What's New in Asthma 2025?

รศ.นพ.ณรงค์กร ซ้ายโพธิ์กลาง

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Disclosure

- No conflicts of interest

Asthma Guideline

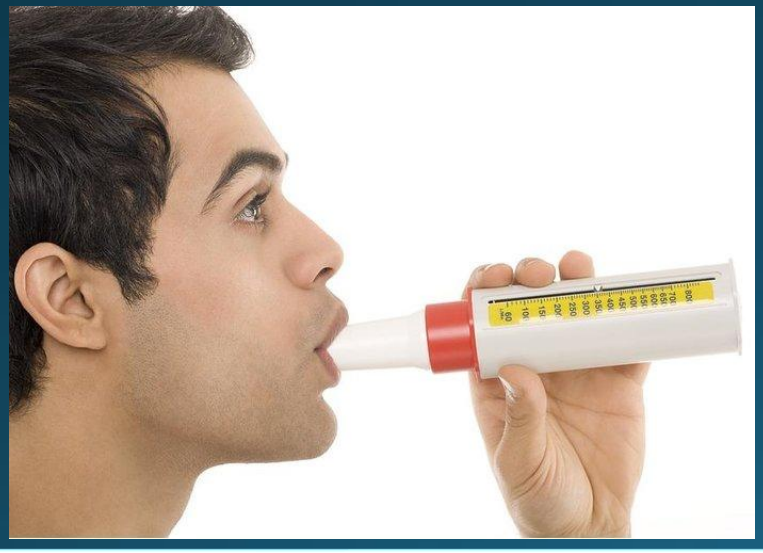
Key changes in GINA 2025 guideline

- **Diagnosis of asthma:** new flowchart
- **Asthma assessment for type 2 inflammation**: Blood Eosinophil & FeNO
- **Risk factors for severe exacerbation**: new data
- **Population-level & patient-level treatment decision**: new figure
- **Asthma treatment recommendations**: updated
- **Exacerbation**: action plan & management in primary care & ER settings
- **Diagnosis and treatment of asthma in children < 5 y**: updated
- **Impact of extreme weather**

Diagnosis of Asthma

- History of *4* respiratory symptoms +
- Evidence of variable expiratory airflow

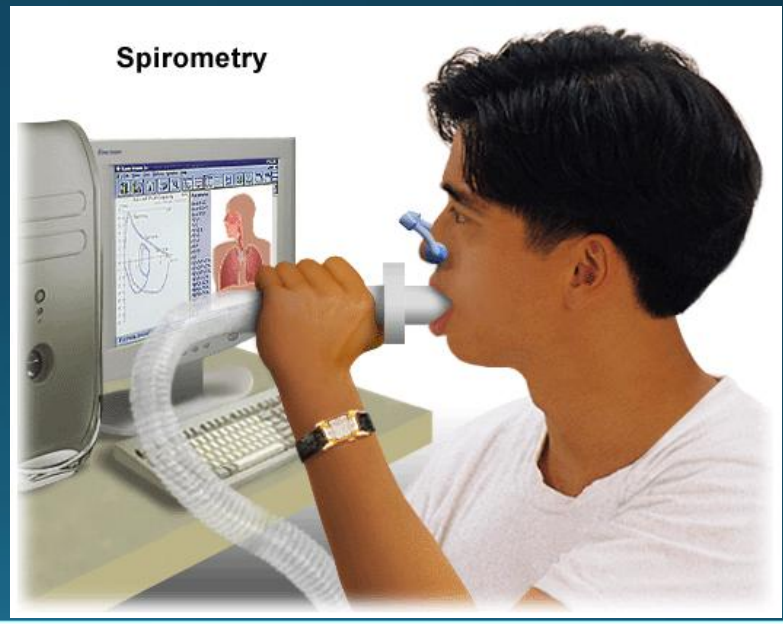
Peak Expiratory Flow (PEF)



PEF variability **>10%**

↑PEF >20% after BDR test

Spirometry

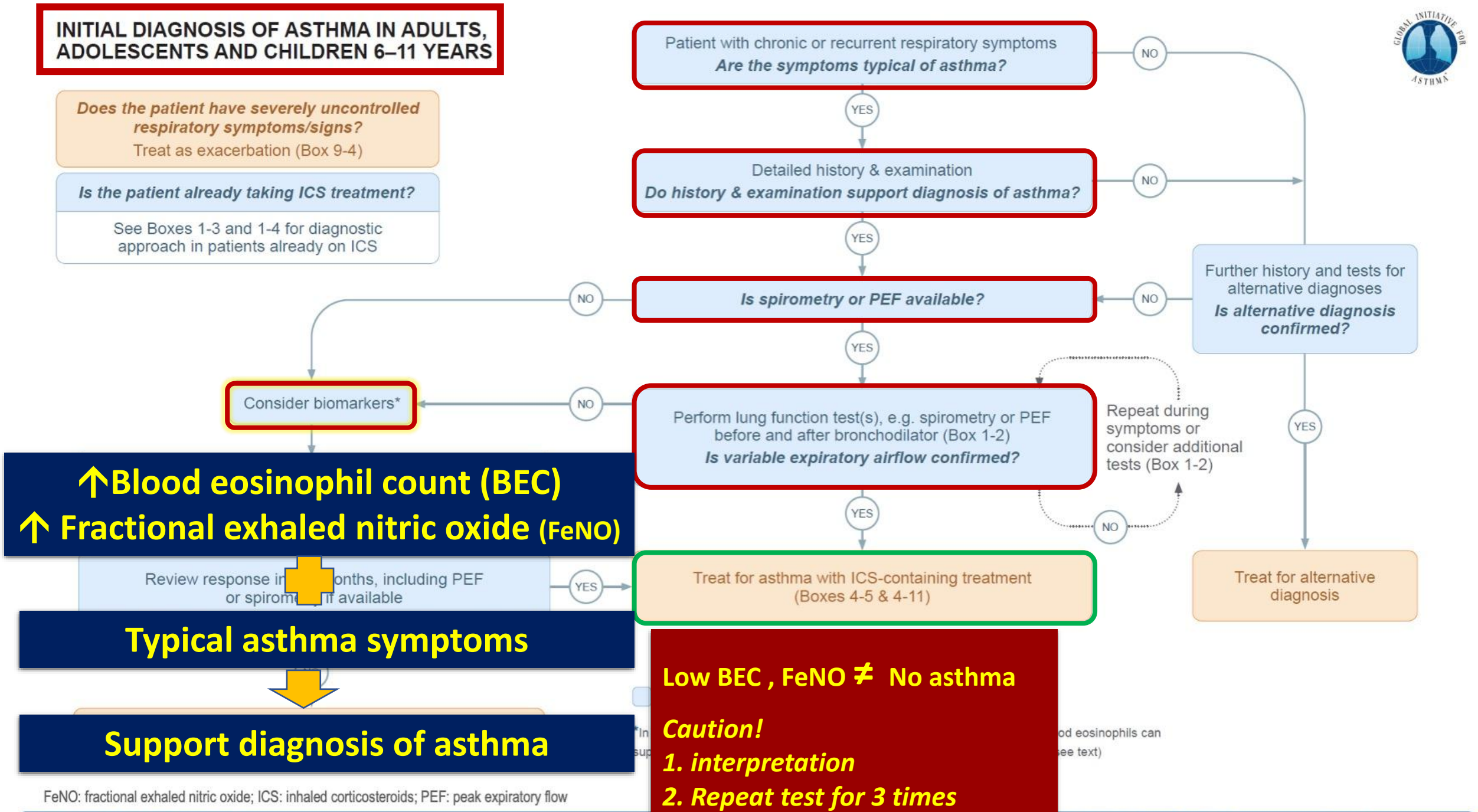


Bronchodilator response =

↑post-BD FEV_1 or FVC **200 mL & 12%**

4 respiratory symptoms of asthma

- Wheezes
- Shortness of breath (dyspnea)
- Chest tightness
- Cough


INITIAL DIAGNOSIS OF ASTHMA IN ADULTS, ADOLESCENTS AND CHILDREN 6–11 YEARS
Patient with chronic or recurrent respiratory symptoms
Are the symptoms typical of asthma?
NO
YES
Detailed history & examination
Do history & examination support diagnosis of asthma?
NO
YES
Is spirometry or PEF available?
NO
YES
Further history and tests for alternative diagnoses
Is alternative diagnosis confirmed?
Does the patient have severely uncontrolled respiratory symptoms/signs?
Treat as exacerbation (Box 9-4)
Is the patient already taking ICS treatment?
See Boxes 1-3 and 1-4 for diagnostic approach in patients already on ICS
Consider biomarkers*
NO
Perform lung function test(s), e.g. spirometry or PEF before and after bronchodilator (Box 1-2)
Is variable expiratory airflow confirmed?
Repeat during symptoms or consider additional tests (Box 1-2)
YES
NO
YES
Review response in onths, including PEF or spirom if available
YES
Treat for asthma with ICS-containing treatment (Boxes 4-5 & 4-11)
Treat for alternative diagnosis
↑Blood eosinophil count (BEC)
↑ Fractional exhaled nitric oxide (FeNO)
Typical asthma symptoms
Support diagnosis of asthma
Low BEC , FeNO ≠ No asthma
Caution!
1. interpretation
2. Repeat test for 3 times
od eosinophils can
see text)
FeNO: fractional exhaled nitric oxide; ICS: inhaled corticosteroids; PEF: peak expiratory flow
GINA 2025, Box 1-1
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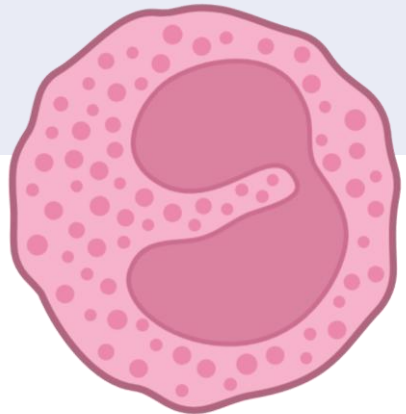
Factors affecting blood eosinophil count (BEC)

Higher BEC	Lower BEC
▪ **BEC ≥ upper limit of normal for the population from regional or national laboratory reference values**	
▪ **BEC ≥150/µL** suggests type 2 Inflammation during **high-dose ICS**	
▪ **BEC ≥300/µL** is eligibility for biologics	
➢ **Males > females** ➢ **Morning > afternoon** ➢ **Current smokers** ➢ **Parasitic infections** e.g., helminths ➢ **Allergic diseases** e.g., atopic dermatitis, allergic rhinitis, drug hypersensitivity ➢ **Allergen exposure** ➢ **Other non-asthma conditions** e.g., eosinophilic bronchitis, EGPA	➢ **some asthma phenotypes** ➢ **patients taking corticosteroids e.g. oral, intranasal, inhaled**

✓ **Support diagnosis of asthma**
✓ **Predict asthma exacerbation**
✓ **Predict response to ICS & biologic Rx**



Factors affecting fractional exhaled nitric oxide (FeNO)

Higher FeNO	Lower FeNO
▪ FeNO ≥ upper limit of normal for the population	
▪ ICS-naïve: >50 ppb ▪ Medium-dose ICS: ≥25 ppb ▪ High-dose ICS: ≥20 ppb	
➢ Males > females ➢ Afternoon > morning ➢ Allergic diseases e.g., atopic dermatitis, allergic rhinitis ➢ 24 hours after allergen exposure	➢ Current smokers ➢ Bronchoconstriction and lower lung function ➢ Early allergic response ➢ Inhaled corticosteroids, oral or nasal corticosteroids

✓ Low FeNO & BEC → consider other treatment before increasing ICS/LABA dose

✓ Support diagnosis of asthma
✓ Predict asthma exacerbation
✓ Predict response to ICS, MART & biologic Rx

✓ High FeNO + uncontrolled asthma during ICS/LABA → check adherence & inhaler technique (first) → increased ICS/LABA dose→ Biologic Rx

	Omalizumab	Mepolizumab	Reslizumab	Benralizumab	Dupilumab	Tezepelumab
Biomarkers associated with reduced exacerbation rate						
BEC, cells/uL	≥260	≥300	≥400	≥300	≥300	≥150
FeNO, ppb	≥19.5	Not associated	Not associated	Not associated	≥25	≥25
Outcomes						
Exacerbation rate reduction	25%	~50%	~40%	~50%	~70%	~70%
OCS reduction		++		++	++	
Quality of life improvement	+	+	+	+	+	++
FEV_1 improvement	+/–	+	+/–	+	++	++
Treatment of comorbidities						
CRwNP	++	++		+	++	
Atopic dermatitis					++	
EGPA		++	+	+		
Practical considerations						
Age	6+	6+	18+	6+	6+	12+
Frequency & route	2–4 weekly, sc	4 weekly, sc	4 weekly, **iv**	8 weekly, sc	2 weekly, sc	4 weekly, sc

Asthma and Allergy Foundation of America 2024. Kavanagh JE, et al. Breathe (Sheff) 2021;17:210144.

GINA 2025 - personalized asthma management

REVIEW

- Symptoms
- Exacerbations
- Side-effects
- Comorbidities
- Lung function
- Consider biomarkers
- Patient (and parent/caregiver) satisfaction

ASSESS

- Confirmation of diagnosis if necessary
- Symptom control & modifiable risk factors
- Comorbidities
- Inhaler technique & adherence
- Patient (and parent/caregiver) preferences and goals

ADJUST

- Treatment of modifiable risk factors and comorbidities
- Non-pharmacological strategies
- Asthma medications including ICS
- Education & skills training, action plan

ICS: inhaled corticosteroids

Population-level vs patient-level treatment decisions

Choosing between treatment options at a population level

(e.g., national formularies, health maintenance organizations, national guidelines)

The 'preferred' medication at each step is the best treatment for most patients, based on:

- Efficacy
- Effectiveness
- Safety

Mainly based on evidence about symptoms and exacerbations (from randomized controlled trials, pragmatic studies and strong observational data)

- Access

Population-level availability and cost

There are different population-level recommendations by age-group (adults/adolescents, children 6–11 years, children 5 years and younger). For patients with severe asthma, there are also different population-level recommendations depending on the inflammatory phenotype.

Choosing between controller options for individual patients

Use shared decision-making with the patient or parent/caregiver to discuss the following:

1. Preferred medication

- What is the best medication for symptom control and risk reduction (as above)?

2. Patient characteristics or phenotype

- Does the patient have any factors that predict differences in risk or treatment response, compared with other patients, e.g., smoking; SABA over-use; exacerbation history; high FeNO or eosinophils; environmental exposures; comorbidities?

3. Patient views

- What are the patient's goals, beliefs and concerns about asthma and its treatment?

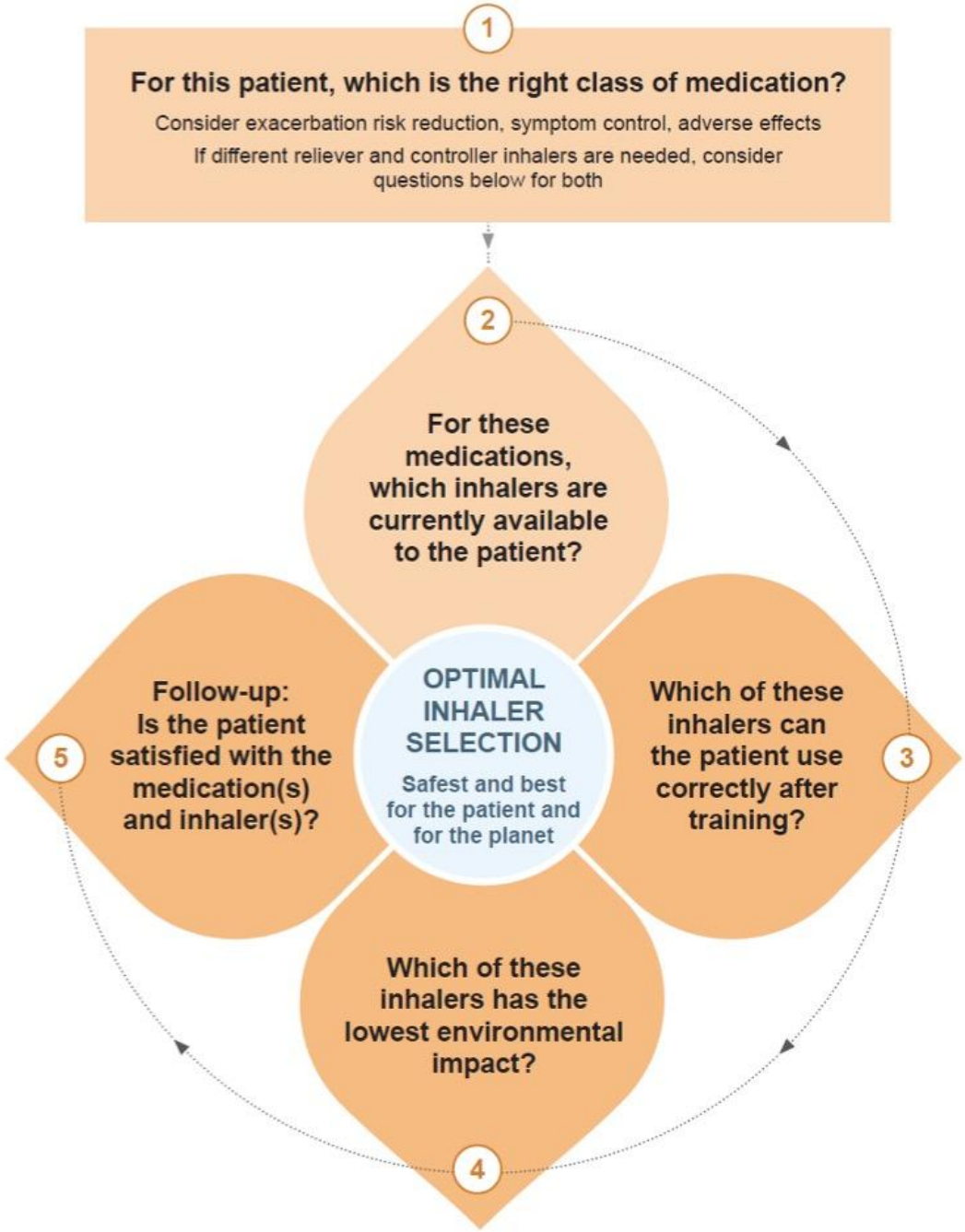
4. Practical issues

- For the preferred medication(s), which inhalers are available to this patient?
- Can they use the inhaler correctly after training?
- Can they afford the medication?
- Adherence – how often are they likely to take the medication?
- If more than one inhaler is suitable for the patient, which has the lowest environmental impact?

FeNO: fractional exhaled nitric oxide; SABA: short-acting $beta_2$-agonist

Shared decision-making about choice of inhaler device

- ✓ **Inhaler available?**
- ✓ **Patients can correctly use inhaler?**
- ✓ **Inhaler save world?**
- ✓ **Patients prefer inhaler?**



Long-term Goal of Asthma Management

Goals of optimal asthma treatment

To achieve long-term asthma symptom control

- Few/ no asthma symptoms
- No sleep disturbance due to asthma
- Unimpaired physical activity

To achieve long-term asthma risk minimization

- No exacerbation
- Improved or stable lung function
- No requirement for maintenance systemic corticosteroids
- No medication side-effects

Box 3-2 GINA Global Strategy for Asthma Management and Prevention www.ginaasthma.org Accessed May 2024

GINA 2024: Long-term outcomes

Asthma Remission

- **Clinical remission**: no asthma symptoms or exacerbations for specific period

- **Complete remission:** Clinical remission + *normal lung function, airway hyperresponsiveness and/or inflammatory markers*

APJAI
Asian Pacific Journal of
Allergy and Immunology

REVIEW ARTICLE

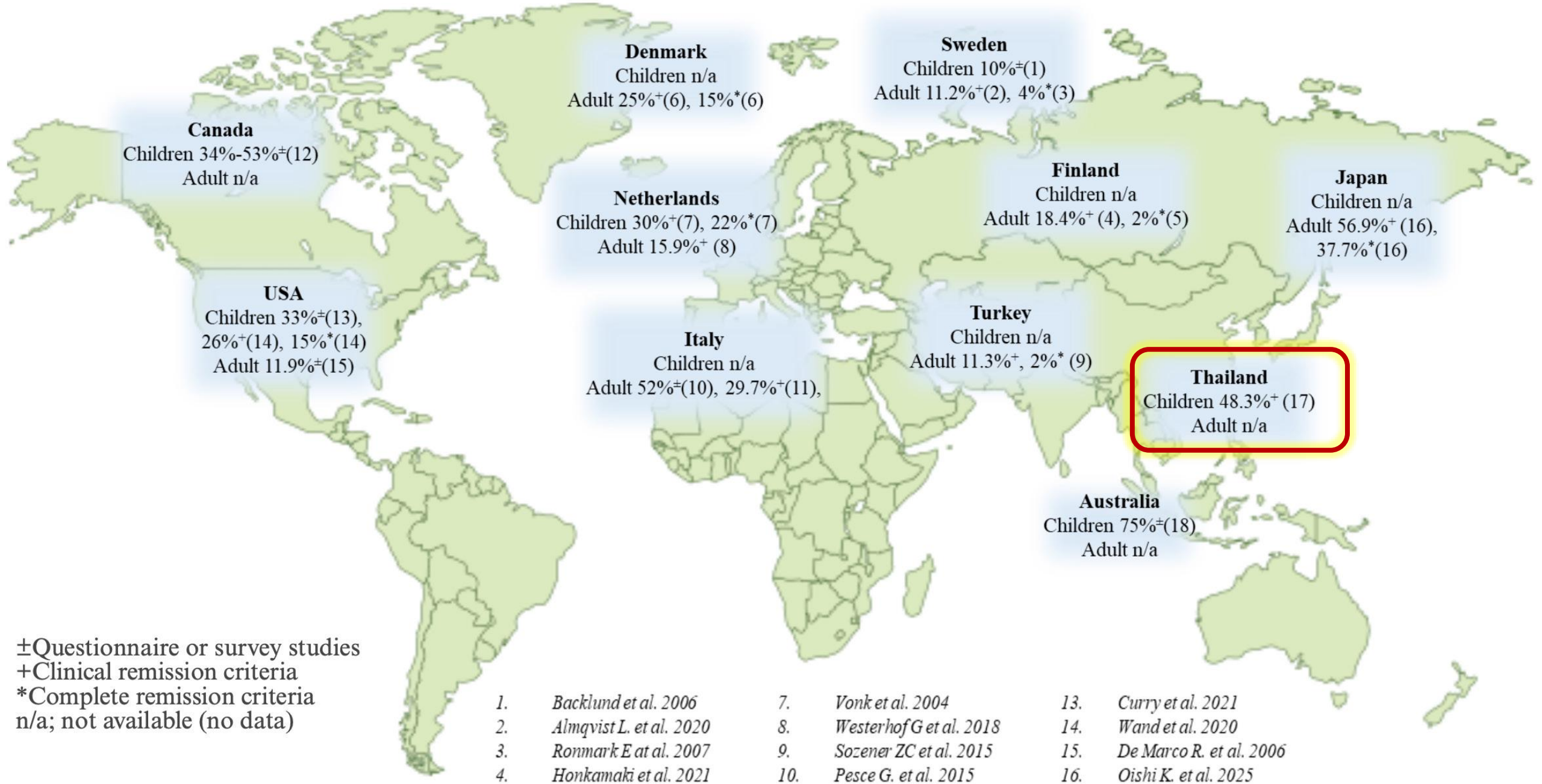
Asthma remission: A path to cure?

Chirawat Chiewchalermsri,[1] Dichapong Kanjanawasee,[2,3] Narongkorn Saiphoklang,[4] Naricha Chirakalwasan,[5,6] Thitiwat Sriprasart,[5] Anchalee Senavonge,[7,8] Natthawan Sanguanwong,[6,9] Harutai Kamalaporn,[10] Athipat Athipongarporn,[11] Supitchaya Hachai,[12] Watchara Boonsawat,[13] John Daniel Brannan,[14] Woo-Jung Song,[15] Kiat Ruxrungtham,[16,17] Orapan Poachanukoon[12]

Abstract

Asthma is a chronic inflammatory airway disease characterized by variable respiratory symptoms and reversible airflow limitation. Despite significant advances in pharmacologic and immunotherapeutic treatment, definitive remission or cure remains elusive. Asthma remission is defined as a sustained absence of symptoms, exacerbations, and lung function decline, with or without ongoing therapy. In contrast, an asthma cure implies permanent disease eradication marked by lifelong symptom resolution, no need for maintenance or rescue medication, preserved lung function, and absence of airway inflammation. To date, no intervention has been proven to cure asthma. Consequently, clinical remission has emerged as a more achievable and meaningful goal in asthma management.

Chiewchalermsri C, Kanjanawasee D, Saiphoklang, N, et al. Asian Pac J Allergy Immunol 2025; 43:135-150.



±Questionnaire or survey studies
+Clinical remission criteria
*Complete remission criteria
n/a; not available (no data)

1. Backlund et al. 2006
2. Almqvist L. et al. 2020
3. Ronmark E at al. 2007
4. Honkamaki et al. 2021
5. Tuomisto L. et al. 2016
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16. Oishi K. et al. 2025
17. Siripattarasopon et al. 2015
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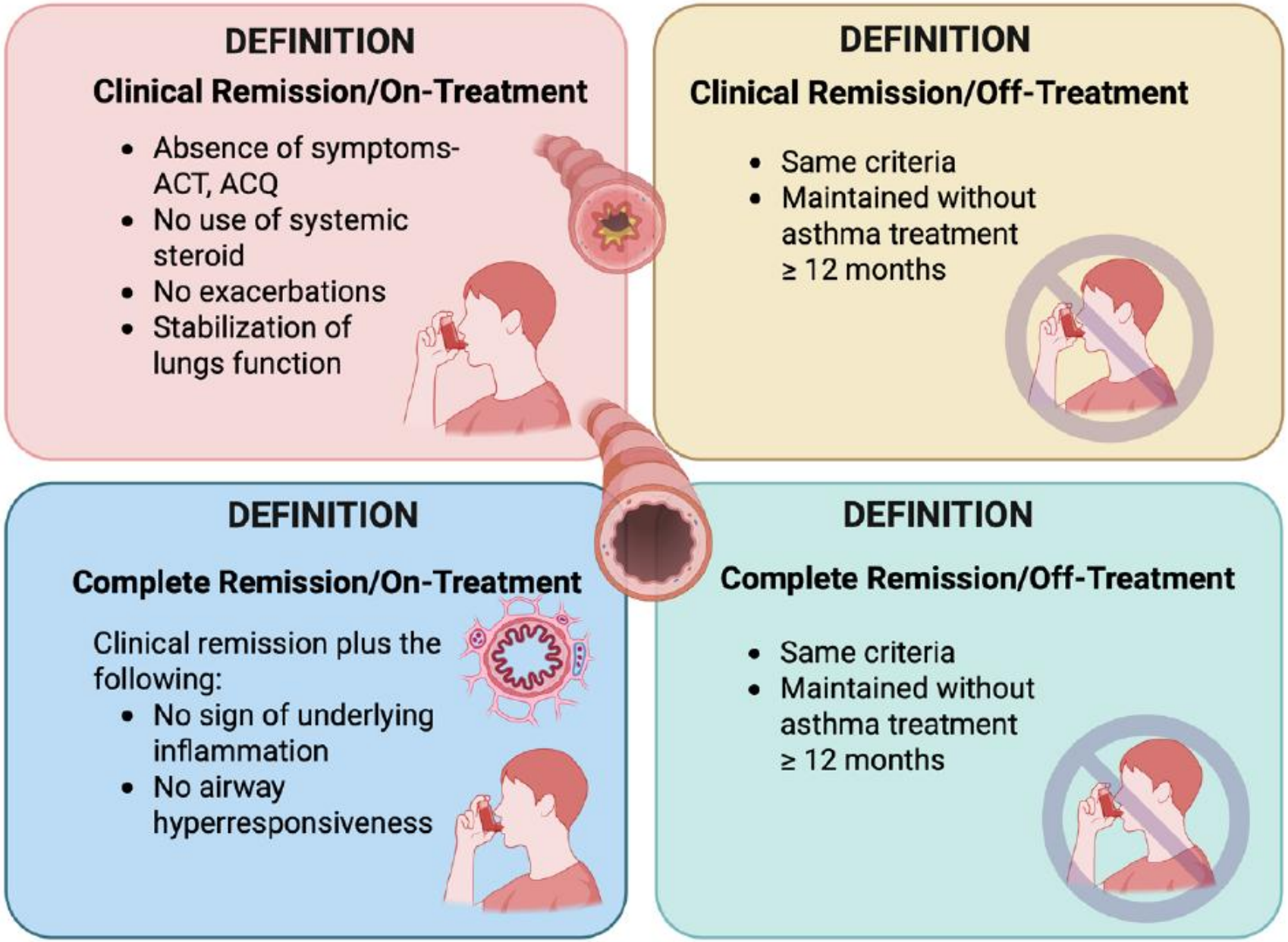
Chiewchalermsri C, et al. Asian Pac J Allergy Immunol 2025; 43:135-150.



Chiewchalermsri C, Kanjanawasee D, Saiphoklang, N, et al. Asian Pac J Allergy Immunol 2025; 43:135-150.

Characteristics of Asthma Remission

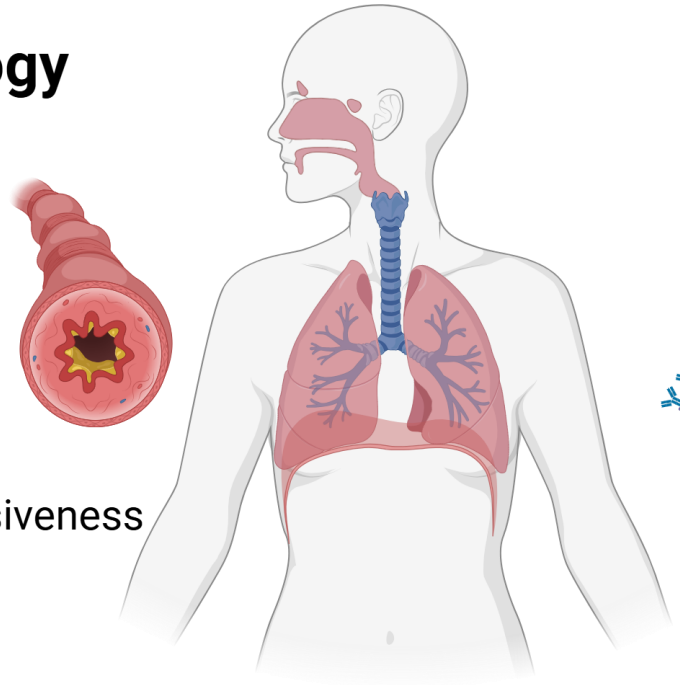
Pathophysiology

Airway obstruction

Airway remodeling

Airway inflammation

Airway hyperresponsiveness



Biomarkers

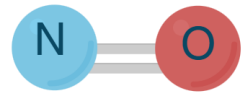
IgE

Blood eosinophils

Sputum eosinophils

Mast cell

FeNO



Clinical Remission

(with or without treatment)

Symptoms controlled
ACT score ≥ 20
No exacerbation
Normal Lung function
Duration of at least 12 months (ideally lifelong)

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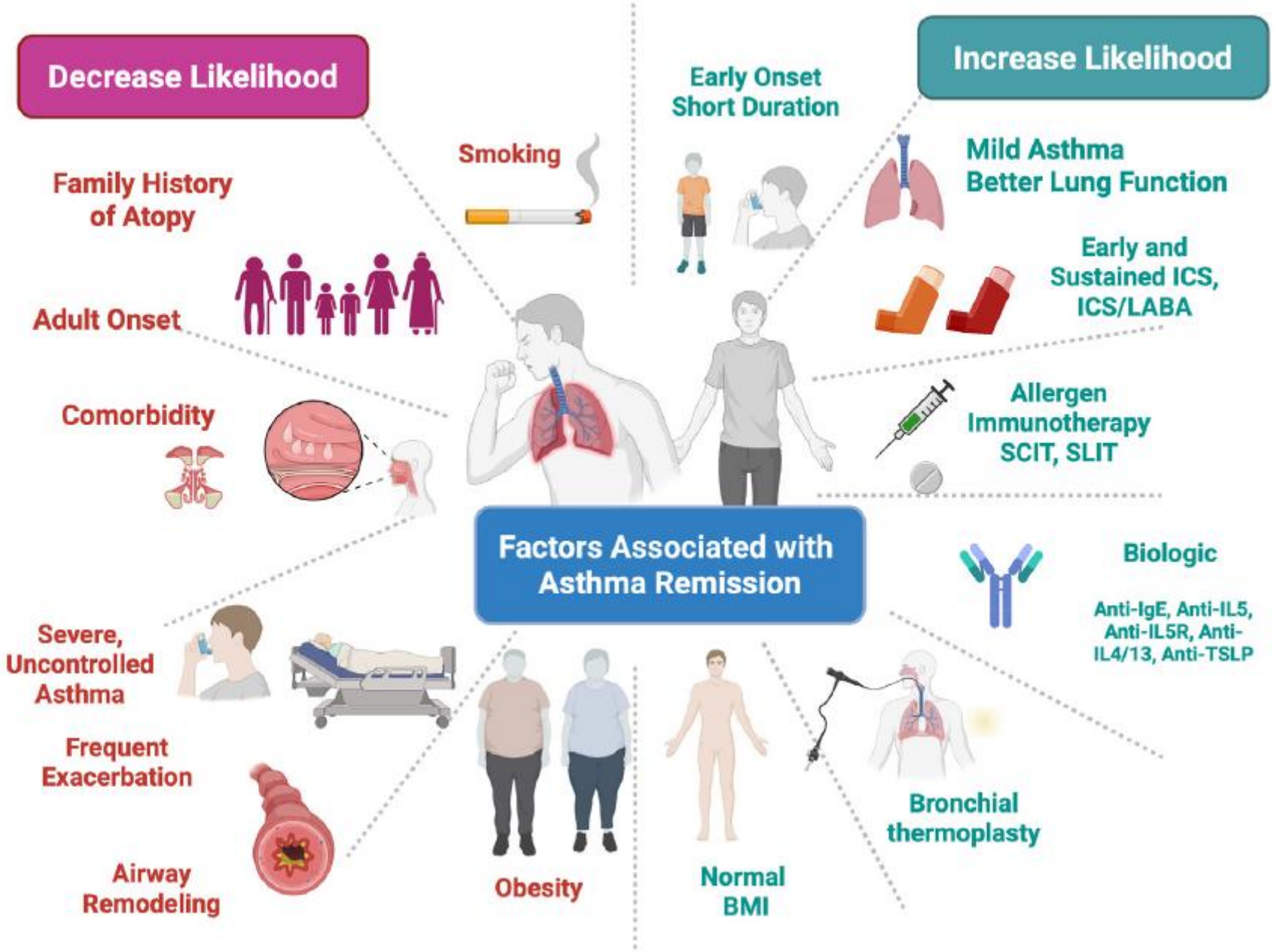

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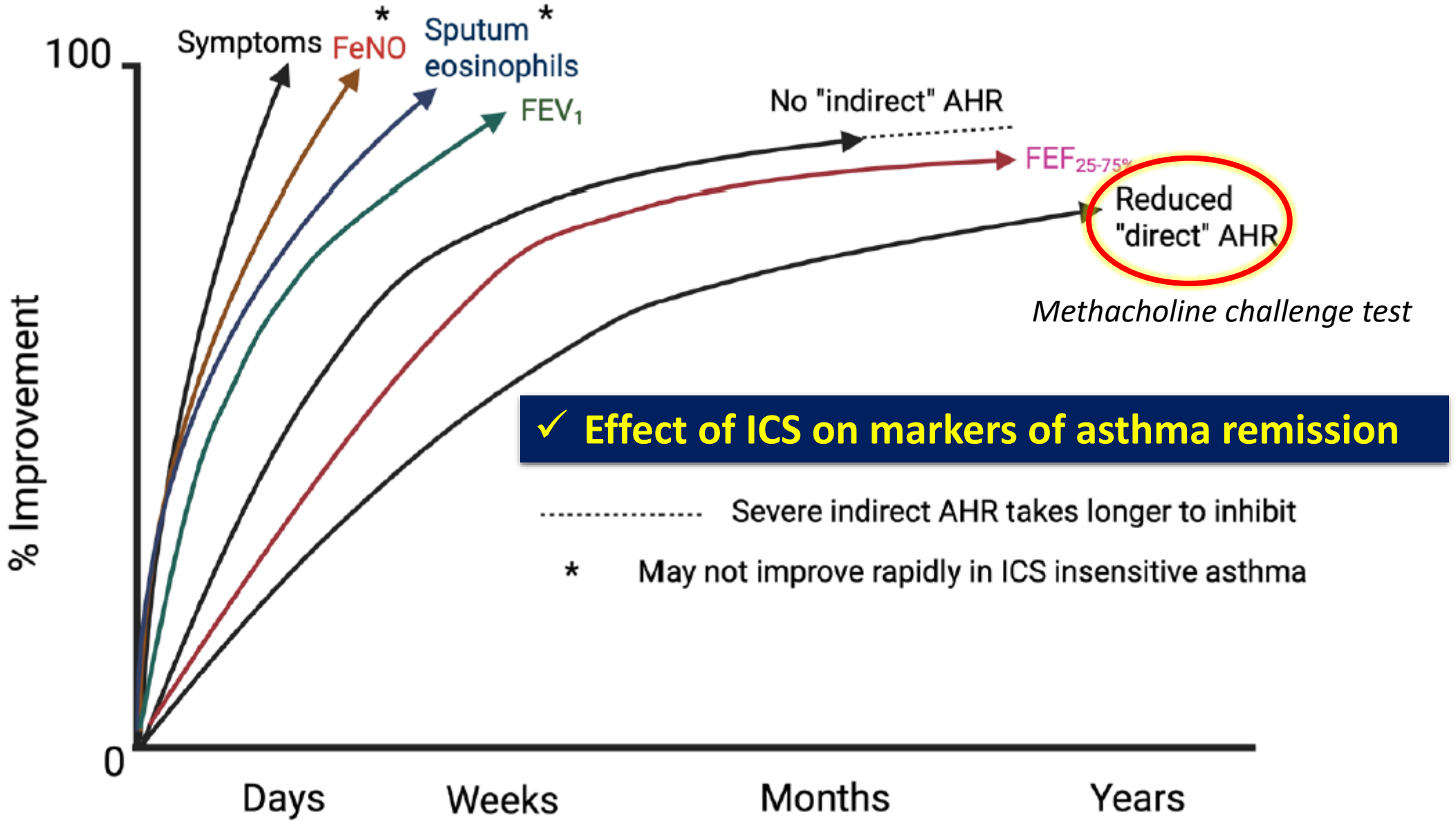


Chiewchalermsri C, Kanjanawasee D, Saiphoklang, N, et al. Asian Pac J Allergy Immunol 2025; 43:135-150.

Box 2-2. GINA assessment of asthma control at clinical visits in adults, adolescents and children 6–11 years

A. Recent asthma symptom control (but also ask the patient/caregiver about the whole period since last review#)

In the past 4 weeks, has the patient had:		Well controlled	Partly controlled	Uncontrolled
• Daytime asthma symptoms more than twice/week?	Yes☐ No☐	None of these	1–2 of these	3–4 of these
• Any night waking due to asthma?	Yes☐ No☐			
• SABA* reliever for symptoms more than twice/week?	Yes☐ No☐			
• Any activity limitation due to asthma?	Yes☐ No☐			

B. Risk factors for poor asthma outcomes

Assess risk factors at diagnosis and periodically, particularly for patients experiencing exacerbations.

Measure FEV_1 at start of treatment, after 3–6 months of ICS-containing treatment to record the patient's personal best lung function, then periodically for ongoing risk assessment.

a. Risk factors for exacerbations

Uncontrolled asthma symptoms: Having uncontrolled symptoms is an important risk factor for exacerbations.[85]

Factors that increase the risk of exacerbations even if the patient has few asthma symptoms†

SABA over-use: High SABA use (≥3 x 200-dose canisters/year associated with increased risk of exacerbations, increased mortality particularly if ≥1 canister per month)[86-89]

Inadequate ICS: not prescribed ICS, poor adherence,[90] or incorrect inhaler technique[91]

Other medical conditions: Obesity,[92,93] chronic rhinosinusitis,[93] GERD,[93] confirmed food allergy,[94] pregnancy[95]

Exposures: Smoking,[96] e-cigarettes,[97] allergen exposure if sensitized,[96,98] air pollution[99-102]

Psychosocial: Major psychological or socioeconomic problems[103,104]

Lung function: Low FEV_1 (especially <60% predicted),[96,105] high bronchodilator responsiveness[93,106,107]

Type 2 inflammatory markers: Higher blood eosinophils,[93,108,109] high FeNO (adults with allergic asthma on ICS)[110]

Exacerbation history: Ever intubated or in intensive care unit for asthma;[111] ≥1 severe exacerbation in last year[112,113]

b. Risk factors for developing persistent airflow limitation

History: Preterm birth, low birth weight and greater infant weight gain,[114] chronic mucus hypersecretion[115,116]

Medications: Lack of ICS treatment in patient with history of severe exacerbation[117]

Exposures: Tobacco smoke,[115] noxious chemicals; occupational or domestic exposures[62]

Investigation findings: Low initial FEV_1,[115] sputum or blood eosinophilia[115]

c. Risk factors for medication side-effects

Systemic Frequent OCS, long-term, high-dose and/or potent ICS, P450 inhibitors[118]

Local: High-dose or potent ICS,[118,119] poor inhaler technique[120]

GINA 2024-2025

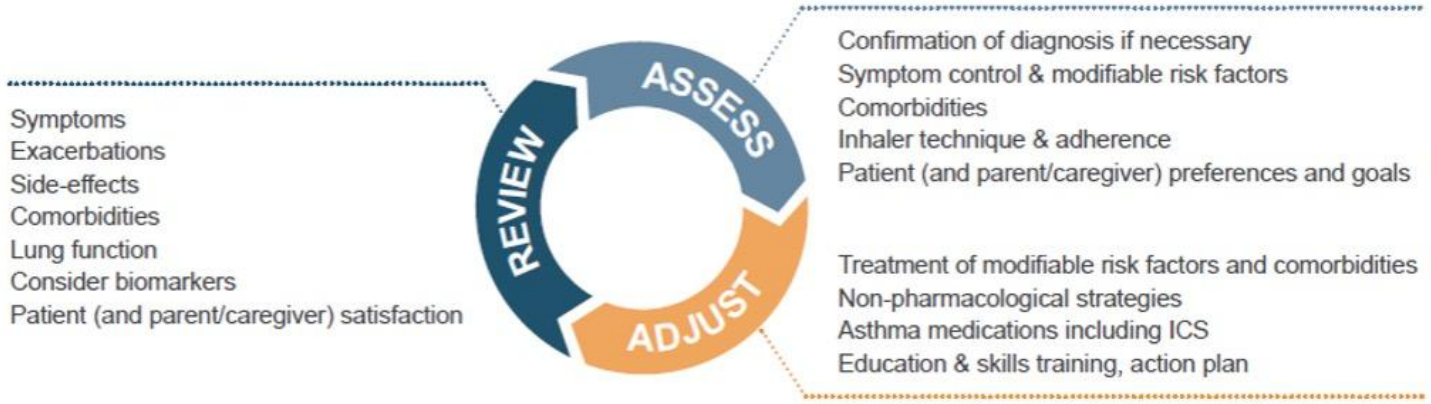
- **Recent asthma symptom control**
- **Risk factors for poor asthma outcomes**
  - **Exacerbation**
  - **Persistent airflow limitation**
  - **Medication side effect**

➢ **Symptom control alone is <u>not</u> sufficient for assessment**

➢ **Lung function is important**

GINA 2025
Adults & adolescents 12+ years

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



TRACK 1: PREFERRED CONTROLLER and RELIEVER
Using ICS-formoterol as the reliever* reduces the risk of exacerbations compared with using a SABA reliever, and is a simpler regimen

STEPS 1 – 2	STEP 3	STEP 4	STEP 5
AIR-only: low-dose ICS-formoterol as needed	MART* with low-dose maintenance ICS-formoterol	MART* with medium-dose maintenance ICS-formoterol	Add-on LAMA Refer for assessment of phenotype. Consider trial of high-dose maintenance ICS-formoterol. Consider anti-IgE, anti-IL5/5R, anti-IL4Rα, anti-TSLP

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

TRACK 2: Alternative **CONTROLLER and RELIEVER**
Before considering a regimen with SABA reliever, check if the patient is likely to adhere to daily controller treatment

STEP 1	STEP 2	STEP 3	STEP 4	STEP 5
Reliever only; if SABA, take ICS with each dose	Low dose maintenance ICS	Low dose maintenance ICS-LABA	Medium dose maintenance ICS-LABA	Add-on LAMA Refer for assessment of phenotype. Consider trial of high-dose maintenance ICS-LABA. Consider anti-IgE, anti-IL5/5R, anti-IL4Rα, anti-TSLP

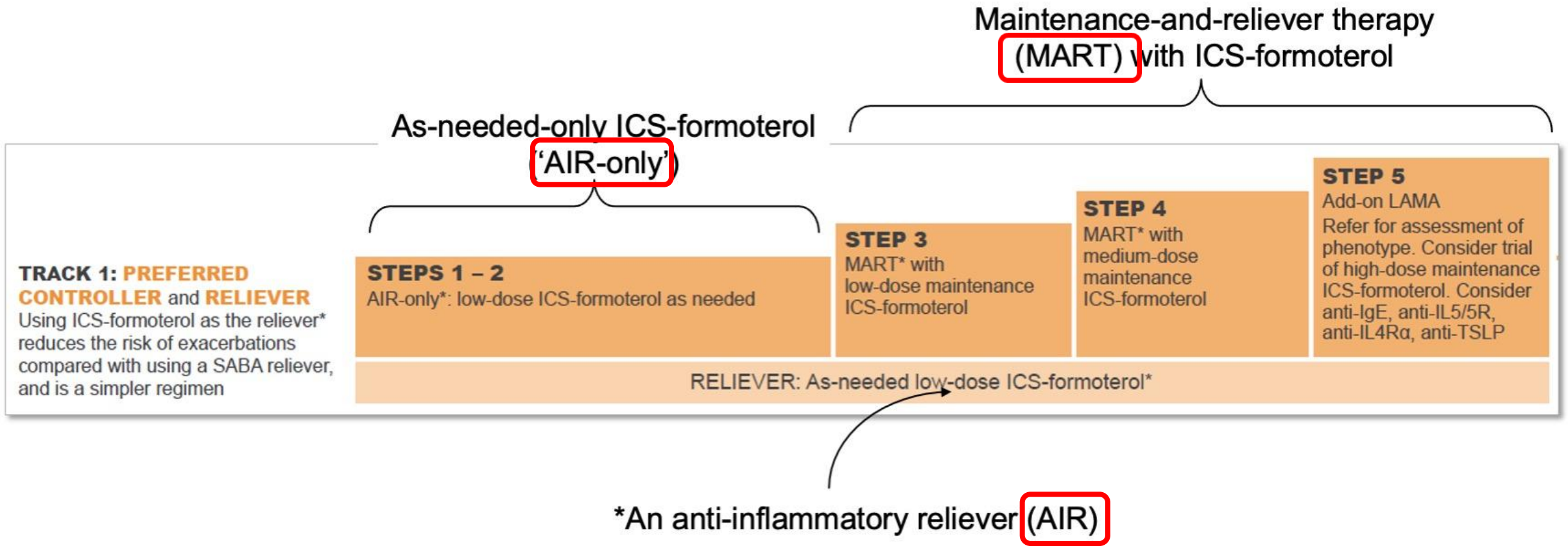
RELIEVER: as-needed ICS-SABA*, or as-needed SABA

See GINA severe asthma guide

Non-pharmacologic strategies include smoking cessation, physical activity, pulmonary rehabilitation, weight reduction, vaccinations (see text for more)
Allergen immunotherapy, e.g. HDM SLIT: consider for patients with clinically relevant sensitization and not well-controlled (but stable) asthma See text for further information and safety advice
Additional controller options (e.g., add-on LAMA at Step 4, add-on LTRA) have less evidence for efficacy or for safety than Tracks 1 or 2 (see text). Maintenance OCS should only ever be used as last resort.

AIR: anti-inflammatory reliever; HDM: house dust mite; ICS: inhaled corticosteroid; Ig: immunoglobulin; IL: interleukin; LABA: long-acting beta$_2$-agonist; LAMA: long-acting muscarinic antagonist; LTRA: leukotriene receptor antagonist; MART: maintenance-and-reliever therapy with ICS-formoterol; OCS: oral corticosteroid; SABA: short-acting beta$_2$-agonist; SLIT: subcutaneous immunotherapy; TSLP: thymic stromal lymphopoietin

Terminology: AIR, AIR-only and MART



AIR: anti-inflammatory reliever; ICS: inhaled corticosteroid; Ig: immunoglobulin; IL: interleukin; LAMA: long-acting muscarinic antagonist; MART: maintenance-and-reliever therapy with ICS-formoterol; SABA: short-acting beta$_2$-agonist; TSLP: thymic stromal lymphopoietin

Box 4-2. Low, medium and high daily metered doses of inhaled corticosteroids (alone or with LABA)

This is not a table of equivalence, but suggested total daily doses for "low", "medium" and "high" dose ICS options for adults/adolescents (Box 4-6, p.77) and children 6–11 years (Box 4-12, p.96), based on product information.

The table does NOT imply potency equivalence. For example, if you switch treatment from a "medium" dose of one ICS to a "medium" dose of another ICS, this may represent a decrease (or an increase) in potency, and the patient's asthma may become unstable (or they may be at increased risk of adverse effects).

Inhaled corticosteroid (alone or in combination with LABA)	Total daily ICS dose (mcg) – see notes above		
	Low	Medium	High
Adults and adolescents (12 years and older)			
Beclometasone dipropionate (pMDI, standard particle, HFA)	200–500	>500–1000	>1000
Beclometasone dipropionate (DPI or pMDI, extrafine particle, HFA)	100–200	>200–400	>400
Budesonide (DPI, or pMDI, standard particle, HFA)	200–400	>400–800	>800
Ciclesonide (pMDI, extrafine particle, HFA)	80–160	>160–320	>320
Fluticasone furoate (DPI)	100		200
Fluticasone propionate (DPI)	100–250	>250–500	>500
Fluticasone propionate (pMDI, standard particle, HFA)	100–250	>250–500	>500
Mometasone furoate (DPI)	Depends on DPI device – see product information		
Mometasone furoate (pMDI, standard particle, HFA)	200–400		>400

Change in 2025

DPI: dry powder inhaler; HFA: hydrofluoroalkane propellant; ICS: inhaled corticosteroid; LABA: long-acting beta$_2$-agonist; pMDI: pressurized metered dose inhaler

Difficult-to-treat and severe asthma

- **Uncontrolled asthma**
  - Frequent symptoms and/or flare-ups (exacerbations)
  - Could potentially have mild, easy-to-treat asthma, if treated appropriately with ICS
- **Difficult-to-treat asthma**
  - (not a difficult patient!)
  - Asthma is uncontrolled despite medium- or high-dose ICS-containing treatment
  - Contributory factors may include incorrect diagnosis, incorrect inhaler technique, poor adherence, comorbidities, short-acting beta$_2$-agonist (SABA) over-use and other risk factors
- **Severe asthma**
  - Asthma is uncontrolled despite maximal optimised therapy and treatment of contributory factors, or it worsens when high dose treatment is decreased *(Chung, ERJ 2014)*
  - Relatively refractory to corticosteroids, but rarely completely refractory
  - A retrospective definition, dependent on how thoroughly contributory factors are managed

ICS: inhaled corticosteroid; SABA: short-acting beta$_2$-agonist

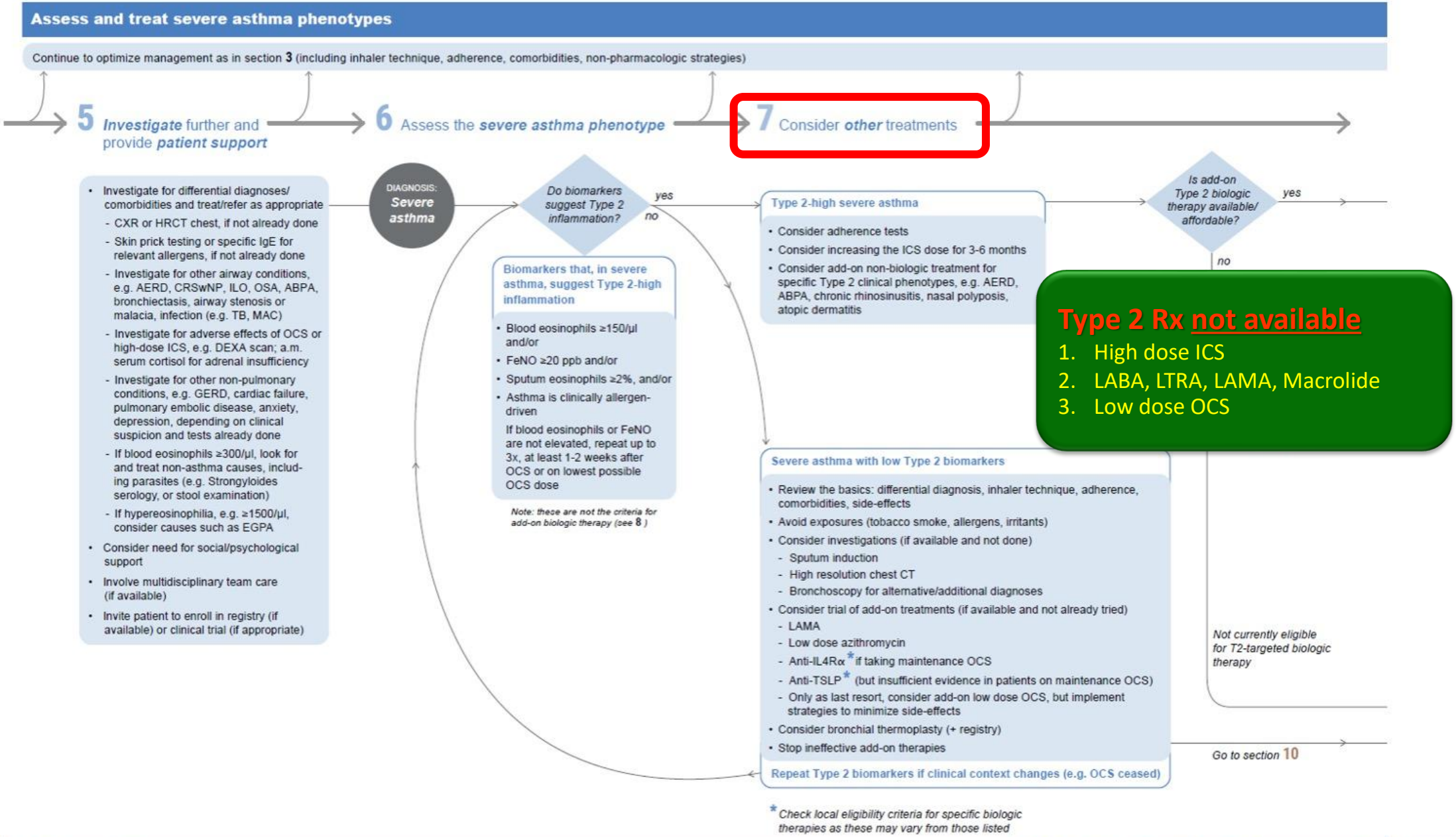
Investigating uncontrolled asthma in primary care

Watch patient using their inhaler. **Discuss adherence and barriers to use**	Compare inhaler technique with a device-specific checklist, and correct errors; recheck frequently. Have an empathic discussion about barriers to adherence.
Confirm the diagnosis of asthma	If lung function normal during symptoms, consider halving ICS dose and repeating lung function after 2–3 weeks. Consider biomarkers for Type 2 asthma.
Reduce potential risk factors. **Assess and manage comorbidities**	• For adults/adolescents, switch to GINA Track 1 if available • Check for risk factors or inducers such as smoking, beta-blockers, NSAIDs, allergen exposure. Check for and manage conditions such as rhinitis, obesity, GERD, depression/anxiety.
Consider short-term treatment step-up	Consider short-term step up to next treatment level. Use shared decision-making, and balance potential benefits and risks.
Refer for expert advice	If asthma still uncontrolled after 3–6 months on Step 4 treatment, refer for expert advice. Refer earlier if asthma symptoms severe, or doubts about diagnosis.

GERD: gastro-esophageal reflux disease; ICS: inhaled corticosteroid; NSAID: non-steroidal anti-inflammatory drug; SABA: short-acting beta$_2$-agonist

Box 8-3. Decision tree – assess and treat severe asthma phenotypes

SPECIALIST CARE; SEVERE ASTHMA CLINIC IF AVAILABLE



Box 8-4. Decision tree – consider add-on biologic Type 2-targeted treatments

SPECIALIST CARE; SEVERE ASTHMA CLINIC IF AVAILABLE

Assess and treat severe asthma phenotypes *cont'd*

Continue to optimize management as in section **3** (including inhaler technique, adherence, comorbidities, non-pharmacologic strategies)

Severe Asthma

8 Consider *add-on biologic Type 2-targeted* treatments

- Consider add-on Type 2-targeted biologic therapy for patients with exacerbations or poor symptom control on high dose ICS-LABA, who have evidence of Type 2 inflammation*
- Consider **local payer eligibility criteria***, **comorbidities** and **predictors of response** when choosing between available therapies
- Also consider cost, dosing frequency, route (SC or IV), patient preference

Which biologic is appropriate to start first?

Eligibility

Anti-IgE *(omalizumab)*

*Is the patient eligible for **anti-IgE** for severe allergic asthma?**

- Sensitization on skin prick testing or specific IgE
- Total serum IgE and weight within dosage range
- Exacerbations in last year

no / *no*

Anti-IL5 / Anti-IL5R *(benralizumab, mepolizumab, reslizumab)*

*Is the patient eligible for **anti-IL5 / anti-IL5R** for severe eosinophilic asthma?**

- Exacerbations in last year
- Blood eosinophils, e.g. ≥150/µl or ≥300/µl

no / *no*

Anti-IL4Rα *(dupilumab)*

*Is the patient eligible for **anti-IL4Rα** for severe eosinophilic/Type 2 asthma?**

- Exacerbations in last year
- Blood eosinophils ≥150 and ≤1500/µl, or FeNO ≥25 ppb, or taking maintenance OCS

no / *no*

Anti-TSLP *(tezepelumab)*

*Is the patient eligible for **anti-TSLP** for severe asthma?**

- Exacerbations in last year

Eligible for none? Return to section 7

Predictors of good asthma response

What factors may predict good asthma response to anti-IgE?

- Blood eosinophils ≥260/µl ++
- FeNO ≥20 ppb +
- Allergen-driven symptoms +
- Childhood-onset asthma +

What factors may predict good asthma response to anti-IL5/5R?

- Higher blood eosinophils +++
- More exacerbations in previous year +++
- Adult-onset of asthma ++
- Nasal polyposis ++

What factors may predict good asthma response to anti-IL4Rα?

- Higher blood eosinophils +++
- Higher FeNO +++

What factors may predict good asthma response to anti-TSLP?

- Higher blood eosinophils +++
- Higher FeNO +++

Choose one if eligible*; trial for at least 4 months and assess response

*Good asthma response?**

unclear → Extend trial to 6-12 months*

yes → Good response to T2-targeted therapy

no → **STOP add-on**

Consider switching to a different Type 2-targeted therapy, if eligible*

yes → *Eligible for none? Return to section 7*

no → Little/no response to T2-targeted therapy

No evidence of Type 2 airway inflammation

No evidence of Type 2 airway inflammation. Go to section 10

* *Check local eligibility criteria for specific biologic therapies as these may vary from those listed*

Biologics for severe asthma in Thailand

1. Omalizumab*
2. Benralizumab*
3. Duplilumab*
4. Mepolizumab

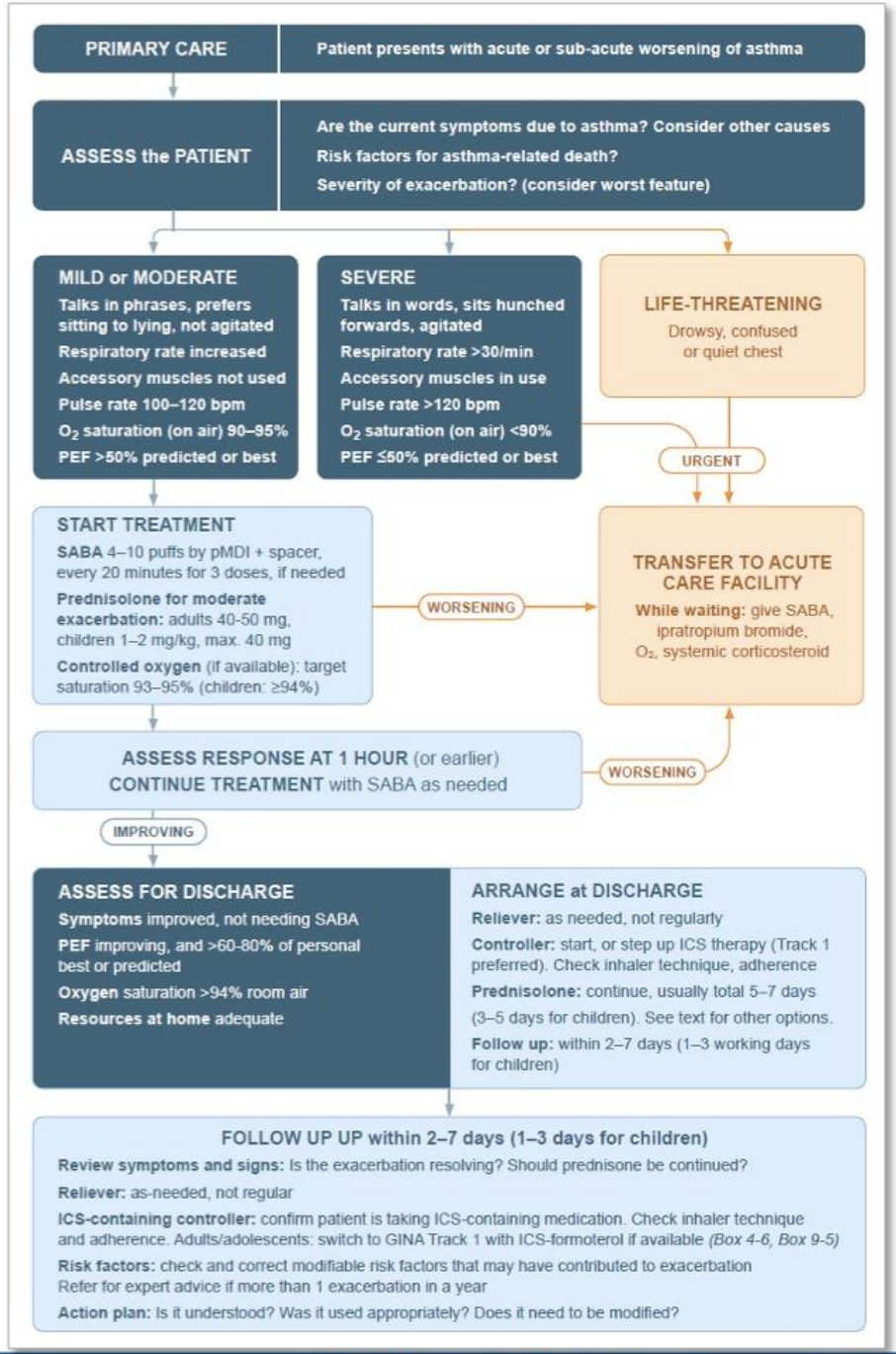
*กรมบัญชีกลาง อนุมัติการเบิกจ่ายตามหลักเกณฑ์ (2/5/67)

Asthma exacerbations in primary care
(adults, adolescents, children 6–11 years)

Key changes in 2025

- Prompt to consider differential diagnosis
- In mild/moderate exacerbations, review response to initial SABA before continuing high dose SABA or giving oral corticosteroids
- Target O_2 saturation is 93–95% for adults and adolescents, ≥94% for children
- Initiate or increase ICS-containing treatment on discharge; review risk factors, inhaler technique, adherence

Further review is planned for 2026



ICS: inhaled corticosteroid; O_2: oxygen; SABA: short-acting beta$_2$-agonist

Extreme weather and asthma

- Extreme weather: heat, cold, rain/floods, storms, drought/dust, landscape fires
- Impact on infrastructure and disruption to medical care
- Direct health effects on people with asthma
  - Heatwaves increase the risk of asthma emergency department (ED) visits by 7–34%, for about 1 week
  - Cold spells increase risk of ED visits by 20%; lag effect
  - Some evidence for increased asthma mortality
  - Thunderstorm asthma → epidemics of asthma exacerbations associated with grass pollen/fungi
- Mitigation strategies: limited evidence
  - Face masks to reduce PM2.5 exposure
  - Shelter in temperature-controlled environments, e.g., shopping malls
  - Mobile phone alerts to prompt behavior change

ED: emergency department; PM2.5: particulate matter of diameter 2.5 micron or less

Thank You