

ASTHMA TREATMENTS: INHALATIONS (Part 1 of 2)

Generic	Brand	Strength	Form	Dosage
ANTICHOLINERGIC				
ipratropium bromide	—	0.02%	soln	Children: Not recommended. Adults: 500mcg orally by nebulization 3–4 times daily; separate doses by 6–8hrs.
	Atrovent HFA	17mcg	MDI	Children: Not established. Adults: 2 inh 4 times daily; max 12 inh/day.
tiotropium bromide monohydrate	Spiriva Respimat	1.25mcg, 2.5mcg	soln	Children: Not established. Adults: 2 inh of 1.25mcg/actuation (2.5mcg) once daily.
BETA₂-AGONIST				
albuterol sulfate	—	0.5%	soln	Children: Use other forms. Adults: Use nebulizer. 2.5mg 3–4 times daily.
	—	0.083%	soln	<4yrs: Not recommended.
	—	90mcg	MDI	≥4yrs: Bronchospasm: 2 inh every 4–6hrs as needed; 1 inh every 4hrs may suffice. <i>EIB:</i> 2 inh 15min before exercise.
	ProAir HFA	90mcg	MDA	<4yrs: Not established. ≥4yrs: Bronchospasm: 2 inh every 4–6hrs; 1 inh every 4hrs may suffice. <i>EIB:</i> 2 inh 15–30min before exercise.
	ProAir RespiClick	90mcg	dry pwd	<4yrs: Not established. ≥4yrs: Bronchospasm: 2 inh every 4–6hrs; in some patients: 1 inh every 4hrs may suffice. <i>EIB:</i> 2 inh 15–30min before exercise.
	Proventil HFA Ventolin HFA	90mcg 90mcg	MDA MDA	<4yrs: Not established. ≥4yrs: Bronchospasm: 2 inh every 4–6hrs as needed; 1 inh every 4hrs may suffice. <i>EIB:</i> 2 inh 15–30min before exercise.
levalbuterol HCl	Xopenex	0.31mg/3mL, 0.63mg/3mL, 1.25mg/3mL	soln	<6yrs: Not recommended. 6–11yrs: 0.31mg by nebulization 3 times daily; max 0.63mg 3 times daily. >12yrs: Initially 0.63mg 3 times daily at 6–8hr intervals; may increase to 1.25mg 3 times daily.
	Xopenex Concentrate	1.25mg/0.5mL	soln	
levalbuterol tartrate	Xopenex HFA	45mcg	MDI	<4yrs: Not established. ≥4yrs: 2 inh every 4–6hrs; 1 inh every 4hrs may suffice.
metaproterenol sulfate	—	5%	soln	<6yrs: Not recommended. 6–12yrs: Use nebulizer. 0.1–0.2mL 3–4 times daily, up to every 4hrs. ≥12yrs: 3–4 times daily (see full labeling).
	—	0.4%, 0.6%	soln	Children: Not recommended. Adults: Use intermittent positive pressure breathing apparatus (IPPB): 2.5mL 3–4 times daily; up to every 4hrs.
LONG-ACTING BETA₂-AGONIST				
salmeterol xinafoate	Serevent Diskus	50mcg	dry pwd	<4yrs: Not recommended. ≥4yrs: Asthma/Bronchospasm: 1 inh every 12hrs. <i>EIB:</i> 1 inh at least 30min before exercise. Max 2 doses/day.
MAST CELL STABILIZER				
cromolyn sodium	—	20mg/2mL	soln	<2yrs: Not recommended. ≥2yrs: Use nebulizer. 20mg 4 times a day.
STEROID				
beclomethasone dipropionate	Qvar	40mcg, 80mcg	MDI	<5yrs: Not recommended. ≥5–11yrs: Initially 40mcg twice daily; max 80mcg twice daily. Adults: Previously on bronchodilators alone: Initially 40–80mcg twice daily. Previously on inhaled corticosteroids: Initially 40–160mcg twice daily. Max 320mcg twice daily.
budesonide	Pulmicort Flexhaler	90mcg, 180mcg	dry pwd	<6yrs: Not recommended. 6–17yrs: Initially 180mcg twice daily; may start at 360mcg twice daily; max 360mcg twice daily. ≥18yrs: Initially 360mcg twice daily; 180mcg twice daily may suffice; max 720mcg twice daily.
	Pulmicort Respules	0.25mg/2mL, 0.5mg/2mL, 1mg/2mL	susp	<6mos: Not recommended. 6–12mos: Not established. 12mos–8yrs: Previously on bronchodilators alone: 0.5mg once daily or 0.25mg twice daily. Previously on inhaled corticosteroids: 0.5mg once daily or 0.25mg twice daily; max 1mg/day. Previously on oral corticosteroids: 0.5mg twice daily or 1mg once daily.

(continued)

ASTHMA TREATMENTS: INHALATIONS (Part 2 of 2)

Generic	Brand	Strength	Form	Dosage
STERIOD (continued)				
ciclesonide	Alvesco	80mcg, 160mcg	MDA	<12yrs: Not recommended. ≥12yrs: <i>Previously on bronchodilators alone:</i> Initially 80mcg twice daily, max 160mcg twice daily. <i>Previously on inhaled corticosteroids:</i> Initially 80mcg twice daily; max 320mcg twice daily. <i>Previously on oral corticosteroids (see full labeling):</i> 320mcg twice daily.
flunisolide	Aerospan	80mcg/inh	MDI	<6yrs: Not recommended. 6–11yrs: 80mcg twice daily; max 160mcg twice daily. Adults: 160mcg twice daily; max 320mcg twice daily.
fluticasone furoate	Arnuity Ellipta	100mcg, 200mcg	dry pwd	Children: Not established. Adults: Base initial dose on previous asthma therapy and disease severity. <i>Not on inhaled corticosteroid:</i> usually initiate at 100mcg once daily; may increase to 200mcg once daily if inadequate response after 2 weeks. Max 200mcg/day.
fluticasone propionate	Flovent Diskus	50mcg, 100mcg, 250mcg	dry pwd	<4yrs: Not recommended. 4–11yrs: <i>Previously on bronchodilators alone or on inhaled corticosteroids:</i> Initially 50mcg twice daily; max 100mcg twice daily. ≥11yrs: <i>Previously on bronchodilators alone:</i> Initially 100mcg twice daily; max 500mcg twice daily. <i>Previously on inhaled corticosteroids:</i> initially 100–250mcg twice daily; max 500mcg twice daily. <i>Previously on oral corticosteroids (wean gradually):</i> initially 500–1000mcg twice daily; max 1000mcg twice daily.
	Flovent HFA	44mcg, 110mcg, 220mcg	MDI	<4yrs: Not recommended. 4–11yrs: 88 mcg twice daily. ≥12yrs: <i>Previously on bronchodilators alone:</i> Initially 88mcg twice daily; max 440mcg twice daily. <i>Previously on inhaled steroids:</i> Initially 88–220mcg twice daily; max 440mcg twice daily. <i>Previously on oral steroids:</i> Initially 440mcg twice daily; max 880mcg twice daily.
mometasone furoate	Asmanex HFA	100mcg, 200mcg	MDI	Children: Not established. Adults: <i>Previously on inhaled medium-dose corticosteroids:</i> use 100mcg strength. <i>Previously on inhaled high-dose or oral corticosteroids (wean gradually):</i> use 200mcg strength. <i>For both:</i> 2 inh twice daily (AM & PM).
	Asmanex Twisthaler	110mcg, 220mcg	dry pwd	<4yrs: Not established. 4–11yrs: 110mcg once in PM; max 110mcg/day. ≥12yrs: <i>Previously on bronchodilators alone or inhaled steroids:</i> Initially 220mcg once in PM; max 440mcg/day (as 2 inh once daily or 1 inh twice daily). <i>Previously on oral steroids:</i> Initially 440mcg twice daily; max 880mcg/day.
STERIOD + LONG-ACTING BETA₂-AGONIST				
budesonide/ formoterol fumarate dihydrate	Symbicort	80mcg/4.5mcg, 160mcg/4.5mcg	MDI	≥12yrs: 2 inh twice daily; max 160/4.5 twice daily.
fluticasone furoate/ vilanterol	Breo Ellipta	100mcg/25mcg, 200mcg/25mcg	dry pwd	Children: Not established. Adults: Initially 1 inh of 100/25mcg or 200/25mcg once daily; max 1 inh of 200/25mcg once daily. <i>Previously on low- to mid-dose corticosteroid:</i> consider 100/25mcg; <i>mid- to high-dose corticosteroid:</i> consider 200/25mcg.
fluticasone propionate/ salmeterol	Advair Diskus	100mcg/50mcg, 250mcg/50mcg, 500mcg/50mcg	dry pwd	<4yrs: Not recommended. 4–11yrs: 1 inh of 100/50 twice daily. ≥12yrs: 1 inh of 100/50, 250/50, or 500/50 twice daily; max 1 inh of 500/50 twice daily.
	Advair HFA	45mcg/21mcg, 115mcg/21mcg, 230mcg/21mcg	MDI	<12yrs: Not recommended. ≥12yrs: 2 inh of 45/21, 115/21, or 230/21 twice daily; max 2 inh 230/21 twice daily.
mometasone furoate/formoterol fumarate	Dulera	100mcg/5mcg, 200mcg/5mcg	MDI	<12yrs: Not established. ≥12yrs: <i>Previously on medium dose of steroid:</i> Use 100/5. <i>Previously on high dose of steroid:</i> Use 200/5. <i>Both:</i> 2 inh twice daily.

NOTES

Key: dry pwd = dry powder for inhalation; EIB = exercise induced bronchospasm; MDI = metered-dose inhaler; MDA = metered dose aerosol; soln = solution for inhalation; susp = suspension for inhalation