

Type	PRO	CON	PT ED
MDI = Metered dose INH	deliver directly into lungs	10% drug dose to lungs only (80% oropharynx), require good hand-lung coordination, mechanics, and adherence (spacers can help!)	always have pt demo back use
Dry-powder INH	breath-activated (don't have to rely on hand to compress), more environmentally friendly	20% drug dose to lungs only	
Nebulizers	mist inhaled with face mask/mouthpiece	make take several minutes (up to 30 min) to deliver tx	

REVIEW OF ALL ASTHMA MEDICATIONS/USAGE

Drug Class	Generic	Brand	SE + Pt Ed	NOTES
ANTI-INFLAMMATORY				
ICS (Control)	beclomethasone dipropionate	QVAR	Dose dependent. At higher doses, thrush (yeast infection in the mouth) and hoarseness may occur, but are not common. Rinsing the mouth after each use and using a spacer device with MDIs will help prevent these side effects. Bruising, adrenal suppression, dysphonia, bone demineralization, growth suppression is slightly linked.	Decreases airway hyper-responsiveness and decrease # asthma exacerbations. Does not enhance child's ability to "grow out" of asthma. Corticosteroids are immune-suppressant, monitor for infxn, varicella, measles, URIs.
	budesonide	Pulmicort		
	flunisolide	Aerobid, Aerospan		
	fluticasone propionate	Flovent		
	mometasone furoate	Asmanex Twisthaler		
	triamcinolone acetonide	Azmacort		
	fluticasone + salmeterol	Advair		
	xinafoate (inhaled steroid + LABA)	Advair HFA		
	budesonide + formoterol LABA	Symbicort		
Oral Steroid (Relief)	dexamethasone		Long-term use can cause acne, weight gain, mood or behavior changes, upset stomach, bone loss, eye changes and slowing of growth	Hypothalamic-pituitary axis suppression -- monitored by growth, intraocular pressure, corticosteroid levels. Preg Cat C
	hydrocortisone	Cortef		
	methylprednisone	Medrol		
	prednisolone	Prelone		
	prednisone	Prednisone Intensol		
Mast cell stabilizer (Control)	cromolyn sodium	Intal	Bad taste with Tilade. Need 3-4 weeks to begin working, and needs to be taken 2 to 4 times a day to control long-term.	Prophylatic use only. Treat more AR, than asthma.
	nedocromil sodium	Tilade		
Leukotriene Modifiers	montelukast sodium	Singulair	Headache, nausea, urticaria, flu-sx, otalgia, leg pain, thirst (stay hydrated!)	Considered alternative to steroids, especially with pt who need PO steroid... or could be added on when ICS is not as effective as it should. Preg Cat B. May change how the body responds to other drugs, esp Coumadin and theophylline.
	zafirlukast	Accolate		
	zileuton	Zyflo CR		

IgE Antagonist	omalizumab (SQ injection)	Xolair	Black box warning for anaphylaxis... watch Sub-Q infection, viral infxn, URI, sinusitis, headache, sore throat	Reduces IgE in blood by 95% (only helpful for those with inappropriate IgE response to dander, pollen, etc) -- Remember: IgE causes mast cells to dump histamine which causes vessels to leak/edematous and then causes bronchiolar congestion in asthmatics. Only approved for older kids who test positive for aero-allergen that is unable to control with steroids. ~\$10k/yr. Monitor 2 hr after for anaphylaxis. Preg Cat B.
Theophylline (control)	theophylline	Uniphyll, Theo-Dur, Slo-Bid, Theo-24	Nausea, vomiting, diarrhea, stomachache, headache, rapid or irregular heartbeat, muscle cramps, jittery or nervous feelings and hyperactivity. Symptoms may be a sign of too much medication, so check blood levels regularly.	Available only in the oral form. Used in difficult-to-control or severe asthma. It must be taken daily and doses cannot be missed. Blood tests are required to monitor therapy. Certain medications--such as antibiotics containing erythromycin, seizure medications and ulcer medications--can interfere with the way theophylline works. Cigarette smoke and viral illnesses can also change how the body responds to theophylline.
BRONCHODILATORS				
Oral Methylxanthines	oxytriphylline	Choledyl SA	Stomach upset, Nervousness, Nausea and vomiting, Insomnia (difficulty sleeping), Hyperactivity, irritability, Rapid or irregular heartbeat, Dizziness	
	theophylline	Elixophyllin, Theo-24, Theochron, Uniphyll		
Anticholinergics (Relief)	ipratropium bromide	Atrovent, Atrovent HFA	dry mouth, may increase wheeze for some	Less seen in kids (COPD, chronic bronchitis); use for pt who are not responding
	ipratropium bromide + albuterol sulfate	Combivent, Duoneb		
SABA: Inhaled Short-Acting Beta-2 Agonists (Relief)	albuterol sulfate	Accuneb, Proventil HFA, ProAir HFA, Ventolin	Anxiety, racing heart, headache, insomnia, nervousness, tremors, restlessness	>1 canister/mo, pt needs more control. We worry about increased tolerance, SE profile (esp CV, CNS excitability, DM worry). Preg category C. Drug interactions of note: cough/cold meds (raise BP, HR), MAOI/TCA (additive), Digoxin, any child with heart meds (hypokalemia)
	isoetharine hydrochloride	Beta-2		
	isoproterenol hydrochloride	Isuprel		
	levalbuterol hydrochloride	Xopenex/HFA		
	metaproterenol sulfate	Alupent		
	pirbuterol acetate	Maxair Autohaler		
LABA: Long-acting Beta-2 Agonist (Control)	formoterol fumarate	Foradil Aerolizer	Nervous or shaky feelings, over-excitement or hyperactivity, increased heart rate, and (rarely) upset stomach or trouble sleeping.	Always monitor for black box warning issues of asthma-related deaths and exacerbation (long-duration, but takes long time to work!). If pt has "air hunger," it cannot reverse in time;
	salmeterol xinafoate	Serevent Diskus		
	ipratropium bromide + albuterol sulfate	Combivent, Duoneb		

fluticasone propionate + salmeterol xinafoate (inhaled steroid + LABA)	Advair Diskus
budesonide and formoterol fumarate (inhaled steroid + LABA)	Symbicort