GINA Asthma Guidelines

• Are inhaled corticosteroids used as controllers?

• Are inhaled corticosteroids used as needed?

• Are combination inhalers used as controllers?

• Are combination inhalers used for rescue?
Objectives:

• Review Global Initiative for Asthma (GINA).
• Understand GINA stepwise asthma guidelines.
• Clarify why GINA stepwise asthma guidelines changed in 2019.
• Highlight updates made to GINA asthma guidelines in 2022.
• Utilize asthma action plans for treatment clarity for patients, families and their care team members.
Global Initiative for Asthma (GINA)

What’s new in GINA 2022?

GINA Global Strategy for Asthma Management and Prevention

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GINA was established by the WHO and NHLBI in 1993
- To increase awareness about asthma
- To improve asthma prevention and management through a coordinated worldwide effort
- GINA is independent, funded only by the sale and licensing of its reports and figures

The GINA report is a global evidence-based strategy that can be adapted for local health systems and medicine availability
- ~500,000 copies of GINA reports downloaded each year from 100 countries
- Practical focus: multiple flow-charts and tables

The GINA strategy report is updated every year
- Twice-yearly cumulative review of new evidence across the whole asthma strategy

- The Science Committee reviews published GRADE reviews, when available
- Careful attention is paid to clinical relevance of study designs and generalizability of populations
- Extensive external review before publication

For detailed description of GINA methodology, see www.ginasthma.com/aboutus/methodology
Adults & adolescents
12+ years

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

CONTROLLER and PREFERRED RELIEVER
(Track 1). Using ICS-formoterol as reliever reduces the risk of exacerbations compared with using a SABA reliever.

CONTROLLER and ALTERNATIVE RELIEVER
(Track 2). Before considering a regimen with SABA reliever, check if the patient is likely to be adherent with daily controller.

Other controller options for either track (limited indications, or less evidence for efficacy or safety)

See GINA guide

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**Adults & adolescents 12+ years**

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

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**CONTROLLER and PREFERRED RELIEVER**
(Track 1). Using ICS-formoterol as reliever reduces the risk of exacerbations compared with using a SABA reliever

**STEPS 1 – 2**
As-needed low dose ICS-formoterol

**RELIEVER: As-needed low-dose ICS-formoterol**

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**CONTROLLER and ALTERNATIVE RELIEVER**
(Track 2). Before considering a regimen with SABA reliever, check if the patient is likely to be adherent with daily controller

**STEP 1**
Take ICS whenever SABA taken

**RELIEVER: As-needed short-acting beta-agonist**

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Other controller options for either track (limited indications, or less evidence for efficacy or safety)

**STEP 2**
Low dose maintenance ICS-LABA

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**STEP 3**
Low dose maintenance ICS-formoterol

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**STEP 4**
Medium dose maintenance ICS-formoterol

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**STEP 5**
Add-on LAMA
Refer for assessment of phenotype. Consider high dose maintenance ICS-formoterol, ± anti-IgE, anti-IL5/5R, anti-IL4R, anti-TSLP

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**Confirmation of diagnosis if necessary**
Symptom control & modifiable risk factors (see Box 2-26)
Comorbidities
Inhaler technique & adherence
Patient preferences and goals

**Symptoms**
Exacerbations
Side-effects
Lung function
Patient satisfaction

**Treatment of modifiable risk factors**
Comorbidities
Non-pharmacological strategies

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ourney.
### Adults & adolescents 12+ years

**Personalized asthma management**

Assess, Adjust, Review for individual patient needs

<table>
<thead>
<tr>
<th>Controller and Preferred Reliever (Track 1)</th>
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<tbody>
<tr>
<td><strong>STEP 1</strong></td>
<td>Take ICS whenever SABA taken</td>
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**CONTROLLER and ALTERNATIVE RELIEVER** (Track 2). Before considering a regimen with SABA reliever, check if the patient is likely to be adherent with daily controller

<table>
<thead>
<tr>
<th>Controller and Alternative Reliever (Track 2)</th>
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<tbody>
<tr>
<td><strong>STEP 1</strong></td>
<td>Take ICS whenever SABA taken</td>
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<tr>
<td><strong>STEP 2</strong></td>
<td>Low dose maintenance ICS-LABA</td>
</tr>
<tr>
<td><strong>STEP 3</strong></td>
<td>Medium/high dose maintenance ICS-LABA</td>
</tr>
<tr>
<td><strong>STEP 4</strong></td>
<td>Add-on LAMA or add high dose ICS, or switch to medium dose ICS</td>
</tr>
<tr>
<td><strong>STEP 5</strong></td>
<td>Add-on LTRA or add LTRA or add high dose ICS, or switch to medium dose ICS</td>
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</table>

**RELIEVER: As-needed short-acting beta-agonist**

Confirmation of diagnosis if necessary: Symptom control & modifiable risk factors (see Box 2-26). Comorbidities: Inhaler technique & adherence. Patient preferences and goals.

**Assess, Adjust, Review**

- Symptoms
- Exacerbations
- Side-effects
- Lung function
- Patient satisfaction

**Treatments of modifiable risk factors and comorbidities**
- Non-pharmacological strategies: Asthma medications (adjust down/up/between tracks)
- Education & skills training

**Steps 1–2**

- As-needed low dose ICS-formoterol

**Step 3**

- Low dose maintenance ICS formoterol

**Step 4**

- Medium dose maintenance ICS-formoterol

**Step 5**

- Add-on LAMA: Refer for assessment of phenotype. Consider high dose maintenance ICS-formoterol, ± anti-IgE, anti-IL5/5R.
**Adults & adolescents**  
**12+ years**  

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

### Controller and Preferred Reliever
(Track 1). Using ICS/formoterol as reliever reduces the risk of exacerbations compared with using a SABA reliever.

#### STEPS 1 - 2
As-needed low dose ICS-formoterol

### Controller and Alternative Reliever

#### STEPS 1
Low dose maintenance ICS-LABA

#### STEPS 2
Low dose ICS whenever SABA taken, or daily LTRA, or add HDM SLIT

#### STEPS 3
Medium dose ICS, or add LTRA, or add HDM SLIT

#### STEPS 4
Add LAMA or LTRA or HDM SLIT, or switch to high dose ICS

#### STEPS 5
Add azithromycin (adults) or LTRA. As last resort consider adding low dose OCS but consider side-effects

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**Confirmation of diagnosis if necessary**
Symptom control & modifiable risk factors (see Box 2-2B)
Comorbidities
Inhaler technique & adherence
Patient preferences and goals

**Treatment of modifiable risk factors and comorbidities**
Non-pharmacological strategies
Asthma medications (adjust down/up/between tracks)
Education & skills training
Patients with apparently mild asthma are still at risk of serious adverse events
- 30–37% of adults with acute asthma
- 16% of patients with near-fatal asthma
- 15–27% of adults dying of asthma

Exacerbation triggers are unpredictable (viruses, pollens, pollution, poor adherence)

Even 4–5 lifetime OCS courses increase the risk of osteoporosis, diabetes, cataract 

(Dusser, Allergy 2007; Bergstrom, 2008)

Background - the risks of ‘mild’ asthma
Why not treat with SABA alone?

- Inhaled SABA has been first-line treatment for asthma for 50 years
  - Asthma was thought to be a disease of bronchoconstriction
  - Role of SABA reinforced by rapid relief of symptoms and low cost

- Regular use of SABA, even for 1–2 weeks, is associated with increased AHR, reduced bronchodilator effect, increased allergic response, increased eosinophils (e.g. Hancox, 2000; Aldridge, 2000)
  - Can lead to a vicious cycle encouraging overuse
  - Over-use of SABA associated with ↑ exacerbations and ↑ mortality (e.g. Suissa 1994, Nwaru 2020)

- Starting treatment with SABA trains the patient to regard it as their primary asthma treatment
- The only previous option was daily ICS even when no symptoms, but adherence is extremely poor
- GINA changed its recommendation once evidence for a safe and effective alternative was available
As-needed low dose ICS-formoterol in mild asthma (n=9,565)

**COMPARED WITH AS-NEEDED SABA**
- The risk of severe exacerbations was reduced by 60–64% (SYGMA 1, Novel START)

**COMPARED WITH MAINTENANCE LOW DOSE ICS**
- The risk of severe exacerbations was similar (SYGMA 1 & 2), or lower (Novel START, PRACTICAL)
- Small differences in other asthma outcomes, favoring maintenance ICS, but all were less than the minimal clinically important difference
  - ACQ-5 mean difference 0.15 (MCID 0.5)
  - FEV₁ mean difference ~54 mL
  - FeNO mean difference ~10ppb (Novel START, PRACTICAL)
  - No evidence of progressive worsening over 12 months
- In Novel START and PRACTICAL, outcomes were independent of baseline features including blood eosinophils, FeNO, lung function, and exacerbation history
- Average ICS dose was ~50–100mcg budesonide/day

*O’Byrne et al, NEJM 2018*
New evidence for as-needed ICS-formoterol in mild asthma

- Meta-analysis of all four RCTs, n=9,565 (Crossingham, Cochrane 2021)
  - 55% reduction in severe exacerbations compared with SABA alone
  - Similar risk of severe exacerbations as with daily ICS + as-needed SABA
New evidence for as-needed ICS-formoterol in mild asthma

• Meta-analysis of four all RCTs, n=9,565
  (Crossingham, Cochrane 2021)
  – 55% reduction in severe exacerbations compared with SABA alone
  – Similar risk of severe exacerbations as with daily ICS + as-needed SABA
  – ED visits or hospitalizations
    • 65% lower than with SABA alone
    • 37% lower than with daily ICS
New evidence for as-needed ICS-formoterol in mild asthma

- Meta-analysis of four all RCTs, n=9,565 (Crossingham, Cochrane 2021)
  - 55% reduction in severe exacerbations compared with SABA alone
  - Similar risk of severe exacerbations as with daily ICS + as-needed SABA
  - ED visits or hospitalizations
    - 65% lower than with SABA alone
    - 37% lower than with daily ICS

- Analysis by previous treatment
  - Patients taking SABA alone had lower risk of severe exacerbations with as-needed ICS-formoterol compared with daily ICS + as-needed SABA (Bateman, Annals ATS 2021; Beasley, NEJM 2019)
Management of asthma in low- and middle-income countries

• 96% of asthma deaths are in low- and middle-income countries (LMIC) (Meghji, Lancet 2021)
  – Much of this burden is avoidable, especially with ICS (e.g. Comaru, Respir Med 2016)
  – Barriers include lack of access to essential medications, and prioritization of acute care over chronic care by health systems (Mortimer, ERJ 2022)

• Lack of access to affordable quality-assured inhaled medications (Stolbrink, review for WHO 2022)
  – Oral bronchodilators have slow onset of action and more side-effects than inhaled
  – OCS are associated with serious cumulative adverse effects (e.g. sepsis, cataract, osteoporosis) even with occasional courses (Price, J Asthma Allerg 2018)

• GINA supports the initiative by IUATLD towards a World Health Assembly Resolution on equitable access to affordable care for asthma, including inhaled medicines
  – In the meantime, if Track 1 is not available due to lack of access or affordability, Track 2 treatment may be preferable, although less effective in reducing exacerbations
  – If Track 2 options also not available, taking ICS whenever SABA is taken may be preferable to LTRA or maintenance OCS because of concerns about efficacy and/or safety
  – Greatest overall benefit at a population level would be from increasing access to ICS-formoterol
Changes to treatment figure in children 6–11 years (Box 3-5B)

• “Other controller options” clarified
  – These therapies may have limited indications, or less evidence about efficacy and/or safety than the “preferred” treatment options

• Step 5:
  – Anti-IL4R (dupilumab) now approved for children with severe eosinophilic/Type 2 asthma (not on maintenance OCS)
  – Consider maintenance OCS only as last resort
Children 6-11 years

Personalized asthma management:
Assess, Adjust, Review

Asthma medication options:
Adjust treatment up and down for individual child’s needs

PREFERRED CONTROLLER
to prevent exacerbations and control symptoms

Other controller options
(limited indications, or
less evidence for efficacy
or safety)

RELIEVER

**STEP 1**
Low dose ICS taken whenever
SABA taken

**STEP 2**
Daily low dose inhaled corticosteroid (ICS)
(see table of ICS dose ranges for children)

**STEP 3**
Low dose ICS-LABA, OR medium
dose ICS, OR very low dose*
ICS-formoterol maintenance and
reliever (MART)

**STEP 4**
Medium dose ICS-LABA,
OR low dose† ICS-formoterol
maintenance and reliever
therapy (MART).
Refer for expert advice

**STEP 5**
Refer for phenotypic
assessment ± higher dose
ICS-LABA or
add-on therapy, e.g. anti-IgE,
anti-IL4R

As-needed short-acting beta₂-agonist (or ICS-formoterol reliever in MART in Steps 3 and 4)

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*Very low dose: BUD-FORM 100/6 mcg  
†Low dose: BUD-FORM 200/6 mcg (metered doses).
**Children 6-11 years**

**Personalized asthma management:**
Assess, Adjust, Review

**Asthma medication options:**
Adjust treatment up and down for individual child’s needs

**PREFERRED CONTROLLER**
to prevent exacerbations and control symptoms

**STEP 1**
Low dose ICS taken whenever SABA taken

**Other controller options**
(limited indications, or less evidence for efficacy or safety)

**Consider daily low dose ICS**

**RELEIVER**
As-needed short-acting beta₂-agonist (or ICS-formoterol reliever in MART in Steps 3 and 4)

*Very low dose: BUD-FORM 100/6 mcg
†Low dose: BUD-FORM 200/6 mcg (metered doses).
## Personalized asthma management:
Assess, Adjust, Review

### Asthma medication options:
Adjust treatment up and down for individual child’s needs

<table>
<thead>
<tr>
<th>PREFERRED CONTROLLER</th>
<th>Other controller options (limited indications, or less evidence for efficacy or safety)</th>
<th>RELIEVER</th>
</tr>
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<tbody>
<tr>
<td>to prevent exacerbations and control symptoms</td>
<td></td>
<td>As-needed short-acting beta&lt;sub&gt;2&lt;/sub&gt;-agonist (or ICS-formoterol reliever in MART in Steps 3 and 4)</td>
</tr>
</tbody>
</table>

**STEP 1**
Daily low dose inhaled corticosteroid (ICS) (see table of ICS dose ranges for children)

**STEP 2**
Daily leukotriene receptor antagonist (LTRA), or low dose ICS taken whenever SABA taken

**STEP 3**
Low dose ICS - LABA, OR medium dose ICS, OR very low dose* ICS - formoterol maintenance and reliever (MART)

**STEP 4**
Medium dose ICS - LABA, OR low dose† ICS - formoterol maintenance and reliever therapy (MART).

**STEP 5**
Refer for expert advice ± higher dose ICS - LABA or add-on therapy, e.g. anti-IgE, anti-IL4R

*Very low dose: BUD-FORM 100/6 mcg
†Low dose: BUD-FORM 200/6 mcg (metered doses)
**Children 6-11 years**

**Personalized asthma management:**
Assess, Adjust, Review

**Asthma medication options:**
Adjust treatment up and down for individual child’s needs

**PREFERRED CONTROLLER**
to prevent exacerbations and control symptoms

**Other controller options**
(limited indications, or less evidence for efficacy or safety)

**RELIEVER**
As-needed short-acting beta₂-agonist (or ICS-formoterol reliever in MART in Steps 3 and 4)

**STEP 1**

**STEP 2**

**STEP 3**
Low dose ICS-LABA, OR medium dose ICS, OR very low dose* ICS-formoterol maintenance and reliever (MART)

**STEP 4**
Low dose ICS + LTRA

**STEP 5**

*Very low dose: BUD-FORM 100/6 mcg
†Low dose: BUD-FORM 200/6 mcg (metered doses).
Children 6-11 years

Personalized asthma management:
Assess, Adjust, Review

### Asthma medication options:
Adjust treatment up and down for individual child’s needs

- **PREFERRED CONTROLLER**
to prevent exacerbations and control symptoms

- Other controller options (limited indications, or less evidence for efficacy or safety)

- **RELIEVER**

#### STEP 1

#### STEP 2

#### STEP 3

RELIEVER

As-needed short-acting beta$_2$-agonist (or ICS-formoterol reliever in MART in Steps 3 and 4)

#### STEP 4

Medium dose ICS-LABA, OR low dose† ICS-formoterol maintenance and reliever therapy (MART). Refer for expert advice

- Add tiotropium or add LTRA

#### STEP 5

Confirmation of diagnosis if necessary
Symptom control & modifiable risk factors (see Box 2B)
Comorbidities
Inhaler technique & adherence
Child and parent preferences and goals

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*Very low dose: BUD-FORM 100/6 mcg
†Low dose: BUD-FORM 200/6 mcg (metered doses).
### Children 6-11 years

#### Personalized asthma management:
Assess, Adjust, Review

#### Asthma medication options:
Adjust treatment up and down for individual child’s needs

<table>
<thead>
<tr>
<th>PREFERRED CONTROLLER</th>
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<tr>
<td>to prevent exacerbations and control symptoms</td>
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<td></td>
<td>Add-on anti-IL5 or, as last resort, consider add-on low dose OCS, but consider side-effects</td>
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Other controller options (limited indications, or less evidence for efficacy or safety)

**RELIEVER**
As-needed short-acting beta₂-agonist (or ICS-formoterol reliever in MART in Steps 3 and 4)

**STEP 5**
Refer for phenotypic assessment ± higher dose ICS-LABA or add-on therapy, e.g. anti-IgE, anti-IL4R

*Very low dose: BUD-FORM 100/6 mcg
†Low dose: BUD-FORM 200/6 mcg (metered doses)
Changes to treatment figure in children 5 years and younger (Box 6-5)

• Management of wheezing episodes in pre-school children with no (or few) interval symptoms
  – Intermittent short course ICS added to Step 1 for consistency with the existing text (Chapter 6, part C)
  – Only consider this option if confident it will be used appropriately, because of the risk of side-effects
### Children 5 years and younger

#### Personalized asthma management:
Assess, Adjust, Review response

#### Symptoms
- Exacerbations
- Side-effects
- Parent satisfaction

#### Asthma medication options:
Adjust treatment up and down for individual child’s needs

### PREFERRED CONTROLLER CHOICE

- **STEP 1**
  - Daily low dose inhaled corticosteroid (ICS) (see table of ICS dose ranges for pre-school children)
  - Consider intermittent short course ICS at onset of viral illness

- **STEP 2**
  - Daily leukotriene receptor antagonist (LTRA), or intermittent short course of ICS at onset of respiratory illness

- **STEP 3**
  - Low dose ICS + LTRA
  - Consider specialist referral

- **STEP 4**
  - Continue controller & refer for specialist assessment

#### Other controller options
(limited indications, or less evidence for efficacy or safety)

- Infrequent viral wheezing and no or few interval symptoms
  - Symptom pattern not consistent with asthma but wheezing episodes requiring SABA occur frequently, e.g. ≥3 per year. Give diagnostic trial for 3 months. Consider specialist referral.
  - Symptom pattern consistent with asthma, and asthma symptoms not well-controlled or ≥3 exacerbations per year.

#### RELIEVER

- **CONSIDER THIS STEP FOR CHILDREN WITH:**
  - Asthma diagnosis, and asthma not well-controlled on low dose ICS
  - Asthma not well-controlled on double ICS

Before stepping up, check for alternative diagnosis, check inhaler skills, review adherence and exposures

### Notes
Excluding alternative diagnoses
Symptom control & modifiable risk factors
Comorbidities
Inhaler technique & adherence
Parent preferences and goals

### Table

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[Box 6-5 © Global Initiative for Asthma 2022, www.ginasthma.org]
### Personalized asthma management:
Assess, Adjust, Review response

### Asthma medication options:
Adjust treatment up and down for individual child’s needs

<table>
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<th>STEP 1</th>
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</tr>
<tr>
<td><strong>RELIEVER</strong></td>
<td></td>
<td></td>
<td>As-needed short-acting beta-2-agonist</td>
</tr>
<tr>
<td><strong>CONSIDER THIS STEP FOR CHILDREN WITH:</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
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Box 6-5, 2/5 © Global Initiative for Asthma 2022, www.ginasthma.org
Children 5 years and younger

**Personalized asthma management:**
Assess, Adjust, Review response

### Asthma medication options:
Adjust treatment up and down for individual child’s needs

#### PREFERRED CONTROLLER CHOICE
Other controller options (limited indications, or less evidence for efficacy or safety)

#### RELiever
Consider this step for children with:

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<tr>
<td><strong>RELiever</strong></td>
<td>As-needed short-acting beta₂-agonist</td>
<td></td>
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</table>

- **STEP 2**
  - Symptom pattern not consistent with asthma but wheezing episodes requiring SABA occur frequently, e.g. ≥3 per year. Give diagnostic trial for 3 months. Consider specialist referral.
  - Symptom pattern consistent with asthma, and asthma symptoms not well-controlled or ≥3 exacerbations per year.

Before stepping up, check for alternative diagnosis, check inhaler skills, review adherence and exposures.
**Children 5 years and younger**

**Personalized asthma management:**
Assess, Adjust, Review response

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<th><strong>Asthma medication options:</strong></th>
<th><strong>PREFERRED CONTROLLER CHOICE</strong></th>
<th><strong>RELIEVER</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjust treatment up and down for individual child’s needs</td>
<td>Other controller options (limited indications, or less evidence for efficacy or safety)</td>
<td>As-needed short-acting beta$_2$-agonist</td>
</tr>
</tbody>
</table>

**STEP 1**
- Symptom control & modifiable risk factors
- Comorbidities
- Inhaler technique & adherence
- Parent preferences and goals

**STEP 2**

**STEP 3**
- Continue controller & refer for specialist assessment
- Add LTRA, or increase ICS frequency, or add intermittent ICS

**STEP 4**
- Continue controller & refer for specialist assessment
- Add LTRA, or increase ICS frequency, or add intermittent ICS

**Symptoms**
- Symptom pattern consistent with asthma, and asthma symptoms not well-controlled or ≥3 exacerbations per year.

**Before stepping up, check for alternative diagnosis, check inhaler skills, review adherence and exposures**
Interim advice about asthma severity descriptors

1. Severe asthma: GINA continues to support the current definitions of severe asthma, and difficult-to-treat asthma

2. ‘Mild asthma’: GINA suggests that this term should generally be avoided in clinical practice if possible, because it is used and interpreted in different ways
   — If used, emphasize importance of ICS-containing treatment to reduce risk of severe or fatal exacerbations

3. For population-level observational studies: report the controller and reliever treatment not the ‘Step’, and don’t impute severity
   — e.g. ‘patients prescribed low dose ICS-LABA with as-needed SABA’, not ‘Step 3 patients’ and not ‘moderate asthma’

4. For clinical trials: describe the included patients by their asthma control and treatment (controller and reliever), and don’t impute severity

5. GINA proposes holding a stakeholder discussion about the definition of mild asthma, to obtain agreement about the implications for clinical practice and clinical research of the changes in knowledge about asthma pathophysiology and treatment since the current definition of asthma severity was published
Other changes or clarifications in GINA 2022

• “Written” asthma action plans
  – Handwritten, printed, digital or pictorial instructions about what to do when asthma gets worse
  – Not just verbal instructions!

• Acute asthma in healthcare settings
  – At present, salbutamol (albuterol) is the usual bronchodilator in acute asthma management
  – Formoterol has similar efficacy and safety in ED studies (Rodrigo, Ann Allerg Asthma Immunol, 2010)
  – One study showed high dose budesonide-formoterol had similar efficacy and safety as SABA (Balanag, Pulm Pharmacol Ther 2006)
  – Patients admitted to hospital for an asthma exacerbation should continue, or commence, ICS-containing therapy

• Air filters can reduce fine particle exposure, but no consistent effect on asthma outcomes (Park, Allergy Asthma Immunol Res 2021)

• Use of e-cigarettes is associated with increased risk of respiratory symptoms and asthma exacerbations (Cho, PLoSOne 2016; Wills, ERJ 2021)
Where do I go from here?
Shared Medical Decision Making!

The SHARE Approach

5 Essential Steps of Shared Decision Making

1. Seek your patient’s participation.
2. Help your patient explore & compare treatment options.
3. Assess your patient’s values & preferences.
4. Reach a decision with your patient.
5. Evaluate your patient’s decision.

https://www.ahrq.gov/health-literacy/professional-training/shared-decision/index.html
Variables to Consider

- Ease
- Cost
- Adherence
- Access
- Care environments
- Number of caregivers
- Child’s preference
- Side effect concerns
- Child’s treatment goals
- Family’s treatment goals
- Clinical evidence
Asthma Action Plans
Asthma Action Plan Example

<table>
<thead>
<tr>
<th>GREEN ZONE = GOOD</th>
<th>Use these medications everyday!</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Breathing is good</td>
<td>Flovent HFA 44 mcg 2 puffs TWICE a day</td>
</tr>
<tr>
<td></td>
<td>• Rinse your mouth after inhalers as directed.</td>
</tr>
<tr>
<td></td>
<td>• Use a spacer and mask when you use the inhaler.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>YELLOW ZONE = CAUTION</th>
<th>Keep taking your &quot;GREEN ZONE&quot; medications and add a rescue medication.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(An asthma attack is starting)</td>
<td>FIRST: Albuterol inhaler (Proair or Ventolin): inhale 2 puffs every 4 hours as needed for symptoms.</td>
</tr>
<tr>
<td></td>
<td>SECOND:</td>
</tr>
<tr>
<td></td>
<td>• If better within an hour, return to green zone</td>
</tr>
<tr>
<td></td>
<td>• If not better in an hour or still needing rescue inhaler in 48 hours, call your provider at 216/444-KIDS (5437)</td>
</tr>
<tr>
<td></td>
<td>Start oral steroids: Orapred (11.2 mL) once a day</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RED ZONE = DANGER</th>
<th>CALL YOUR PROVIDER NOW!</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serious asthma attack</td>
<td>FIRST: Albuterol nebulizer treatment: 1 vial every 15 minutes for 3 treatments</td>
</tr>
<tr>
<td></td>
<td>SECOND:</td>
</tr>
<tr>
<td></td>
<td>• If better continue albuterol every 4 hours</td>
</tr>
<tr>
<td></td>
<td>• If not improved after 15 minutes: GO TO THE EMERGENCY ROOM OR CALL 911</td>
</tr>
</tbody>
</table>
Asthma Action Plans for Children

• Written or digital summary of education provided for reinforcement

• Ability to share the education and management plan amongst caregivers

• Safety net as a potential opportunity to decrease avoidable ED utilization or hospital admission
Asthma Action Plan Evidence

• Proven to be effective in both children and adults
  
  (Gibson, Praxis, 1999; McDonald, Chron Respir Dis, 2006; Zemek, Arch Ped Adoleses Med, 2007,
  Argawal, Acta Paediatr, 2005)

• While nearly all plans have red, yellow and green zones with medications and doses listed, variability exists in other components
  
  (Pegoraro, Front. Pediatr., 2022)
Pediatric Asthma Action Plan Considerations

- Emergency contact information
- Directions for caregivers
  - “remain calm”, “get help”, “prime inhaler”
- Directions for patients
  - “stay calm”, “sit straight”, “take slow steady breaths”
- Inhaler colors for clarity
- Triggers
- Patient preferences
Key Takeaways

• ICS-formoterol is preferred rescue therapy for asthma patients ages 12 YO+
• Intermittent ICS for children <12 YO may be used to reduce severe problems in children with intermittent symptoms and reduce oral steroid burden
• Term “mild asthma” should be used with caution, if at all, as infrequent symptoms can still be severe
• Opportunities exist for health equity in broadly deploying the GINA guidelines
• Shared medical decision making should be utilized
• Asthma action plans can help all caregivers understand how to best manage each individual child with asthma
ODH Resources

• Ohio Department of Health Asthma Action Plan Pocket Guide
• Ohio Department of Health Provider Toolkit
• Ohio Department of Health Asthma Continuing Education
• Ohio Department of Health Asthma Newsletter
Ohio AAP Preventative Health Program

- [https://ohioaap.org/education-cme-moc-ii/preventive-health-program/](https://ohioaap.org/education-cme-moc-ii/preventive-health-program/)
Questions or Comments?
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