

NEW ZEALAND ASTHMA GUIDELINES

Quick Reference Guide

This quick reference guide is sourced from the following Guideline documents, which can be found at [**cardiacandrespiratory.co.nz**](https://cardiacandrespiratory.co.nz)

- New Zealand Child Asthma Guidelines - June 2020 Update
- New Zealand Adolescent and Adult Asthma Guidelines 2020

CONTENTS

ADOLESCENT & ADULT ASTHMA GUIDELINES

Diagnosis	4
Stepwise approach to treatment	5
Algorithm for managing acute severe asthma	6
4-Step Asthma Consultation (ages 12+)	7

CHILD ASTHMA GUIDELINES

Diagnosis	9
Diagnostic pathway (ages 1-4)	10
Stepwise approach to treatment (ages 1-4)	11
Diagnostic pathway (ages 5-11)	12
Stepwise approach to treatment (ages 5-11)	13
Algorithm for management of acute severe asthma (11 & under)..	14

RESOURCES AND TOOLS.....	15
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Adolescent & Adult Asthma

Guideline Summary

DIAGNOSIS OF ADOLESCENT AND ADULT ASTHMA (AGED 12+)

In recent times, there have been a number of major advances in the treatment of asthma in adolescents and adults. There has also been greater recognition that the investigation and management of asthma in adolescents and adults (aged 12 and over) has a similar evidence base, which warrants the combining of guideline recommendations across these age groups. The diagnosis of asthma starts with the recognition of a characteristic pattern of symptoms and signs, in the absence of an alternative explanation.

Asthma MORE likely

- Two or more of the following symptoms:
 - Wheeze (most sensitive and specific symptom of asthma)
 - Breathlessness
 - Chest tightness
 - Cough
- Symptom pattern:
 - Intermittent
 - Typically worse at night or in the early morning
 - Provoked by exercise, cold air, allergen exposure, irritants, viral infections, beta blockers, aspirin or other non-steroidal anti-inflammatory drugs
 - Recurrent or seasonal
 - Began in childhood
- History of atopic disorder or family history of asthma
- Widespread wheeze heard on chest auscultation
- Symptoms rapidly relieved by inhaled SABA or budesonide/formoterol
- Airflow obstruction on spirometry ($FEV_1/FVC < \text{Lower limit of normal}$)
- Increase in FEV_1 following bronchodilator $\geq 12\%$; the greater the increase the greater the probability
- Variability in PEF over time (highest-lowest PEF/mean) $\geq 15\%$; the greater the variability the greater the probability

Asthma LESS likely

- Chronic productive cough in absence of wheeze or breathlessness
- No wheeze when symptomatic
- Normal spirometry or PEF when symptomatic
- Symptoms beginning later in life, particularly in people who smoke
- Increase in FEV_1 following bronchodilator $< 12\%$; the lesser the increase the lower the probability
- Variability in PEF over time $< 15\%$; the lesser the variability the lower the probability
- No response to trial of asthma treatment
- Clinical features to suggest an alternative diagnosis

Steps in making a clinical diagnosis of asthma:

- Take a clinical history
- Undertake a focused physical examination
- Document variable expiratory airflow limitation
- Assess response to inhaled bronchodilator and/or ICS treatment

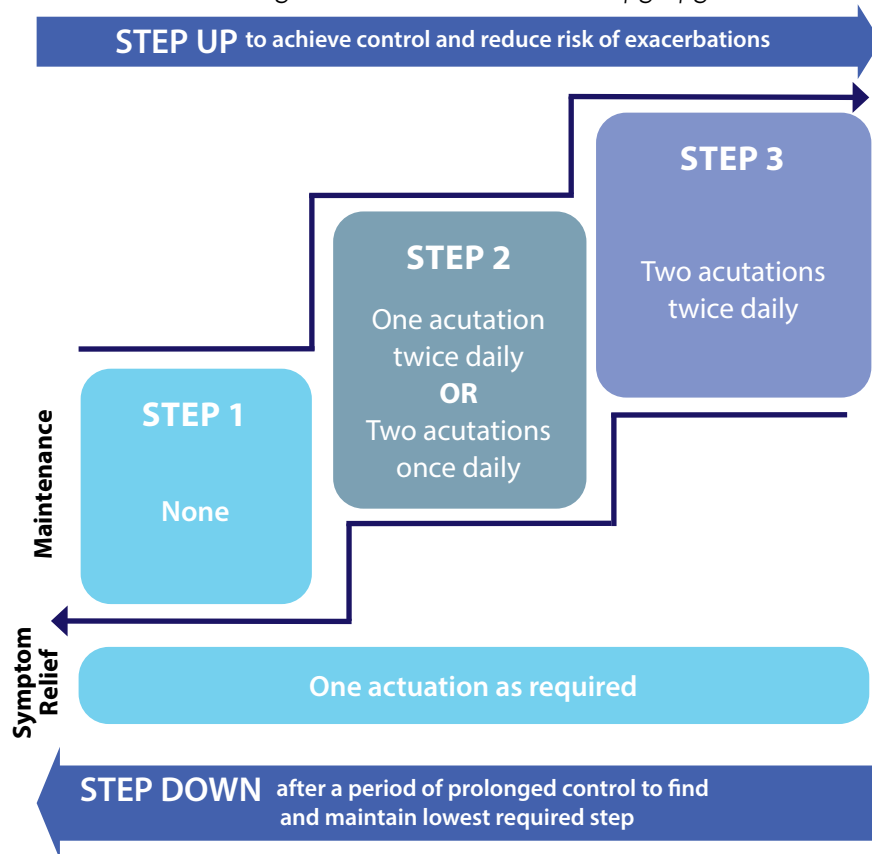
There is no reliable single 'gold standard' diagnostic test

STEPWISE APPROACH TO PHARMACOLOGICAL TREATMENT OF ADOLESCENT & ADULT ASTHMA

In the stepwise approach to asthma management, patients step up and step down as required to achieve and maintain control of their asthma and reduce the risk of exacerbations. **Before stepping up**, review inhaler technique, use, and treatable traits. **If a severe exacerbation occurs**, review and consider stepping up, or switch to AIR therapy based algorithm (if using traditional SABA reliever algorithm). **If asthma remains uncontrolled at Step 3**, consider add-on treatment and referral for specialist review.

Anti-Inflammatory Reliever (AIR) Therapy Based Algorithm

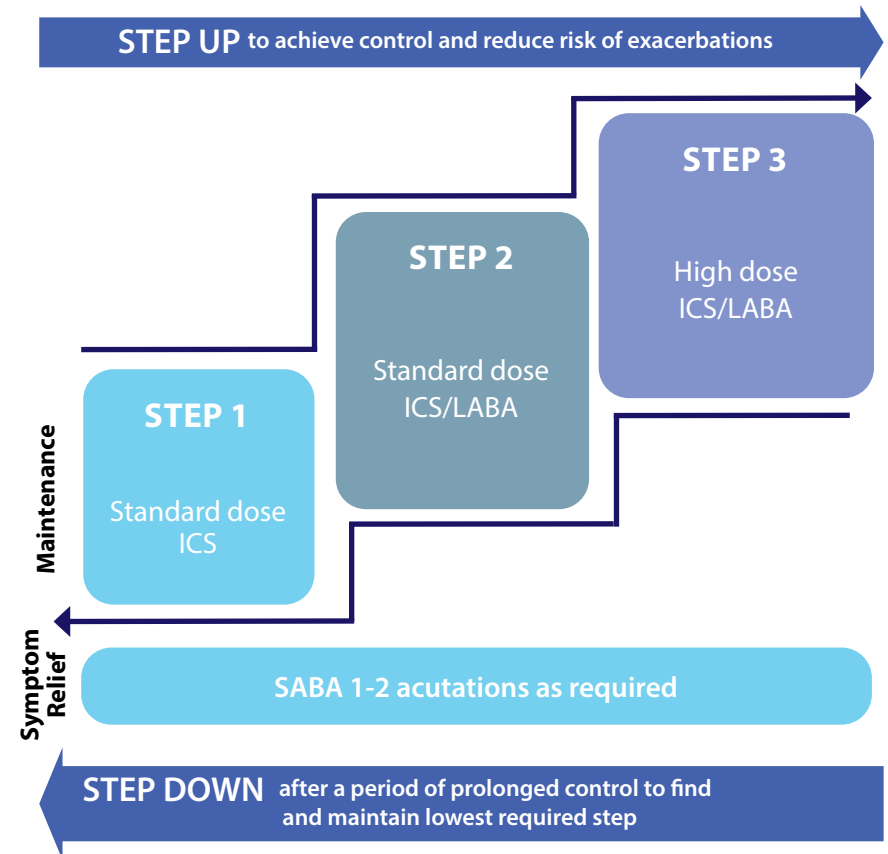
Using budesonide/formoterol 200µg/6µg



What is Anti-Inflammatory Reliever (AIR) therapy?

The AIR therapy based algorithm is the preferred algorithm and is based on the budesonide/formoterol 200 µg/ 6µg turbuhaler formulation as reliever therapy, with or without regular maintenance budesonide/formoterol therapy. The use of budesonide/formoterol as both maintenance and reliever therapy at Steps 2 and 3 is also known as 'Single combination ICS/LABA inhaler Maintenance And Reliever Therapy (SMART)'.

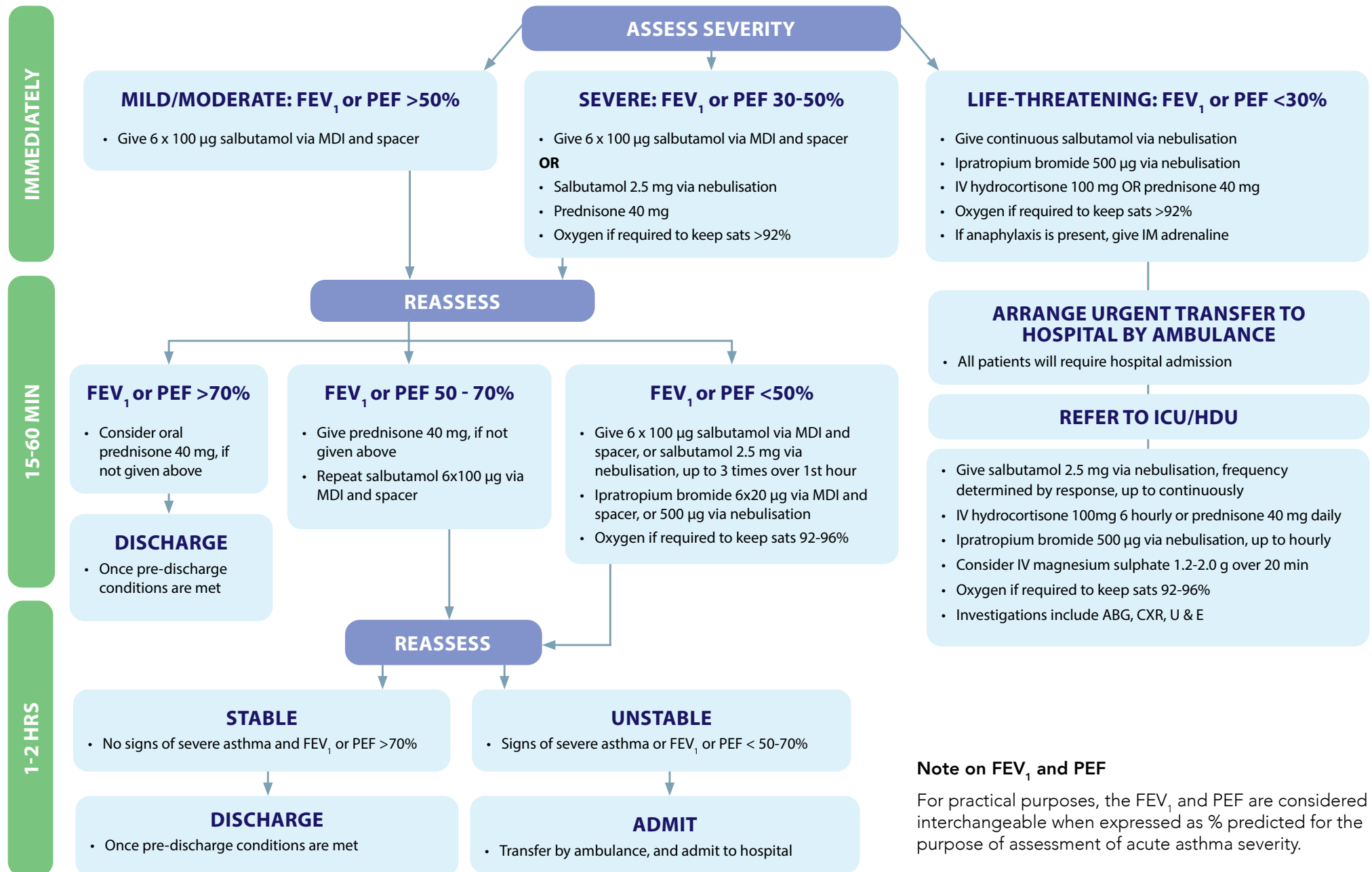
Traditional SABA Reliever Therapy Based Algorithm



RECOMMENDED STANDARD DAILY DOSE OF ICS IN ADULT ASTHMA

Beclomethasone dipropionate	400-500 µg/day
Beclomethasone dipropionate extrafine	200 µg/day
Budesonide	400 µg/day
Fluticasone propionate	200-250 µg/day
Fluticasone furoate	100 µg/day

ALGORITHM FOR MANAGEMENT OF ACUTE SEVERE ASTHMA IN ADOLESCENTS AND ADULTS (PRIMARY CARE, AFTERHOURS, OR ED)



4-STEP ASTHMA CONSULTATION - ADOLESCENT AND ADULT

1 Assess asthma control

Complete the Asthma Control Test* (ACT) score:

- 20–25: well controlled
- 16–19: partly controlled
- 5–15: poorly controlled

Review lung function tests

- Peak flow monitoring
- AND/OR
- Spirometry

Review patient history

- Severe asthma attacks in last 12 months (requiring urgent medical review, oral corticosteroids or bronchodilator nebuliser use)

2 Consider other relevant clinical issues

Ask and investigate

- E.g. using prescribing records, ask about medication use, including adherence with maintenance treatment

Check inhaler technique

- Knowing and understanding how to use each inhaler device is the cornerstone of asthma management and symptom control

Enquire about clinical features associated with increased risk

- E.g. poor symptom control, high SABA use (>3 canisters per year), history of sudden asthma attacks

Consider treatable traits

- E.g. overlapping disorders, comorbidities, environmental, behavioural

Decide whether peak flow monitoring is indicated

- To assist in self-management, check how well medication is working, & to monitor condition

3 Decide if a step-up or step-down is required

Step-up in the level of treatment

- In patients where asthma is not adequately controlled, poor lung function or recent severe exacerbation

Change to the AIR therapy

- Consider in patients who have had a recent severe exacerbation and are currently treated with traditional SABA reliever therapy based algorithm.

Possible step-down in the level of treatment

- For patients who have had a sustained period of good control

4 Complete an Asthma Action Plan

Decide which plan to use

- AIR budesonide/formoterol reliever ± maintenance therapy
- 3-stage maintenance ICS or ICS/LABA + SABA reliever
- 4-stage maintenance ICS + SABA reliever (*This includes the instruction to increase dose and frequency of ICS in worsening asthma*)

Completing the plan

- For those with peak flow instructions, enter personal best recent peak flow and peak flow at each level in the plan. Recommended cut points of <80% for getting worse, <60 to 70% for severe asthma and <50% for an emergency
- Enter the prednisone regimen
- Enter additional instructions in the box provided (e.g. avoidance of provoking factors)
- Save a copy of the plan on the patient record, print, or email to patient (via patient portal)

Child Asthma

Guideline summary



DIAGNOSIS OF CHILD ASTHMA

Asthma in children is defined on the basis of characteristic symptoms and signs occurring in a typical pattern, and the response to treatment, in the absence of an alternative explanation. The key to making the diagnosis of asthma is to take a careful clinical history and assess clinical +/- spirometry response to inhaled bronchodilator and/or ICS treatment. There is no reliable single 'gold standard' diagnostic test.



Asthma MORE likely

- More than one of the following:
 - Wheeze (most sensitive and specific symptom of asthma)
 - Breathlessness
 - Chest tightness
 - Cough
- Particularly if:
 - Typically, worse at night or in the early morning
 - Provoked by exercise, cold air, allergen exposure, irritants, viral infections, stress and aspirin
 - Recurrent or seasonal
- Personal history of atopic disorder or family history of asthma
- Widespread wheeze heard on chest auscultation
- Otherwise unexplained expiratory airflow obstruction on spirometry
- Otherwise unexplained blood eosinophilia or raised exhaled nitric oxide
- Bronchial hyper-responsiveness on challenge testing at appropriate age
- Positive response to bronchodilator (clinical or lung function)

Asthma LESS likely

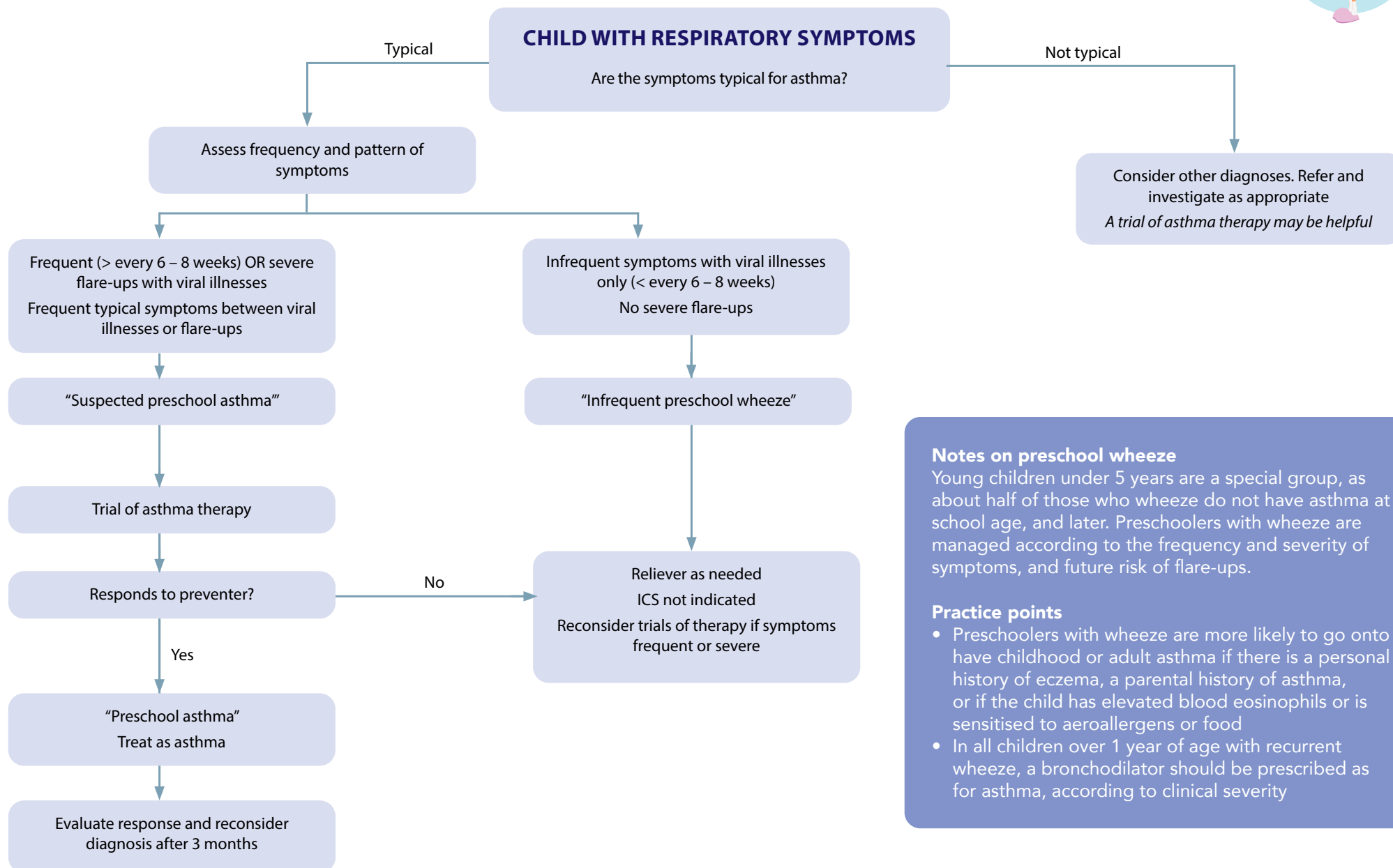
- Isolated cough in absence of wheeze or difficulty breathing
- History of wet, moist or productive cough
- No wheeze or repeatedly normal physical examination when symptomatic
- Normal spirometry or peak flow (PEF) when symptomatic
- No response to trial of asthma treatment
- Features that point to an alternative diagnosis (see below)

Red Flags (Suggesting alternative diagnoses*)

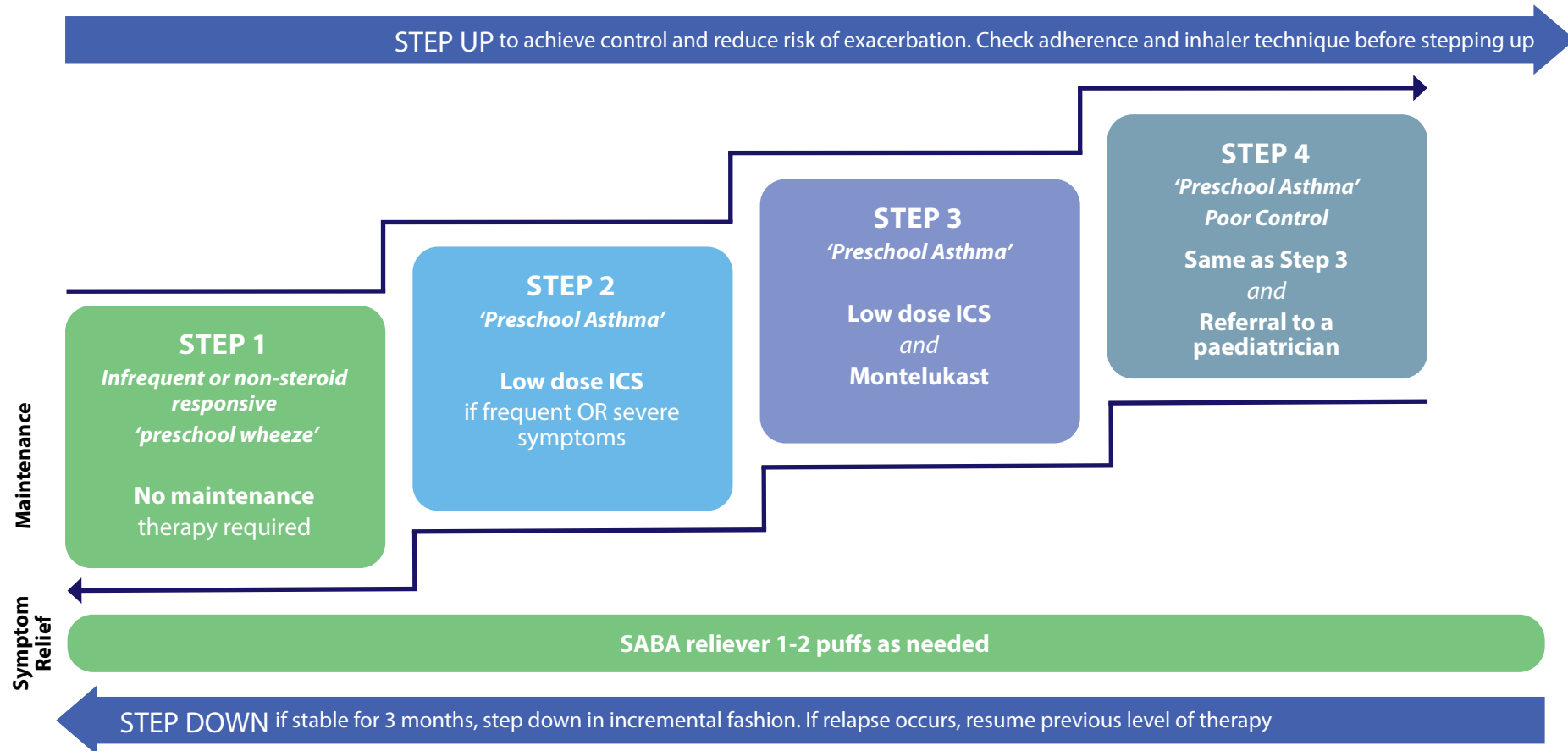
- Daily symptoms from birth
- Frequent or daily wet, moist-sounding or productive cough
- Digital clubbing
- Chest wall deformity
- Failure to thrive
- Heart murmur
- Spilling, vomiting or choking
- Asymmetrical chest findings
- Stridor as well as wheeze
- Persistent ear, nose or sinus infection
- Family history of unusual chest disease
- Symptoms much worse than objective signs or spirometry

* Consider other diagnoses such as; aspiration, bronchiectasis, ciliary dyskinesia, cystic fibrosis, developmental airway anomaly, foreign body aspiration, heart disease, hyperventilation, immunodeficiency, tuberculosis, vocal cord dysfunction

DIAGNOSTIC PATHWAY FOR ASTHMA AND WHEEZE IN CHILDREN 1-4 YEARS



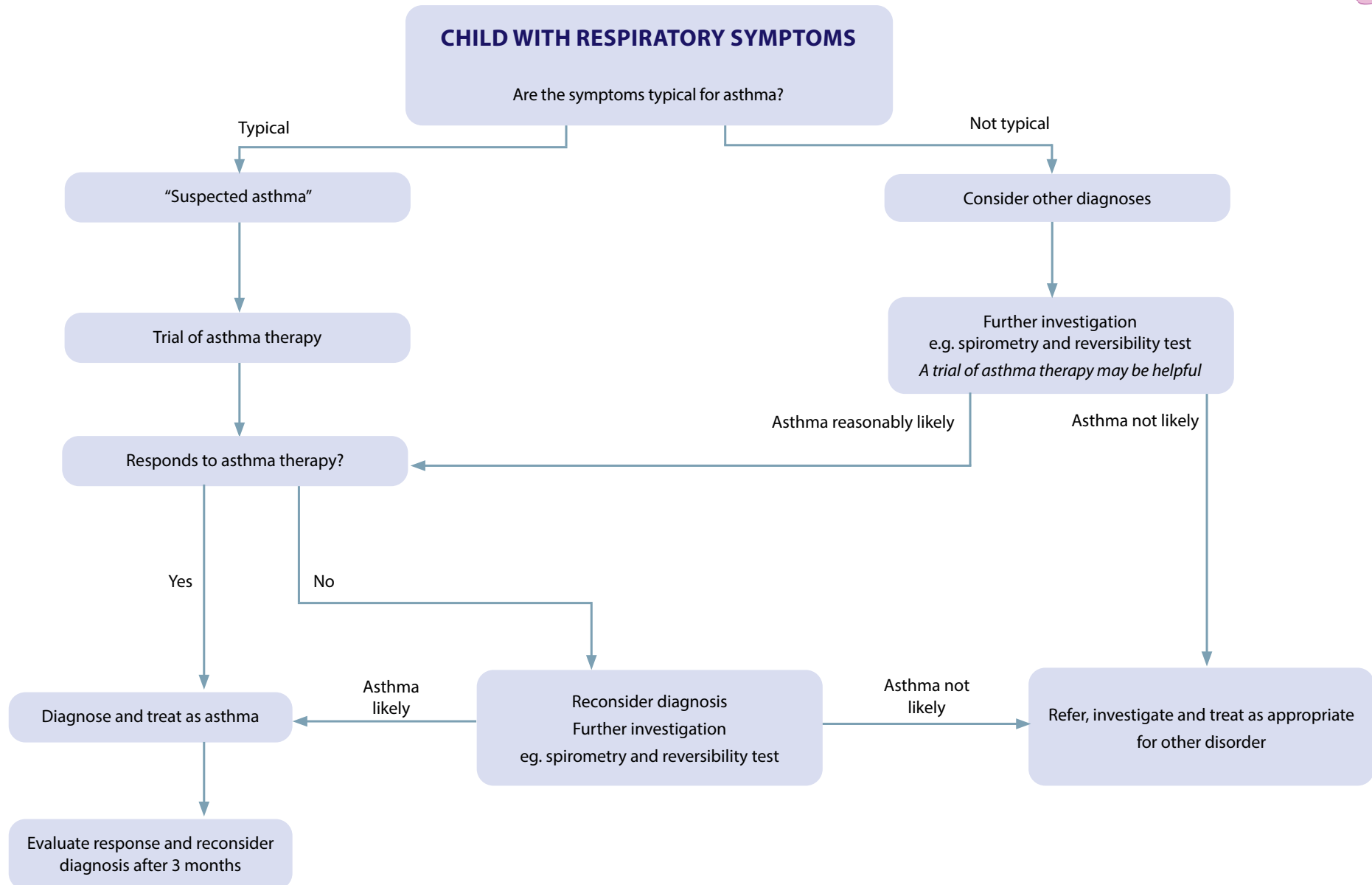
STEPWISE APPROACH TO PHARMACOLOGICAL TREATMENT OF CHILDREN WITH WHEEZE 1-4 YEARS



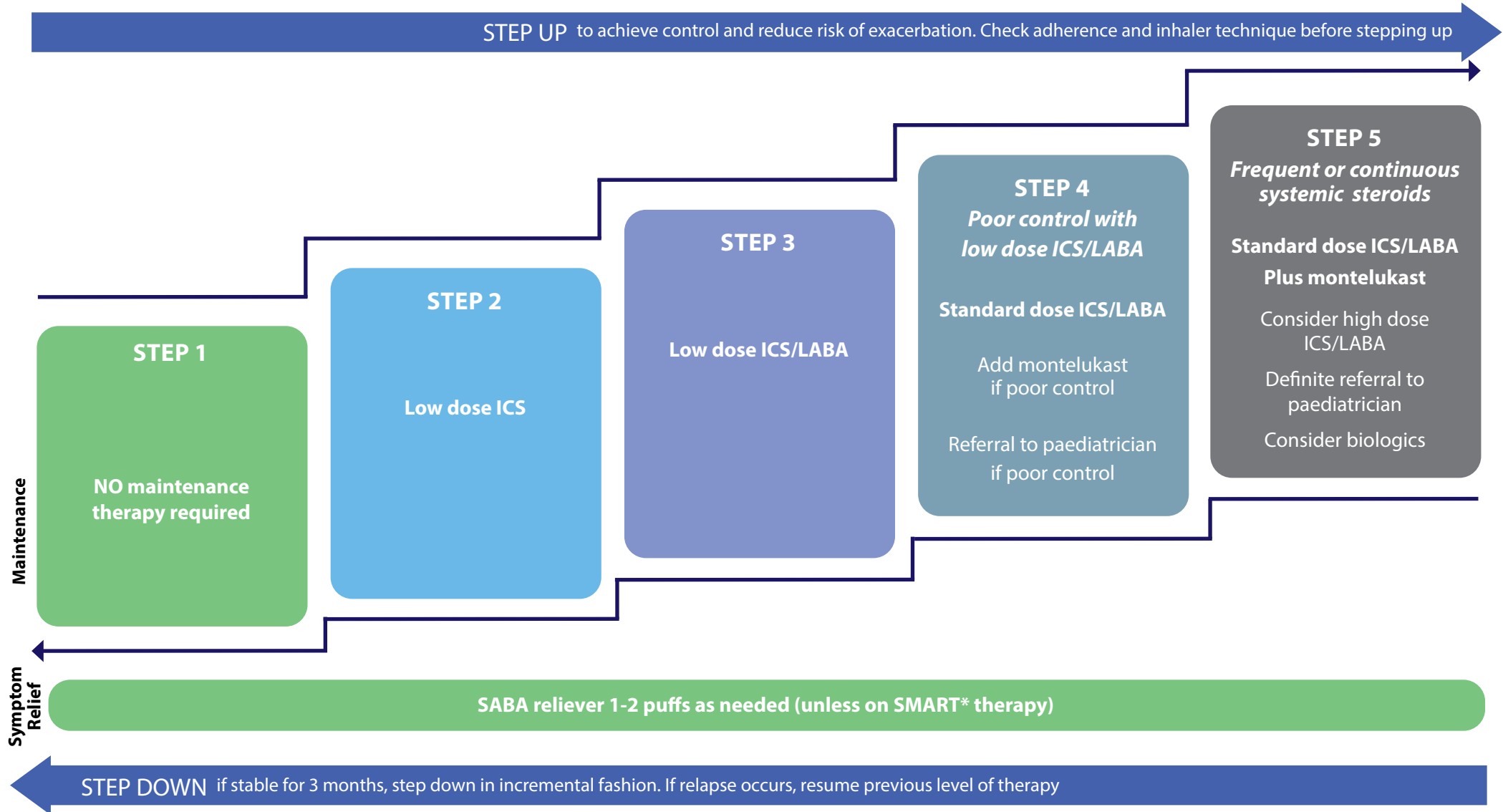
RECOMMENDED LOW AND STANDARD DAILY DOSE OF ICS IN CHILDREN WITH ASTHMA

LOW DOSE		STANDARD DOSE	
Beclomethasone dipropionate	200 µg/day	Beclomethasone dipropionate	400-500 µg/day
Beclomethasone dipropionate ultrafine	100 µg/day	Beclomethasone dipropionate ultrafine	200 µg/day
Budesonide	200 µg/day	Budesonide	400 µg/day
Fluticasone propionate	100 µg/day	Fluticasone propionate	200-250 µg/day

DIAGNOSTIC PATHWAY FOR ASTHMA AND WHEEZE IN CHILDREN 5-11 YEARS

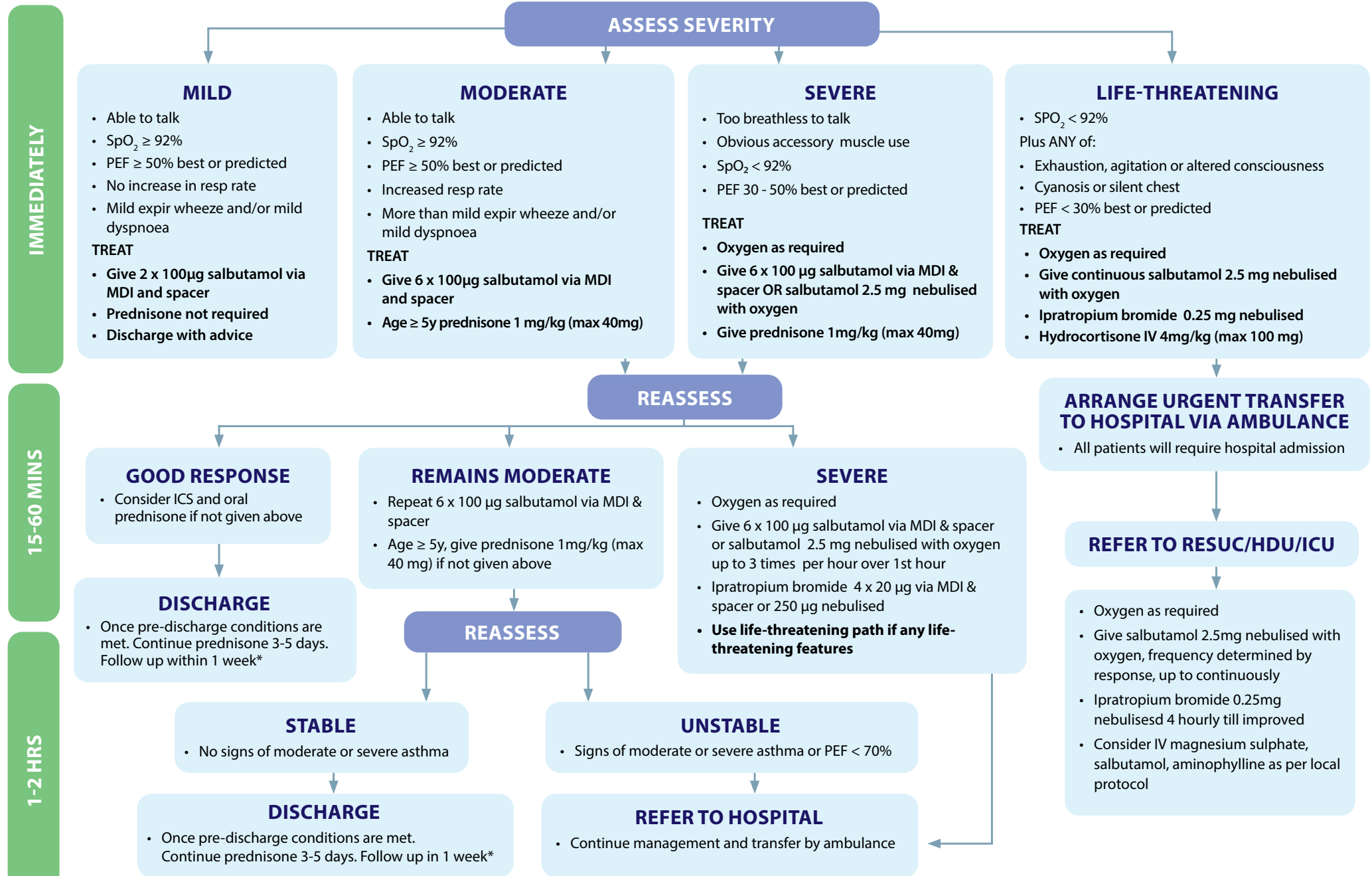


STEPWISE APPROACH TO PHARMACOLOGICAL TREATMENT OF CHILDREN WITH ASTHMA 5-11 YEARS



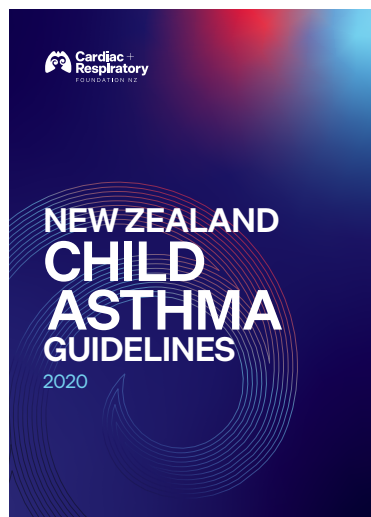
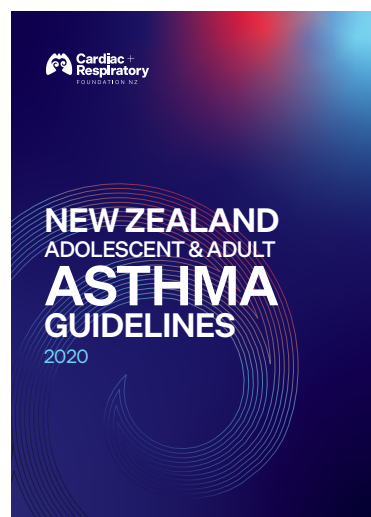
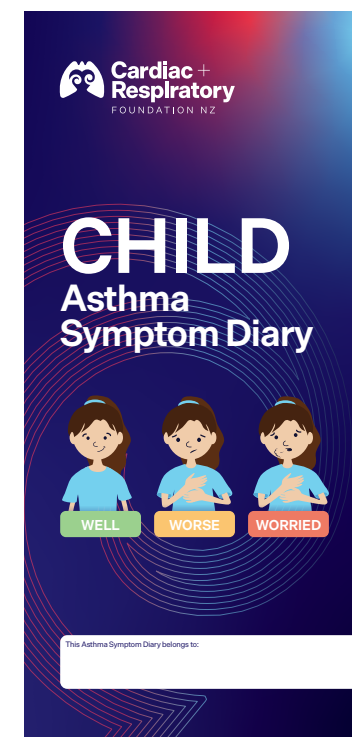
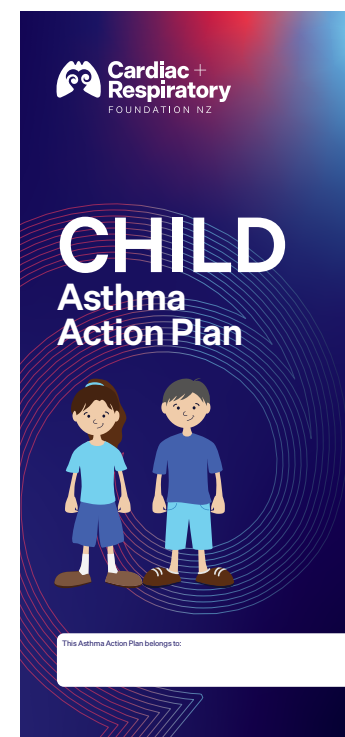
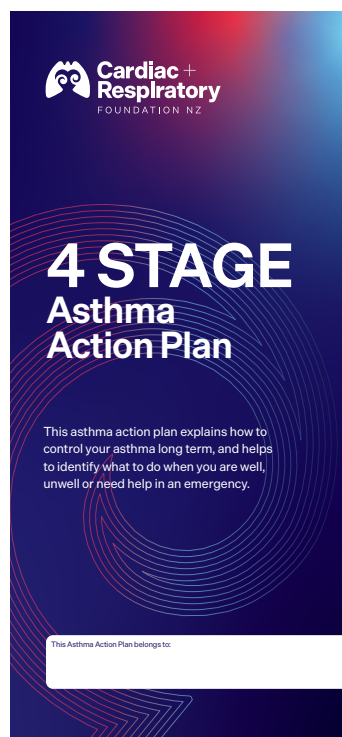
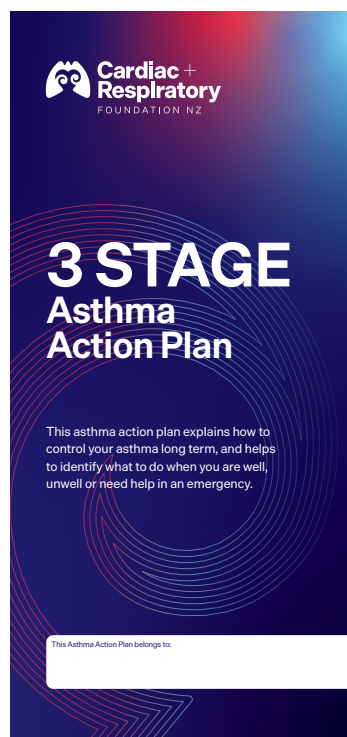
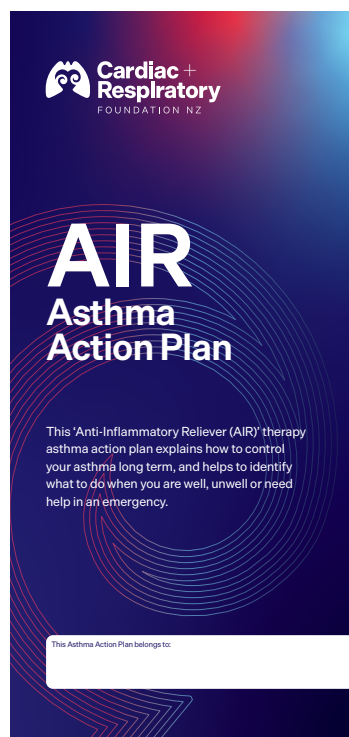
*SMART therapy ('Single combination ICS/LABA inhaler Maintenance And Reliever Therapy') is the use of budesonide/formoterol 100µg/6µg turbuhaler as both maintenance and reliever therapy in children. At the moment, there is insufficient evidence to recommend SMART therapy as first line therapy in children 11 years and under, but it may be considered on specialist advice in select children who are poorly controlled on Steps 3 - 5.

ALGORITHM FOR COMMUNITY MANAGEMENT OF ACUTE SEVERE ASTHMA IN CHILDREN LESS THAN 11 YEARS



*FOLLOW UP: Wean reliever to as needed. Ensure ICS commenced. Check risk factors, compliance, education and action plan

FURTHER ASTHMA RESOURCES AND TOOLS



All resources available at
cardiacandrespiratory.org.nz/resource-hub

- Full Asthma Guideline documents
- Asthma Action Plans + digital plans
- Asthma Symptom Diaries
- Educational Booklets

Abbreviations used throughout this guide:

AIR - Anti-inflammatory reliever

ABG - Arterial blood gas

ACT - Asthma Control Test

CXR - Chest X-ray

FEV₁ - Forced expiratory volume in one second

FVC - Forced vital capacity

ICS - Inhaled corticosteroid

LABA - Long-acting beta2-agonist

MDI - Metered Dose Inhaler

PEF - Peak expiratory flow

SABA - Short-acting beta2-agonist

SMART - Single combination ICS/LABA inhaler Maintenance And Reliever Therapy

SpO₂ - Oxygen saturation measured by pulse oximetry SpO₂ Oxygen saturation

U & E - Urea and electrolytes