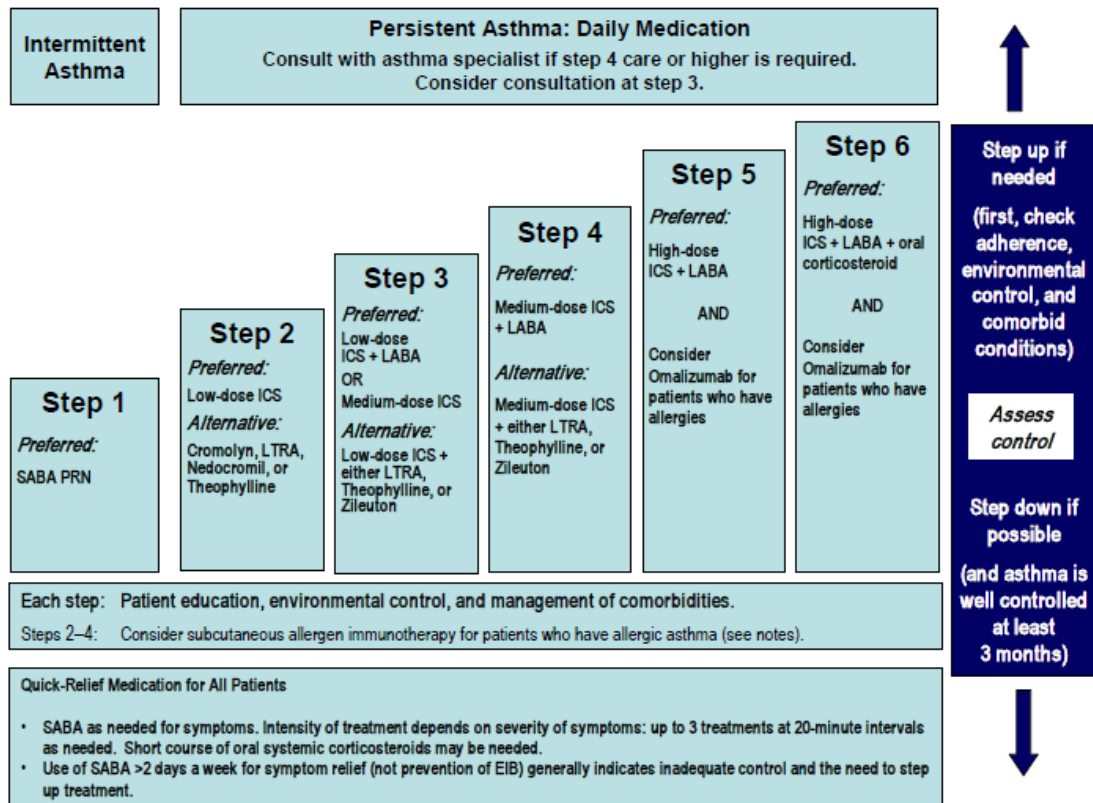
## Management of Patients with Asthma or COPD

Asthma			COPD			
Comparison						
Onset early in life (often childhood)			Onset occurs in mid-life			
Symptoms vary from day to day			Symptoms are slowly progressive			
Symptoms at night/early morning						
Allergy, rhinitis, and/or eczema also present			Long history of tobacco smoking			
Family history of asthma						
Largely reversible airflow limitation			Partially reversible airflow limitation			
Classification of Severity						
Asthma						
	Components of Severity		Classification of Asthma Severity (Youths ≥12 years of age and adults)			
			Intermittent	Persistent		
	Impairment	Symptoms		≤2 days/week	>2 days/week but not daily	Daily
		Nighttime awakenings	≤2x/month	3–4x/month	>1x/week but not nightly	Often 7x/week
		Short-acting beta <sub>2</sub> -agonist use for symptom control (not prevention of EIB)	≤2 days/week	>2 days/week but not >1x/day	Daily	Several times per day
		Interference with normal activity	None	Minor limitation	Some limitation	Extremely limited
		Lung function	<ul style="list-style-type: none"><li>• Normal FEV<sub>1</sub> between exacerbations</li><li>• FEV<sub>1</sub> &gt;80% predicted</li><li>• FEV<sub>1</sub>/FVC normal</li></ul>	<ul style="list-style-type: none"><li>• FEV<sub>1</sub> ≥80% predicted</li><li>• FEV<sub>1</sub>/FVC normal</li></ul>	<ul style="list-style-type: none"><li>• FEV<sub>1</sub> &gt;60% but &lt;80% predicted</li><li>• FEV<sub>1</sub>/FVC reduced 5%</li></ul>	<ul style="list-style-type: none"><li>• FEV<sub>1</sub> &lt;60% predicted</li><li>• FEV<sub>1</sub>/FVC reduced &gt;5%</li></ul>
	Risk	Exacerbations requiring oral systemic corticosteroids	0–1/year (see note)	≥2/year (see note) 		
			← Consider severity and interval since last exacerbation. Frequency and severity may fluctuate over time for patients in any severity category. →			
			Relative annual risk of exacerbations may be related to FEV <sub>1</sub>			

COPD																																			
<table><tr><th>Severity</th><th>FEV<sub>1</sub>/FVC</th><th>FEV<sub>1</sub> % Predicted</th></tr><tr><td>1. Mild COPD</td><td>&lt; 0.70</td><td>≥ 80%</td></tr><tr><td>2. Moderate COPD</td><td>&lt; 0.70</td><td>50% ≤ FEV<sub>1</sub> ≤ 80%</td></tr><tr><td>3. Severe COPD</td><td>&lt; 0.70</td><td>30% ≤ FEV<sub>1</sub> ≤ 50%</td></tr><tr><td>4. Very Severe COPD</td><td>&lt; 0.70</td><td>&lt; 30% or &lt; 50% w/chronic respiratory failure</td></tr></table>			Severity	FEV <sub>1</sub> /FVC	FEV <sub>1</sub> % Predicted	1. Mild COPD	< 0.70	≥ 80%	2. Moderate COPD	< 0.70	50% ≤ FEV <sub>1</sub> ≤ 80%	3. Severe COPD	< 0.70	30% ≤ FEV <sub>1</sub> ≤ 50%	4. Very Severe COPD	< 0.70	< 30% or < 50% w/chronic respiratory failure	<table><tr><th>Airflow Limitation</th><th>Assessment of Symptoms</th><th>Exacerbation History</th></tr><tr><td>4</td><td rowspan="2">C</td><td rowspan="2">D</td><td rowspan="2">≥2 or ≥1 leading to hospital admission</td></tr><tr><td>3</td></tr><tr><td>2</td><td rowspan="2">A</td><td rowspan="2">B</td><td rowspan="2">0 or 1 not leading to hospital admission</td></tr><tr><td>1</td></tr><tr><td></td><td>mMRC 0-1, CAT &lt;10</td><td>mMRC ≥ 2, CAT ≥ 10</td><td></td></tr></table>	Airflow Limitation	Assessment of Symptoms	Exacerbation History	4	C	D	≥2 or ≥1 leading to hospital admission	3	2	A	B	0 or 1 not leading to hospital admission	1		mMRC 0-1, CAT <10	mMRC ≥ 2, CAT ≥ 10	
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# Utilizing Severity Classifications to Make Treatment Decisions

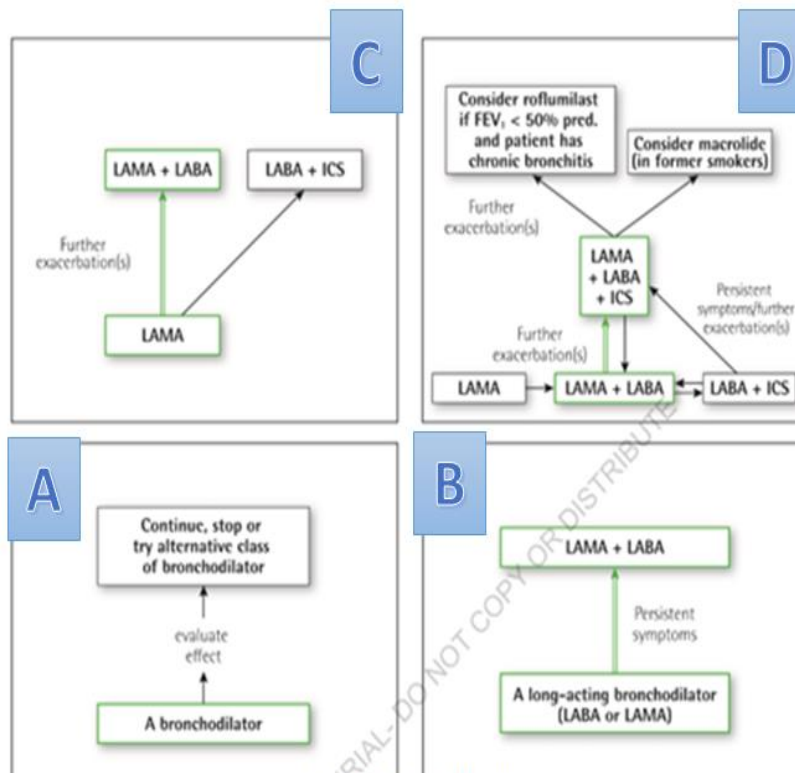
## Asthma



## COPD

- LAMA > LABA due to exacerbation prevention
- Use of ICS ↑ risk of pneumonia

Either short acting or long acting



- LAMA/LABA > LABA/ICS
- Macrolide:  
Azithromycin 250 mg QD or 500 mg 3x/week or erythromycin 500 mg BID

No evidence to recommend one class over another

(Adapted from the 2017 GOLD Guidelines)

## Inhaled Asthma and COPD Medications

Classification	Generic	Brand	Dosing	General Administration	Indication: Asthma v. COPD	Expiration	MOA	Side Effects
<b>Short Acting Beta Agonists (SABA)</b>	Albuterol	Proair HFA, Proair RespiClick, Proventil HFA, Ventolin HFA	90mcg	Q 4 to 6 hours (2 puffs)	Both	Discard 12-13 months after first use	Selectively act on $\beta_2$ adrenergic receptors to $\uparrow$ adenylyl cyclase to increase the formation of cAMP resulting in bronchial smooth muscle relaxation	Tachycardia, nasopharyngitis, tremor, sinusitis, rhinitis, bronchitis, headache, cough, dry mouth, nausea, URTI
	Albuterol Neb.	---	0.021%, 0.042%, 0.083%, 0.63mg/3ml, 1.25mg/3ml, 0.5%	TID to QID	Both	Discard 1 week of removal from foil pouch		
		Accuneb Neb.	0.63mg/3ml, 1.25gm/3ml, 2.5mg/3ml		Both	Store unopened pouches at room temp for up to 2 weeks		
	Levalbuterol	Xopenex HFA	45mcg/puff	Q 4 to 6 hours prn (2 puffs)	Both	Discard 12 months after first use		
		Xopenex Neb.	0.31, 0.63, or 1.25mg/unit dose	Q 6 to 8 hours	Both	Discard 2 weeks of removal from foil pouch		
<b>Long Acting Beta Agonists (LABA)</b>  <b>**If used in asthma, must be in combo with ICS</b>	Arformoterol	Brovana Neb.	15mcg/2ml	BID	<b>COPD ONLY</b>	Store unopened pouches at room temp for up to 6 weeks		
	Formoterol	Foradil DPI	12mcg	Q 12 hours	Both	Store unopened capsule at room temp for up to 4 months		
		Perforomist Neb.	20mcg/2ml	BID	<b>COPD ONLY</b>	Store unopened pouches at room temp for up to 3 months		
	Indacaterol	Arcapta Neohaler	75mcg capsule	QD	<b>COPD ONLY</b>	Remove capsule from blister immediately prior to use		
	Olodaterol	Striverdi Respimat	2.5mcg	QD (2 puffs)	Both	Discard 3 months after first use		
	Salmeterol	Serevent Diskus	50mcg	Q 12 hours	Both	Discard 6 weeks after first use		

Classification	Generic	Brand	Dosing	General Administration	Indication: Asthma v. COPD	Expiration	MOA	Side Effects
Inhaled Corticosteroids (ICS)	Beclomethasone	Qvar HFA, Qvar RediHaler	40mcg, 80mcg	BID	Both	Expiration date on product	Anti-inflammatory effects: Reduce capillary permeability to decrease mucus, inhibit release of proteolytic enzymes from leukocytes, inhibit prostaglandins	Hoarseness, sore throat, skin bruising, oral candidiasis  Seen at higher doses/ more rare: Adrenal suppression, osteoporosis, cataract formation
	Budesonide	Pulmicort Flexhaler	90mcg, 180mcg	BID	Both	Discard 6 months after first use		
		Pulmicort Respules	0.25mg/2ml, 0.5mg/2ml, 1mg/2ml	Q 6 hours	Both	Discard 2 weeks of removal from foil pouch		
	Fluticasone	Flovent Diskus DPI	50mcg, 100mcg, 250mcg	BID	Both	Discard 6 weeks after first use		
		Flovent HFA	44mcg, 110mcg, 220mcg	BID	Both			
		Arnuity Ellipta DPI	100mcg, 200mcg	QD	Both			
		ArmonAir Respiclick	55mcg, 113mcg, 232mcg	BID	Both			
	Mometasone	Asmanex HFA	100mcg, 200mcg	BID	Asthma ONLY	Discard 12 months after first use		
		Asmanex MDI	110mcg, 220mcg	QD or BID	Asthma ONLY	Discard 45 days after first use		
Anticholinergic: Short Acting Muscarinic Antagonists (SAMA)	Ipratropium	Atrovent HFA	17mcg	QID (2 puffs)	Both	Expiration date on product		
		Atrovent Neb.	0.02%/2.5ml	Q 6 to 8 hours	Both			
Anticholinergic: Long Acting Muscarinic Antagonists (LAMA)	Acclidinium	Tudorza Pressair	400mcg	BID	COPD ONLY	Discard 45 days after first use	Competitively inhibit cholinergic receptors blocking Ach on bronchial smooth muscle ↓ cGMP resulting in smooth muscle relaxation	Dry mouth, nausea, metallic taste, bronchitis, sinusitis, nasopharyngitis, URTI
	Glycopyrrolate	Seebri Neohaler	15.6mcg capsule	BID	COPD ONLY	Remove capsule from blister immediately prior to use		
	Tiotropium	Spiriva Handihaler	18mcg capsule	QD	COPD ONLY	Discard 12 months after first use		
		Spiriva Respimat	2.5mcg	QD (2 puffs)	Both	Discard 90 days after first use		
	Umeclidinium	Incruse Ellipta	62.5mcg	QD	COPD ONLY	Discard 6 weeks after first use		

Classification	Generic	Brand	Dosing	General Administration	Indication: Asthma v. COPD	Expiration	MOA	Side Effects
<b>SABA/SAMA</b>	Ipratropium/ albuterol	Combivent Respimat	20/100mcg	QID	Both	Discard 3 months after first use	See Individual MOA's	See Individual SE's
		Duoneb Neb.	0.5/2.5mg/ 3ml	Q 6 hours	Both	Discard 12 months after first use **place back into foil pouch after each use		
<b>ICS/LABA</b>	Fluticasone/ salmeterol	Advair Diskus	100/50mcg, 250/50mcg, 500/50mcg	BID	Asthma <b>COPD: ONLY 250/50mcg</b>	Discard 30 days after first use		
		Advair HFA	45/21mcg, 115/21mcg, 230/21mcg	BID (2 puffs)	<b>Asthma ONLY</b>	Discard 12 months after first use		
		AirDuo Respiclick	55/14mcg, 113/14mcg, 232/14mcg	BID	<b>Asthma ONLY</b>	Discard 30 days after first use		
	Fluticasone/ salmeterol	---	55/14, 113/14, 232/14	BID	<b>Asthma ONLY</b>	Discard 30 days after first use		
	Fluticasone/ vilanterol	Breo Ellipta	100/25mcg, 200/25mcg	QD	Asthma <b>COPD: ONLY 100/25mcg</b>	Discard 6 weeks after first use		
	Budesonide/ formoterol	Symbicort	80/4.5mcg, 160/4.5mcg	BID (2 puffs)	Both	Discard 3 months after first use		
	Mometasone/ formoterol	Dulera	100/5mcg, 200/5mcg	BID	Both	Discard 12 months after first use		
<b>LABA/LAMA</b>	Indacaterol/ glycopyrrolate	Utibron Neohaler	27.5/15.6mc g capsule	BID	Both	Remove capsule from blister immediately prior to use		
	Olodaterol/ tiotropium	Stioloto Respimat	2.5/2.5mcg	QD (2 puffs)	<b>COPD ONLY</b>	Discard 3 months after first use		
	Umeclidinium/ vilanterol	Anoro Ellipta	62.5/25mcg	QD	<b>COPD ONLY</b>	Discard 6 weeks after first use		
	Glycopyrrolate, formoterol	Bevespi Aerosphere	9/4.8mcg	BID (2 puffs)	<b>COPD ONLY</b>	Discard 3 months after first use		
<b>ICS/ LABA/ LAMA</b>	Fluticasone/ umeclidinium/ vilanterol	Trelegy Ellipta	100/62.5/ 25mcg	QD	<b>COPD ONLY</b>	Discard 6 weeks after first use		