

The new British Asthma Guidelines and beyond – getting the diagnosis and treatment right

Steve Holmes

Primary Care Show, NEC, Birmingham

Friday 15th May 2025



Steve Holmes Declaration of Interests (1)



- **General practitioner, Park Medical Practice, Shepton Mallet**
- **Somerset ICB Clinical Respiratory Lead / Integrated Care Lead**
- **NHS England (National CVD and Respiratory Programme Board)**
- **NHS England (Educational Supervisor (trainer) and Appraiser)**
- **Primary Care Respiratory Society (Policy Lead; Service development and Conference committees)**
- **International Primary Care Respiratory Group (IPCRG) Education Committee Chair**
- **RCGP (Chair Severn Faculty Board) RCGP Rep for Taskforce for Lung Health and National Respiratory Audit Programme)**
- **Recent guideline involvement (Air Travel, Asthma, COPD, Respiratory disease in athletic individuals, Spirometry, Tobacco Dependency)**

Declarations of Interest (2)

**Speaker engagements, educational projects, conference attendance,
advisory board work (in the last three years)**



Academic work

University College, London; Universities of Birmingham, Cambridge, Edinburgh

Other providers

**Asthma and Lung UK, Best Practice, Doctorology, Education for Health, EQUIP,
Guidelines in Practice, InterYem, MedAll, Mediconf, MIMS, Omniamed, Pulse, RCGP
Conferences, Respiratory Professional Care, Somerset GP Education Trust**

Pharmaceutical / device companies

**Aide Health, Astra Zeneca, Boehringer Ingelheim, Chiesi, Pulmonx, Sanofi, Teva,
Trudell Medical International**

No tobacco shares.

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IPCRG Desktop Helpers

- IPCRG Desktop Helpers are user-friendly information sheets developed by the IPCRG, working with clinicians, patients and clinical educators. These:
- provide practical guidance and support for clinicians working in primary care on different aspects of the diagnosis and management of respiratory diseases
 - are all based on evidence and provide links to further resources

DESKTOP HELPER

No. 12 March 2022

COPD and Mental Health: Holistic and Practical Guidance for Primary Care

The desktop helper aims to raise awareness of the challenge of identifying and managing mental health problems in people with chronic obstructive pulmonary disease (COPD) and to assist primary care professionals (PCPs) to assess them both as well as non-pharmaceutical and pharmaceutical interventions.

INTRODUCTION

Mental health problems, including anxiety and depression, are common in people with COPD and exacerbate the physical symptoms of the disease. In countries where smoking is still a leading cause of death, tobacco use is a significant factor that can exacerbate a person's mental health. People with COPD often have low health-related quality of life (HRQL) and are at risk of mental health problems. The combination of COPD and mental health problems can lead to a complex and challenging situation for both the patient and the clinician. This desktop helper aims to provide practical guidance for PCPs on how to identify and manage mental health problems in people with COPD. It covers the following topics:

- Identifying mental health problems in people with COPD:** This section discusses the signs and symptoms of mental health problems in people with COPD and provides a checklist for PCPs to use when assessing a patient.
- Managing mental health problems in people with COPD:** This section discusses the different types of mental health problems that can occur in people with COPD and provides practical guidance on how to manage them.
- Referral to specialist services:** This section discusses when to refer a patient to a specialist service and provides a checklist for PCPs to use when making a referral.
- Supporting the patient:** This section discusses how to support a patient with a mental health problem and provides a checklist for PCPs to use when supporting a patient.

DESKTOP HELPER

No. 5 May 2016

Predicting diagnosis in primary care patients suspected of obstructive respiratory diseases

This desktop helper aims to assist primary care professionals (PCPs) in predicting the diagnosis of obstructive respiratory diseases (ORD) in patients suspected of having the condition. It provides a checklist for PCPs to use when assessing a patient and a flowchart to help them decide on the next steps.

DESKTOP HELPER

No. 10 December 2019

USO RACIONAL DE LA MEDICACIÓN EPOC EN PACIENTES EPOC CON COMORBIDIDAD MÚLTIPLE: GUÍA PARA ATENCIÓN PRIMARIA

This desktop helper aims to assist primary care professionals (PCPs) in the rational use of medication in patients with COPD and multiple comorbidities. It provides a checklist for PCPs to use when assessing a patient and a flowchart to help them decide on the next steps.

DESKTOP HELPER

No. 7 July 2017

DESKTOP HELPER

No. 10 2019 年12月

桌面助手

基层版指南：局部应用吸入性药物在患多重共病的慢性阻塞性肺疾病患者中应用

This desktop helper aims to assist primary care professionals (PCPs) in the rational use of inhaled corticosteroids (ICS) in patients with COPD and multiple comorbidities. It provides a checklist for PCPs to use when assessing a patient and a flowchart to help them decide on the next steps.

DESKTOP HELPER

No. 11 January 2021 Final edit

note respiratory consultations

This desktop helper aims to assist primary care professionals (PCPs) in the management of respiratory consultations. It provides a checklist for PCPs to use when assessing a patient and a flowchart to help them decide on the next steps.

DESKTOP HELPER

No. 7 July 2017

MANEJO DEL PACIENTE EPOC CON COMORBIDIDAD MÚLTIPLE: GUÍA PARA ATENCIÓN PRIMARIA

This desktop helper aims to assist primary care professionals (PCPs) in the management of patients with COPD and multiple comorbidities. It provides a checklist for PCPs to use when assessing a patient and a flowchart to help them decide on the next steps.

DESKTOP HELPER

No. 7 July 2017

GUIA PRÁTICO No. 9, Maio 2018

Cuidados personalizados: Adultos com asma

Como personalizar a consulta asma durante

This desktop helper aims to assist primary care professionals (PCPs) in the management of asthma during a consultation. It provides a checklist for PCPs to use when assessing a patient and a flowchart to help them decide on the next steps.

DESKTOP HELPER

No. 11 January 2021 Final edit

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No. 8 January 2018

Improving care for women with COPD: guidance for primary care

The impact of COPD on women. This desktop helper aims to assist primary care professionals (PCPs) in the management of COPD in women. It provides a checklist for PCPs to use when assessing a patient and a flowchart to help them decide on the next steps.

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DESKTOP HELPER

No. 7 July 2017



Aims of this meeting

- To cover
 - Definition of asthma
 - Making a good initial diagnosis (the good, the uncertain and the difficult)
 - (possibly) Managing real world complexity of people with asthma and breathlessness

Getting the
diagnosis of
asthma right



A
TREATISE
OF THE
ASTHMA.

Divided into Four Parts.

In the First is given

A History of the Fits, and the Symptoms preceding them.

In the Second,

The Cacochymia which disposes to the Fit, and the Rarefaction of the Spirits which produces it, are described.

In the Third,

The Accidental Causes of the Fit, and the Symptomatic Asthmas are observed.

In the Fourth,

The Cure of the Asthma Fit, and the Method of Preventing it is proposed. To which is annexed a Digression about the several Species of Acids distinguish'd by their Tastes. And 'tis observ'd how far they were thought Convenient or Injurious in general Practice by the Old Writers, and most particularly in relation to the Cure of the Asthma.

Τὸν ἀπὸ τεχνικῶν ἀρρίτων ἢ βλάδων συνοχασία τὴς
βί. Galen.

LONDON,

Printed for Richard Wilkin, at the King's-
Head in St. Paul's Church-Yard. 1698.

Sakula A. Sir John Floyer's A
treatise of the asthma (1698).
Thorax. 1984;39(4):248.

Definition

- Asthma is a heterogenous disease usually characterized by chronic airflow limitation. It is defined by the history of respiratory symptoms such as wheeze, shortness of breath, chest tightness and cough that vary over time and in intensity, together with variable expiratory airflow limitation ¹

Shortness of
Breath

Cough

Chest
Tightness

Clinician determined wheeze

Worse at night

Symptoms variable
over time and
intensity which may be
triggered

Making the diagnosis

- The diagnosis of asthma is based on a history of variable respiratory symptoms and demonstration of variable expiratory airflow limitation
 - Test before treating, wherever possible
 - Symptoms, variability in lung function, and airway hyperresponsiveness are decreased by ICS, so it is often more difficult to confirm the diagnosis after controller treatment is started ¹
- At a global level, spirometry before and after bronchodilator is the most useful initial investigation
- Optimize the conditions for testing, if possible (e.g. when symptomatic, and after withholding bronchodilators)
- In patients on controller treatment, more than one test is often needed

History and examination are the cornerstone

- reported **wheeze**, noisy breathing, cough, breathlessness or chest tightness, and any **variation** (for example, worse during the night or early morning, or seasonal) in these symptoms
- any triggers that make symptoms worse
- a personal or family history of asthma or allergic rhinitis
- no symptoms to suggest alternative diagnoses
- Clinician determined expiratory wheeze useful (but examination may be normal)

Figure 1: Asthma cardinal symptoms - wheeze, cough, chest tightness, breathlessness



Figure 2: Pieces that do not fit the diagnosis of asthma

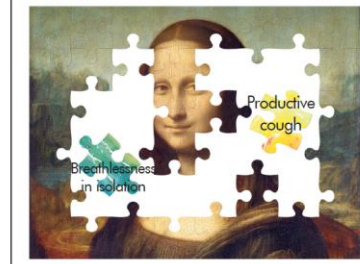


Figure 3: Available tests of airways dysfunction confirm our reasoning

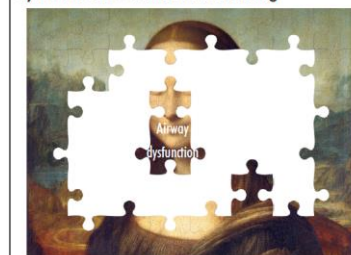
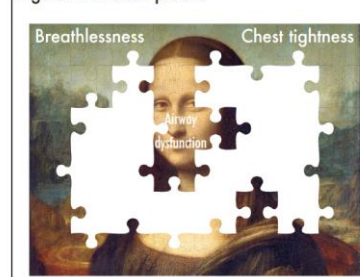


Figure 4: A clear picture



Adults and Young People over 16yrs

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Scotland

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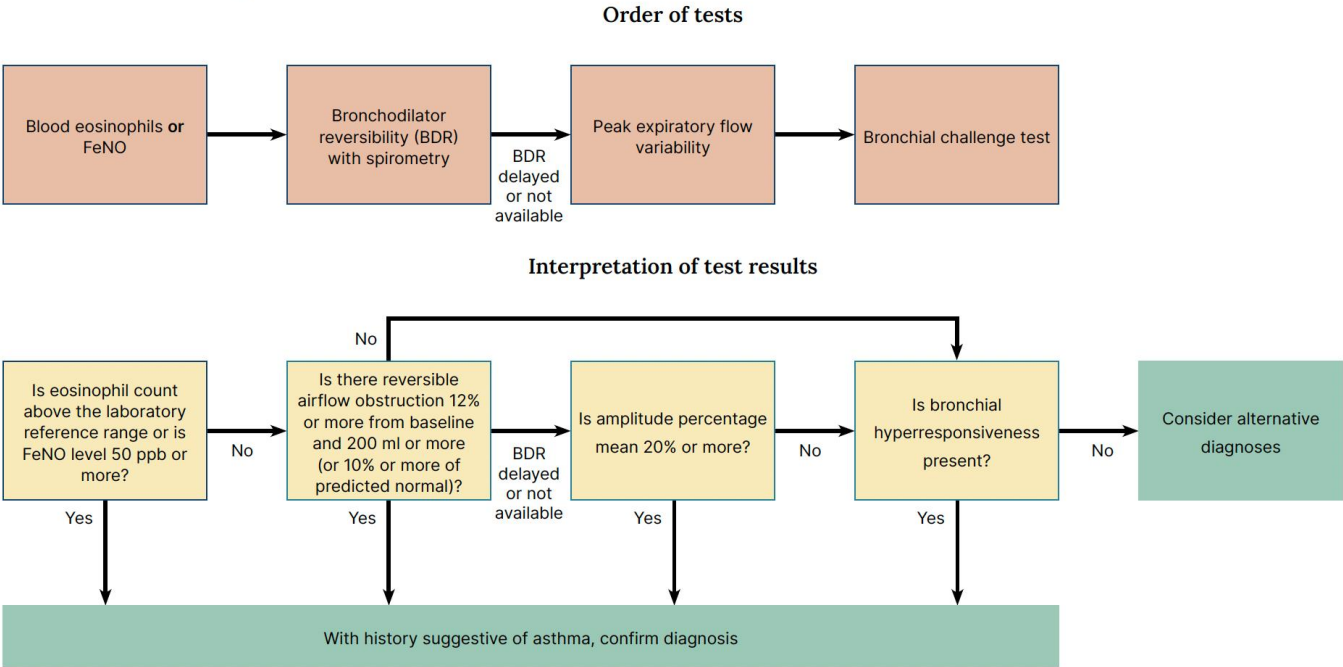


Asthma pathway (BTS, NICE, SIGN)

NICE guideline
Published: 27 November 2024

www.nice.org.uk/guidance/ng244

Algorithm A: Objective tests for diagnosing asthma in adults and young people (aged over 16 years) with a history suggesting asthma
BTS, NICE and SIGN guideline on asthma



Ten strategies evaluated (clinical and economic) with around 400 pages of appendices – suggesting of this method is sensitivity 0.91 (0.82-0.96) and specificity 0.86 (0.73-0.94)
49.57% of people expected to need to have bronchial challenge testing to make the diagnosis

Individual Tests for asthma (adults)

Tests	Sensitivity	Specificity
Bronchodilator reversibility (>12% and 200mls) (2ry care studies only)	17-69%	55-81%
Peak flow rate >20%	46%	80%
Peak flow >15%	3-5%	98-99%
FeNO (adults)	43-88%	60-92%
Blood eosinophils raised (adults)	15-36%	39-100%

Sensitivity refers to the test's ability to correctly detect ill patients who do have the condition.¹

Specificity relates to the test's ability to correctly reject healthy patients without a condition. Specificity of a test is the proportion of who truly do not have the condition who test negative for the condition.¹

Table adapted from BTS/SIGN 158 British Guideline on the Management of Asthma 2019 <https://www.brit-thoracic.org.uk/quality-improvement/guidelines/asthma/> [last accessed 25th Jan 2023]; 1- Altman DG, Bland JM. Diagnostic tests. 1: Sensitivity and specificity. BMJ: British Medical Journal. 1994;308(6943):1552.

FENO testing



Fractional Exhaled Nitric Oxide (FeNO)

A positive FeNO test suggests eosinophilic inflammation and provides supportive but not conclusive evidence for an asthma diagnosis.

There is overlap between the levels seen in normal non-asthmatic populations and in people with atopic asthma.

FENO level increased

- Allergic rhinitis exposed to allergen (even without respiratory symptoms)
- Rhinovirus in healthy individuals (variable in people with asthma)
- Men, tall people
- High dietary nitrates (21% increase²)

FENO level decreased

- Children
- Cigarette smokers
- Caffeine³ / alcohol consumption⁴
- Inhaled or oral steroids.

1. British Thoracic Society, Scottish Intercollegiate Guideline Network. SIGN 158 British Guidelines for the Management of Asthma. Guideline. 2019.

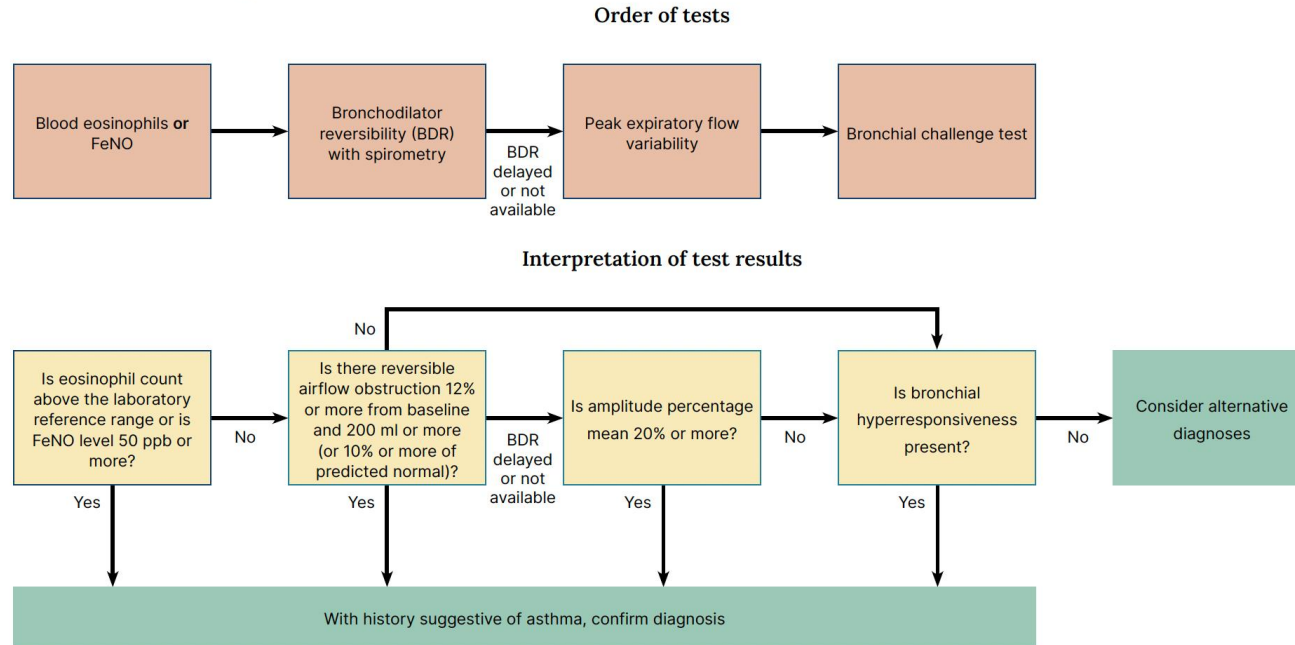
2. Kroll JL, Werchan CA, Rosenfield D, Ritz T. Acute ingestion of beetroot juice increases exhaled nitric oxide in healthy individuals. PLOS ONE. 2018;13(1):e0191030.

3. Yurach MT, Davis BE, Cockcroft DW. The effect of caffeinated coffee on airway response to methacholine and exhaled nitric oxide. Respir Med. 2011;105(11):1606-10.

4. Afshar M, Poole JA, Cao G, Durazo R, Cooper RC, Kovacs EJ, et al. Exhaled Nitric Oxide Levels Among Adults With Excessive Alcohol Consumption. Chest. 2016;150(1):196-209.

Algorithm A: Objective tests for diagnosing asthma in adults and young people (aged over 16 years) with a history suggesting asthma

BTS, NICE and SIGN guideline on asthma



NICE National Institute for Health and Care Excellence



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BTS ISBN: 978-1-917619-26-4. NICE ISBN: 978-1-4731-6637-0. SIGN ISBN: 978-1-909103-95-5.

Making the diagnosis

- History and examination fits with asthma
- Blood eosinophil or FENO test (?) -
- Reversibility spirometry (?)
 - Peak flow diary
- Bronchial challenge test (?)

Adult onset asthma (or recurrence of asthma) what should we be thinking?

Occupational causes

Hobbies

Air pollution (home, work)

Moulds and spores

Estimates suggest that occupational asthma may account for about 9–15% of adult onset asthma – workers at increased risk are:

- bakers
- food processors
- forestry workers
- chemical workers
- plastics and rubber workers
- metal workers,
- welders
- textile workers
- electrical and electronic production workers
- farm workers
- waiters
- cleaners
- painters
- dental workers, nurses and laboratory technicians

Children and Young People (5-16y)



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Healthcare
Improvement
Scotland

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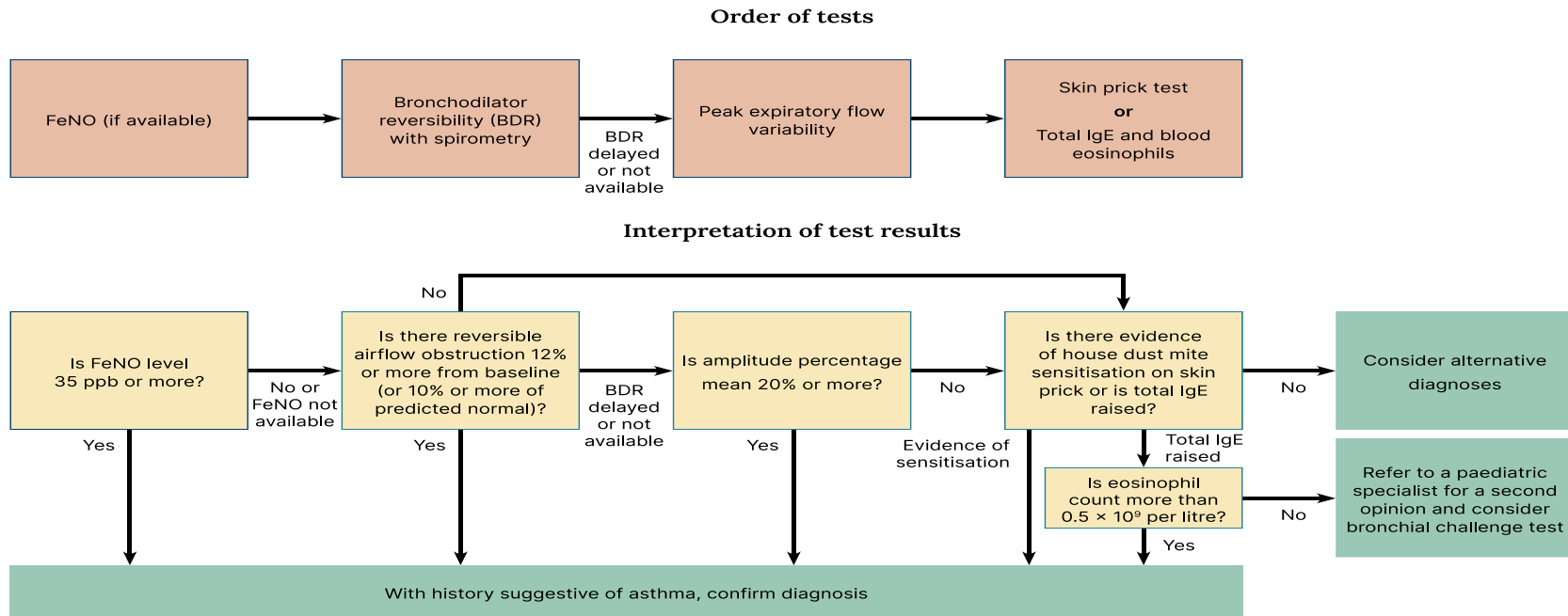
**Asthma pathway (BTS,
NICE, SIGN)**

NICE guideline
Published: 27 November 2024

www.nice.org.uk/guidance/ng244

Algorithm B: Objective tests for diagnosing asthma in children aged 5 to 16 with a history suggesting asthma

BTS, NICE and SIGN guideline on asthma



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Children and Young People (5-16y)

- FeNO (35ppb)
- Bronchodilator reversibility
- Peak flow variability
- Skin Prick test or blood eosinophils

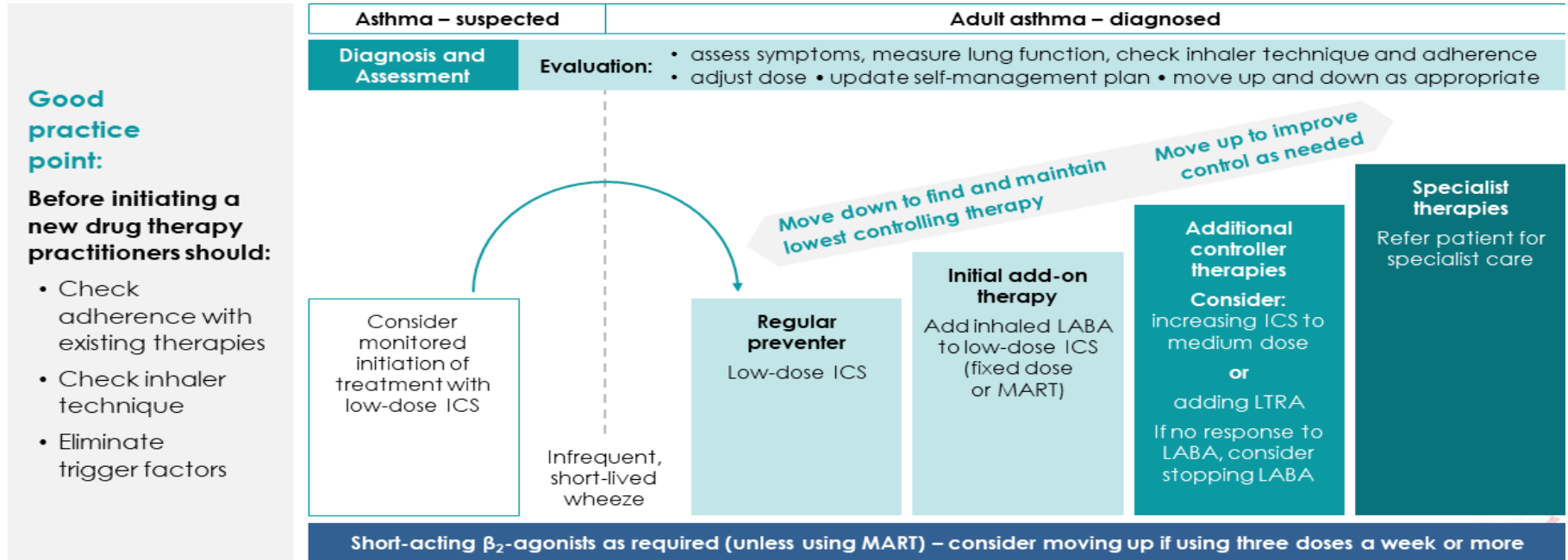


The new British Asthma Guidelines and beyond – better management



The Old Days (1999 – 2019)

Pharmacological management strategies: adults



How many people?

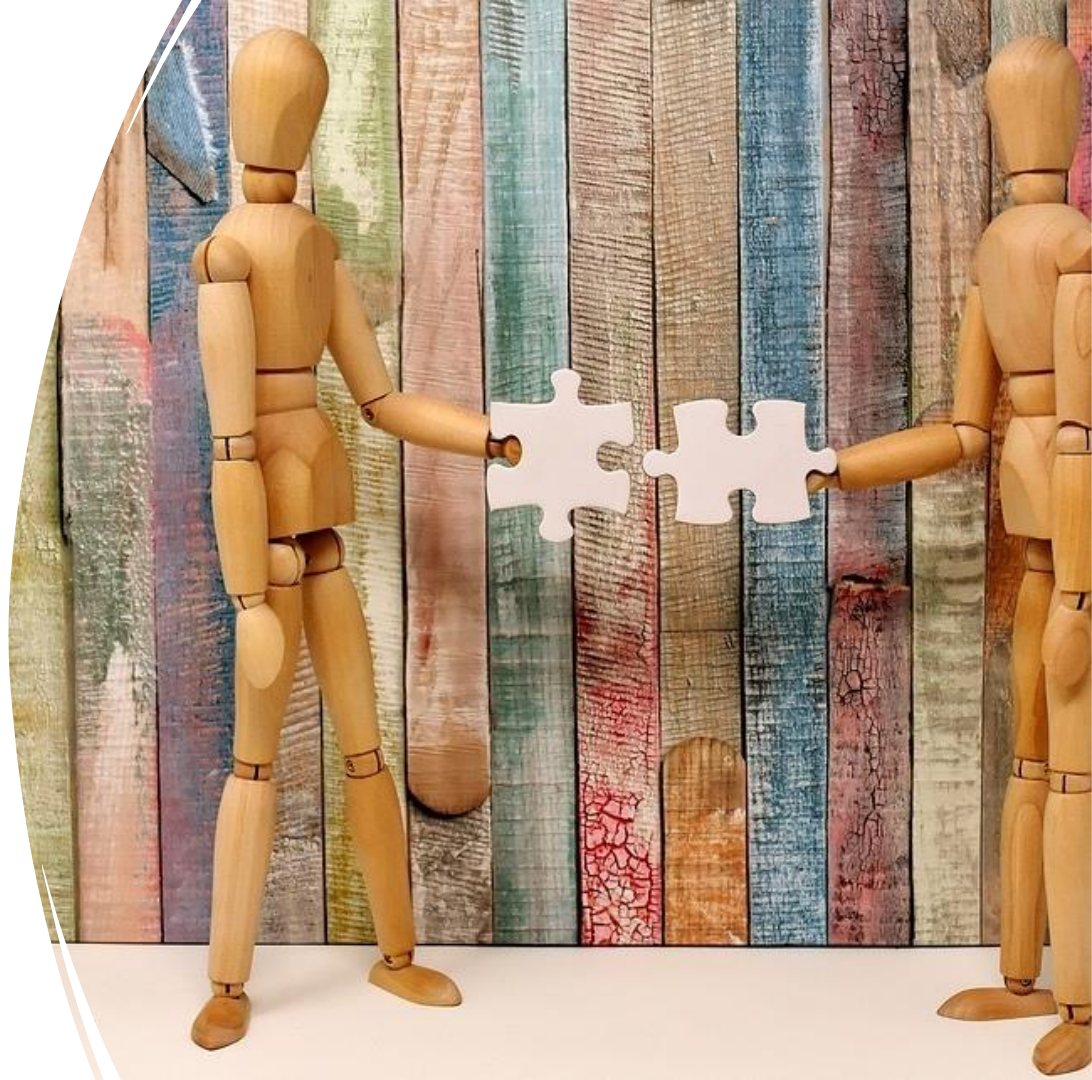
- Have a mobile phone can only take telephone calls?
- Have a black and white TV?
- Carry only cash?
- Have no power assisted steering in their car



Do you want a more modern alternative – fancy an upgrade?

Asthma Management

- Treatment options – established and new
- A good review (and after an exacerbation)
- Severe Asthma and Biologics – who should we be thinking about



Why should we stop treating 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 in 2019 once evidence for a safe and effective alternative was available**



EDITORIAL
GINA 2019

GINA 2019: a fundamental change in asthma management

Treatment of asthma with short-acting bronchodilators alone is no longer recommended for adults and adolescents

Helen K. Reddel¹, J. Mark FitzGerald², Eric D. Bateman³, Leonard B. Bacharier⁴, Allan Becker⁵, Guy Brusselle⁶, Roland Buhl⁷, Alvaro A. Cruz⁸, Louise Fleming⁹, Hiromasa Inoue¹⁰, Fanny Wai-san Ko¹¹, Jerry A. Krishnan¹², Mark L. Levy¹³, Jiangtao Lin¹⁴, Søren E. Pedersen¹⁵, Aziz Sheikh¹⁶, Arzu Yorgancioglu¹⁷ and Louis-Philippe Boulet¹⁸

Background - the risks of 'mild' asthma

- 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 (*Price et al, J Asthma Allergy 2018*)



had symptoms less than weekly in previous 3 months (*Dusser, Allergy 2007; Bergstrom, 2008*)

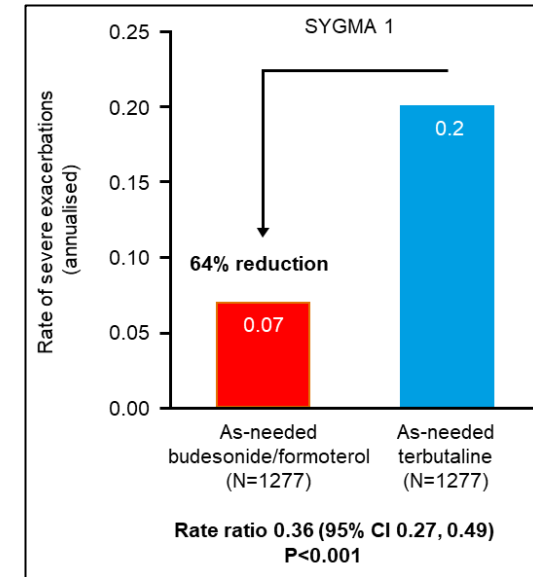
As-needed low dose ICS-formoterol in mild asthma (n=9,565) (2018)

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

1. O'Byrne PM, FitzGerald JM, Bateman ED, Barnes PJ, Zhong N, Keen C, et al. Inhaled Combined Budesonide-Formoterol as Needed in Mild Asthma. N Engl J Med. 2018;378(20):1865-76.

What is mild asthma or infrequent symptoms



- GINA says the term is used variably but should be considered “asthma which is well controlled on low intensity treatment i.e. low dose as required ICS/LABA or low dose ICS and as required SABA”²
- Asthma Lung UK³ and British Asthma Guidelines provide no specific advice to help on mild compared to moderate asthma
- NRAD highlighted 9% of people who died from asthma had mild disease⁵
- What should we do with seasonal asthma? Exercise induced asthma? Episodic asthma?

1 - Mohan A, Lugogo NL, Hanania NA, Reddel HK, Akuthota P, O'Byrne PM, et al. Questions in Mild Asthma: An Official American Thoracic Society Research Statement. Am J Respir Crit Care Med. 2023;207(11):e77-e96.

2. Global Initiative for Asthma. Global Strategy for Asthma Management and Prevention (2024). 2024.

3. <https://www.asthmaandlung.org.uk/conditions/asthma/types-asthma> on 12/2/2025

4. British Thoracic Society, National Institute for Clinical Excellence, Scottish Intercollegiate Guideline Network. NG245 Asthma: diagnosis, monitoring and chronic asthma management (BTS, NICE, SIGN). 2024.

5. Royal College of Physicians of London, British Thoracic Society and British Lung Foundation. Why asthma still kills: The National Review of Asthma Deaths (NRAD) Confidential Enquiry Report. London: Healthcare Quality Improvement Partnership; 2014.

Questions in Mild Asthma: An Official American Thoracic Society Research Statement.

Mild asthma is asthma that is characterized by minimal symptoms and risk in patients *on SABA alone, as-needed ICS with SABA, as-needed ICS–formoterol, or daily ICS plus SABA or those who are not on any therapy*. On the basis of the survey results, our expert panel members suggested the following parameters for defining impairment and risk in patients with confirmed diagnoses on such treatment:

Daytime symptoms fewer than two per week (impairment domain)

Night time symptoms fewer than one per month (impairment domain) (but many members believed that any night waking represented poor control)

Fewer than one exacerbation per year (risk domain) (but many members strongly believed any exacerbations during the year to represent more severe illness)

Preserved lung function (e.g., postbronchodilator FEV₁ greater than the lower limit of normal) (risk domain)

Asthma treatment levels (adults)

- Mild – low dose ICS / LABA (AIR)
- Highly symptomatic or severe exacerbation—
low dose ICS / LABA (MART)
- Moderate dose ICS / LABA (MART)

Maintenance And Reliever Therapy (MART)

- “Consider the option of combined maintenance and reliever therapy in adult patients who have a history of asthma attacks on medium dose ICS or ICS/LABA.” (Grade A recommendation)

SIGN 158

British guideline on the management of asthma

A national clinical guideline

First published 2003
Revised edition published July 2019



British
Thoracic
Society





MART and AIR – THE BASICS

- Not all combinations are licenced for AIR and for MART
- “Licensed indications for asthma inhalers vary between different medicines, different doses and different devices. Not all asthma inhalers are licensed for use in line with the recommendations in this guideline. See NICE's information on prescribing medicines or SIGN's information on prescribing licensed medicines out with their marketing authorisation and refer to the summary of product characteristics for individual products. ”
- Who keeps to licenced indications with salbutamol inhaler?

Algorithm C: Pharmacological management of asthma in people aged 12 years and over

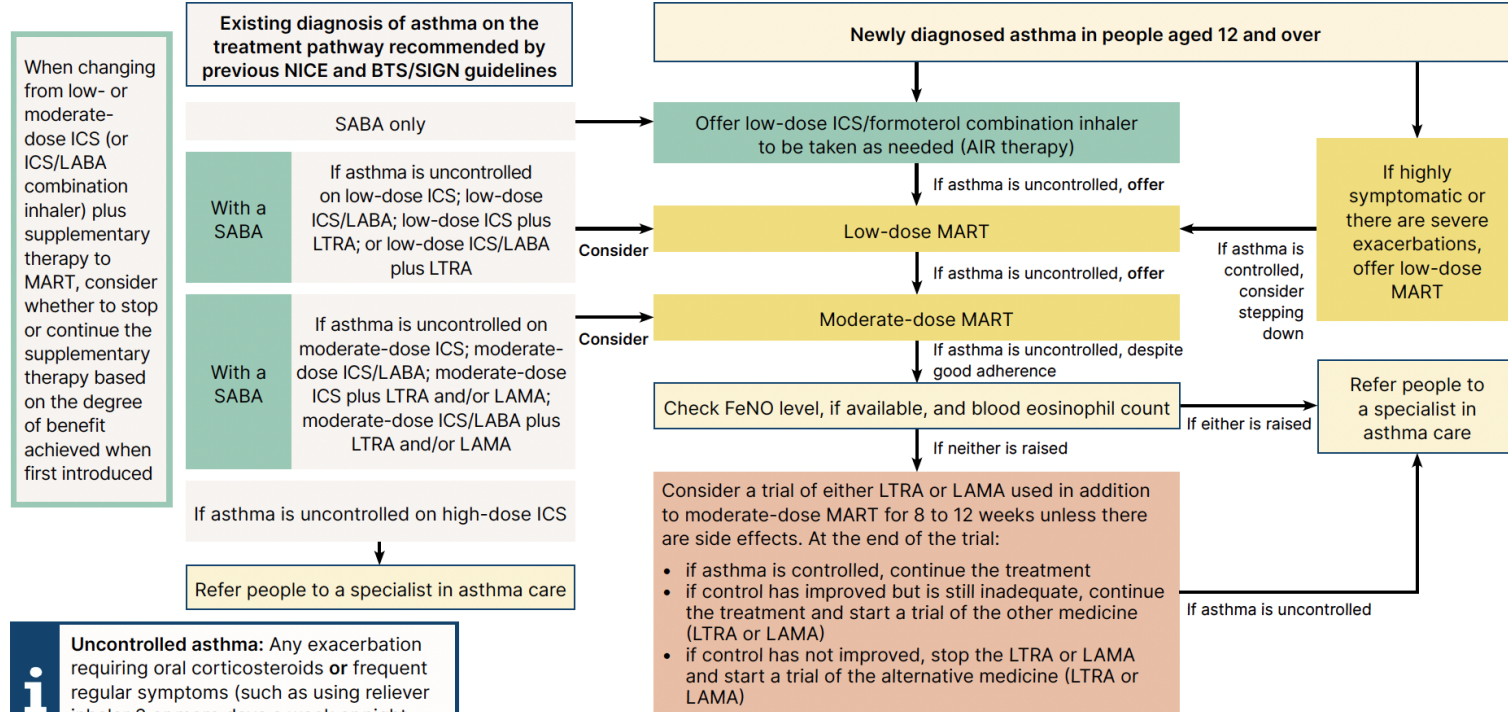
BTS, NICE and SIGN guideline on asthma

Take into account and try to address the possible reasons for uncontrolled asthma before starting or adjusting medicines for asthma.
For example: alternative diagnoses or comorbidities; suboptimal adherence; suboptimal inhaler technique; active or passive smoking (including e-cigarettes); psychosocial factors; seasonal factors; environmental factors (such as air pollution and indoor mould exposure)

Symptom relief

MART

Maintenance therapy



ICS, inhaled corticosteroid; LABA, long-acting beta₂ agonist; LAMA, long-acting muscarinic receptor antagonist; LTRA, leukotriene receptor antagonist; MART, maintenance and reliever therapy (using ICS/formoterol combination inhalers); SABA, short-acting beta₂ agonist.



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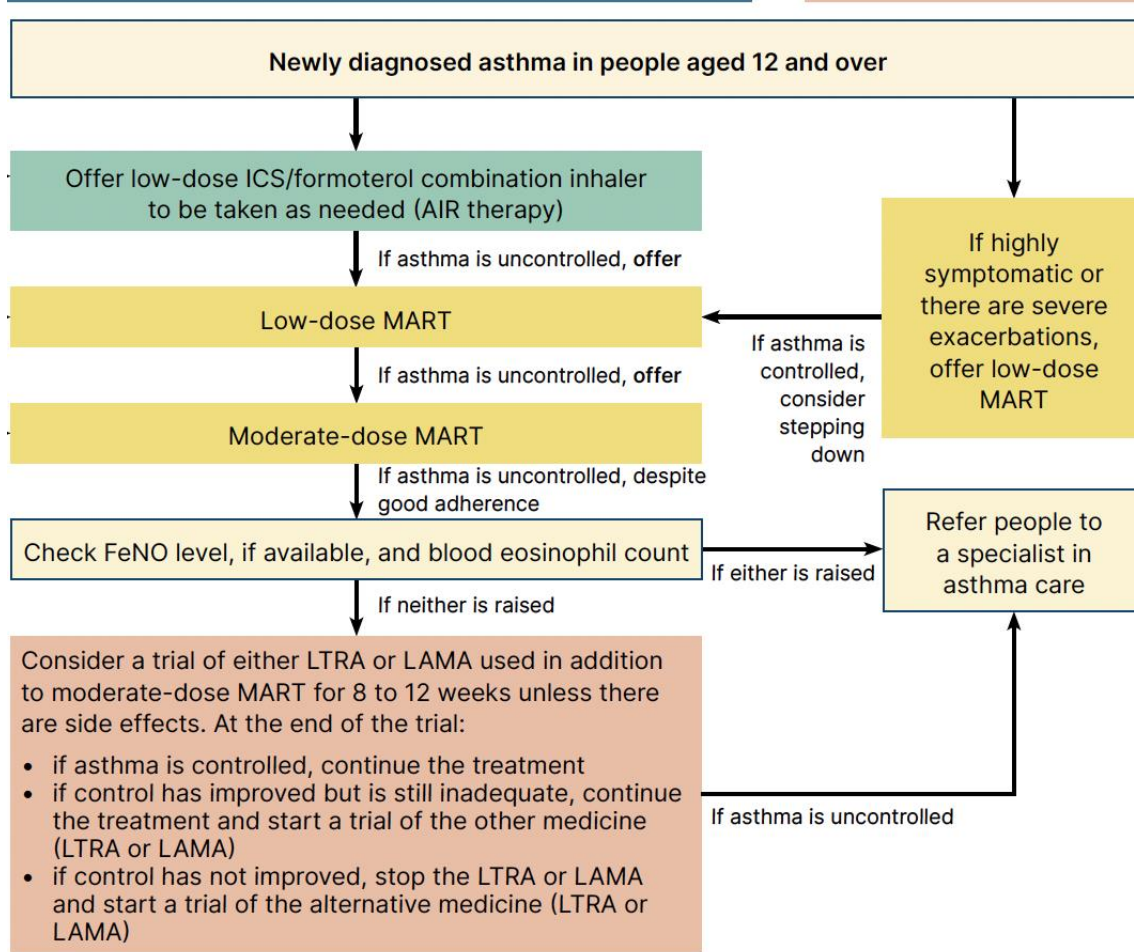


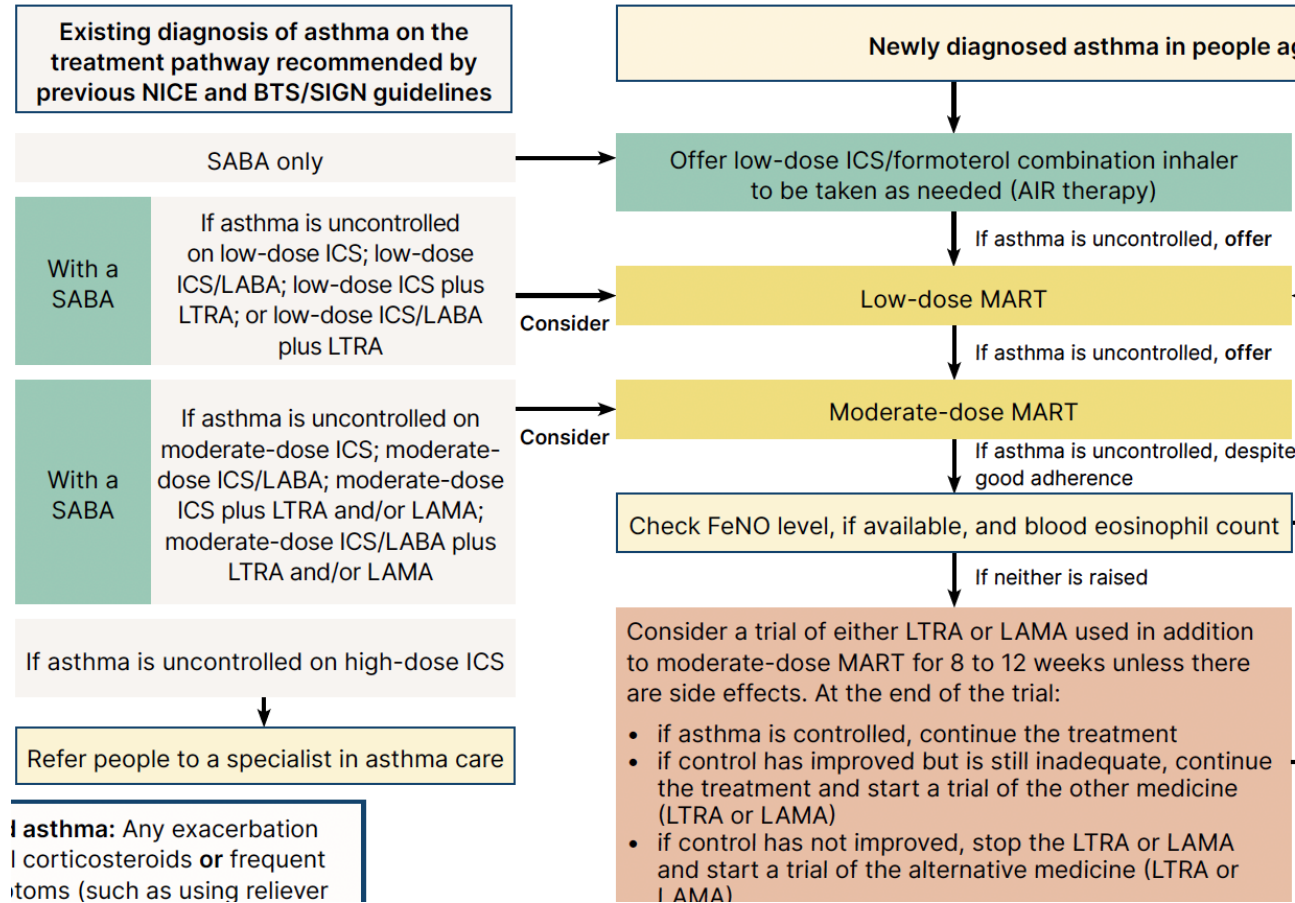
Table 1. ICS dosages for people aged 12 years and over

	Low dose	Moderate dose	High dose
Beclometasone dipropionate			
Standard particle metered dose and dry powder inhalers	200 to 500 micrograms per day in 2 divided doses	600 to 800 micrograms per day in 2 divided doses	1,000 to 2,000 micrograms per day in 2 divided doses
Extra-fine particle metered dose inhalers ¹	100 to 200 micrograms per day in 2 divided doses	300 to 400 micrograms per day in 2 divided doses	500 to 800 micrograms per day in 2 divided doses
Budesonide			
Dry powder inhalers	200 to 400 micrograms per day as a single dose or in 2 divided doses	600 to 800 micrograms per day as a single dose or in 2 divided doses	1,000 to 1,600 micrograms per day in 2 divided doses
Ciclesonide			
Metered dose inhalers	80 to 160 micrograms per day as a single dose	240 to 320 micrograms per day as a single dose or in 2 divided doses	400 to 640 micrograms per day in 2 divided doses
Fluticasone propionate			
Metered dose and dry powder inhalers (excluding Seffalair Spiromax) ^{2 3}	100 to 250 micrograms per day in 2 divided doses	300 to 500 micrograms per day in 2 divided doses	600 to 1,000 micrograms per day in 2 divided doses
Fluticasone furoate			
Dry powder inhalers ⁴	Not available	100 micrograms per day as a single dose	200 micrograms per day as a single dose
Mometasone furoate			
Dry powder inhaler	200 micrograms per day as a single dose	400 micrograms per day as a single dose or in 2 divided doses	600 to 800 micrograms per day in 2 divided doses
Inhalation powder capsules ⁵	80 micrograms per day as a single dose	160 micrograms per day as a single dose	320 micrograms per day as a single dose

British Thoracic Society, National Institute for Clinical Excellence, Scottish Intercollegiate Guideline Network. NG245 Asthma: diagnosis, monitoring and chronic asthma management (BTS, NICE, SIGN). 2024.

Okay I get this for
new patients –
but we have lots
of people on
treatment
already?





Yes but I see
lots of
younger
people too?



Table 2. ICS dosages for children aged 5 to 11 years

	Paediatric low dose	Paediatric moderate dose	Paediatric high dose
Beclometasone dipropionate			
Standard particle metred dose inhalers	100 to 200 micrograms per day in 2 divided doses	300 to 400 micrograms per day in 2 to 4 divided doses	500 to 800 micrograms per day in 2 to 4 divided doses
Extra-fine particle metered dose inhalers ^A	100 micrograms per day in 2 divided doses	150 to 200 micrograms per day in 2 divided doses	300 to 400 micrograms per day in 2 divided doses
Budesonide			
Dry powder inhalers	100 to 200 micrograms per day as a single dose or in 2 divided doses	300 to 400 micrograms per day as a single dose or in 2 divided doses	500 to 800 micrograms per day in 2 divided doses
Ciclesonide			
Metered dose inhalers ^B	80 micrograms per day as a single dose	160 micrograms per day as a single dose or in 2 divided doses	240 to 320 micrograms per day in 2 divided doses
Fluticasone propionate			
Metered dose and dry powder inhalers ^C	100 micrograms per day in 2 divided doses	150 to 200 micrograms per day in 2 divided doses	250 to 400 micrograms per day in 2 divided doses

British Thoracic Society, National Institute for Clinical Excellence, Scottish Intercollegiate Guideline Network.
 NG245 Asthma: diagnosis, monitoring and chronic asthma management (BTS, NICE, SIGN). 2024.

Algorithm D: Pharmacological management of asthma in children aged 5 to 11 years

BTS, NICE and SIGN guideline on asthma

Take into account and try to address the possible reasons for uncontrolled asthma before starting or adjusting medicines for asthma.
For example: alternative diagnoses or comorbidities; suboptimal adherence; suboptimal inhaler technique; active or passive smoking (including e-cigarettes); psychosocial factors; seasonal factors; environmental factors (such as air pollution and indoor mould exposure)

Symptom relief

MART

Maintenance therapy

Newly diagnosed asthma in children aged 5 to 11 years

Offer twice-daily paediatric low-dose ICS

With a SABA

If asthma is uncontrolled

Assess ability to manage MART regimen

Able to manage MART regimen

Consider paediatric low-dose MART

If asthma is uncontrolled

Consider increasing to paediatric moderate-dose MART

If asthma is uncontrolled

Refer the child to a specialist in asthma care

Unable to manage MART regimen

Consider adding an LTRA to twice daily paediatric low-dose ICS for a trial period of 8 to 12 weeks.
Stop if ineffective or side effects

With a SABA

If asthma is uncontrolled

Offer twice daily paediatric low-dose ICS/LABA combination (with or without an LTRA)

With a SABA

If asthma is uncontrolled

Offer twice daily paediatric moderate-dose ICS/LABA combination (with or without an LTRA)

With a SABA

If asthma is uncontrolled

Refer the child to a specialist in asthma care

For guidance on dosages for paediatric low-dose ICS, see [inhaled corticosteroid doses for the BTS, NICE and SIGN asthma guideline](#)

In November 2024, no asthma inhalers were licensed for MART in children under 12, so use would be off-label

i **Uncontrolled asthma:**
Any exacerbation requiring oral corticosteroids or frequent regular symptoms (such as using reliever inhaler 3 or more days a week or night-time waking 1 or more times a week)

ICS, inhaled corticosteroid; LABA, long-acting beta₂ agonist; LTRA, leukotriene receptor antagonist; MART, maintenance and reliever therapy (using ICS/formoterol combination inhalers); SABA, short-acting beta₂ agonist.



NICE National Institute for Health and Care Excellence



SIGN

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BTS ISBN: 978-1-917619-29-5. NICE ISBN: 978-1-4731-6640-0. SIGN ISBN: 978-1-909103-98-6.

Algorithm E: Pharmacological management of asthma in children under 5

BTS, NICE and SIGN guideline on asthma

Take into account and try to address the possible reasons for uncontrolled asthma before starting or adjusting medicines for asthma. For example: alternative diagnoses or comorbidities; suboptimal adherence; suboptimal inhaler technique; passive smoking (including e-cigarettes); seasonal factors; environmental factors (such as air pollution and indoor mould exposure)

Symptom relief

Maintenance therapy

Children under 5 with suspected asthma and symptoms indicating need for maintenance therapy or severe acute episodes of difficulty breathing and wheeze

Consider 8 to 12 week trial of twice daily paediatric low-dose ICS

With a SABA

If symptoms do not resolve during trial

Check inhaler technique and adherence, whether there is an environmental source of their symptoms and review if an alternative diagnosis is likely

Refer the child to a specialist in asthma care if none of these explain treatment failure

If symptoms resolve during trial

Consider stopping ICS and SABA treatment after 8 to 12 weeks and review symptoms after a further 3 months

If symptoms recur after review or acute episode requires systemic corticosteroids or hospitalisation

Restart regular ICS. Begin at a paediatric low dose and titrate up to a paediatric moderate dose if needed

With a SABA

Consider a further trial without treatment after reviewing the child within 12 months

If asthma is uncontrolled

Consider an LTRA in addition to the ICS for a trial of 8 to 12 weeks, then stop if ineffective or side effects

With a SABA

If asthma is uncontrolled

Stop the LTRA and refer the child to a specialist in asthma care for further investigation and management

For guidance on dosages for paediatric low-dose ICS, see [inhaled corticosteroid doses for the BTS, NICE and SIGN asthma guideline](#)



Uncontrolled asthma: Any exacerbation requiring oral corticosteroids or frequent regular symptoms (such as using reliever inhaler 3 or more days a week or night-time waking 1 or more times a week)

ICS, inhaled corticosteroid; LTRA, leukotriene receptor antagonist; SABA, short-acting beta₂ agonist.

Poorly controlled and severe asthma – triggers for referral (PCRS 2022 Update)

1. On regular OCS for their asthma
2. Admitted / ED in last year
3. Two or more courses of OCS in last year
4. 6 SABA inhalers or more in last year
5. Ongoing symptoms despite controller medication

Primary Care Respiratory Update

Poorly controlled and severe asthma: triggers for referral for adult or paediatric specialist care – a PCRS pragmatic guide

This pragmatic guide has been developed by an expert group led by **Dr Steve Holmes** a GP based in Shepton Mallet, Somerset and including: **Binita Kane**, Manchester University Foundation Trust, Manchester; **Angela Pugh** and **Alison Whittaker**, University Hospital of Llandough Cardiff & Vale University Health Board; **Ruth McArthur**, Macintosh Practice, East Kilbride, Glasgow; and **Will Carroll** University Hospital of the North Midlands, Stoke-on-Trent

Table 3. Biologics approved for severe asthma in the UK (correct as of December 2022).

Biologic agent	Mechanism of action	Indication	Dose and administration	Eligibility criteria ^a	Most common adverse events
Omalizumab ¹⁷	Binds to IgE thereby inhibiting IgE-mediated inflammation	For adults and children ≥6 years of age with moderate to severe persistent asthma whose asthma symptoms are not well controlled with asthma medicines called inhaled corticosteroids	Subcutaneous Every 2 week or every week (base on IgE and weight)	IgE-mediated asthma Continuous or frequent OCS (≥4 courses in the previous 12 months)	Headache and injection site reactions (pain, swelling, erythema, pruritus)
Mepolizumab ¹⁸	Inhibits IL-5, a cytokine responsible for the growth, differentiation and activation of eosinophils, thereby reducing the production and survival of eosinophils	For adults and children ≥6 years of age with severe eosinophilic asthma	Subcutaneous Every 4 weeks	If eosinophils ≥300 cells/μL: • ≥4 exacerbations in previous 12 months OR continuous OCS If eosinophils ≥400 cells/μL: • ≥3 exacerbations in previous 12 months needing systemic CS	Headache, injection site reactions (pain, swelling, erythema, pruritus) and back pain
Benralizumab ¹⁹	Inhibits IL-5, a cytokine responsible for the growth, differentiation and activation of eosinophils, thereby reducing the production and survival of eosinophils	For adults with severe eosinophilic asthma inadequately controlled despite high-dose ICS plus LABA	Subcutaneous Every 4 weeks for the first 3 doses, then every 8 weeks	If eosinophils ≥300 cells/μL: • ≥4 exacerbations in previous 12 months OR continuous OCS If eosinophils ≥400 cells/μL: • ≥3 exacerbations in previous 12 months needing systemic CS	Headache and pharyngitis
Reslizumab ²⁰	Inhibits IL-5, a cytokine responsible for the growth, differentiation and activation of eosinophils, thereby reducing the production and survival of eosinophils	Adults with severe eosinophilic asthma inadequately controlled despite high-dose ICS plus another medicinal product for maintenance treatment	Intravenous 3 mg/kg every 4 weeks	Eosinophils ≥400 cells/μL ≥3 exacerbations in previous 12 months needing systemic CS	Increased blood creatine phosphokinase and anaphylactic reaction
Dupilumab ²¹	Inhibits IL-4 through the Type 1 IL-4 receptor and IL-4 and IL-13 signaling through the respective Type 2 receptors	Adults and adolescents (≥12 years) with severe asthma with type 2 inflammation who are inadequately controlled with high dose ICS plus another medicinal product for maintenance treatment	Subcutaneous Every 2 weeks	Type 2 inflammation-associated asthma Raised blood eosinophils (≥150 cells/μL), raised FeNO and ≥4 exacerbations in the last 12 months Ineligible for mepolizumab, reslizumab or benralizumab or has not responded to these agents	Injection site reactions, conjunctivitis, arthralgia, oral herpes and eosinophilia

^a NICE Technology appraisal guidance: Omalizumab, <https://www.nice.org.uk/guidance/ta278/chapter/1-Guidance>; mepolizumab, <https://www.nice.org.uk/guidance/TA671/chapter/1-Recommendations>; benralizumab, <https://www.nice.org.uk/guidance/TA565/chapter/1-Recommendations>; reslizumab, <https://www.nice.org.uk/guidance/TA479/chapter/1-Recommendations>; dupilumab, <https://www.nice.org.uk/guidance/TA751/chapter/1-Recommendations>.
FeNO, fractionated nitric oxide; ICS, inhaled corticosteroids; IgE, immunoglobulin E; LABA, long-acting beta-agonist; OCS, oral corticosteroid.

Current biologics

- benralizumab (Fasenra)
- dupilumab (Dupixent)
- mepolizumab (Nucala)
- omalizumab (Xolair)
- reslizumab (Cinqaero)
- tezepelumab (Tezspire)

(Licence and indications vary)

Asthma and Lung UK www.asthmaorg.uk (Last accessed in Jan 2023)

Table from PCRU: Holmes S, Carroll W, Mosgrove F, Pugh A, Stone R. Severe Asthma: A pragmatic guide for primary care practitioners. Primary Care Respiratory Update. 2022;25(Winter):7-15.

Inhalers

Base the choice of inhaler(s) for asthma on:

- an assessment of correct technique
- the preference of the person receiving the treatment
- the lowest environmental impact among suitable devices
- the presence of an integral dose counter.
- a spacer should usually be prescribed for use with a metered dose inhaler, particularly in children.



Monitoring asthma control

NICE National Institute for
Health and Care Excellence



British
Thoracic
Society



Healthcare
Improvement
Scotland

SIGN



Asthma pathway (BTS,
NICE, SIGN)

NICE guideline

Published: 27 November 2024

www.nice.org.uk/guidance/ng244

Monitor [asthma control](#) at every review. In addition to asking about symptoms, check:

- time off work or school due to asthma
- amount of reliever inhaler used, including a check of the prescription record
- number of courses of oral corticosteroids
- any admissions to hospital or attendance at an emergency department due to asthma.
- If control is suboptimal, see [the first recommendation in the section on principles of pharmacological treatment](#).
- [BTS/NICE/SIGN 2024]

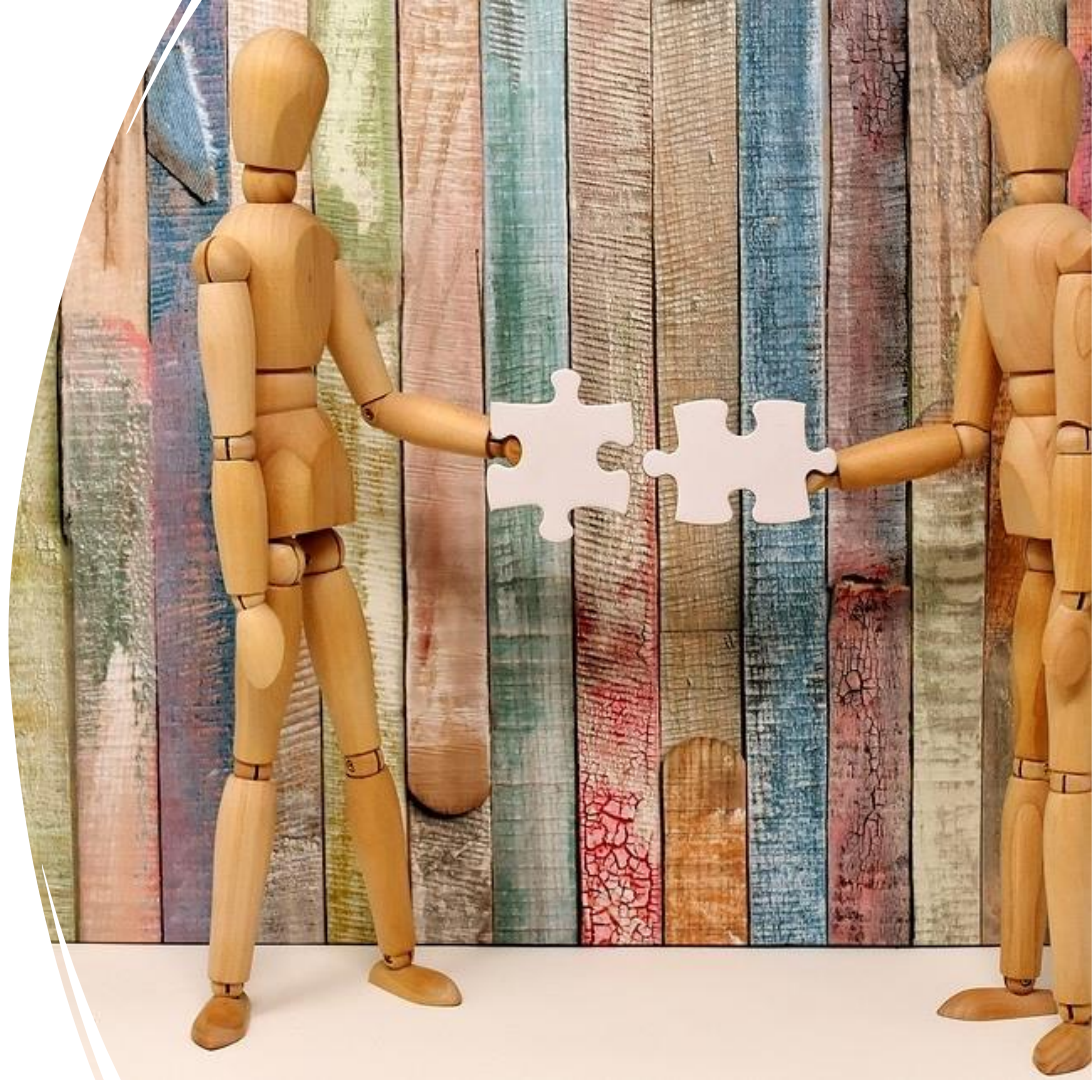
Sub-optimal control (uncontrolled asthma) – action prior to starting / adjusting medicines

Consider

- **alternative diagnoses or comorbidities**
- **suboptimal adherence**
- **suboptimal inhaler technique**
- **smoking (active or passive), including vaping using e-cigarettes**
- **occupational exposures**
- **psychosocial factors (for example, anxiety and depression, relationships and social networks)**
- **seasonal factors**
- **environmental factors (for example, air pollution, indoor mould exposure).**
- **[NICE 2017, BTS/SIGN 2019, amended 2024]**

Asthma Management

- Treatment options – established and new
- A good review (and after an exacerbation)
- Severe Asthma and Biologics – who should we be thinking about



Thank you any
questions?

