



Guideline approaches to initial asthma therapy in adolescents and adults

National Asthma Education and Prevention Program: Expert Panel Working Group <sup>[1,2]</sup>		Global Initiative for Asthma (GINA) <sup>[3]</sup>	
Asthma symptoms/lung function	Therapy <sup>*</sup>	Asthma symptoms	Therapy
Step 1		Step 1	
<b>All</b> of the following: <ul style="list-style-type: none"><li>▪ Daytime symptoms ≤2 days/week</li><li>▪ Nocturnal awakenings ≤2/month</li><li>▪ Normal FEV<sub>1</sub></li><li>▪ Exacerbations ≤1/year</li></ul>	<ul style="list-style-type: none"><li>▪ SABA, as needed</li></ul>	<ul style="list-style-type: none"><li>▪ Infrequent asthma symptoms (eg, &lt;2 times/week)</li><li>▪ No risk factors for exacerbations<sup>¶</sup></li></ul>	<ul style="list-style-type: none"><li>▪ Low-dose ICS-formoterol as needed (preferred)<sup>Δ</sup></li><li><b>or</b></li><li>▪ Low-dose ICS whenever SABA used or as-needed low-dose ICS-SABA<sup>Δ</sup></li></ul>
Step 2		Step 2	
<b>Any</b> of the following: <ul style="list-style-type: none"><li>▪ Daytime symptoms &gt;2 but &lt;7 days/week</li><li>▪ Nocturnal awakenings up to 3 to 4 nights/month</li><li>▪ Minor interference with activities</li><li>▪ Exacerbations ≥2/year</li></ul>	<ul style="list-style-type: none"><li>▪ Low-dose ICS daily <b>and</b> SABA as needed</li><li><b>or</b></li><li>▪ Low-dose ICS-SABA or ICS <b>plus</b> SABA, concomitantly administered, as needed<sup>Δ</sup></li></ul> <b>Alternative option(s)</b> <ul style="list-style-type: none"><li>▪ Daily LTRA <b>and</b> SABA as needed</li></ul>	<ul style="list-style-type: none"><li>▪ Asthma symptoms or need for reliever inhaler ≥2 times/week, but without troublesome daily symptoms</li></ul>	<ul style="list-style-type: none"><li>▪ Low-dose ICS-formoterol as needed (preferred)</li><li><b>or</b></li><li>▪ Low-dose ICS daily <b>and</b> SABA as needed</li></ul> <b>Other options</b> <ul style="list-style-type: none"><li>▪ Low-dose ICS-SABA or ICS <b>plus</b> SABA, concomitantly administered, as needed</li><li><b>or</b> (less preferred)</li><li>▪ LTRA daily <b>and</b> SABA as needed</li></ul>
Step 3		Step 3	

<b>Any</b> of the following: <ul style="list-style-type: none"> <li>▪ Daily symptoms</li> <li>▪ Nocturnal awakenings &gt;1/week</li> <li>▪ Daily need for reliever</li> <li>▪ Some activity limitation</li> <li>▪ FEV<sub>1</sub> 60 to 80% predicted</li> <li>▪ Exacerbations ≥2/year</li> </ul>	<ul style="list-style-type: none"> <li>▪ Low-dose ICS-formoterol as maintenance and reliever therapy<sup>◇</sup> (preferred)</li> </ul> <b>Alternative option(s)</b> <ul style="list-style-type: none"> <li>▪ Medium-dose ICS daily <b>and</b> SABA as needed</li> </ul> <b>or</b> <ul style="list-style-type: none"> <li>▪ Low-dose ICS-LABA combination daily <b>or</b> low-dose ICS <b>plus</b> LAMA daily <b>or</b> low-dose ICS <b>plus</b> anti-leukotriene daily <b>and</b> SABA as needed</li> </ul>	<ul style="list-style-type: none"> <li>▪ Troublesome asthma symptoms most days, nocturnal awakening due to asthma ≥1 time/month, multiple risk factors for exacerbations<sup>¶</sup></li> </ul>	<ul style="list-style-type: none"> <li>▪ Low-dose ICS-formoterol as maintenance and reliever therapy<sup>◇</sup> (preferred)</li> </ul> <b>or</b> <ul style="list-style-type: none"> <li>▪ Low-dose ICS-LABA combination daily <b>and</b> SABA as needed</li> </ul> <b>Other options</b> <ul style="list-style-type: none"> <li>▪ Medium-dose ICS daily <b>and</b> SABA or ICS-SABA<sup>Δ</sup> as needed</li> </ul> <b>or</b> <ul style="list-style-type: none"> <li>▪ Low-dose ICS plus LTRA daily <b>and</b> SABA or ICS-SABA<sup>Δ</sup> as needed</li> </ul>
<b>Step 4</b>		<b>Step 4</b>	
<b>Any</b> of the following: <ul style="list-style-type: none"> <li>▪ Symptoms all day</li> <li>▪ Nocturnal awakenings nightly</li> <li>▪ Need for SABA several times/day</li> <li>▪ Extreme limitation in activity</li> <li>▪ FEV<sub>1</sub> &lt;60% predicted</li> <li>▪ Exacerbations ≥2/year</li> <li>▪ An acute exacerbation</li> </ul>	<ul style="list-style-type: none"> <li>▪ Medium-dose ICS-formoterol as maintenance and reliever therapy<sup>◇</sup> (preferred)</li> </ul> <b>Alternative option(s)</b> <ul style="list-style-type: none"> <li>▪ Medium-dose ICS-LABA daily or medium-dose ICS <b>plus</b> LAMA daily <b>or</b> Medium-dose ICS daily <b>plus</b> anti-leukotriene <b>and</b> SABA as needed<sup>*</sup></li> </ul>	Severely uncontrolled asthma with ≥3 of the following: <ul style="list-style-type: none"> <li>▪ Daytime asthma symptoms &gt;2 times/week</li> <li>▪ Nocturnal awakening due to asthma</li> <li>▪ Reliever needed for symptoms &gt;2 times/week</li> <li>▪ Activity limitation due to asthma</li> </ul>	<ul style="list-style-type: none"> <li>▪ Medium-dose ICS-formoterol as maintenance and reliever therapy<sup>◇</sup> (preferred)</li> </ul> <b>or</b> <ul style="list-style-type: none"> <li>▪ Medium dose ICS-LABA daily <b>and</b> SABA or ICS-SABA<sup>Δ</sup> as needed</li> </ul> <b>Other options</b> <ul style="list-style-type: none"> <li>▪ Possible add-on LAMA or switch to ICS-LAMA-LABA</li> <li>▪ Possible add-on LTRA</li> </ul>

This table illustrates major guideline recommendations for initial asthma therapy. These recommendations are used for newly diagnosed patients or for patients using SABA therapy alone. For additional information please refer to UpToDate content on initial treatment of asthma.

DPI: dry powder inhaler; FEV<sub>1</sub>: forced expiratory volume in one second; ICS: inhaled corticosteroid (glucocorticoid); IgE: immunoglobulin E; IL: interleukin; LABA: long-acting beta-agonist; LAMA: long-acting muscarinic antagonist; LTRA: leukotriene receptor antagonist; MDI: metered-dose inhaler; SABA: short-acting beta-agonist.

\* Theophylline and cromolyn are not included in the table even though they were included in NAEPP-EPR 3 (2007), and theophylline is included in NAEPP (2020). These agents are rarely used now, due to availability of more effective options.

¶ Risk factors for exacerbations include: frequent asthma symptoms, prior asthma exacerbations, smoking allergen exposure if sensitized, previous intubation or intensive care unit stay for asthma, low FEV<sub>1</sub> (especially <60% predicted), obesity, food allergy, chronic rhinosinusitis, and poor adherence/inhaler technique. Please refer to UpToDate asthma treatment content and separate graphic on risk factors for asthma exacerbation.

Δ When prescribed for use as-needed for acute asthma symptoms, ICS-formoterol, ICS-SABA, and concomitant ICS and SABA are referred to as anti-inflammatory reliever therapy (AIR). Compared with SABA relievers, use of AIR has demonstrated decreased exacerbation risk in patients with all degrees of asthma severity. Choice of therapy is also guided by patient preference, cost, and medication availability.

◇ ICS-formoterol prescribed for use as both maintenance therapy and for acute relief of symptoms is referred to as Maintenance and Reliever Therapy (MART). MART has been shown to be more effective in terms of exacerbation reduction and symptom relief compared with ICS-formoterol and SABA alone as reliever therapy. Choice of therapy is also guided by patient preference, cost, and medication availability.

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#### References:

1. National Asthma Education and Prevention Program: Expert panel report III: Guidelines for the diagnosis and management of asthma. Bethesda, MD: National Heart, Lung, and Blood Institute, 2007. (NIH publication no. 08-4051). <https://www.nhlbi.nih.gov/health-topics/guidelines-for-diagnosis-management-of-asthma>.
  2. 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;146:1217-70. <https://www.nhlbi.nih.gov/health-topics/asthma-management-guidelines-2020-updates>.
  3. Global Strategy for Asthma Management and Prevention, Global Initiative for Asthma (GINA). [www.ginasthma.org](http://www.ginasthma.org).
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