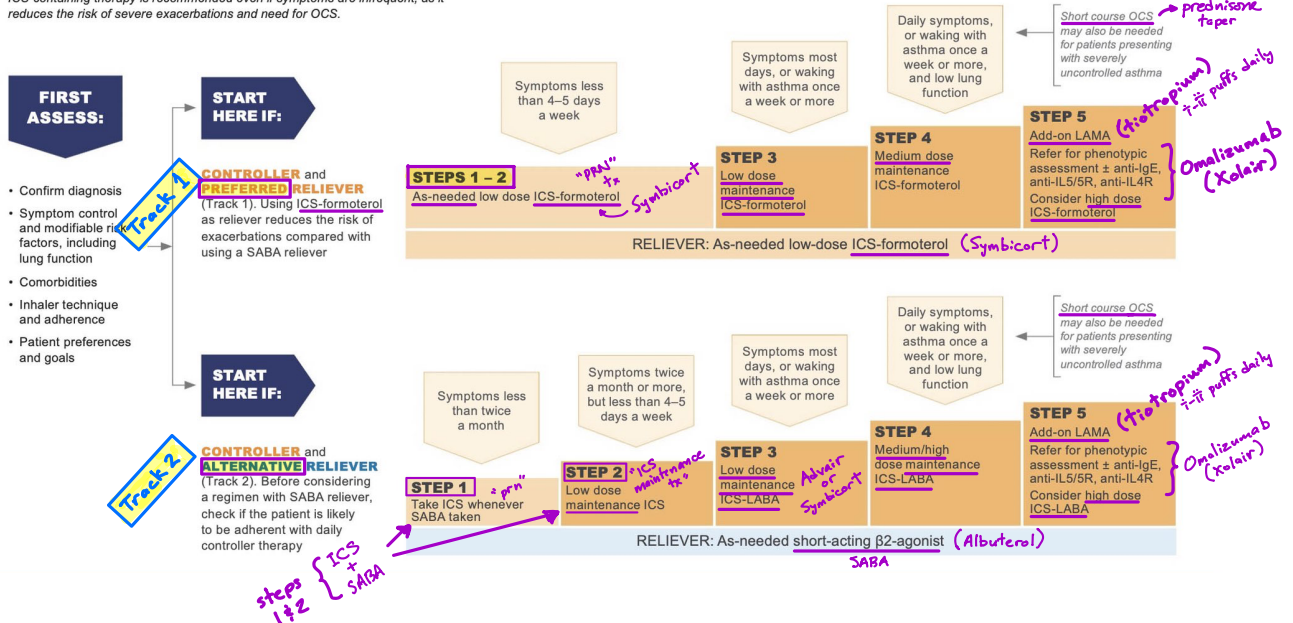


Global Initiative for Asthma (GINA 2023)

STARTING TREATMENT

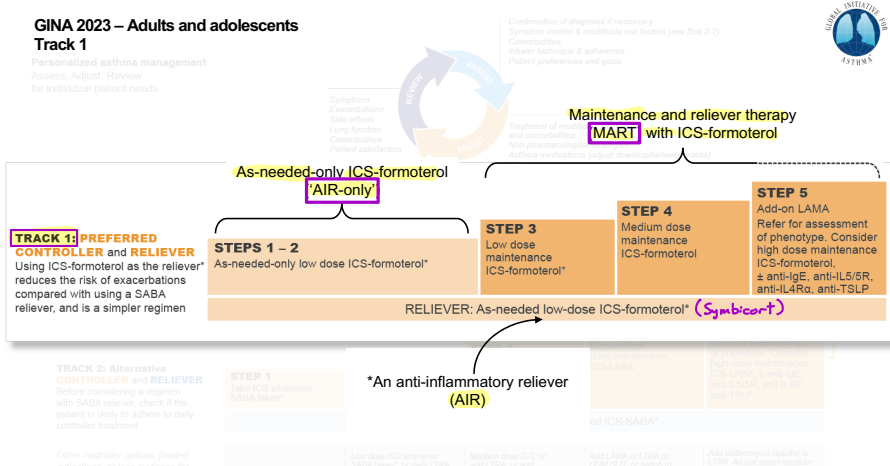
in adults and adolescents with a diagnosis of asthma

Track 1 is preferred if the patient is likely to be poorly adherent with daily controller. ICS-containing therapy is recommended even if symptoms are infrequent, as it reduces the risk of severe exacerbations and need for OCS.



GINA 2023 – Adults and adolescents Track 1

Personalized asthma management Assess, Adjust, Review for individual patient needs



Terminology

- **“Reliever”** is for symptom relief or before exercise or allergen exposure.
- **“Controller”** prevents asthma symptoms and future risk (i.e., exacerbations)
- **“Maintenance Treatment”** refers to regularly scheduled medication administration → e.g., “Symbicort 80/4.5 MDI:1 inhalation”

Step	Medication	Dose
Steps 1-2 (AIR-only)	Symbicort MDI 160/4.5 (budesonide/formoterol)	1 inhalation PRN
Step 3 (MART)	Symbicort MDI 80/4.5 (budesonide/formoterol)	1 inhalation BID, plus 1 inhalation PRN
Step 4 (MART)	Symbicort MDI 80/4.5 (budesonide/formoterol)	2 inhalations BID, plus 1 inhalation PRN
Step 5 (MART)	Symbicort MDI 80/4.5 (budesonide/formoterol)	2 inhalations BID, plus 1 inhalation PRN

AIR-only: Anti-inflammatory Reliever Only (ICS-formoterol)
MART: Maintenance and Reliever Therapy (ICS-formoterol)
MDI: Metered-Dose Inhaler



Why not treat with SABA alone?

- Historically, inhaled SABA was regarded as 1st-line medication for asthma for over 50 years, since asthma was thought to be a disease of bronchoconstriction and SABA provided rapid relief of symptoms at a low cost.
- Regular use of SABA for 1-2 weeks is associated with the following risks:
 - (1) increased airway hyperresponsiveness
 - (2) reduced bronchodilator efficacy
 - (3) increased eosinophils → inflammation
 - (4) SABA overuse increases asthma exacerbations → increases risk of mortality
- When a newly diagnosed asthmatic patient is started on a SABA, it trains the patient to regard it as his/her primary asthma treatment, even when a daily ICS is prescribed.
- When patients are prescribed ICS's, adherence is extremely poor when symptoms subside.
- GINA changed its guidelines and recommendations when combination formulations of ICS plus formoterol became available.
 - ICS-formoterol combination inhalers offer an ICS controller PLUS preferred reliever in a single convenient product (e.g., Symbicort MDI / DPI).
 - ICS-formoterol combination inhalers avoid confusion about inhaler technique with different devices.
 - Step treatment down or up is accomplished by simply changing the number of maintenance doses of ICS-formoterol combination inhalers.

Practical Tips for Patients

- 69% of patients said ICS-formoterol worked as fast as, or faster than, their previous SABA.
- Suggest to patients to try out their new reliever (ICS-formoterol) at a convenient time for confidence.
- Emphasize that they should use the ICS-formoterol inhaler when they have more symptoms, instead of their previous SABA.
- Advise patients to have two inhalers, one at home and one to carry with them.
- Advise patients to rinse and spit out after ICS-formoterol use to prevent candidiasis.
- When patients are taking maintenance doses of ICS-formoterol, emphasize to take more as needed doses of ICS-formoterol to prevent risk of severe exacerbation and dependence on oral corticosteroids.
- Provide patients with a customized "My Asthma Action Plan" for further instructions and guidance.

My Asthma Action Plan For Single Inhaler Maintenance and Reliever Therapy (SMART) with budesonide/formoterol		Name: _____	Action plan provided by: _____
		Date: _____	Doctor: _____
		Usual best PEF: _____ L/min (if used)	Doctor's phone: _____
Normal mode <input type="checkbox"/> My SMART Asthma Treatment is: <input type="checkbox"/> budesonide/formoterol 160/4.5 (12 years or older) <input type="checkbox"/> budesonide/formoterol 80/4.5 (4-11 years) <input type="checkbox"/> My Regular Treatment Every Day: <small>(Write in or circle the number of doses prescribed for this patient)</small> Take [1, 2] inhalation(s) in the morning and [0, 1, 2] inhalation(s) in the evening, every day <input type="checkbox"/> Reliever Use 1 inhalation of budesonide/formoterol whenever needed for relief of my asthma symptoms I should always carry my budesonide/formoterol inhaler <input type="checkbox"/> My asthma is stable if: <ul style="list-style-type: none"> I can take part in normal physical activity without asthma symptoms AND <ul style="list-style-type: none"> I do not wake up at night or in the morning because of asthma 	Asthma Flare-up <input type="checkbox"/> If over a Period of 2-3 Days: <ul style="list-style-type: none"> My asthma symptoms are getting worse OR NOT improving OR I am using more than 6 budesonide/formoterol reliever inhalations a day (if aged 12 years or older) or more than 4 inhalations a day (if aged 4-11 years) I should: <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Continue to use my regular everyday treatment PLUS 1 inhalation budesonide/formoterol whenever needed to relieve symptoms <input type="checkbox"/> Start a course of prednisolone <input type="checkbox"/> Contact my doctor Course of Prednisolone Tablets: Take _____ mg prednisolone tablets per day for _____ days OR _____	Asthma Emergency <input type="checkbox"/> Signs of an Asthma Emergency: <ul style="list-style-type: none"> Symptoms getting worse quickly Extreme difficulty breathing or speaking Little or no improvement from my budesonide/formoterol reliever inhalations <input type="checkbox"/> If I have any of the above danger signs, I should dial _____ for an ambulance and say I am having a severe asthma attack. <input type="checkbox"/> While I am waiting for the ambulance start my asthma first aid plan: <ul style="list-style-type: none"> Sit upright and stay calm. Take 1 inhalation of budesonide/formoterol. Wait 1-3 minutes. If there is no improvement, take another inhalation of budesonide/formoterol (up to a maximum of 6 inhalations on a single occasion). If only albuterol is available, take 4 puffs as often as needed until help arrives. Start a course of prednisolone tablets (as directed) while waiting for the ambulance. Even if my symptoms appear to settle quickly, I should see my doctor immediately after a serious attack. 	
Other Instructions _____			

Approaches to Asthma Controller Therapy in Adolescents and Adults (UpToDate)

Global Initiative for Asthma (GINA) ^[3]	
Asthma symptoms	Therapy
Step 1	
<ul style="list-style-type: none"> Infrequent asthma symptoms (eg, <2 times/week) No risk factors for exacerbations[¶] 	<ul style="list-style-type: none"> Low-dose ICS-formoterol as needed (preferred)^Δ <i>Track 1</i> or Low-dose ICS whenever SABA used or as-needed low-dose ICS-SABA^Δ <i>Track 2</i>
Step 2	
<ul style="list-style-type: none"> Asthma symptoms or need for reliever inhaler ≥2 times/week, but without troublesome daily symptoms 	<ul style="list-style-type: none"> Low-dose ICS-formoterol as needed (preferred) <i>Track 1</i> or Low-dose ICS daily and SABA as needed <i>Track 2</i> <p>Other options</p> <ul style="list-style-type: none"> Low-dose ICS-SABA or ICS plus SABA, concomitantly administered, as needed or (less preferred) LTRA daily and SABA as needed
Step 3	
<ul style="list-style-type: none"> Troublesome asthma symptoms most days, nocturnal awakening due to asthma ≥1 time/month, multiple risk factors for exacerbations[¶] 	<ul style="list-style-type: none"> Low-dose ICS-formoterol as maintenance and reliever therapy[◊] (preferred) <i>MART</i> or Low-dose ICS-LABA combination daily and SABA as needed <i>e.g., Advair and Albuterol</i> <p>Other options</p> <ul style="list-style-type: none"> Medium-dose ICS daily and SABA or ICS-SABA^Δ as needed or Low-dose ICS plus LTRA daily and SABA or ICS-SABA^Δ as needed
Step 4	
<p>Severely uncontrolled asthma with ≥3 of the following:</p> <ul style="list-style-type: none"> Daytime asthma symptoms >2 times/week Nocturnal awakening due to asthma Reliever needed for symptoms >2 times/week Activity limitation due to asthma 	<ul style="list-style-type: none"> Medium-dose ICS-formoterol as maintenance and reliever therapy[◊] (preferred) <i>MART</i> or Medium dose ICS-LABA daily and SABA or ICS-SABA^Δ as needed <p>Other options <i>tiotropium 2-4 puffs daily</i></p> <ul style="list-style-type: none"> Possible add-on LAMA or switch to ICS-LAMA-LABA Possible add-on LTRA → montelukast 10mg PO daily Possible short course of OCS (oral corticosteroid, e.g., prednisone burst tx)

Comparison of NAEPP and GINA Guidelines (UpToDate)

National Asthma Education and Prevention Program: Expert Panel Working Group ^[1,2]		Global Initiative for Asthma (GINA) ^[3]	
Asthma symptoms/lung function	Therapy*	Asthma symptoms	Therapy
Step 1			
<p>All of the following:</p> <ul style="list-style-type: none"> Daytime symptoms ≤2 days/week Nocturnal awakenings ≤2/month Normal FEV₁ Exacerbations ≤1/year 	<ul style="list-style-type: none"> SABA, as needed <i>(Albuterol MDI prn)</i> 	<ul style="list-style-type: none"> Infrequent asthma symptoms (eg, <2 times/week) No risk factors for exacerbations[¶] 	<ul style="list-style-type: none"> Low-dose ICS-formoterol as needed (preferred)^Δ <i>Track 1</i> or Low-dose ICS whenever SABA used or as-needed low-dose ICS-SABA^Δ <i>Track 2</i>
Step 2			
<p>Any of the following:</p> <ul style="list-style-type: none"> Daytime symptoms >2 but <7 days/week Nocturnal awakenings up to 3 to 4 nights/month Minor interference with activities Exacerbations ≥2/year 	<ul style="list-style-type: none"> Low-dose ICS daily and SABA as needed <i>maintenance tx ICS daily, Albuterol prn</i> or Low-dose ICS-SABA or ICS plus SABA, concomitantly administered, as needed^Δ <p>Alternative option(s)</p> <ul style="list-style-type: none"> Daily LTRA and SABA as needed 	<ul style="list-style-type: none"> Asthma symptoms or need for reliever inhaler ≥2 times/week, but without troublesome daily symptoms 	<ul style="list-style-type: none"> Low-dose ICS-formoterol as needed (preferred) <i>Track 1</i> or Low-dose ICS daily and SABA as needed <i>Track 2</i> <p>Other options</p> <ul style="list-style-type: none"> Low-dose ICS-SABA or ICS plus SABA, concomitantly administered, as needed or (less preferred) LTRA daily and SABA as needed
Step 3			
<p>Any of the following:</p> <ul style="list-style-type: none"> Daily symptoms Nocturnal awakenings >1/week Daily need for reliever Some activity limitation FEV₁ 60 to 80% predicted Exacerbations ≥2/year 	<ul style="list-style-type: none"> Low-dose ICS-formoterol as maintenance and reliever therapy[◊] (preferred) <p>Alternative option(s)</p> <ul style="list-style-type: none"> Medium-dose ICS daily and SABA as needed or Low-dose ICS-LABA combination daily or low-dose ICS plus LAMA daily or low-dose ICS plus anti-leukotriene daily and SABA as needed 	<ul style="list-style-type: none"> Troublesome asthma symptoms most days, nocturnal awakening due to asthma ≥1 time/month, multiple risk factors for exacerbations[¶] 	<ul style="list-style-type: none"> Low-dose ICS-formoterol as maintenance and reliever therapy[◊] (preferred) <i>Track 1</i> or Low-dose ICS-LABA combination daily and SABA as needed <i>Track 2</i> <i>Advair or Symbicort</i> <p>Other options</p> <ul style="list-style-type: none"> Medium-dose ICS daily and SABA or ICS-SABA^Δ as needed or Low-dose ICS plus LTRA daily and SABA or ICS-SABA^Δ as needed
Step 4			
<p>Any of the following:</p> <ul style="list-style-type: none"> Symptoms all day Nocturnal awakenings nightly Need for SABA several times/day Extreme limitation in activity FEV₁ <60% predicted Exacerbations ≥2/year An acute exacerbation 	<ul style="list-style-type: none"> Medium-dose ICS-formoterol as maintenance and reliever therapy[◊] (preferred) <p>Alternative option(s)</p> <ul style="list-style-type: none"> Medium-dose ICS-LABA daily or medium-dose ICS plus LAMA daily or Medium-dose ICS daily plus anti-leukotriene and SABA as needed* 	<p>Severely uncontrolled asthma with ≥3 of the following:</p> <ul style="list-style-type: none"> Daytime asthma symptoms >2 times/week Nocturnal awakening due to asthma Reliever needed for symptoms >2 times/week Activity limitation due to asthma 	<ul style="list-style-type: none"> Medium-dose ICS-formoterol as maintenance and reliever therapy[◊] (preferred) or Medium dose ICS-LABA daily and SABA or ICS-SABA^Δ as needed <p>Other options</p> <ul style="list-style-type: none"> Possible add-on LAMA or switch to ICS-LAMA-LABA Possible add-on LTRA

Combination ICS-SABA and ICS-Formoterol Inhalers

Drug name(s)	Preparation(s)	Dose
Inhaled corticosteroid and short-acting beta-agonist (ICS-SABA)		
Albuterol-budesonide MDI⁴ (Brand name [United States]: Airsupra)	MDI: Albuterol 90 mcg and budesonide 80 mcg/actuation	<ul style="list-style-type: none"> Usual dose: 2 inhalations as needed up to a maximum of 12 inhalations per day Acute exacerbation at home: 2 inhalations; may repeat every 20 minutes for a total of 6 inhalations, then as directed⁴
ICS and formoterol combinations^Δ◊		
Budesonide-formoterol MDI (Brand names [United States]: Symbicort, Brey-na)	MDI: Budesonide 80 mcg and formoterol 4.5 mcg/actuation MDI: Budesonide 160 mcg and formoterol 4.5 mcg/actuation	<ul style="list-style-type: none"> Usual dose: <ul style="list-style-type: none"> 80 mcg/4.5 mcg: 1 to 2 inhalations as needed; some experts use 2 inhalations unless infrequent rescue inhaler use; maximum dose: 12 inhalations per day 160 mcg/4.5 mcg: 1 inhalation as needed; if symptoms persist after a few minutes, may repeat; maximum dose: 12 inhalations per day Acute exacerbation at home: 1 to 2 inhalations as needed; wait for a few minutes between doses and use second dose if symptoms persist; may repeat 1 to 2 inhalations every 20 minutes for up to 6 inhalations in 1 hour, then as directed⁴
Budesonide-formoterol DPI⁵ (Brand name [Canada]: Symbicort Forte)	DPI: Budesonide 100 mcg and formoterol 6 mcg/actuation DPI: Budesonide 200 mcg and formoterol 6 mcg/actuation	<ul style="list-style-type: none"> Usual dose: <ul style="list-style-type: none"> 100 mcg/6 mcg: 1 to 2 inhalations as needed; some experts use 2 inhalations unless infrequent rescue inhaler use; maximum dose: 12 inhalations per day 200 mcg/6 mcg: 1 inhalation as needed; if symptoms persist after a few minutes, may repeat; maximum dose: 12 inhalations per day Acute exacerbation at home: 1 to 2 inhalations as needed; wait for a few minutes between doses and use second dose if symptoms persist; may repeat 1 to 2 inhalations every 20 minutes for up to 6 inhalations in 1 hour, then as directed⁴
Mometasone-formoterol MDI (Brand names: Dulera [United States], Zenhale [Canada])	MDI: Mometasone 100 mcg and formoterol 5 mcg/actuation MDI: Mometasone 200 mcg and formoterol 5 mcg/actuation	<ul style="list-style-type: none"> Usual dose: 1 inhalation as needed; if insufficient relief, may administer a second dose a few minutes later; maximum dose: 12 inhalations per day Acute exacerbation at home: 1 to 2 inhalations as needed; wait for a few minutes between doses and use second dose if symptoms persist; may repeat 1 to 2 inhalations every 20 minutes for up to 6 inhalations in 1 hour, then as directed⁴
Beclomethasone [beclomethasone]-formoterol DPI⁵ or MDI (Not available in United States or Canada, but available elsewhere [sample brand names: Formodual, Fostair, Foster])	DPI or MDI: Beclomethasone 100 mcg and formoterol 6 mcg/actuation DPI or MDI: Beclomethasone 200 mcg and formoterol 6 mcg/actuation	<ul style="list-style-type: none"> Usual dose: 1 inhalation as needed; if insufficient relief, may administer a second dose a few minutes later; maximum dose: 12 inhalations per day Acute exacerbation at home: 1 to 2 inhalations as needed; wait for a few minutes between doses and use second dose if symptoms persist; may repeat 1 to 2 inhalations every 20 minutes for up to 6 inhalations in 1 hour, then as directed⁴
Fluticasone propionate-formoterol MDI (Not available in United States or Canada, but available elsewhere [sample brand name: Flutiform])	MDI: Fluticasone 50 mcg and formoterol 5 mcg/actuation MDI: Fluticasone 125 mcg and formoterol 5 mcg/actuation MDI: Fluticasone 250 mcg and formoterol 5 mcg/actuation	<ul style="list-style-type: none"> Usual dose: <ul style="list-style-type: none"> 50 mcg/5 mcg: 1 to 2 inhalations as needed; some experts use 2 inhalations unless infrequent rescue inhaler use; maximum dose: 12 inhalations per day 125 mcg/5 mcg or 250 mcg/5 mcg: 1 inhalation as needed; if symptoms persist after a few minutes, may repeat; maximum dose: 12 inhalations per day Acute exacerbation at home: 1 to 2 inhalations as needed; wait for a few minutes between doses and use second dose if symptoms persist; may repeat 1 to 2 inhalations every 20 minutes for up to 6 inhalations in 1 hour, then as directed⁴

Combination ICS-LABA Inhalers

Medication	Low dose	Medium dose	High dose
ICS-LABA combinations			
Beclomethasone [beclomethasone]-formoterol DPI or HFA (Not available in United States or Canada, but available elsewhere [sample brand names: Formodual, Fostair, Foster])^Δ			
100 mcg/6 mcg	1 inhalation twice a day	2 inhalations twice a day	
200 mcg/6 mcg			2 inhalations twice a day
Budesonide-formoterol HFA (Brand names: Symbicort, Brey-na)^Δ			
80 mcg/4.5 mcg	2 inhalations twice a day		
160 mcg/4.5 mcg		2 inhalations twice a day	
Fluticasone furoate-vilanterol DPI (Brand name: Breo Ellipta)^Δ			
NOTE: Inhaled fluticasone furoate has a greater anti-inflammatory potency per microgram than fluticasone propionate inhalers. Thus, fluticasone furoate is administered at a lower daily dose and used only once daily.			
50 mcg/25 mcg [◊]	1 inhalation once daily		
100 mcg/25 mcg		1 inhalation once daily	
200 mcg/25 mcg			1 inhalation once daily
Fluticasone propionate-formoterol MDI (Not available in United States or Canada, but available elsewhere [sample brand name: Flutiform])			
50 mcg/5 mcg	2 inhalations twice daily		
125 mcg/5 mcg		2 inhalations twice daily	
250 mcg/10 mcg			2 inhalations twice daily
Fluticasone propionate-salmeterol DPI (Brand names: Advair Diskus, Wixela Inhub)^Δ			
100 mcg/50 mcg	1 inhalation twice a day		
250 mcg/50 mcg		1 inhalation twice a day	
500 mcg/50 mcg			1 inhalation twice a day
Fluticasone propionate-salmeterol HFA (Brand name: Advair HFA)			
45 mcg/21 mcg	2 inhalations twice a day		
115 mcg/21 mcg		2 inhalations twice a day	
230 mcg/21 mcg			2 inhalations twice a day
Fluticasone propionate-salmeterol DPI (Brand names: AirDuo RespiClick, AirDuo Digihaler)^Δ◊			
55 mcg/14 mcg	1 inhalation twice a day		
113 mcg/14 mcg	1 inhalation twice a day	1 inhalation twice a day	
232 mcg/14 mcg			1 inhalation twice a day
Mometasone-formoterol HFA (Brand name: Dulera)			
100 mcg/5 mcg		2 inhalations twice a day	
200 mcg/5 mcg			2 inhalations twice a day
Mometasone-indacaterol DPI (Brand name: Atecurta Breezhaler; available in Canada)^Δ			
80 mcg/150 mcg	1 inhalation (capsule) once a day		
160 mcg/150 mcg		1 inhalation (capsule) once a day	
320 mcg/150 mcg			1 inhalation (capsule) once a day

SABA Inhalers

Drug name(s)	Preparation(s)	Dose
Albuterol MDI ⁴	MDI: 90 mcg/inhalation (United States) MDI: 100 mcg/inhalation (Canada)	<ul style="list-style-type: none"> Usual dose: 2 inhalations every 4 to 6 hours as needed Acute exacerbation at home: 2 to 4 inhalations, can be repeated every 20 minutes for a total of 3 doses, then as directed^o Acute care setting: 4 to 8 inhalations every 20 minutes for 3 doses⁵, then taper depending on response to therapy
Albuterol DPI	DPI ⁴ : 90 mcg/actuation (United States)	<ul style="list-style-type: none"> Usual dose: 2 inhalations every 4 to 6 hours, as needed Acute exacerbation at home: 2 to 4 inhalations, can be repeated every 20 minutes for a total of 3 doses, then as directed^o Acute care setting: 4 to 8 inhalations every 20 minutes for 3 doses⁵, then taper depending on response to therapy
Albuterol DPI (Canada)	DPI: 200 mcg/actuation (Canada)	<ul style="list-style-type: none"> Usual dose: 1 inhalation every 4 to 6 hours, as needed Exercise-induced bronchoconstriction: 1 inhalation 15 minutes prior to exercise
Albuterol solution for nebulization	Nebulizer solutions: <ul style="list-style-type: none"> 0.083% (2.5 mg/3 mL) 0.5% (2.5 mg/0.5 mL) concentrate; must be diluted in 2.5 mL saline 	<ul style="list-style-type: none"> Usual dose: 2.5 mg every 4 to 6 hours, as needed Acute exacerbation at home: Administer 2.5 mg, can repeat every 20 minutes for total of 3 doses, then decrease frequency to every 1 to 4 hours, as tolerated⁴ Acute care setting: Administer 2.5 to 5 mg, can repeat every 20 minutes for total of 3 doses, then decrease frequency to every 1 to 4 hours, as tolerated Acute care setting (critically ill): Continuous nebulizer treatment: Use a large volume nebulizer, 10 to 15 mg/hour in monitored setting
Albuterol-budesonide MDI	MDI: Albuterol 90 mcg and budesonide 80 mcg/actuation (United States)	<ul style="list-style-type: none"> Usual dose: 2 inhalations every 4 to 6 hours as needed Acute exacerbation at home: 2 inhalations, can be repeated every 20 minutes for a total of 3 doses, then as directed⁴
Levalbuterol MDI ⁴	45 mcg/inhalation (United States)	<ul style="list-style-type: none"> Usual dose: 2 inhalations every 4 to 6 hours, as needed Acute exacerbation at home: 2 to 4 inhalations; can be repeated every 20 minutes for a total of 3 doses, then as directed^o Acute care setting: 4 to 8 inhalations every 20 minutes for 3 doses, then taper depending on response to therapy⁵
Levalbuterol solution for nebulization	Nebulizer solution: <ul style="list-style-type: none"> 0.63 mg/3 mL 1.25 mg/3 mL 1.25 mg/0.5 mL concentrate; must be diluted in 2.5 mL saline 	<ul style="list-style-type: none"> Usual dose: Administer 0.63 to 1.25 mg (equivalent to 1.25 to 2.5 mg albuterol) every 6 to 8 hours, as needed (up to 3 doses per 24 hours) Acute exacerbation at home: Administer 1.25 mg; can be repeated every 20 minutes for a total of 3 doses, then decrease frequency to every 1 to 4 hours, as tolerated⁴ Acute care setting: Administer 1.25 mg to 2.5 mg (equivalent to 2.5 to 5 mg of albuterol); can repeat every 20 minutes for total of 3 doses, then decrease frequency to every 1 to 4 hours, as tolerated
Terbutaline DPI	DPI: 0.5 mg/actuation (Canada)	<ul style="list-style-type: none"> Usual dose: 1 inhalation every 4 hours, as needed If no effect after 5 minutes, can repeat dose
Ipratropium-albuterol SMI	SMI: Ipratropium 20 mcg and albuterol 100 mcg/inhalation (United States)	<ul style="list-style-type: none"> Usual dose (off-label): 2 inhalations every 6 hours, as needed Acute exacerbation (off-label): 4 to 8 inhalations every 20 minutes for 3 doses, and then as needed for up to 3 hours
Ipratropium-albuterol solution for nebulization	Nebulizer solution: Ipratropium 0.5 mg and albuterol 2.5 mg per 3 mL/Vial ⁷	<ul style="list-style-type: none"> Usual dose (off-label): Administer 1 vial (3 mL) every 4 to 6 hours, as needed Acute exacerbation (off-label): Administer 1 vial (3 mL), every 20 minutes for 3 doses, and then as needed for up to 3 hours⁴

Inhaled Corticosteroids (ICS)

Drug	Low dose (total daily dose)	Medium dose (total daily dose)	High dose (total daily dose) ^a
Beclomethasone HFA (Qvar RediHaler product available in United States) Administer as 2 divided doses	80 to 160 mcg	>160 to 320 mcg	>320 to 640 mcg
40 mcg per actuation	2 or 4 inhalations	4	4
80 mcg per actuation	2 inhalations	4 inhalations	6 or 8 inhalations
Beclomethasone HFA⁴ (Qvar product available in Canada, Europe, and elsewhere) Administer as 2 divided doses	100 to 200 mcg	>200 to 400 mcg	>400 to 800 mcg
50 mcg per actuation	2 to 4 inhalations	4	4
100 mcg per actuation	2 inhalations	4 inhalations	6 or 8 inhalations
Budesonide DPI (Pulmicort Flexhaler product available in United States) Administer as 2 divided doses	180 to 360 mcg	>360 to 720 mcg	>720 to 1440 mcg
90 mcg per actuation	2 or 4 inhalations	4	4
180 mcg per actuation	2 inhalations	4 inhalations	6 or 8 inhalations
Budesonide DPI⁴ (Pulmicort Turbuhaler or Turbuhaler product available in Canada, Europe, and elsewhere) Administer low doses (ie, ≤400 mcg/day) once daily; administer higher doses (ie, >400 mcg/day) as 2 to 4 divided doses	200 to 400 mcg	>400 to 800 mcg	>800 to 2400 mcg
100 mcg per actuation	2 to 4 inhalations	4	4
200 mcg per actuation	1 to 2 inhalations	3 to 4 inhalations	4
400 mcg per actuation	1 inhalation	2 inhalations	3 to 6 inhalations
Ciclesonide HFA (Alvesco product available in United States, Europe, and elsewhere) United States: Administer as 2 divided doses Australia, Europe, and elsewhere: Administer lower doses (ie, 160 to 320 mcg/day) once daily; administer 640 mcg dose as 2 divided doses	160 mcg	320 mcg	640 mcg
80 mcg per actuation	2 inhalations	4 inhalations	4
160 mcg per actuation	o	2 inhalations	4 inhalations
Ciclesonide HFA⁴ (Alvesco product available in Canada) Administer lower doses (eg, 100 to 400 mcg) once daily; administer 800 mcg dose as 2 divided doses	100 to 200 mcg	>200 to 400 mcg	>400 to 800 mcg
100 mcg per actuation	1 to 2 inhalations	3 to 4 inhalations	4
200 mcg per actuation	1 inhalation	2 inhalations	3 to 4 inhalations
Fluticasone propionate HFA (Flovent HFA product available in United States) Administer as 2 divided doses	176 to 220 mcg	>220 to 440 mcg	>440 to 1760 mcg
44 mcg per actuation	4 inhalations	4	4
110 mcg per actuation	2 inhalations	4 inhalations	4
220 mcg per actuation	o	2 inhalations	4 to 8 inhalations
Fluticasone propionate HFA⁴ (Flovent HFA product available in Canada; Flixotide Evohaler product available in Europe and elsewhere) Administer as 2 divided doses	100 to 250 mcg	>250 to 500 mcg	>500 to 2000 mcg
50 mcg per actuation	2 to 4 inhalations	4	4
125 mcg per actuation	2 inhalations	4 inhalations	4
250 mcg per actuation	o	2 inhalations	4 to 8 inhalations
Fluticasone propionate DPI (Flovent Diskus product available in United States and Canada; Flixotide Accuhaler product available in Europe and elsewhere) Administer as 2 divided doses	100 to 250 mcg	>250 to 500 mcg	>500 to 2000 mcg
50 mcg per actuation	2 to 4 inhalations	4	4
100 mcg per actuation	2 inhalations	4 inhalations	4
250 mcg per actuation	o	2 inhalations	4 to 8 inhalations
500 mcg per actuation (strength not available in United States)	o	o	2 or 4 inhalations
Fluticasone propionate DPI (Armonair Digihaler product available in United States; Aermony Resplick product available in Canada) Administer as 2 divided doses	110 mcg	226 mcg	464 mcg
55 mcg per actuation	2 inhalations	4	4
113 mcg per actuation	o	2 inhalations	4
232 mcg per actuation	o	o	2 inhalations
Fluticasone furoate DPI (Armony Ellipta product available in United States, Canada, Australia, and elsewhere, but not available in Europe or UK) Administer once daily NOTE: Inhaled fluticasone furoate has a greater anti-inflammatory potency per microgram than fluticasone propionate inhalers. Thus, fluticasone furoate is administered at a lower daily dose and used only once daily.	50 mcg (by use of pediatric DPI, which is off-label in adolescents and adults)	100 mcg	200 mcg
50 mcg per actuation	1 inhalation	4	4
100 mcg per actuation	o	1 inhalation	2 inhalations
200 mcg per actuation	o	o	1 inhalation

Samples: "My Asthma Action Plan"

Provider: _____ Clinic: _____

American Lung Association. **My Asthma Action Plan**

Name: _____ DOB: ____/____/____

Severity Classification: Intermittent Mild Persistent Moderate Persistent Severe Persistent

Asthma Triggers (list): _____

Peak Flow Meter Personal Best: _____

Green Zone: Doing Well

Symptoms: Breathing is good - No cough or wheeze - Can work and play - Sleeps well at night
Peak Flow Meter _____ (more than 80% of personal best)

Flu Vaccine—Date received: _____ Next flu vaccine due: _____ COVID19 vaccine—Date received: _____

Control Medicine(s)	Medicine	How much to take	When and how often to take it

Physical Activity Use Albuterol/Levalbuterol _____ puffs, 15 minutes before activity
 with all activity when you feel you need it

Yellow Zone: Caution

Symptoms: Some problems breathing - Cough, wheeze, or tight chest - Problems working or playing - Wake at night
Peak Flow Meter _____ to _____ (between 50% and 79% of personal best)

Quick-relief Medicine(s) Albuterol/Levalbuterol _____ puffs, every 20 minutes for up to 4 hours as needed
Control Medicine(s) Continue Green Zone medicines
 Add _____ Change to _____

You should feel better within 20-60 minutes of the quick-relief treatment. If you are getting worse or are in the Yellow Zone for more than 24 hours, THEN follow the instructions in the RED ZONE and call the doctor right away!

Red Zone: Get Help Now!

Symptoms: Lots of problems breathing - Cannot work or play - Getting worse instead of better - Medicine is not helping
Peak Flow Meter _____ (less than 50% of personal best)

Take Quick-relief Medicine NOW! Albuterol/Levalbuterol _____ puffs, _____ (how frequently)
Call 911 immediately if the following danger signs are present:
• Trouble walking/talking due to shortness of breath
• Lips or fingernails are blue
• Still in the Red Zone after 15 minutes

Emergency Contact Name _____ Phone (____) _____ - _____

Date: ____/____/____ **1-800-LUNGUSA | Lung.org**

My Asthma Action Plan Patient Name: _____
Age ≥ 5 years Medical Record #: _____

Clinician's Name: _____ DOB: _____

Clinician's Phone #: _____ Completed by: _____ Date: _____

Long-Term Control Medicines	How Much To Take	How Often	Other Instructions
		_____ times per day EVERY DAY!	
		_____ times per day EVERY DAY!	
		_____ times per day EVERY DAY!	
		_____ times per day EVERY DAY!	

Quick-Relief Medicines	How Much To Take	How Often	Other Instructions
			Take ONLY as needed

NOTE: If this medicine is needed frequently, call clinician to consider increasing long-term control medications.

Special instructions when I feel ● good, ● not good, and ● awful.

GREEN ZONE I feel good. (My peak flow is in the GREEN zone.)
I do NOT feel good. (My peak flow is in the YELLOW zone.)
I feel awful. (My peak flow is in the RED zone.)

PREVENT asthma symptoms everyday:
 Take my long-term control medicines (above) every day.
 Before exercise, take _____ puffs of _____
 Avoid things that make my asthma worse like: _____

CAUTION. I should continue taking my long-term control asthma medicines every day AND:
 Take _____
If I still do not feel good, or my peak flow is not back in the Green Zone within one hour, then I should:
 Increase _____
 Add _____
 Call _____

MEDICAL ALERT! Get help!
 Take _____ until I get help immediately.
 Take _____
 Call _____

Danger! Get help immediately! Call 9-1-1 if you have trouble walking or talking due to shortness of breath or lips or fingernails are gray or blue.