

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	90mcg	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.
	Ventolin HFA	90mcg	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 established. 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.
LONG-ACTING BETA₂-AGONIST				
salmeterol xinafoate	Serevent Diskus	50mcg	dry pwd	<4yrs: Not established. ≥4yrs: Asthma: 1 inh twice daily (approx. 12hrs apart) with concomitant ICS. <i>EIB:</i> 1 inh ≥30mins before exercise; do not use additional doses for 12hrs after administration or if already using twice daily dosing. Max 1 inh twice daily.
MAST CELL STABILIZER				
cromolyn sodium	—	20mg/2mL	soln	<2yrs: Not recommended. ≥2yrs: Use nebulizer. 20mg 4 times a day.
STERIOD				
beclomethasone dipropionate	Qvar Redihaler	40mcg, 80mcg	MDI	<4yrs: Not established.
				4–11yrs: Initially 40mcg twice daily (approx. 12hrs apart); max 80mcg twice daily. Adults: <i>Previously not on inhaled corticosteroids:</i> Initially 40–80mcg twice daily (approx. 12hrs apart). <i>Previously on inhaled corticosteroids:</i> Initially 40–320mcg twice daily. <i>Both:</i> 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: <i>Previously on bronchodilators alone:</i> 0.5mg once daily or 0.25mg twice daily. <i>Previously on inhaled corticosteroids:</i> 0.5mg once daily or 0.25mg twice daily; max 1mg/day. <i>Previously on oral corticosteroids:</i> 0.5mg twice daily or 1mg once daily.
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: Initially 80mcg twice daily (approx. 12hrs apart); may increase to max 160mcg twice daily. ≥12yrs: Initially 160mcg twice daily (approx. 12hrs apart); may increase to max 320mcg twice daily.

(continued)

ASTHMA TREATMENTS: INHALATIONS (Part 2 of 2)

Generic	Brand	Strength	Form	Dosage
STERIOD (continued)				
fluticasone furoate	Arnuity Ellipta	50mcg, 100mcg, 200mcg	dry pwd	<p><5yrs: Not established.</p> <p>5–11yrs: 50mcg once daily.</p> <p>≥12yrs: 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.</p>
fluticasone propionate	ArmonAir RespiClick	55mcg, 113mcg, 232mcg	dry pwd	<p><12yrs: Not established.</p> <p>≥12yrs: <i>Previously on inhaled steroids:</i> Initially 1 inh of 55mcg, 113mcg, or 232mcg twice daily (approx. 12hrs apart) based on asthma severity and previous steroid dose. <i>Not on inhaled steroid:</i> Initially 55mcg twice daily. <i>Both:</i> Max 232mcg twice daily.</p>
	Flovent Diskus	50mcg, 100mcg, 250mcg	dry pwd	<p><4yrs: Not recommended.</p> <p>4–11yrs: <i>Previously on bronchodilators alone or on inhaled corticosteroids:</i> Initially 50mcg twice daily; max 100mcg twice daily.</p> <p>≥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.</p>
	Flovent HFA	44mcg, 110mcg, 220mcg	MDI	<p><4yrs: Not established.</p> <p>4–11yrs: max 88mcg twice daily.</p> <p>≥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.</p>
mometasone furoate	Asmanex HFA	100mcg, 200mcg	MDI	<p>Children: Not established.</p> <p>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).</p>
	Asmanex Twisthaler	110mcg, 220mcg	dry pwd	<p><4yrs: Not established.</p> <p>4–11yrs: 110mcg once in PM; max 110mcg/day.</p> <p>≥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.</p>
STERIOD + LONG-ACTING BETA₂-AGONIST				
budesonide/formoterol fumarate dihydrate	Symbicort	80mcg/4.5mcg, 160mcg/4.5mcg	MDI	<p><6yrs: Not established.</p> <p>6–<12yrs: 2 inh of 80/4.5 twice daily (AM & PM).</p> <p>≥12yrs: Base initial dose on asthma severity. 2 inh of 80/4.5 or 160/4.5 twice daily (AM & PM). If insufficient response after 1–2wks of 80/4.5 strength, may switch to 160/4.5 strength. Max 2 inh of 160/4.5 twice daily.</p>
fluticasone furoate/vilanterol	Breo Ellipta	100mcg/25mcg, 200mcg/25mcg	dry pwd	<p>Children: ≤17yrs: Not established.</p> <p>Adults: Initially 1 inh of 100/25mcg or 200/25mcg once daily, based on disease severity and previous asthma therapy. Max 1 inh of 200/25mcg once daily.</p>
fluticasone propionate/salmeterol	Advair Diskus	100mcg/50mcg, 250mcg/50mcg, 500mcg/50mcg	dry pwd	<p><4yrs: Not established.</p> <p>4–11yrs: 1 inh of 100/50 twice daily.</p> <p>≥12yrs: Initially 1 inh of 100/50, 250/50 or 500/50 twice daily, based on disease severity and previous asthma therapy; if insufficient response after 2wks, use next higher strength. Max 1 inh of 500/50 twice daily.</p>
	Advair HFA	45mcg/21mcg, 115mcg/21mcg, 230mcg/21mcg	MDI	<p><12yrs: Not established.</p> <p>≥12yrs: Initially 2 inh of 45/21, 115/21 or 230/21 twice daily, based on disease severity and previous asthma therapy; if insufficient response after 2wks, use next higher strength. Max 2 inh of 230/21 twice daily.</p>
	AirDuo RespiClick	55mcg/14mcg, 113mcg/14mcg, 232mcg/14mcg	dry pwd	<p><12yrs: Not established.</p> <p>≥12yrs: <i>Not previously on ICS:</i> initially 1 inh of 55/14mcg twice daily. <i>Switching from an ICS or combination product:</i> 1 inh of 55/14mcg, 113/14mcg or 232/14mcg twice daily, based on disease severity and previous asthma therapy. If insufficient response after 2wks, use next higher strength. Max 1 inh of 232/14mcg twice daily.</p>
mometasone furoate/formoterol fumarate dihydrate	Dulera	100mcg/5mcg, 200mcg/5mcg	MDI	<p><12yrs: Not established.</p> <p>≥12yrs: Initially 2 inh of 100mcg/5mcg or 200mcg/5mcg twice daily (AM & PM), based on disease severity and previous asthma therapy. Max 2 inh of 200mcg/5mcg twice daily (max 800mcg/20mcg per day).</p>

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

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