

Table: Comparison tables between National Asthma Education and Prevention Program (NAEPP)/ National Heart Lung & Blood Institute (NHLBI) Expert Panel -3 (EPR3) & Expert Panel – 4 (EPR4) Guidelines and Global Initiative for Asthma 2020 Report.

	EPR3 (2007)	EPR4 (2020)	GINA (2020)
Goals of guideline	To provide quality care to those with asthma -Defined asthma control and severity -Focused on long term management of reducing impairment & reducing risk -modified stepwise approach	Appropriate diagnosis, management of asthma, improving outcomes for individuals with asthma, reducing morbidity, mortality and improving quality of life. -Goal: Updating EPR3 with data on 6 priority topics	Does not consider themselves a guideline but rather an “integrated evidence-based strategy focusing on translation into clinical practice” Goal: to prevent deaths, exacerbations, symptom control. Information is targeted towards PCPs
Step Therapy	<i>Refer to Steps Diagram for differences and comparisons between different guidelines/reports for recommendations on pharmacotherapy for asthma based on severity and on follow up visits. We have elected to keep all 6 steps as per EPR and embedded recommendations from GINA within 6 steps.</i>		
	Age groups: 0-4 years of age 5-11 years of age ≥12 years of age 6 total steps for all age groups	Same as EPR 3	Age groups: 0-5 years of age 6-11 years of age ≥12 years of age 4 steps for 0-5 years old 5 steps for 6-11 years old 5 steps for 6-11 years old
Inhaled Corticosteroid (ICS) <i>Highlights of recommendation changes, for full comparison refer to steps diagram.</i>	<u>0-4 years of age:</u> - with mild symptoms or recurrent wheezing: treat with SABA q 4-6 hrs for 24 hrs, for more than 24 hrs, need MD evaluation - with mod/severe exacerbation: treat with OCS <u>>12 years of age:</u> -Recommendation for daily ICS for persistent asthmatics with low/med/high dosing based on severity with use of SABA prn for all steps. -Recommendation for consideration of medium dose ICS/LABA at Step 4 (mod/severe)	<u>0-4 years of age:</u> -with recurrent wheezing with NO symptoms in between exacerbations: conditional recommendation of short course of ICS + PRN SABA at onset of respiratory illness <u>> 4 + years of age:</u> -mild/moderate persistent asthma who are likely <i>adherent</i> to therapy: conditional recommendation against short term increase in ICS dose -mod/severe persistent asthma: strong recommendation for low or moderate dose ICS/formoterol as daily and quick relief therapy compared to ICS/LABA + PRN SABA or high dose ICS + PRN SABA <u>>12+ years of age:</u> -with mild persistent asthma: conditional recommendation of daily low dose ICS +	-ICS is preferred daily controller should be considered at any age from Step 2 onward -At age 6 onward, addition of ICS whenever SABA is taken as an alternative therapy in Step 1 and step 2 -Emphasis on low, medium, and high dose ICS varying with age. <i>(Please see ICS dosing charts)</i>

		<p>PRN SABA or option of adding ICS to PRN SABA at illness</p> <p>-with mod/severe persistent asthma: conditional recommendation of ICS/formoterol as daily and quick reliever therapy compared to higher dose ICS/LABA as daily with PRN SABA</p>	
<p>Fractional exhaled nitric oxide (FENO)</p> <p><i>Used as an indicator of Type 2 or Eosinophilic inflammation of the airway. Can be increased in those with atopic disease but without asthma.</i></p>	Not addressed	<p><u>0-4 years old:</u></p> <p>-strong recommendation against use to predict asthma in children <5 yo as there is no data</p> <p><u>>5 years old:</u></p> <p>-conditional recommendation of FENO as an adjunct to evaluation process for those that an asthma diagnosis is uncertain</p> <p>-conditional recommendation for use as part of a monitoring strategy to help adjust therapy for those whom history, physical exam or spirometry is uncertain, except in those on biologic agents. Only effective in preventing exacerbations if monitoring frequently (e.g. 2-3 months)</p> <p>-strong recommendation <i>against</i> use as a sole measurement of control, exacerbation severity or quality of life</p>	<p>-Not useful for ruling in or out asthma</p> <p>- Recommend use to support the decision to start ICS but not to decide against ICS treatment</p> <p>-Recommendation for use in monitoring with data showing reduction of exacerbations in children/young adults, but not adults.</p> <p>Limitations for use of monitoring in asthma are reviewed and <i>single</i> point in time FENO measurements should be interpreted <i>with caution</i>.</p> <p>-Can be elevated in eosinophilic bronchitis, atopy, allergic rhinitis, eczema</p> <p>-Can be lower in smokers, bronchoconstriction, or early phase of allergic response</p> <p>-May be high or low in viral URI</p>
<p>Macrolide Antibiotics</p> <p><i>e.g. azithromycin</i></p> <p><i>used as an anti-inflammatory med</i></p>	Not addressed	Not addressed	<p>-consider as add-on therapy three times a week for adult patients in Step 5 if pt does not have Type 2 inflammation or if pt fails Type 2 biologic treatments and uncontrolled</p> <p>-treatment for 6 months is suggested and no clear evidence on how long to continue</p>
<p>Long Acting Muscarinic Antagonists (LAMA)</p> <p><i>e.g. tiotropium</i></p> <p><i>used for long-acting bronchodilation</i></p>	Not addressed	<p>-only reviewed data for those ≥ 12 yo</p> <p>-conditional recommendation of adding LAMA to ICS compared to LABA to ICS</p> <p>-if LABA cannot be used, conditional recommendation of LAMA to ICS compared to continuing same dose of ICS</p> <p>-conditional recommendation as add on therapy for asthma uncontrolled on ICS/LABA</p>	<p>≥ 6 yo: addition of LAMA to those uncontrolled on ICS/LABA</p> <p>-recommendation <i>against</i> adding to ICS alone or to use LAMA without ICS</p>
<p>Leukotriene Receptor</p>	-0-11 yo: consider as a daily alternative to daily low dose ICS (step 2) or as adjunct therapy in step 3-6	-all ages: as a daily alternative to daily low dose ICS in Step 2, or as adjunct therapy in Step 3-6	-Limited evidence to support use in acute asthma; less effective than ICS

<p>Antagonists (LTRA) <i>e.g. montelukast, zafirlukast used for allergies, exercise induced asthma, asthma</i></p>	<p>-12 yo: recommendation against LTRA compared to change to ICS/LABA -zafirlukast was less preferable option due to liver side-effects</p>		<p>-all ages: consider as alternative to daily low dose ICSs in Step 2 or as adjunct therapy in Step 3-5</p>
<p>Type 2 Biologic Treatments <i>e.g. omalizumab, mepolizumab, benralizumab, dupilumab, reslizumab</i></p>	<p>Not addressed</p>	<p>Not addressed</p>	<p>-consideration in Step 5 of therapy along with phenotypic assessment -Pts ≥ 6 yo with severe allergic asthma: anti IgE omalizumab -Pts ≥ 6 yo with severe eosinophilic asthma: anti IL-5 mepolizumab -Pts >12 yo with severe eosinophilic asthma: anti IL-5R benralizumab or anti- IL 4 Ra dupilumab</p>
<p>Immunotherapy <i>Subcutaneous Immunotherapy (SCIT) or Sublingual Immunotherapy (SLIT)</i></p>	<p>-Consider allergen immunotherapy for persistent asthma in presence of symptoms and sensitization</p>	<p>-Conditional approval to SCIT as adjuvant treatment for those with controlled asthma on initiation and maintenance -recommended against SLIT</p>	<p>-Potential benefits of SCIT must be weighed against the risk of adverse effects, time, and cost of therapy -For adult pts sensitized to dust mite and uncontrolled despite ICS with FEV1 $>70\%$ predicted, consider adding in SLIT -Potential benefits of SLIT should be weighed against risk of adverse effects, time, and cost of therapy</p>
<p>Allergen Mitigation <i>Elimination or reduction of allergens specifically looking at pest management, carpet removal, cleaning, HEPA, air filtration, pillow/mattress covers, mold mitigation, pet removal.</i></p>	<p>-Recommendation for reduction of allergens for all severity of asthmatic patients (specifically addressing roach and dust mites) -Recommendation for comprehensive multifaceted approach for allergen reduction -Recommendations to perform dust mite control measures</p>	<p>-Conditional recommendation <i>against</i> allergen mitigation as part of routine asthma management for patients with no identifiable trigger (specifically addressed roach) -Conditional recommendation to do multi-component allergen-specific mitigation if known trigger. -Conditional recommendation for use of pest management alone or part of multi-component mitigation intervention for those sensitized to pests. -Conditional recommendation of impermeable pillow/covers as a multi-component allergen mitigation intervention; not single component</p>	<p>-Recommends checking for modifiable risk factors of allergens -Recommends avoidance of relevant exposures if sensitized. -Single allergen reduction strategies have not been effective in reducing incidence of asthma.</p>
<p>Bronchial Thermoplasty <i>Bronchoscopic treatment of airways with localized</i></p>	<p>Not addressed</p>	<p>-Conditional recommendation <i>against</i> bronchial thermoplasty in adults</p>	<p>-May be considered for some adult patients in Step 5. -Cautions evidence is limited, no significant improvement in lung function or symptoms; needing long term studies.</p>

<i>radiofrequency pulse</i>			