MART and AIR for General Practice

In line with NICE/BTS guidelines and national Consensus Statement

AskAboutAsthma 2025

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Conflicts of Interest

- Conflicts of Interest
  - Nil

- Interest
  - That as a healthcare system we improve asthma care and outcomes for CYP

Objectives

- Diagnosis
- Pharmacological Management
  - Standard Therapy
  - MART
  - AIR
- Monitoring in Primary care

MUSTs:

Every child with asthma should have an asthma action plan

Every child with asthma should use a spacer with pMDI style inhalers & know how to use them

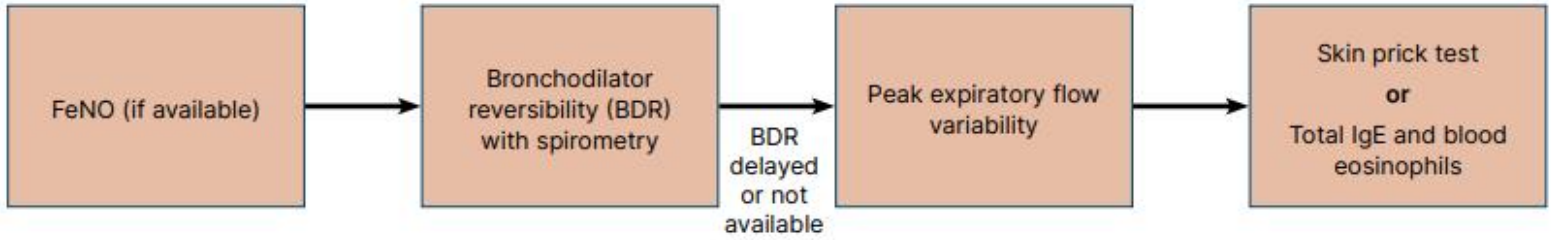
Every child with asthma should have an annual review and a 48-hour review after an acute attack

Consider the impact of indoor and outdoor air pollution

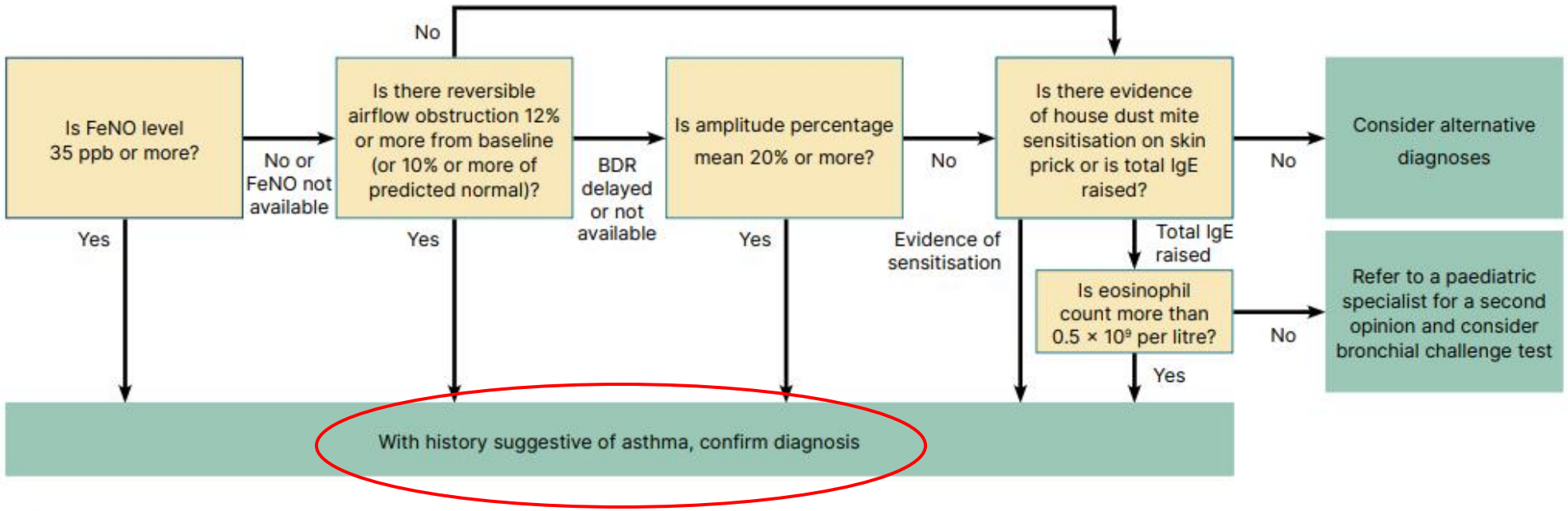
Algorithm B: Objective tests for diagnosing asthma in children aged 5 to 16 with a history suggesting asthma

BTS, NICE and SIGN guideline on asthma

Order of tests



Interpretation of test results



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Definitions

- Reliever / Rescue
  - Treatment used for symptom relief or before exercise / allergen exposure
- Maintenance / Controller / Preventer
  - Usually a regular treatment to reduce underlying inflammation to reduce risk of attacks and improve symptom control.
  - Typically an ICS containing medication
  - May include additional treatments (LTRA, biologics)

Salbutamol

Issues

- SABA treats some acute symptoms and NOT the underlying disease
- Regular use SABA
  - Overuse associated with increased AHR, eosinophilia and reduced bronchodilator effect with B-receptor downregulation.
  - Overuse SABA associated with increased exacerbations
- Encourages over-reliance on short term hit (reduced adherence with preventer)
- Complacency about apparent mild asthma with undertreatment can lead to severe / fatal attacks.

Actions

- Highlight CYP using more than 3 (6) SABA inhalers in a year.
- Stop using Salbutamol weaning plans after acute attacks.
- Lower maximum doses on PAAPs
  2-6 puffs no more than every 4 hours if symptomatic
  10 puffs if in extremis – followed by URGENT health review / 111 / 999.
- No use of SABA alone. Switch to AIR / MART where possible

AIR (Anti-inflammatory Reliever Therapy)

- Use of a combination inhaler containing an Inhaled Corticosteroid (ICS) and Fast-Onset reliever (Formoterol) in place of a single agent Short Acting Bronchodilator (SABA) for the acute rescue / relief of asthma symptoms.
- Either
  - As required – stand-alone therapy
  - As part of MART

MART (Maintenance and Reliever Therapy)

- Use of a combination inhaler containing ICS and Formoterol for both regular Preventer / Controller doses AND acute rescue / reliever doses as required.

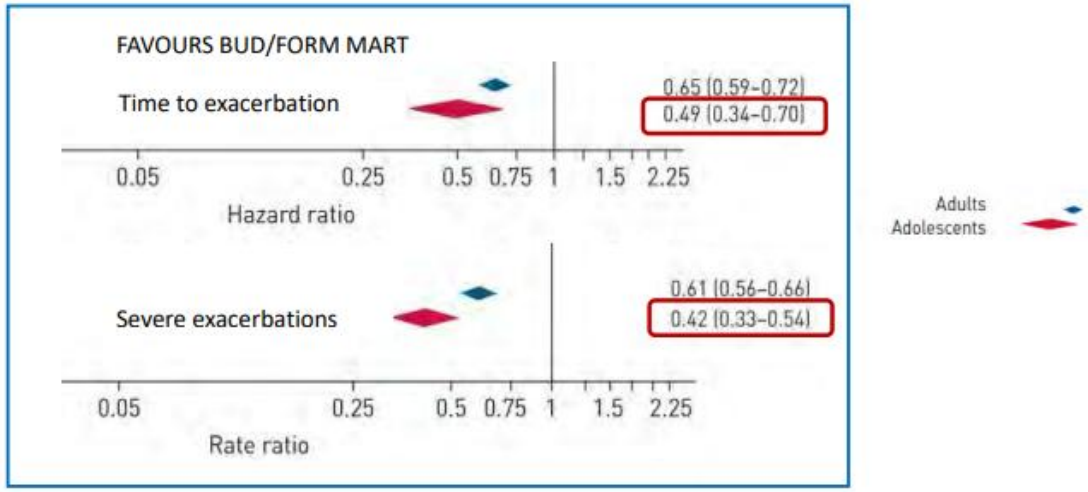
- Morning and Evening Preventer Doses.
- As required interval doses with symptoms.

Conceptual Differences

- MART
  - Regular treatment
  - Aim for no / minimal symptoms
- AIR
  - Intermittent treatment
  - Accepting of symptoms
  - If frequent use of rescue therapy / need for OCS – switch to MART

Evidence: 12yrs +

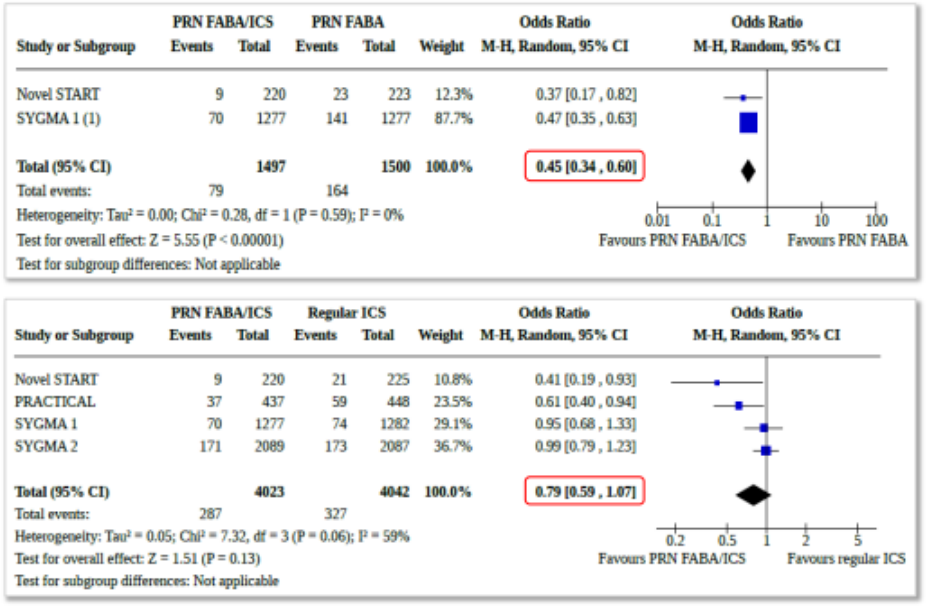
MART



Post hoc analysis of six double blind RCTs (BUD/FORM MART)

Jorup, Eur Respir J 2018:51:1701688

AIR



Crossingham – Cochrane 2021

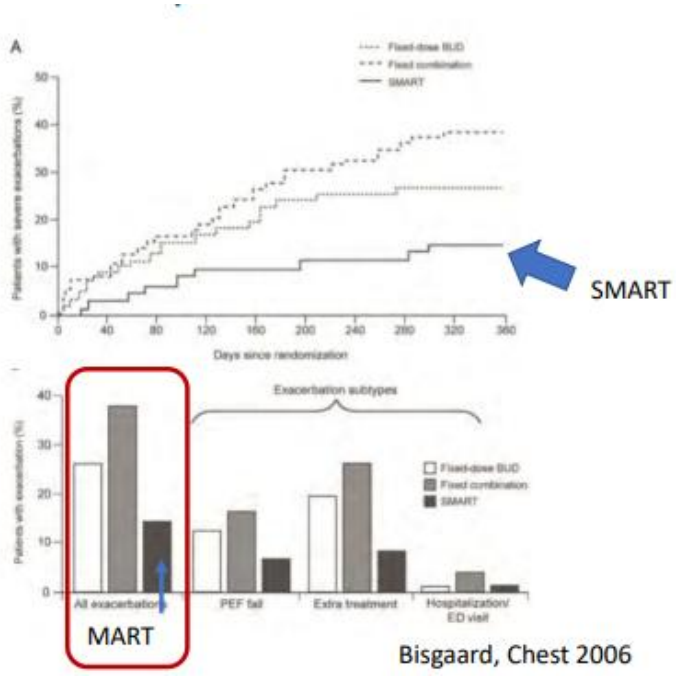
Evidence: 6-11 years

MART

- 12 month double blind RCT
- 341 children aged 4 -11 years randomised to:

1. SMART: Budesonide/formoterol 80/4.5mcg once daily maintenance plus additional doses for symptom relief
2. Fixed combination: 80/4.5mcg once daily
3. Fixed dose budesonide: 320mcg BUD once daily

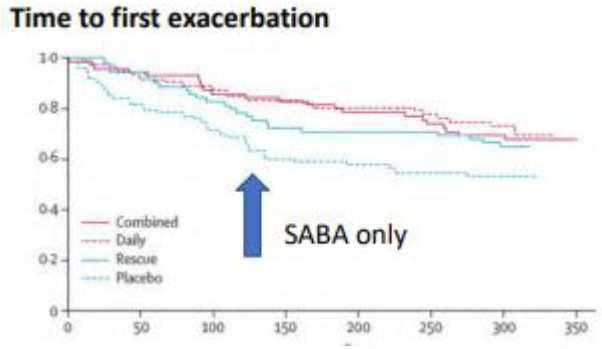
- Reduction in exacerbations by 70 - 79% compared to ICS and ICS-formoterol



Bisgaard, Chest 2006

AIR

- No evidence for ICS / LABA
- TREXA
- Martinez 2011
- BDP



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

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

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 singe 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

ICS, inhaled corticosteroid; **LABA**, long-acting beta$_2$ agonist; **LTRA**, leukotriene receptor antagonist; **MART**, maintenance and reliever therapy (using ICS/formoterol combination inhalers); **SABA**, short-acting beta$_2$ agonist.

British Thoracic Society | NICE National Institute for Health and Care Excellence | Healthcare Improvement Scotland | SIGN

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>12 yr

review the diagnosis and modifiable factors before increasing treatment

	pMDI and spacer	DPI
AIR	⚠ Symbicort 100/3	Symbicort 200/6 or DuoResp Spiromax 160/4.5 or Wockair 160/4.5 Fobumix 160/4.5
Low dose MART	Symbicort 100/3 2 inhalations once or twice daily (maintenance)	Symbicort 100/6 Fobumix 80/4.5 1 inhalation twice daily (maintenance) Symbicort 200/6 or Fobumix 160/4.5 or Duoresp Spiromax 160/4.5 or Wockair 160/4.5 1 inhalation once or twice daily (maintenance)
Mod dose MART	Symbicort 100/3 4 inhalations twice daily (maintenance)	Symbicort 200/6 or Fobumix 160/4.5 or Duoresp Spiromax 160/4.5 or Wockair 160/4.5 2 inhalations twice daily (maintenance)
	+2 inhalations for relief, Max 24 in one day, max 12 at any one time*	**+ 1inhalation for relief, max 12 in one day, max 6 at any one time****

⚠ These are not licensed, either for the purpose listed or for that age group or both. The decision to use the device must be made in collaboration with the family/young person based on an informed discussion

MART
(Anti-inflammatory Reliever Therapy)
Must contain Fast-Acting LABA (i.e. Formoterol)
Not Salmeterol / Vilanterol

Consensus Statement contributed to by BPRS, NPRANG, ARNS and PCRS

5-11 Primary

MART Pathway

review the diagnosis and modifiable factors before increasing treatment

	pMDI and spacer	DPI
Newly diagnosed Low dose ICS + SABA	Clenil 50 or Soprobec 50 1 or 2 inhalations twice daily + SABA for relief	Pulmicort Turbohaler 100: Budesonide easyhaler 100 1 inhalation once or twice per day or Flixotide Accuhaler 50 1 inhalation twice daily + SABA for relief
If uncontrolled Low dose MART	Not Recommended* If not able to use a DPI device either remain on the conventional pathway or refer to secondary care	⚠ Symbicort 100/6 ⚠ Fobumix 80/4.5** 1 inhalation once or twice daily (maintenance) + 1 inhalation for relief (maximum 8 inhalations in total/24hrs, max 4 at any one time)***
If uncontrolled Moderate dose MART	Not Recommended: REFER	Not Recommended: REFER

⚠ This device is not licensed, either for the purpose listed or for that age group or both. The decision to use the device off label must be made in collaboration with the family/young person based on an informed discussion. If licensed options become available, these should be used in preference.

MART
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Must contain Fast-Acting LABA (i.e. Formoterol)
Not Salmeterol / Vilanterol

AIR
(Anti-inflammatory Reliever Therapy)
Not currently recommended or licenced for CYP 5-12

Consensus Statement contributed to by BPRS, NPRANG, ARNS and PCRS

5-11 yr Secondary

Limited to specialist asthma clinics/ HCPs operating at level 4 asthma capability framework

MART Pathway

review the diagnosis and modifiable factors before increasing treatment

	pMDI and spacer	DPI
Newly diagnosed: Paediatric Low dose ICS + SABA	Clenil 50 or Soprobec 50 1 or 2 inhalations twice daily + SABA for relief	Pulmicort Turbohaler 100: Budesonide easyhaler 100 1 inhalation once or twice per day or Flixotide Accuhaler 50 1 inhalation twice daily + SABA for relief
If uncontrolled: Paediatric Low dose MART	⚠ Symbicort 100/3* 1 inhalation twice daily or 2 inhalations once daily Plus 2 inhalations for relief	⚠ Symbicort 100/6 ⚠ Fobumix 80/4.5** 1 inhalation once or twice daily (maintenance) + 1 inhalation for relief (maximum 8 inhalations in total/24hrs, max 4 at any one time)***
If uncontrolled: Paediatric Moderate dose MART	⚠ Symbicort 100/3* 2 inhalations twice daily (maintenance)	⚠ Symbicort 100/6* or or ⚠ Fobumix 80/4.5* 2 inhalations twice daily (maintenance)
	+ 2 inhalations for relief (maximum 16 inhalations in total/24hrs, max 8 at any one time) !	**+ 1 inhalation for relief (maximum 8 inhalations in total/24hrs, max 4 at any one time) *** **

Caution: DPI use in CYP <10 yrs

MART
(Anti-inflammatory Reliever Therapy)
Must contain Fast-Acting LABA (i.e. Formoterol)
Not Salmeterol / Vilanterol

AIR
(Anti-inflammatory Reliever Therapy)
Not currently recommended or licenced for CYP 5-12

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Which inhalers ?

- Don't switch brand / type of inhalers without training
- Be tolerant of adolescents:
  One inhaler for home
  One to carry round
- Do not continue to prescribe salbutamol whilst on MART / AIR
  (Except CYP with anaphylaxis)

Medi-cation	Picture	Type	Age 6-11 years			Age 12-17 years		
			AIR	Paediatric Low dose MART	Paediatric Mod dose MART	AIR	Low dose MART	Mod dose MART
Symbicort 100/3		MDI	Not licensed Not recom-mended	Not licensed Recommend-ed according to HCP competencies	Not licensed Recommend-ed according to HCP competencies	Not licensed Recommend-ed according to HCP com-petencies	Licensed	Licensed
Symbicort turbohaler 100/6		Dry powder inhaler	Not licensed Not recom-mended	Not licensed Recommend-ed according to HCP competencies	Not licensed Recommend-ed according to HCP competencies	Not licensed Not recommend-ed	Licensed	Licensed
Fobumix Easyhaler 80/4.5*		Dry powder inhaler	Not licensed Not recom-mended	Not licensed Recommend-ed according to HCP competencies	Not licensed Recommend-ed according to HCP competencies	Not licensed Not recommend-ed	Licensed	Licensed
Fobumix Easyhaler 160/4.5		Dry powder inhaler	Not licensed Not recom-mended	Not licensed Not recommended	Not licensed Recommend-ed according to HCP competencies	Licensed	Licensed	Licensed
Symbicort turbohaler 200/6		Dry powder inhaler	Not licensed Not recom-mended	Not licensed Not recommended	Not licensed Not recommended	Licensed	Licensed	Licensed
Duoresp spiromax 160/4.5		Dry powder inhaler	Not licensed Not recom-mended	Not licensed Not recommended	Not licensed Not recommended	Licensed	Licensed	Licensed
WokAir 200/6		Dry powder inhaler	Not licensed Not recom-mended	Not licensed Not recommended	Not licensed Not recommended	Licensed	Licensed	Licensed

Inhaler Comparison – Which is best?

Brand	Dose	Device	Puffs	Licence	Shelf Life	Cost
Duoresp	160/4.5 (Bud)	DPI	120	12+	12 months	£27.97
Fobumix	160/4.5 (Bud)	Easyhaler	120	12+	4 months	£21.50
Fostair	200/6 (Bec)	DPI	120	18+	6 months	£29.32
WockAir	160/4.5 (Bud)	DPI	60	12+	?1-2 years	£19.00
Symbicort	200/6 (Bud)	Turbohaler	120	12+	3 years	£28

Monitoring in Primary Care

- In primary care, people with asthma should be reviewed at least annually
- And after any asthma attack (48-hour review) by a healthcare professional with appropriate training in asthma management.
- The review should incorporate an assessment of asthma control
- The review should incorporate a written personalised action plan.
- **Monitor uptake of Preventer Inhalers Note how long inhaler should last (doses/doses per day)**
  - **Check prescription record.**

Identify inhaler longevity and numbers required – tell CYP / parents

Most inhalers contain 120 doses
- Regime 2 puffs twice per day + MART

120/4 = 30 days maximum – less if additional puffs required
1+ inhaler per month
12 + inhalers per year

Summary

- Improving diagnosis
  - Need for Asthma diagnostic hubs (if you can find one)
- Moving away from Salbutamol - why
- MART and AIR regimes for CYP
- Monitoring in Primary Care
  - ICS adherence