Management of Patients with Asthma or COPD

Asthma	СОРД				
Comp	parison				
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 tabassa smaking				
Family history of asthma	Long history of tobacco smoking				
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)						
			Persistent					
		Intermittent	Mild	Moderate	Severe			
	Symptoms	≤2 days/week	>2 days/week but not daily	Daily	Throughout the day			
	Nighttime awakenings	≤2x/month	3–4x/month	>1x/week but not nightly	Often 7x/week			
Impairment Normal FEV ₁ /FVC: 8–19 yr 85% 20–39 yr 80% 40–59 yr 75% 60–80 yr 70%	Short-acting beta ₂ -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			
		Normal FEV ₁ between exacerbations						
	Lung function	• FEV ₁ >80% predicted	• FEV₁≥80% predicted	• FEV ₁ >60% but <80% predicted	• FEV ₁ <60% predicted			
		FEV ₁ /FVC normal	• FEV ₃ /FVC normal	• FEV ₁ /FVC reduced 5%	• FEV ₁ /FVC reduced >5%			
	Exacerbations	0-1/year (see note) ≥2/year (see note) →						
Risk	requiring oral systemic corticosteroids	Consider severity and interval since last exacerbation. Frequency and severity may fluctuate over time for patients in any severity category.						
	coracosaeroias	Relative annual risk of exacerbations may be related to FEV ₁						

COPD

Severity	FEV ₁ /FVC	FEV ₁ % Predicted		
1. Mild COPD	< 0.70	$\geq 80\%$		
2. Moderate COPD	< 0.70	$50\% \le FEV_1 \le 80\%$		
3. Severe COPD	< 0.70	$30\% \le \text{FEV}_1 \le 50\%$		
4. Very Severe COPD	< 0.70	< 30% or < 50% w/chronic respiratory failure		

Airflow Limitation	Assessment (Exacerbation History	
3	C	D	≥2 or ≥1 leading to hospital admission
2	A	В	0 or 1 not leading to hospital admission
	mMRC 0-1, CAT <10	$mMRC \ge 2,$ $CAT \ge 10$	

Utilizing Severity Classifications to Make Treatment Decisions

Asthma

Intermittent Asthma

Persistent Asthma: Daily Medication

Consult with asthma specialist if step 4 care or higher is required. Consider consultation at step 3.

Step 4

Medium-dose ICS

Alternative:

+ LABA



Step 3 Preferred:

> Preferred: Low-dose ICS + LABA OR Medium-dose ICS

Medium-dose ICS + either LTRA. Alternative: Theophylline, or Low-dose ICS + either LTRA, Zileuton Theophylline, or Zileuton

Preferred: High-dose ICS + LABA AND

Step 5

Consider Omalizumab for patients who have allergies

Preferred: High-dose ICS + LABA + oral corticosteroid

Consider Omalizumab for patients who have allergies

Step 6

Step up if needed (first, check adherence, environmental control, and comorbid conditions) **Assess**

control

Step down if possible (and asthma is

well controlled at least 3 months)

Step 1

Preferred: SABA PRN

Preferred: Low-dose ICS Alternative: Cromolyn, LTRA, Nedocromil, or Theophylline

Step 2

Each step: Patient education, environmental control, and management of comorbidities.

Steps 2-4: Consider subcutaneous allergen immunotherapy for patients who have allergic asthma (see notes).

Quick-Relief Medication for All Patients

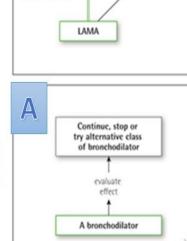
- SABA as needed for symptoms. Intensity of treatment depends on severity of symptoms: up to 3 treatments at 20-minute intervals as needed. Short course of oral systemic corticosteroids may be needed.
- Use of SABA >2 days a week for symptom relief (not prevention of EIB) generally indicates inadequate control and the need to step

LABA + ICS

COPD

(Adapted from the 2017 GOLD Guidelines)

- LAMA > LABA due to exacerbation
- Use of ICS \(\gamma\) risk of



LAMA + LABA

Further

exacerbation(s)

- Consider roflumilast if FEV, < 50% pred. and patient has Consider macrolide (in former smokers) chronic bronchitis Further exacerbation(s) LAMA + LABA Persistent + ICS symptoms/further exacerbation(s) Further exacerbation(s) LAMA + LABA LABA + ICS
- B LAMA + LABA Persistent symptoms A long-acting bronchodilator (LABA or LAMA)

- 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

Either short acting or long acting

Inhaled Asthma and COPD Medications

Classification	Generic	Brand	Dosing	General Administratio n	Indication: Asthma v. COPD	Expiration	MOA	Side Effects	
Short Acting Beta Agonists	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		Tachycardia, nasopharyngitis, tremor, sinusitis,	
	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			
(SABA)		Accuneb Neb.	0.63mg/3ml, 1.25gm/3ml, 2.5mg/3ml		Both	Store unopened pouches at room temp for up to 2 weeks			
		Xopenex HFA	45mcg/puff	Q 4 to 6 hours prn (2 puffs)	Both	Discard 12 months after first use			
	Levalbuterol	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	Selectively act on β2 adrenergic receptors to ↑ adenylyl cyclase to increase the formation of cAMP resulting in bronchial smooth muscle relaxation		
	Arformoterol	Brovana Neb.	15mcg/2ml	BID	COPD ONLY	Store unopened pouches at room temp for up to 6 weeks		to increase the formation of	rhinitis, bronchitis, headache, cough,
	Formoterol	Foradil DPI	12mcg	Q 12 hours	Both	Store unopened capsule at room temp for up to 4 months		dry mouth, nausea, URTI	
Long Acting Beta Agonists		Perforomist Neb.	20mcg/2ml	BID	COPD ONLY	Store unopened pouches at room temp for up to 3 months			
**If used in asthma, must be in combo with ICS	Indacaterol	Arcapta Neohaler	75mcg capsule	QD	COPD ONLY	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			

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

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

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