

# INHALE

Inspiring Health Advances in Lung Care



The information contained in these documents was formulated based on national and international guidelines, in addition to clinical expert opinion. Every effort is made to update the documents on a regular basis, but we encourage users to consult applicable guidelines, and their organizations' recommended resources for potential updates and clarifications.

The purpose of these documents is to assist clinicians in making prescribing decisions. Please note, pharmacologic differences exist between different products making it difficult to make a direct comparison between agents. Thus, these documents serve as general guidance in clinical situations, with limitations. Please confirm dosing recommendations per FDA labeling, prescribing information, clinical guidelines, and peer-reviewed literature. For any additional questions, please feel free to contact a member of the INHALE team at [contact@inhalecqi.org](mailto:contact@inhalecqi.org).



## Inhaled Corticosteroids

### Dry Powder Inhaler (DPI)^

Drug Available Dosages FDA Approved Dosages <i>(see key for italicized dosages)</i>	Low TOTAL Daily Dose			Medium TOTAL Daily Dose			High TOTAL Daily Dose <sup>#</sup>		
	0-4 years	5-11 years	≥12 years & adult	0-4 years	5-11 years	≥12 years & adult	0-4 years	5-11 years	≥12 years & adult
ArmonAir® Digihaler® (Fluticasone propionate) DPI  30 mcg, 55 mcg, 113 mcg, 232 mcg	NA*	60 mcg*	110 mcg	NA*	110 mcg*	226 mcg	NA	NA	464 mcg
Arnuity® Ellipta® (Fluticasone furoate) DPI  50 mcg 100 mcg 200 mcg	NA	50 mcg	100 mcg	NA	50 mcg	100 mcg	NA	NA	200 mcg
Asmanex® Twisthaler® (Mometasone furoate) DPI  110 mcg 220 mcg	NA*	110 mcg*	220 mcg	NA	NA	440 mcg	NA	NA	880 mcg
Flovent® Diskus® (Fluticasone propionate) DPI  50 mcg 100 mcg 250 mcg	NA*	100 mcg*	100-250 mcg	NA*	200 mcg*	>250-500 mcg	NA	NA	>500 mcg- 2000 mcg
Pulmicort® Flexhaler® (Budesonide) DPI  90 mcg 180 mcg	NA	180-360 mcg†	180-640 mcg†	NA	>360- <720 mcg†	>640- <1440 mcg‡	NA	720 mcg†	1440 mcg‡

### Metered Dose Inhaler (MDI)

Drug Available Dosages FDA Approved Dosages <i>(see key for italicized dosages)</i>	Low TOTAL Daily Dose			Medium TOTAL Daily Dose			High TOTAL Daily Dose <sup>#</sup>		
	0-4 years	5-11 years	≥12 years & adult	0-4 years	5-11 years	≥12 years & adult	0-4 years	5-11 years	≥12 years & adult
Alvesco® (Ciclesonide) MDI  80 mcg 160 mcg	NA	NA	160 mcg	NA	NA	320 mcg	NA	NA	640 mcg
Asmanex® (Mometasone furoate) HFA  50 mcg 100 mcg 200 mcg	NA	<i>50-100 mcg</i>	200 mcg	NA	200 mcg	400 mcg	NA	NA	800 mcg



Flovent® (Fluticasone propionate) HFA  44 mcg 110 mcg 220 mcg	NA  <i>88-176 mcg</i>	88-176 mcg	88-264 mcg	NA  <i>&gt;176-440 mcg</i>	176 mcg  <i>&gt;176-440 mcg</i>	>264-440 mcg	NA  <i>&gt;440 mcg</i>	NA  <i>&gt;440 mcg</i>	>440 mcg- 1760 mcg
QVAR® (Beclomethasone) RediHaler® HFA  40 mcg 80 mcg	NA*	80 mcg*	80-160 mcg	NA*	160 mcg*	>160-480 mcg	NA*	320 mcg*	>480-640 mcg
<b>Nebulized Suspensions</b>									
<b>Drug Available Dosages FDA Approved Dosages</b>	<b>Low TOTAL Daily Dose</b>			<b>Medium TOTAL Daily Dose</b>			<b>High TOTAL Daily Dose<sup>#</sup></b>		
	0-4 years	5-11 years	≥12 years & adult	0-4 years	5-11 years	≥12 years & adult	0-4 years	5-11 years	≥12 years & adult
Pulmicort® Respules® (Budesonide) Inhalation Suspension for Nebulization  0.25 mg 0.5 mg 1 mg	<i>0.25-0.5 mg<sup>§</sup></i>	0.5 mg <sup>§</sup>	NA	>0.5-1 mg <sup>§</sup>	1 mg <sup>§</sup>	NA	>1 mg <sup>§</sup>	2 mg <sup>§</sup>	NA

Key: DPI= dry powder inhaler; HFA= hydrofluoroalkane; MDI= metered-dose inhaler; NA= not available (either not approved, no data available, or safety and efficacy not established for this age group)

*Italicized dosages may minimize/exceed FDA-approved dosages but are supported by clinical guidelines and expert clinical opinions.*

^: DPI delivery not recommended for 0-4 years due to technical difficulty with drug delivery. Most children <4 years of age are unable to provide sufficient inspiratory flow for optimal DPI lung delivery. Use clinical judgement given lack of FDA approved dosing in this age group. May consider use of inhaled corticosteroids delivered through an MDI with a chamber and mask. Consult guidelines or specialist for additional information.

#: Consider combination therapy, particularly ICS/LABA combo for patients who require higher than medium dose ICS. Monitor for systemic side effects of ICS, including slower of linear growth in children. Referral to specialist recommended.

\*: approved for 4-11 years of age

†: approved for 6-17 years of age

‡: approved for 18 years of age or older

§: approved for 12 months – 8 years of age



**Combination Inhaled Corticosteroids/Long-Acting Beta-Agonists**

<b>Dry Powder Inhaler (DPI)^</b>						
<b>Drug Available Dosages FDA Approved Dosages</b>	<b>Low TOTAL Daily Dose</b>		<b>Medium TOTAL Daily Dose</b>		<b>High TOTAL Daily Dose</b>	
	5-11 years	≥12 years & adult	5-11 years	≥12 years & adult	5-11 years	≥12 years & adult
Advair® Diskus® Wixela® Inhub® (Fluticasone/salmeterol)  100/50 mcg 250/50 mcg 500/50 mcg	NA	1 inhalation twice daily (100/50 mcg/actuation)	1 inhalation twice daily (100/50 mcg/actuation) *	1 inhalation twice daily (250/50 mcg/actuation)	NA	1 inhalation twice daily (500/50 mcg/actuation)
AirDuo® Respiclick® AirDuo® Digihaler® (Fluticasone/salmeterol)  55/14 mcg 113/14 mcg 232/14 mcg	NA	1 inhalation twice daily (55/14 mcg twice daily)	NA	1 inhalation twice daily (113/14 mcg twice daily)	NA	1 inhalation twice daily (232/14 mcg twice daily)
Breo Ellipta® (Fluticasone furoate/vilanterol)  100/25 mcg 200/25 mcg	NA	NA	NA	1 inhalation once daily (100/25 mcg/actuation) **	NA	1 inhalation once daily (200/25 mcg/actuation) **
<b>Metered Dose Inhaler (MDI)</b>						
<b>Drug Available Dosages FDA Approved Dosages</b>	<b>Low TOTAL Daily Dose</b>		<b>Medium TOTAL Daily Dose</b>		<b>High TOTAL Daily Dose</b>	
	5-11 years	≥12 years & adult	5-11 years	≥12 years & adult	5-11 years	≥12 years & adult
Advair® (Fluticasone/salmeterol) HFA  45/21 mcg 115/21 mcg 230/21 mcg	NA	2 inhalations twice daily (45/21 mcg/actuation)	NA	2 inhalations twice daily (115/21 mcg/actuation)	NA	2 inhalations twice daily (230/21 mcg/actuation)
Symbicort®/Breyna™ (Budesonide/formoterol)  80/4.5 mcg 160/4.5 mcg	NA	2 inhalations twice daily (80/4.5 mcg/actuation) ^^	2 inhalations twice daily (80/4.5 mcg/actuation) ^^	2 inhalations twice daily (160/4.5 mcg/actuation) ^^	NA	NA^^
Dulera® (Mometasone/formoterol)  50/5 mcg 100/5 mcg 200/5 mcg	NA	NA	2 inhalations twice daily (50/5 mcg/actuation)	2 inhalations twice daily (100/5 mcg/actuation)	NA	2 inhalations twice daily (200/5 mcg/actuation)

Key: DPI= dry powder inhaler; HFA= hydrofluoroalkane; MDI= metered-dose inhaler; NA= not available (either not approved, no data available, or safety and efficacy not established for this age group)

\*approved for 4-11 years of age

\*\*approved for 18 years of age or older

^^= SMART Dosage (in addition to daily maintenance therapy): 1 to 2 puffs as needed up to a maximum of 12 puffs or 54 mcg formoterol per day; SMART=single maintenance and reliever therapy

Updated 12/13/22



#### Additional Considerations:

- Tables above do NOT imply potency equivalence. Data is limited regarding comparative potency between agents.
- Inhalers containing the same molecule may not be clinically equivalent if the delivery device differs. In addition, generic ICS formulations may not all be clinically equivalent to brand name formulations.
- Combination inhalers that include LAMA (long-acting muscarinic antagonist) components may differ in ICS dosing.
- In patients requiring high dose ICS or ICS/LABA therapy, consider referral to a specialist.

#### References:

- Global Initiative for Asthma. Global Strategy for Asthma Management and Prevention, 2020. Available from: [www.ginasthma.org](http://www.ginasthma.org)
- Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma. [Bethesda, Md.]: U.S. Dept. of Health and Human Services, National Institutes of Health, National Heart, Lung, and Blood Institute, 2007. National Heart, Lung, and Blood Institute.
- Expert Panel Working Group of the National Heart, Lung, and Blood Institute (NHLBI) administered and coordinated National Asthma Education and Prevention Program Coordinating Committee (NAEPPCC), Cloutier MM, et al. 2020 Focused Updates to the Asthma Management Guidelines: A Report from the National Asthma Education and Prevention Program Coordinating Committee Expert Panel Working Group. J Allergy Clin Immunol. 2020 Dec;146(6):1217-1270.
- Nationwide Children's Hospital. Updated 2022. <https://www.nationwidechildrens.org/for-medical-professionals/tools-for-your-practice/clinical-tools/prescribing-guidelines-for-asthma>

