

Paediatric Wheeze and Asthma Guidelines (Children Aged 16 and Under)

Updated November 2020

These guidelines are designed for use across all healthcare settings in Bedfordshire Luton and Milton Keynes by NHS healthcare professionals.

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INTRODUCTION AND ACKNOWLEDGEMENTS

These guidelines aid healthcare professionals in Bedfordshire, Luton and Milton Keynes to manage paediatric wheeze and diagnose and manage asthma in children aged 16 years and under.

These guidelines support local implementation of:

- BTS/SIGN 158 British Guideline on the management of asthma 2019¹
- NICE Guideline NG80 Asthma: Diagnosis, monitoring and chronic asthma management 2020²
- National Review of Asthma Deaths 2014³ (NRAD)
- Global Initiative for Asthma 2020⁴ (GINA)

We aim to support a local pragmatic approach for children aged under 5 (section A) and between 5-16 years (section B). The management of acute asthma is covered in section C and inhaler and spacer device options are summarised in section D.

Many thanks to all individuals who have supported the update of these guidelines.

We hope that health care professionals find these guidelines useful. We would welcome any comments on the guidelines, please contact the Bedfordshire, Luton and Milton Keynes Medicines Optimisation teams.

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BLMK Medicines Optimisation website <https://medicines.blmkccg.nhs.uk/>

N.B. This guidance and associated tools were arrived at after careful consideration of the evidence available. Healthcare professionals are expected to take it fully into account when exercising their clinical judgement. The guidance does not, however, override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or parent, guardian or carer

PREFACE

Asthma affects 1.1 million children in the UK⁵. Many more pre-school children experience acute wheeze each year with viral infections. Acute wheeze is one of the most common reasons for emergency department attendance and hospital admission in children. Up to 75% of these admissions are thought to be avoidable. Evidence-based clinical pathways and guidelines have been shown to improve outcomes for children with acute wheeze and asthma, thus reducing the event of hospitalisation.

Unfortunately there are still a small proportion of avoidable deaths in children and young people resulting from asthma, each year. Within the UK, acute asthma attacks in children cause 80 hospital admissions per day and 20 deaths per year. In 2018, 20 children aged under 14 died from asthma, compared to 17 children, in 2017.

One of the recommendations from the National Review of Asthma Deaths (NRAD) report states that it is essential to have a designated, named lead clinician in General Practice for Asthma services, to support the whole practice team with improving the care of children with asthma through training and use of evidence based guidance.

This guideline recognises the difficulties in diagnosing asthma in children, particularly in children under 5 years of age. It aims to improve the accuracy of diagnosis and monitoring of children with asthma, using objective measures whenever possible and practical to do so, to ensure optimal control and reduce the risk of asthma attacks. This includes checking inhaler device technique at every opportunity, ensuring they are taking medications regularly as prescribed, assessing future risk of asthma attacks, having regular reviews (at least six monthly) which can be carried out remotely and ensuring all children having an up-to-date Personal Asthma Action Plan (PAAP) as part of a supported self –management programme.

During this 2020 update, we are experiencing first hand, the dynamic impact COVID-19 is having on children and young people within the healthcare system in the U.K., both in the short term and long term. It has been observed that in the majority of cases, COVID-19 presents clinically ‘milder’ in children. There have been a smaller proportion of severe case presentations in children. Asthma is not linked to COVID-19 as a risk factor, and there has been a reduction in asthma-related hospital admissions in children during this period. There has been data in Europe that suggests COVID-19 related hospital admissions in asthmatic children is on the increase; in most cases the virus has been distinct from an asthma attack (i.e. their asthma has not been affected by the virus). Unlike many viral SARS-CoV-2 infections, COVID-19 does not appear to cause wheezing, the virus attacks the air sacs within the lungs (alveoli) rather than the airways. We have produced a COVID-19 information page within this guideline, signposting clinical staff to resources to further support the management of children and young people with asthma during the pandemic.

I highly recommend these guidelines to all health care professionals across Bedfordshire, Luton and Milton Keynes to reduce local variation and improve the quality of paediatric asthma care.

Dr Dayo Kuku
GP Clinical Lead for Respiratory
NHS BLMK Commissioning Collaborative

COVID-19 ADVICE (ADAPTED FROM [THE ROYAL COLLEGE OF PAEDIATRICS AND CHILD HEALTH](#))

As part of the initial response to the pandemic several thousand children and young people were advised to shield because their pre-existing conditions meant they were felt to be at the highest risk of severe illness from COVID-19. The original shielded patients list was intended to identify people with particular conditions which put them at highest clinical risk of severe morbidity or mortality from COVID-19, based on the understanding of the disease at the time. It was developed early in the outbreak when there were very little data or evidence about the groups most at risk of poor COVID-19 outcomes, and so was intended to be a dynamic list that would adapt as our knowledge of the disease improved and more evidence became apparent.

The experience and knowledge of the impact of COVID-19 infection on children and young people with comorbidities has been developing over time. New evidence and research findings allow us to reconsider and update the advice about which children are at the highest risk of severe infection because they are 'clinically extremely vulnerable'.

In principle,

- Children and young people who are cared for just in primary care are very unlikely to be clinically extremely vulnerable.
- A small group of children who are clinically extremely vulnerable due to their pre-existing condition will need to follow public health advice on shielding.
- A further larger group of children exists who due to their underlying condition may be clinically extremely vulnerable and the decision to follow public health advice on shielding would normally result from a discussion between the clinician, the child and their family.

Any decision to follow public health advice on shielding should balance the clinical and social impact of shielding - weighing the benefit of keeping children and young people with underlying co-morbidities safe whilst protecting the most socially vulnerable, due to family and social circumstances, who may risk additional harm from continued shielding.

If a child is no longer clinically extremely vulnerable, clinicians should discuss with children and their families/carers their removal from the shielding list. Patients can only be removed from the shielding patient list by their GP or specialist, following discussion/consultation with the child and their family, and other clinicians where appropriate.

We know that many children and young people and their parents/carers will feel cautious and uncertain at this time. We had developed advice, based on national guidance, for clinicians to support them during the pandemic as they discussed the risks of COVID-19 infection with individual patients:

<https://medicines.blmkccg.nhs.uk/covid-19-information/>

We also enclose additional resources to support tools for healthcare professionals during the pandemic:

Asthma UK COVID-19 health advice for people with asthma

<https://www.asthma.org.uk/advice/triggers/coronavirus-covid-19/>

COVID-19: the impact on children <https://www.asthma.org.uk/support-us/campaigns/campaigns-blog/covid-19-impact-children/>

Advice on peak flow

[https://www.rcem.ac.uk/docs/Safety/RCEM%20Salbutamol,%20peak%20flow%20and%20nebulisation%20advice%20during%20Covid-19%20Safety%20Flash%20\(Apr%202020\).pdf](https://www.rcem.ac.uk/docs/Safety/RCEM%20Salbutamol,%20peak%20flow%20and%20nebulisation%20advice%20during%20Covid-19%20Safety%20Flash%20(Apr%202020).pdf)

COVID-19 rapid guideline: severe asthma, NICE guideline [NG166] <https://www.nice.org.uk/guidance/ng166>

U.K. Government Advice <https://www.gov.uk/government/collections/coronavirus-covid-19-list-of-guidance>

SECTION A DIAGNOSIS

The diagnosis of asthma in children is based on the recognition of a characteristic pattern of respiratory symptoms, signs and test results and the absence of any alternative explanation for these. It can be difficult to diagnose and confirm asthma in very young children.

A1 WHEEZE AND SUSPECTED ASTHMA IN CHILDREN UNDER 5 YEARS

A2 INITIAL ASSESSMENT IN CHILDREN AGED UNDER 5 YEARS^{1,2,3}

In children under 5 years, it is important to differentiate between viral induced wheeze, other causes of wheeze and asthma. Most children with viral induced wheeze will stop wheezing when they get older and will not develop asthma. After clinical assessment treat episodes of wheeze according to the most severe feature. Reassure and advise parents/carers and supplement verbal instructions with written information or discharge plans. Use code 'suspected asthma' and advise parents/carers and provide supplementary written information. Asthma diagnosis should be confirmed when the child is able to undergo objective testing.

A3 CLINICAL ASSESSMENT IN CHILDREN AGED UNDER 5 YEARS

Child aged under 5 years presenting with symptoms of asthma:
Wheeze, cough, breathlessness, chest tightness

Structured clinical assessment		
Clinical history	Specifically check for: Wheeze, cough or breathlessness and any daily or seasonal variation in these symptoms Any triggers that make symptoms worse A personal or family history of atopy	Look for: Recurrent episodes of symptoms Absence of symptoms of alternative diagnosis Recorded observations of wheeze
Physical examination	Examine child to identify expiratory polyphonic wheeze and signs of other causes of respiratory symptoms. Use clinical assessment tool for children aged under 5 years.	

Do treat symptoms based on observation and clinical judgement and review the child on a regular basis. Options are watchful waiting or monitored initiation of treatment.

For acute management see section A3-A5. Consider maintenance treatment if recurrent episodes of multiple trigger wheeze/atopy - see section A6.

Do not offer following diagnostic tests:

Skin prick tests to aero allergens
Serum IgE

Factors associated with developing persistent asthma are:

Age at presentation The natural history of wheeze is dependent on age at first presentation. In general, the earlier the onset of wheeze, the better the prognosis.

Severity and frequency of previous wheezing episodes Frequent or severe episodes of wheezing in childhood are associated with recurrent wheeze that persists into adolescence.

Coexistence of atopic disease A history of other atopic conditions such as eczema and rhinitis increases the probability.

Family history of atopy A family history of atopy is the most clearly defined risk factor for atopy and asthma in children.

Parents and parents-to-be should be advised of the many adverse effects which smoking has on their children including increased wheezing in infancy and increased risk of persistent asthma

A4 INITIAL ASSESSMENT IN CHILDREN AGED 5–16 YEARS

The diagnosis of asthma in children is based on the recognition of a characteristic pattern of respiratory symptoms, signs and test results and the absence of any alternative explanation for these. Objective tests need to be used in conjunction with a structured clinical assessment to assess the probability of asthma. For children and young people aged 5 to 16 with a diagnosis of asthma, include advice in their self-management programme on contacting a healthcare professional for a review if their asthma control deteriorates

It can be difficult to confirm asthma in young children. Use code ‘suspected asthma’ and advise parents/carers. Asthma diagnosis should be confirmed when the child is able to undergo objective testing.

A5 CLINICAL ASSESSMENT IN CHILDREN AGED 5-16 YEARS ²

Child aged 5-16 years presenting with symptoms of asthma:
Wheeze, cough, breathlessness, chest tightness

Structured clinical assessment		
Clinical history	Specifically check for: Wheeze, cough or breathlessness and any daily or seasonal variation in these symptoms Any triggers that make symptoms worse A personal or family history of atopy	Look for: Recurrent episodes of symptoms Absence of symptoms of alternative diagnosis Recorded observations of wheeze
Physical examination	Examine child to identify expiratory polyphonic wheeze and signs of other causes of respiratory symptoms	

Initial treatment and objective tests for acute symptoms at presentation
Treat people immediately if they are acutely unwell at presentation (see section C1-3)

Do not offer following diagnostic tests:
Skin prick tests to aero allergens
Serum IgE
Blood eosinophil count

Factors associated with developing persistent asthma are:

Age at presentation The natural history of wheeze is dependent on age at first presentation. In general, the earlier the onset of wheeze, the better the prognosis.

Severity and frequency of previous wheezing episodes Frequent or severe episodes of wheezing in childhood are associated with recurrent wheeze that persists into adolescence.

Coexistence of atopic disease A history of other atopic conditions such as eczema and rhinitis increases the probability

Family history of atopy A family history of atopy is the most clearly defined risk factor for atopy and asthma in children. The strongest association is with maternal atopy.

Abnormal lung function Persistent reductions in baseline airway function and increased airway responsiveness during childhood are associated with having asthma in adult life.

Parents and parents-to-be should be advised of the many adverse effects which smoking has on their children including increased wheezing in infancy and increased risk of persistent asthma.

A6 OBJECTIVE TESTS TO SUPPORT ASTHMA DIAGNOSIS

NICE recommends that the following objective tests are performed in children to confirm diagnosis of asthma.

Spirometry - Offer spirometry to, young people and children aged 5 and over if a diagnosis of asthma is being considered. Regard a forced expiratory volume in 1 second/forced vital capacity (FEV1/FVC) ratio of less than 70% (or below the lower limit of normal if this value is available) as a positive test for obstructive airway disease (obstructive spirometry). If the child cannot reliably perform spirometry, consider other objective test as stated below, treat based on history and clinical judgement and review ability to perform tests every 6-12 months.

Bronchodilator reversibility - Consider a BDR test in children and young people (aged 5 to 16) with obstructive spirometry (FEV1/FVC ratio less than 70%). Regard an improvement in FEV1 of 12% or more as a positive test.

Fractional exhaled nitric oxide (FeNO) is an objective test for asthma recommended by NICE for patients > 5 years of age due to its high specificity and high selectivity. It is currently being considered locally. It is not yet available in primary care. The introduction of FeNO testing is likely to be a phased implementation due to the investment and training required. Primary care services have been advised by NICE to implement what they can of the NG80 guideline using currently available diagnostic tools until the infrastructure is in place.

Peak Flow Variability: Peak expiratory flow (PEF) is widely available and simple to use. Issue a peak flow meter to all children. Teach them how to use it proficiently record using chart or diary. The number of readings and degree of patient coaching affects the values. Although normal ranges are available, these do not encompass ethnic diversity. Changes in PEF are more meaningful than absolute values. Do not use peak flow variability alone to diagnose asthma.

Consider referral for specialist assessment if a child repeatedly cannot perform objective tests and is not responding to treatment.

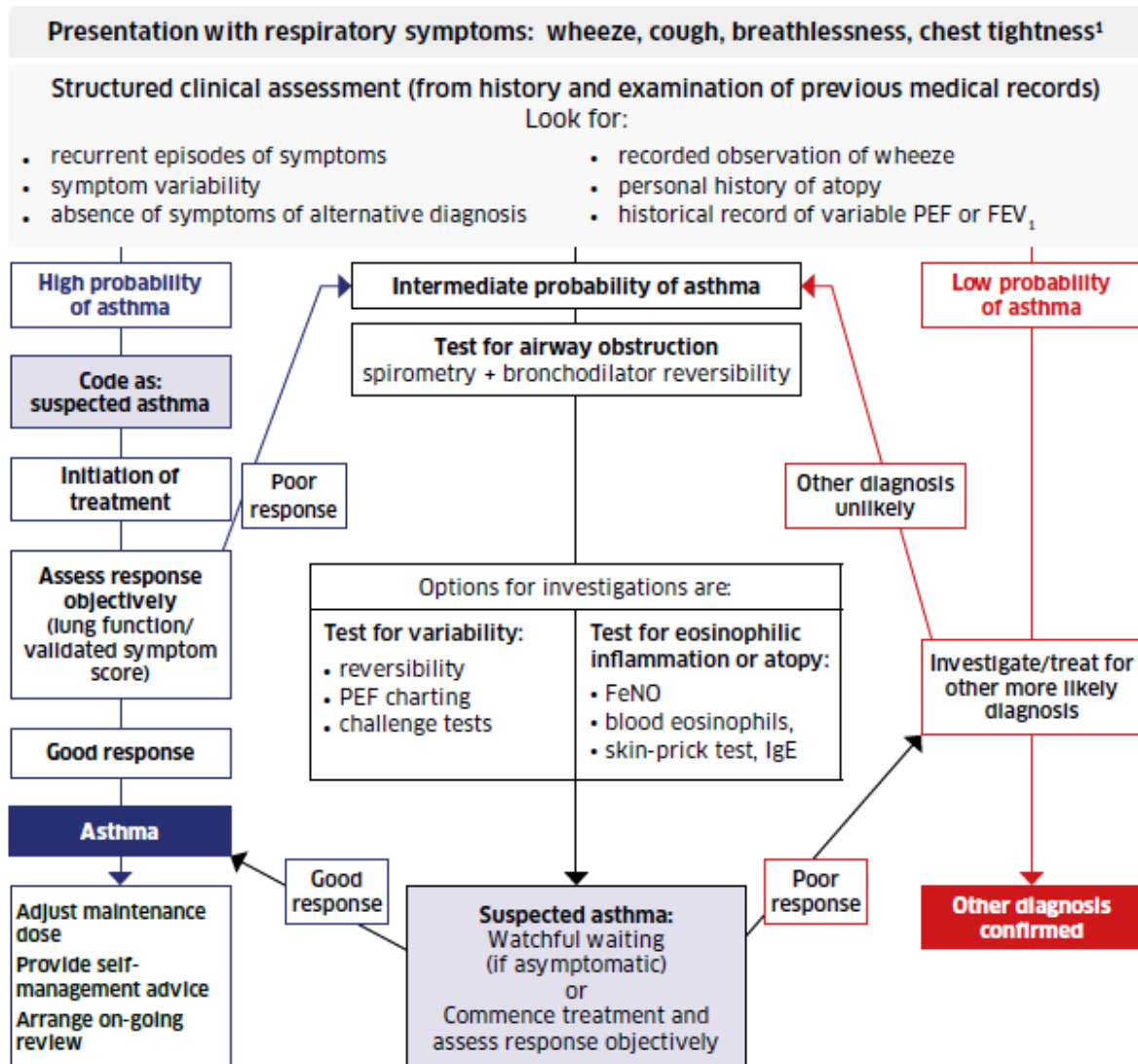
Table Supporting Asthma Diagnosis in Children

Test	Value
Spirometry	FEV1/FVC ratio <70%
Bronchodilator Reversibility	Improvement in FEV1 of 12% or more
FeNO	FeNO level of 35ppb or more
Peak Flow Variability	Peak Expiratory Flow Variability >20% over a 2-4 week period

For further patient centred information and resources on Peak Flow please refer to the Asthma UK page: <https://www.asthma.org.uk/advice/manage-your-asthma/peak-flow/>

The Asthma UK Peak flow diary can be accessed here: <https://www.asthma.org.uk/86e2a328/globalassets/health-advice/resources/adults/your-peak-flow-diary.pdf>

A7 ALGORITHM FOR OBJECTIVE TESTS FOR USE IN CHILDREN



¹ In children under 5 years and others unable to undertake spirometry in whom there is a high or intermediate probability of asthma, the options are monitored initiation of treatment or watchful waiting according to the assessed probability of asthma.

N.B. Fractional exhaled nitric oxide (FeNO) is an objective test for asthma recommended by NICE (NG80) for patients aged 5 years and above due to its high specificity and selectivity. A positive FeNO test indicates the presence of eosinophilic inflammation providing supportive rather than conclusive evidence of asthma diagnosis.

FeNO is being considered locally, and is likely to be a phased implementation due to the investment and training required. Further work is necessary to explore how to achieve the greatest value from FeNO alongside spirometry in the diagnostic pathway. It is important that the initiation of appropriate treatment should not be delayed while waiting for a confirmation of asthma using these tests.

SECTION B MANAGEMENT OF CHRONIC ASTHMA

B1 PHARMACOLOGICAL MANAGEMENT IN CHILDREN UNDER 5 YEARS

For children under 5 with suspected asthma, treat symptoms based on observation and clinical judgement and review the child on a regular basis. Asthma diagnosis should be confirmed when the child is able to undergo objective tests, this is also dependent on the commissioning status of diagnostic services locally.

B2 PHARMACOLOGICAL MANAGEMENT IN CHILDREN AGED 5 – 16 YEARS

The primary objective of treatment is to achieve complete control of asthma, defined as

- No daytime symptoms.
- No night-time awakening due to asthma.
- No need for rescue medicine.
- No asthma attacks.
- No limitations on activity including exercise.
- Normal lung function (in practical terms FEV1 and/or PEF >80% predicted or best).
- Minimal side effects from medication.

Key principles

- Start treatment at the step most appropriate to the initial severity of the patient's asthma.
- Advise the patient, parents or carers to monitor symptoms and return to the clinic if no improvement.
- Check concordance, adherence and reconsider diagnosis if response to treatment is unexpectedly poor.
- Aim of treatment is to achieve early control and maintain it at the lowest dose required, consider stepping up or down accordingly.
- Increased reliever usage is a sign of poor control. Step-up if ordering more than 2 short acting beta agonist inhalers per year (4 maximum if require spare inhalers).
- Use of more than 12 short acting bronchodilators over a 12 month period should be urgently assessed and measures taken to improve asthma control.
- Provide patients, parents or carers with a self-management plan which includes a personalised patient action plan supported by a regular professional review at least annually.
- For children and young people aged 5 to 16 with deteriorating asthma who have not been taking their ICS consistently, explain that restarting regular use may help them to regain control of their asthma. The evidence for quadrupling ICS doses to self-manage deteriorating asthma control is limited and not recommended. Any increases in ICS doses should be documented in the patient's personalised asthma action plan with support from the specialist

NRAD recommendations

- ✓ *Inhaler technique checks should be routinely undertaken and documented*
- ✓ *Urgent review for all with more than 12 SABA inhalers in previous 12 months*
- ✓ *Patients should not be prescribed LABA alone*

Devices

- In addition to considering therapeutic need, prescribers should also take in to account the ability to maintain and develop effective technique, lifestyle, portability, convenience and preference.
- A pressurised metered dose inhaler and spacer is the recommended first-line delivery device for inhaled medication.
- Prescribe inhalers only after the patient has been trained in their use and demonstrates adequate inhaler technique.
- Only if more than one device is appropriate for the patient then the device with the lowest overall cost should be chosen.
- Spacers should be cleaned once a month with mild detergent and allowed to air dry and replaced every 6 to 12 months. Inhaler technique videos can be found via Asthma UK <https://www.asthma.org.uk/advice/inhaler-videos/> Click here to access [Asthma UK Help your child use their inhaler](#) [NICE TA10: Asthma inhaler devices \(children under 5\)](#) [NICE TA38 Asthma inhaler devices \(older children\)](#)

B3 PRIMARY CARE TREATMENT OPTIONS FOR CHILDREN AGED UNDER 5 WITH SUSPECTED ASTHMA/WHEEZE ^{1,2,7}

Evaluate: symptom control, inhaler technique and adherence to treatments at all stages.
Think TTT– adherence with **Therapy**, inhaler **Technique**, elimination of **Triggers**

Please see B4 for Primary Care Treatment Options (page 9) for Children under 16 years (includes inhaler choices and doses)

Trial ICS

Consider 8 week trial of paediatric moderate dose ICS* in children with symptoms indicating need for maintenance therapy

e.g. asthma symptoms >3 times/week
Suspected asthma uncontrolled with SABA
Waking at night with asthma symptoms

Consider very low dose ICS:

Clenil Modulite 50mcg, 2 puffs b.d. (BTS categorisation)

Review ICS at 8 weeks and Monitor

If symptoms not resolved consider alternative diagnosis. If symptoms resolved STOP ICS and monitor.

If symptoms reoccur within 4 weeks of stopping ICS

Consider low dose ICS:

Clenil Modulite 100mcg, 2 puffs b.d. (BTS categorisation)

If symptoms reoccur after 8 weeks repeat 8 week trial

Add-on therapy

If symptoms not resolved with paediatric low dose ICS

Consider adding oral LTRA

Seek specialist care input

Consider Medium dose ICS*:

Clenil Modulite 200mcg, 2 puffs b.d. (BTS categorisation)

Refer

If symptoms not resolved with paediatric low dose plus LTRA

Or

Red Flags:

- Symptoms since birth
- Failure to thrive
- Unexplained clinical findings (e.g. focal signs, abnormal voice or cry, dysphagia, inspiratory stridor, murmur, clubbing)
- Excessive vomiting or posseting
- Severe upper respiratory tract infection
- Persistent wet or productive cough
- Family history of unusual chest disease

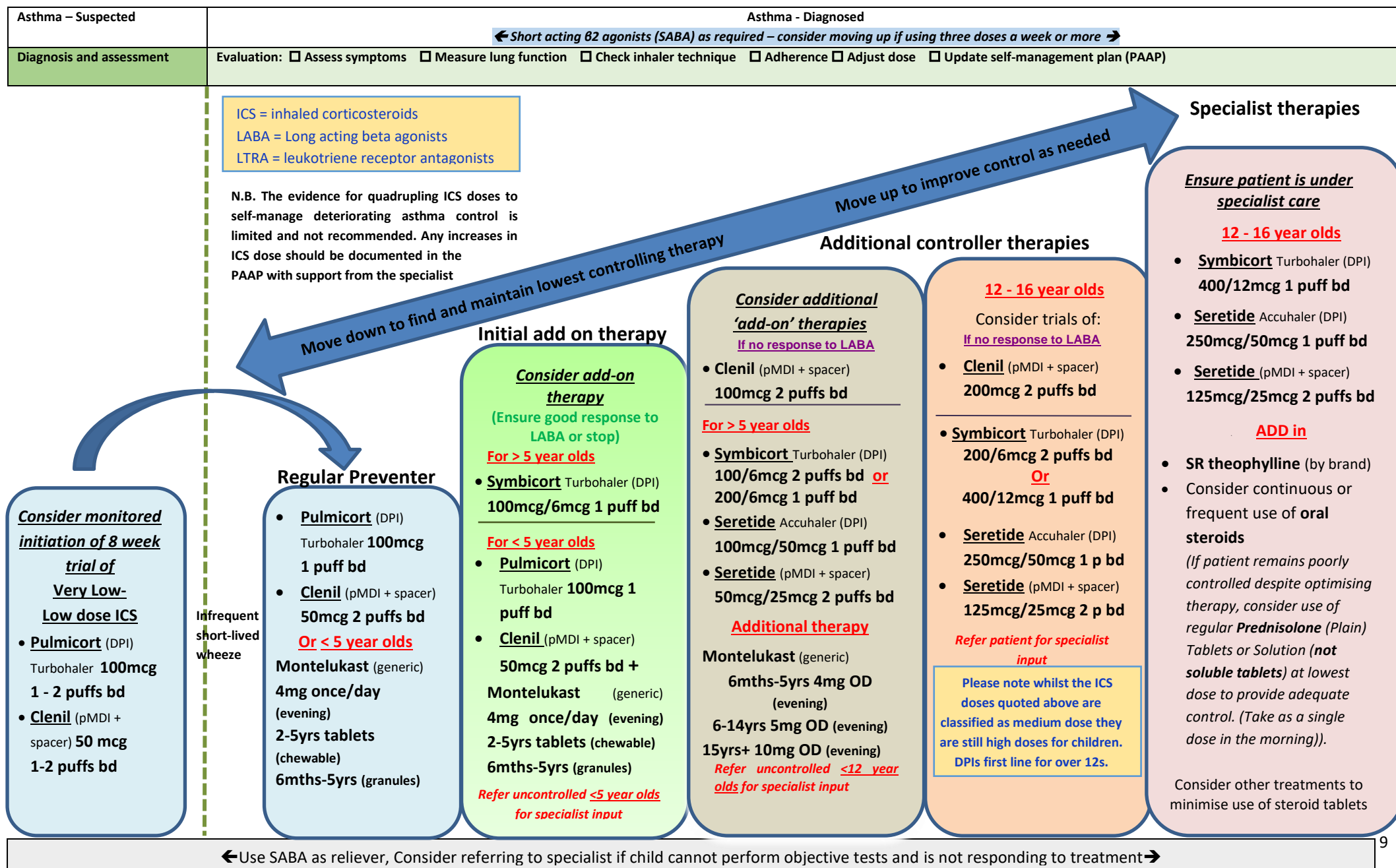
← Offer a SABA as reliever + spacer →

* Medium doses in children should only be used after referring the patient to specialist care

Inhaler Devices

- ✓ A pressurised metered dose inhaler and spacer (with face mask if needed) is the preferred delivery device ⁷.
- ✓ Prescribe inhalers only after the patient, parents or carers have been trained in their use and demonstrate adequate inhaler technique.
- ✓ Choice of device and spacer should be governed by specific need, good compliance and then by cost.
- ✓ Spacers should be cleaned once a month with mild detergent and allowed to air dry and replaced every 6 to 12 months.

B4 PRIMARY CARE TREATMENT OPTIONS FOR CHILDREN UNDER 16 YEARS WITH ASTHMA²



← Use SABA as reliever, Consider referring to specialist if child cannot perform objective tests and is not responding to treatment →

B5 ICS CATERGORISATION BY DOSE FOR CHILDREN

ICS	Dose		
	Very Low dose	Low dose	Medium dose [#]
Pressurised Metered Dose Inhalers (pMDIs) + Spacer			
Beclometasone dipropionate			
Clenil Modulite	50mcg 2 puffs bd (200mcg/day)	100mcg 2 puffs bd (400mcg/day)	200mcg 2 puffs bd [†] (800mcg/day)
Qvar (Extrafine particles – dose is half that of Clenil)	-	50mcg 2 puffs bd [†]	100mcg 2 puffs bd [†]
Fluticasone propionate			
Flixotide Evohaler	50mcg 1 puff bd ^{**}	50mcg 2 puffs bd	125mcg 2 puffs bd [†]
Dry Powder Inhalers (DPIs)			
Budesonide			
Easyhaler	-	100mcg 2 puffs bd	200mcg 2 puffs bd [†]
Pulmicort Turbohaler	100mcg 1 puff bd	100mcg 2 puffs bd <u>or</u> 200mcg 1 puff bd	200mcg 2 puffs bd [†] <u>or</u> 400mcg 1 puff bd [†]
Fluticasone propionate			
Flixotide Accuhaler	50mcg 1 puff bd	100mcg 1 puff bd	250mcg 1 puff bd [†]
Combination Inhalers (ICS + LABA) (pMDIs + Spacer & DPIs)			
Budesonide with Formoterol			
Symbicort Turbohaler (DPI)	100mcg/6mcg 1 puff bd ^{††}	100mcg/6mcg 2 puffs bd ^{††} <u>or</u> 200mcg/6mcg 1 puff bd [†]	400mcg/12mcg 1 puff bd [†] (12-16 year olds)
Fluticasone propionate with Salmeterol			
Seretide Evohaler (pMDI)	-	50mcg/25mcg 2 puffs bd ^{**}	125mcg/25mcg 2 puffs bd [†]
Seretide Accuhaler (DPI)	-	100mcg/50mcg 1 puff bd ^{**}	250mcg/50mcg 1 puff bd [†]
Fluticasone Furoate with Vilanterol			
Relvar Ellipta (DPI)	-	-	92mcg/22mcg 1 puff od [†] (12-16 year olds)

* Different products and doses are licensed for different age groups and some may be applicable to older children. Prior to prescribing, the relevant summary of product characteristics (SPC) should be checked (www.medicines.org.uk/emc)[#] Medium doses in children should only be used after referring the patient to secondary care. [†] Not licensed for children under 12 years. ^{††} Not licensed for children under 6 years. ^{**} Not licensed for children under 4 years. N.B.: steroid dosing - >400 micrograms budesonide or equivalent per day is equivalent to high dose ICS in children

Remember: Always check inhaler technique at every opportunity – ask patient to demonstrate (consider spacer device), concordance – corroborate information with System1, smoking status and eliminate trigger factors before moving up to next step. Step up to gain control and step down once control achieved. Reduce combination inhaler strength when step down appropriate. Try to maintain **device consistency** if possible. Please prescribe by brand unless specifically specified.

B6 PREFERRED INHALERS IN PRIMARY CARE

Prescribe by brand and inhaler type. Generic prescribing of inhalers should be avoided as this might lead to people with asthma being given an unfamiliar inhaler device which they are not able to use properly.

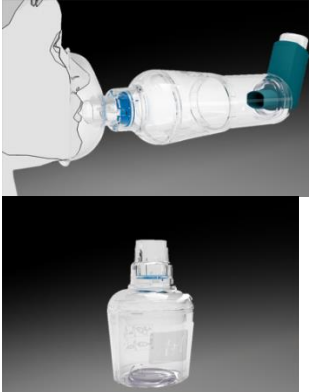


Prescribing mixed inhaler types may cause confusion and lead to increased errors in use. Using the same type of device to deliver preventer and reliever treatments may improve outcomes. Refer to SPC and BNF for further information on licensed doses in specific age ranges, see B4 and B5 for further information.

Type of Inhaler	SABA Reliever	ICS	ICS/LABA	ICS/LABA	ICS/LABA
DPI Dry Powder inhaler	Salbutamol Easyhaler ® Salbutamol 100mcg Terbutaline Bricanyl ® turbohaler 500mcg	Pulmicort ® Turbohaler 100mcg	From 6 yrs Symbicort ® Turbohaler 100mcg/6mcg	From 4yrs Seretide ® Accuhaler 100mcg/50mcg From 6 years Symbicort ® Turbohaler 100mcg/6mcg	
pMDI pressurised Metered Dose Inhaler	Salbutamol Ventolin ® Evohaler 100mcg With spacer	Clenil ® Modulite 50mcg Clenil ® Modulite 100mcg	From 4 yrs Seretide ® (pMDI + spacer) 50mcg/25mcg	From 4 years Seretide ® 50mcg/25mcg	Secondary care
MART Regimen Maintenance and Reliever Therapy				MART Regime for suitable patients (12 years and older): Symbicort 100/6 2 puffs per day, either as one 1 puff bd or 2 puffs in either the morning or evening. 1 additional inhalation as needed in response to symptoms. If symptoms persist after a few minutes, an additional inhalation should be taken. Max 8 puffs/24 hours.	

B7 SPACER DEVICES

Explain the benefits of using spacer devices to parents/carers and children to increase uptake and correct use. www.rightbreathe.com/

1. Spacers make it easier to get right amount of medicine (increase airways deposition)
2. Using a spacer makes it easier to take asthma medicine (no need to coordinate actuation and inspiration).
3. Using spacer may mean you need less medicine and is easier to use in emergency.
4. Using spacer reduces risk of side effects.
5. Ensure that children and parents are shown how to use the spacer correctly, how to clean and to replace every 6-12 months
6. In general for children under 3 years, use spacer with face mask, for children over 3 years, use spacer with mouth piece.

Spacer	Formulary status	Features
Volumatic® Spacer 	On Formulary, Green status – Bedfordshire and Luton On Formulary, Green status – Milton Keynes	Large volume spacer. Available with or without mask. Solid adaptor only fits specific MDIs including all Chiesi and GSK devices Perceivable valve movement
A2A® Spacer 	On Formulary, Green status – Bedfordshire and Luton Non formulary – Milton Keynes	Universal adaptor (all MDIs) Collapsible, pocket sized Available with or without mask Compatible with all pMDIs Low static properties Perceivable valve movement 210ml
Able® Spacer 	On Formulary, Green status – Bedfordshire and Luton Non-formulary – Milton Keynes	Available with or without mask Low static properties Perceivable valve movement 210ml
Space Chamber Plus® 	On Formulary, Green status – Bedfordshire and Luton Non-formulary – Milton Keynes	Fits most MDIs Perceivable valve movement Standard and compact sizes With or without facemask (small, medium large)
Aerochamber Plus Flow-Vu Antistatic® 	On Formulary, Green status – Bedfordshire and Luton On Formulary, Green status – Milton Keynes	Antistatic Visible valve movement One size chamber With or without facemask small (0-18m), medium (1-5 years), small adult, large adult Can wash in dishwasher

SECTION C MANAGEMENT OF WHEEZE/ACUTE ASTHMA

C1 MANAGEMENT OF WHEEZE IN UNDER 2 YEARS

Management of Wheeze in Primary Care Clinical Assessment / Management Tool for 1 – 2 years

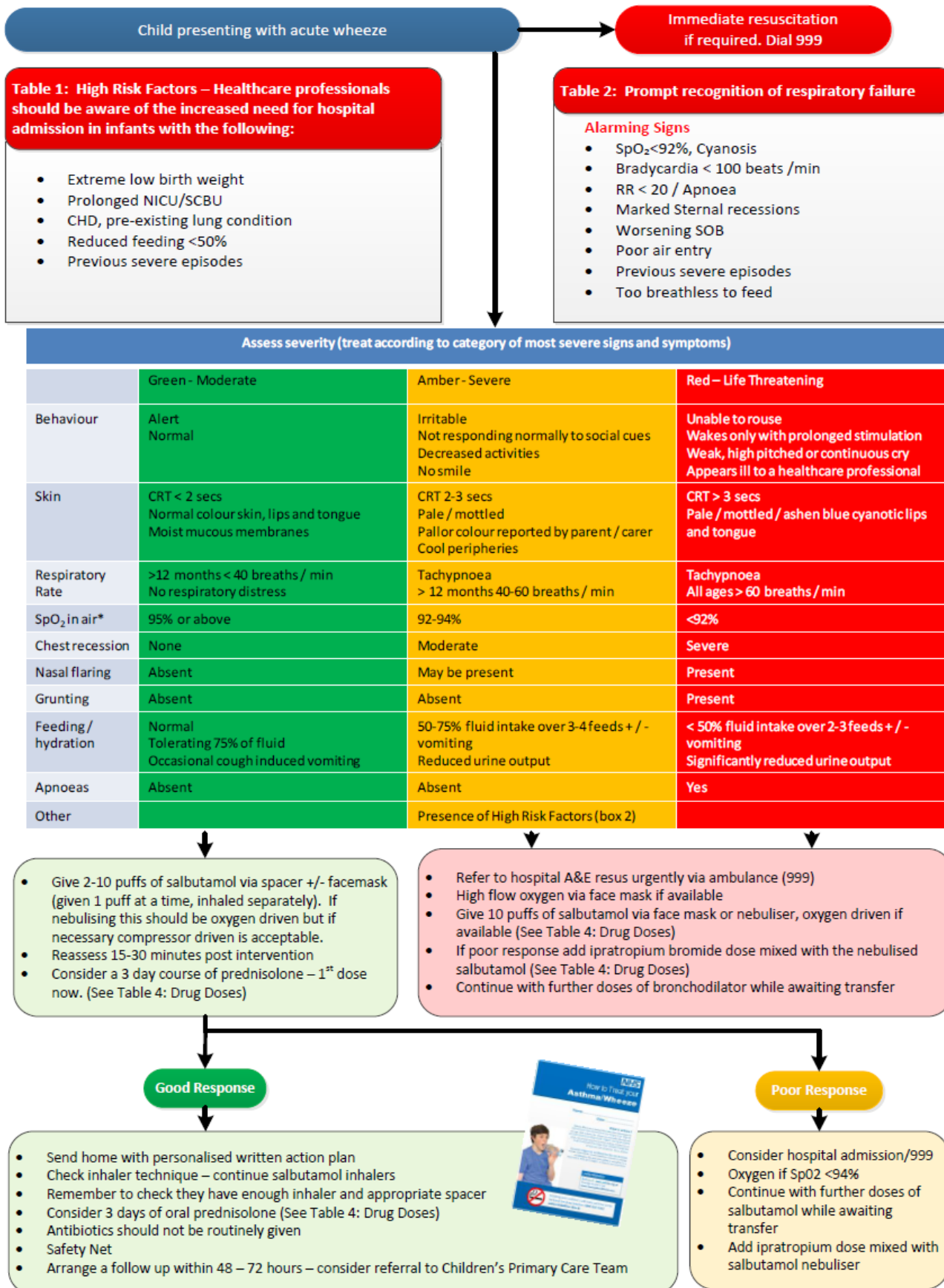


Table 3: Drug Doses:

Dose of Prednisolone (orally) First line option: plain 5mg tablets Second line option: soluble 5mg tablets	<2yrs 10mg; 2-5yrs 20mg; 5-7yrs 30-40mg; >7yrs 40mg 1 – 2 mg per kg per dose
Dose of Salbutamol nebulisers	<5yrs 2.5 mg; >5yrs 5mg
Dose of Ipratropium Bromide nebulisers	250 mcg all ages (or up to 500mcg via nebuliser for over 12 years)

Table 4: Normal Paediatric value

(Adapted from APLS+)	Respiratory Rate at rest:	Heart Rate	Systolic BP mmHg
Pre-school 2 – 5 years	25 – 30	95 – 140	85 – 100
School 5 – 11 years	20 – 25	80 – 120	90 – 110
Adolescent 12 – 16 years	15 – 20	60 – 100	100 – 120

Table 6 Prednisolone

Use a dose of 10 mg prednisolone for children under two years of age, 20 mg for children aged 2–5 years and 30–40 mg for children older than five years.

Those already receiving maintenance steroid tablets should receive 2 mg/kg prednisolone up to a maximum dose of 60 mg.

Treatment for up to three days is usually sufficient, but the length of course should be tailored to the number of days necessary to bring about recovery.

Tapering is unnecessary unless the course of steroids exceeds 14 days.

Repeat the dose of prednisolone in children who vomit and consider intravenous steroids in those who are unable to retain orally ingested medication e.g. hydrocortisone IV 4mg/kg

For patients with adrenal insufficiency please refer to the [National Patient Safety Alert – Steroid Emergency Card to support early recognition and treatment of adrenal crisis in adults](#)

Table 7 Inhalers vs Nebulisers

• For moderate asthma, use an inhaler and spacer. Indications for nebulisers:

- Low saturations <92%
- Unable to use inhaler and spacer (not compliant)
- Significantly low Sats despite inhaler and spacer use
- Severe and life-threatening respiratory distress
- Nebulisers are generally not recommended for home use

Nebulised drug doses

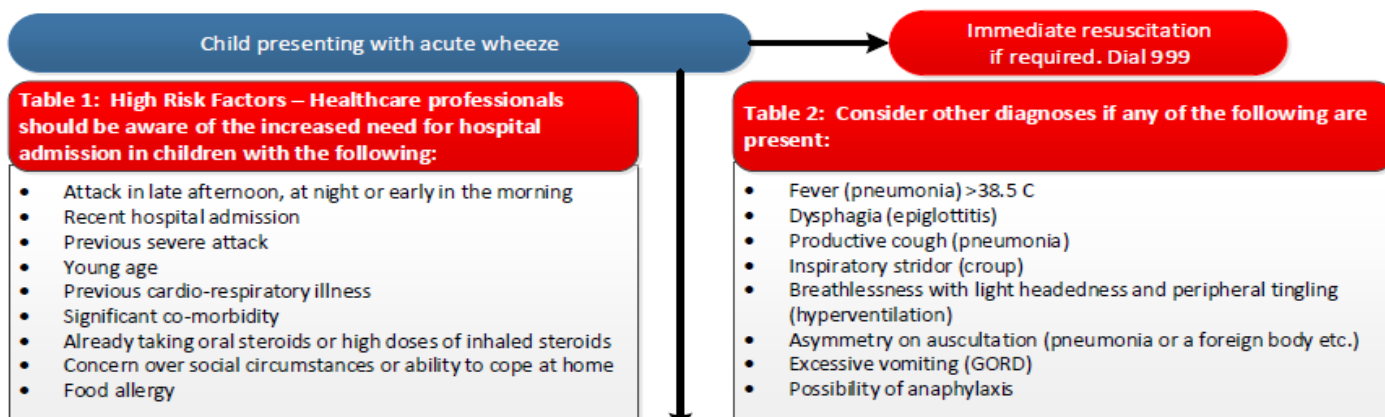
Salbutamol	Under 5 years	2.5mg
	5 years and over	5mg
Ipratropium	under 12 years	250mcg
	12 years and over	500mcg

Please also be aware of the MHRA Drug Safety Update August 2022: **Nebulised asthma rescue therapy in children: home use of nebulisers in paediatric asthma should be initiated and managed only by specialists**

<https://www.gov.uk/drug-safety-update/nebulised-asthma-rescue-therapy-in-children-home-use-of-nebulisers-in-paediatric-asthma-should-be-initiated-and-managed-only-by-specialists>

C2 MANAGEMENT OF ACUTE ASTHMA/WHEEZE IN 2-16 YEARS

Management of Acute Asthma / Wheeze in Primary Care Clinical Assessment / Management Tool for 2 – 16 years Management – Out of Hospital Setting acute Asthma/Wheeze



Consider video consultation as part of the assessment to determine the need for a face-to-face consultation in Primary Care

Table 3: Traffic Light system for identifying severity of acute wheeze/asthma

	Green Moderate Asthma	Amber Acute Severe Asthma	Red Life Threatening Asthma
Talking	In sentences	Not able to complete a sentence in one breath Too breathless to talk or feed	Not able to talk / Not responding Confusion / Agitation
Auscultation	Good air entry, mild – moderate wheeze	Decreased air entry with marked wheeze	Silent chest
Respiratory Rate	Within normal range ≤ 40 breaths / min (2-5 years) ≤ 30 breaths / min (>5 years)	>40 breaths / min (2-5 years) >30 breaths / min (>5 years) Use of accessory muscles	Cyanosis Poor respiratory effort Exhaustion
Heart rate	≤ 140 beats / min (2-5 years) ≤ 125 beats / min (>5 years)	> 140 beats / min (2-5 years) > 125 beats / min (>5 years)	Hypotension
Oxygen saturation in air	≥ 92% in air	< 92% in air	< 92% in air, plus any of the above symptoms
PEFR (if possible)	> 50% best or predicted	33-50% best or predicted	<33% best or predicted

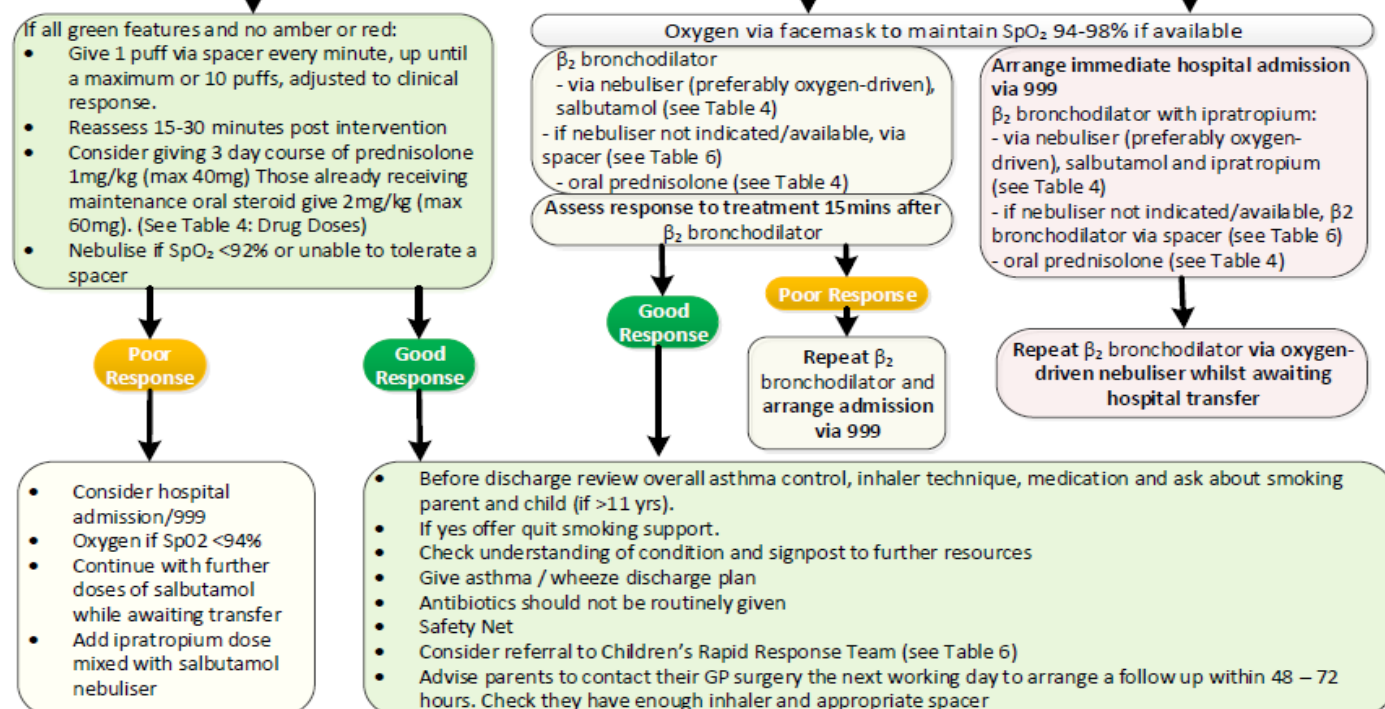


Table 4: Drug Doses:

Dose of Prednisolone (orally) First line option: plain 5mg tablets Second line option: soluble 5mg tablets	<2yrs 10mg; 2-5yrs 20mg; 5-7yrs 30-40mg; >7yrs 40mg 1 – 2 mg per kg per dose
<ul style="list-style-type: none"> • Three days is usually sufficient, but can be increased / tailored to the number of days necessary to bring about recovery. • Weaning is unnecessary unless the course of steroids exceeds 14 days. 	
Dose of Salbutamol nebulisers	<5yrs 2.5 mg; >5yrs 5mg
Dose of Ipratropium Bromide nebulisers	250 mcg all ages (or up to 500mcg via nebuliser for over 12 years)

Table 5: Normal Paediatric values

Adapted from APLS+	Respiratory rate at rest:	Heart rate:	Systolic BP: (mmHg)
Pre-school 2 – 5 years	25 - 30	95 - 140	85 - 100
School 5 - 11 years	20 – 25	80 – 120	90 - 110
Adolescent 12-16 years	15 – 20	60 – 100	100 - 120

Table 6: Inhalers vs Nebulisers

- For moderate asthma, use an inhaler and spacer.
 - If >5 years old use the mouthpiece rather than mask (providing their technique is good)
- Indications for nebulisers:
- Low saturations <94%
 - Unable to use inhaler and spacer (not compliant)
 - Significantly low Sats despite inhaler and spacer use
 - Severe and life-threatening respiratory distress
 - Nebulisers are generally not recommended for home use

Asthma medications should not be changed and still follow asthma treatment guidelines even if Covid 19 is suspected. Do not stop inhaled corticosteroids and prescribe oral steroids as indicated.

Table 9 - Predicted Peak Flow: for use with EU/EN13826 scale PEF meters only

Height (m)	Height (ft)	Predicted EU PEFR (L/min)	Height (m)	Height (ft)	Predicted EU PEFR (L/min)
0.85	2'9"	87	1.30	4'3"	212
0.90	2'11"	95	1.35	4'5"	233
0.95	3'1"	104	1.40	4'7"	254
1.00	3'3"	115	1.45	4'9"	276
1.05	3'5"	127	1.50	4'11"	299
1.10	3'7"	141	1.55	5'1"	323
1.15	3'9"	157	1.60	5'3"	346
1.20	3'11"	174	1.65	5'5"	370
1.25	4'1"	192	1.70	5'7"	393

Peak flow meters and nebulisation

The Public Health England current position is that nebulisation is NOT an aerosol generating procedure. The mist seen around the nebulisation mask is a mist of the nebulised drug solution, considered to be sterile.

- Do not record a peak expiratory flow rate (PEFR) until after salbutamol treatment is completed and only if you are considering discharging the patient home. The peak flow meter cannot be used for other patients as it carries a potential infection risk. The use of a peak flow meter is not an aerosol generating procedure.
- Consider the use of MDI and spacer for patients with mild and moderate asthma, nebulisation should ideally be reserved for acute severe and life-threatening asthma.
- Use the minimum flow rate of oxygen to achieve nebulisation, this is normally around 6 litres / min (or as indicated by the mask manufacturer).

This guidance has been produced by Primary Care and consultant clinicians across Bedfordshire, Luton and Milton Keynes, and is written in the following context:

This assessment tool was arrived at after careful consideration of the evidence available including but not exclusively NICE, SIGN, Bristol guideline, EBM data and NHS evidence. Healthcare professionals are expected to take it fully into account when exercising clinical judgement. The guidance does not, however, override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer.
Issue date: December 2020.

N.B. Prednisolone:

Repeat the dose of prednisolone in children who vomit and consider intravenous steroids in those who are unable to retain orally ingested medication e.g. hydrocortisone IV 4mg/kg For patients with adrenal insufficiency please refer to the [National Patient Safety Alert – Steroid Emergency Card to support early recognition and treatment of adrenal crisis in adults](#)

C3 SPECIALIST TEAM CONTACTS AND REFERRALS

Children's Community Nursing Teams

Bedford and North Bedfordshire

Children's Community Nursing Team 01234 310103

Rapid response team 07966025787

Luton and South Bedfordshire

Children's Community Nursing Team 0333 405 0079

Children's Rapid Response Team - 07966025787

Luton

Children's Community Asthma Nurse - 0333 405 0079

Milton Keynes

Children's Primary Care Team (CPCT) 01908 303030 (Option 4)

Secondary Care Referrals

Bedfordshire Hospital NHS Trusts

Luton & Dunstable Hospital Site

Switchboard 01582 491166: Paediatric Registrar bleep 733

GP Urgent Connect (Monday-Friday 9-5pm) 01582 297297 for referrals and advice

Bedford General Hospital Site

Switchboard 01234 355122: Paediatric Registrar bleep 208

Milton Keynes University Hospital NHS Trust

Switchboard 01908 660033: Bleep Paediatrician On-call

Paediatric respiratory nurse specialist 01908 996574

C4 FOLLOW-UP

Children can be discharged when stable on 3-4 hourly inhaled bronchodilators that can be continued at home. PEF and/or FEV₁ should be >75% of best or predicted and SpO₂ >94%.

- Arrange follow up by primary care services within two working days
 - Arrange follow up in a paediatric asthma clinic at about one month after admission
 - Arrange referral to a paediatric respiratory specialist if there have been life-threatening features.
- Follow-up after treatment or discharge from hospital:
- monitor symptoms and PEF
 - check inhaler technique
 - written personalised asthma action plan
 - modify treatment according to guidelines for chronic persistent asthma
 - address potentially preventable contributors to admission

NRAD recommendation (locally amended, 2020) : see [appendix 4](#) for further information

Every NHS hospital and general practice should have a designated, named clinical lead for asthma services, responsible for formal training in the management of acute asthma

Patients with asthma must be referred for specialist input if they have required more than two courses of systemic corticosteroids, oral or injected, in the previous 12 months or require management using British Thoracic Society (BTS) stepwise treatment 4 to achieve control.

Follow-up arrangements must be made after every attendance at an emergency department or out-of-hours service for an asthma attack. Secondary care follow-up should be arranged after every hospital admission for asthma, and for patients who have attended the emergency department two or more times with an asthma attack in the previous 12 months.

SECTION D MONITORING

D1 MONITORING IN CHILDREN IN PRIMARY CARE

- Conduct a routine clinical review at least annually.
- When assessing asthma control ask closed questions.
- Monitor and record:
 - Current symptom control via Children’s Asthma Control Test, Asthma Control Questionnaire, 3 RCP questions (on Ardens)
 - asthma attacks,
 - oral corticosteroid use,
 - time off school,
 - inhaler technique, adherence,
 - possession of and adherence to a self-management plan (to include PAAP),
 - exposure to tobacco smoke,
 - growth (height and weight centile) at least annually.

D2 ASTHMA SYMPTOM CONTROL TOOLS FOR CHILDREN

In children, assessment of asthma symptom control is based on symptoms, limitation of activities and use of rescue medication.

Careful review of the impact of asthma on a child’s daily activities, including sports, play and social life is important. Many children with poorly controlled asthma avoid strenuous exercise so their asthma appears well controlled. This may lead to poor fitness and a higher risk of obesity.

Children vary considerably in the degree of airflow limitation observed before they complain of dyspnoea or use their reliever therapy, and marked reduction in lung function is often seen before it is recognised by parents. Parents may report irritability, tiredness and changes with mood in their child as the main problems when the child’s asthma is not well controlled. Parents may have a longer period of recall than children, who may recall only the last few days; therefore it is important to include both the parent’s and child’s information when the level of symptom controlled is being assessed. Table B10 provides more detail about assessing asthma control in children.

Several numeric asthma control scores have been developed for children. These include:

- Childhood Asthma Control Test (c-ACT) with separate sections for parent and child to complete (see [appendix 3a](#))
- Asthma Control Test for older children and adolescents (see [appendix 3b](#))

NRAD recommendation (see appendix 5 for further information)

Patient self-management should be encouraged to reflect their known triggers, e.g. increasing medication before the start of the hay-fever season, avoiding non-steroidal anti-inflammatory drugs or by the early use of oral corticosteroids with viral- or allergic-induced exacerbations.

A history of smoking and/or exposure to second-hand smoke should be documented in the medical records of all people with asthma. Current smokers should be offered referral to a smoking-cessation service.

Parents and children, and those who care for or teach them, should be educated about managing asthma. This should include emphasis on ‘how’, ‘why’ and ‘when’ they should use their asthma medications, recognising when asthma is not controlled and knowing when and how to seek emergency advice.

Efforts to minimise exposure to allergens and second-hand smoke should be emphasised, especially in young people with asthma.

D3 ASSESSING ASTHMA CONTROL IN CHILDREN⁴

Assess asthma symptoms	
Day symptoms	How often does the child have cough, wheeze, dyspnoea or heavy breathing (number of times per week or day)? What triggers the symptoms? How are they handled?
Night symptoms	Cough, awakenings, tiredness during the day? (if the only symptom is cough, consider rhinitis or gastro-oesophageal reflux disease)
Reliever use	How often is reliever medication used? (Check the date on inhaler or last prescription). Distinguish between pre-exercise use (sports) and use for relief of symptoms.
Level of activity	What sports/hobbies/interests does the child have, at school and in their spare time? How does the child's level of activity compare with their peers or siblings? Try to get an accurate picture of the child's day from the child without interruption from the parent/carer?
Assess risk of future asthma attacks	
Exacerbations	How do viral infections affect the child's asthma? Do symptoms interfere with school or sports? How long do the symptoms last? How many episodes have occurred since their last medical review? Any urgent doctor/emergency department visits? Is there a written action plan?
Lung function	Check curves and technique. Main focus is on FEV ₁ and FEV ₁ /FVC ratio. Plot these values as percent predicted to see trends over time
Side-effects	Check the child's height at least yearly, as poor controlled asthma can affect growth and growth velocity may be lower in the first 1-2 years of ICS treatment. Ask about frequency and dose of ICS and OCS.
Assess treatment factors	
Inhaler technique	Ask the child to show how they use their inhaler. Compare with a device specific checklist.
Adherence	On how many days does the child use their preventer in a week (e.g. 0, 2, 4, 7 days)? Is it easier to remember to use it in the morning or evening? Where is inhaler kept – is it in plain view to reduce forgetting? Check date on inhaler?
Goals/concerns	Does the child or their parent/carer have any concerns about their asthma (e.g. fear of medication, side-effects, interference with activity)? What are the child's/parent's/carer's goals for asthma treatment?
Assess co-morbidities	
Allergic rhinitis	Itching, sneezing, nasal obstruction? Can the child breathe through their nose? What medication are being taken for nasal symptoms?
Eczema	Sleep disturbance, topical corticosteroids?
Food allergy	Is the child allergic to any foods? A confirmed food allergy is a risk factor for asthma related deaths.
Obesity	Check age-adjusted BMI. Ask about diet and physical activity.

D4 SUPPORTED SELF-MANAGEMENT

- All people with asthma (and/or their parents or carers) should be offered self-management education which should include a written personalised asthma action plan (PAAP) (there is also an Arden's template) and be supported by regular professional review.
- Written PAAPs are crucial components of effective self-management education. Written personalised asthma action plans based on symptoms are generally preferable for children (for example, those for children from Asthma UK, available at www.asthma.org.uk appendix 2a and appendix 2b).
- Strategies that have been used to support effective self-management include:
 - the use of proactive triggers to ensure routine reviews
 - structured protocols for asthma reviews
 - support of community pharmacists
 - routine mailing of educational resources
 - telephone calls to provide ongoing support and advice
 - IT-based education and monitoring
 - involvement of community workers to support clinical teams in deprived and/or ethnic minority communities

D5 NON-PHARMACOLOGICAL MANAGEMENT

- Maternal food allergen avoidance during pregnancy and lactation is not recommended as a strategy for preventing childhood asthma. Breastfeeding should be encouraged for its many benefits, including a potential protective effect in relation to early asthma.
- Parents and parents-to-be should be advised of the many adverse effects which smoking has on their children including increased wheezing in infancy and increased risk of persistent asthma.
- Weight-loss interventions (including dietary and exercise-based programmes) can be considered for overweight and obese children with asthma to improve asthma control.

D6 ASTHMA IN ADOLESCENTS

Adolescents are defined by World Health Organisation (WHO) as young people between the ages 10 and 19 years of age. During consultations, the adolescent should be seen separately from parent/carer such as smoking, adherence and mental health can be discussed privately and agreed as well as exploring health beliefs such as complementary therapies. Medication regimes should be tailored to the adolescent's needs and lifestyle, reviews should be arranged regularly so that medication regime can be adjusted for changing needs. The ACQ and ACT have been validated in adolescents with asthma.

Adolescents may be concerned about the impact of treatment on their physical and sexual capabilities as well as their entry into the workplace. These aspects should be discussed with the patient as appropriate. As well as checking inhaler technique it is important to enquire about factors that may affect inhaler device use and adherence in real life settings, such as school.

D7 TRANSITION TO ADULT SERVICES⁷

Transition is the process of moving from children's to adults' services; it refers to the full process including initial planning, the actual transfer between services, and support throughout planning early for young people in out-of-authority placements. A good transition plan gives the young person plenty of time to prepare before they eventually transfer. A formal transition process is recommended for young people who see a consultant paediatrician in an asthma clinic. Transition planning should involve young people, build independence and involve parents and carers. The majority of children with asthma are managed solely in general practice. Preparing the young person for adulthood is equally important in primary care to support them to manage their condition independently as an adult.

USEFUL WEBSITES/RESOURCES FOR HEALTHCARE PROFESSIONALS AND PATIENTS/CARERS

www.asthma.org.uk/advice/child/

www.itchysneezywheezy.co.uk

www.rightbreathe.com/

Inhaler Training Videos:

<https://www.asthma.org.uk/advice/inhalers-medicines-treatments/using-inhalers/>

GLOSSARY




(c)ACT	(childhood) Asthma Control Test
ACQ	Asthma Control Questionnaire
BNF	British National Formulary
BTS/SIGN	British Thoracic Society/Scottish Intercollegiate Guidelines Network
DPI	Dry Powder Inhaler
ED	Emergency Department
GINA	Global Initiative for Asthma
ICS	Inhaled corticosteroid
LABA	Long acting beta ₂ agonist
LTRA	Leukotriene Receptor Antagonists
MART	Maintenance and reliever therapy
NICE	National Institute for Health and Care Excellence
NRAD	National Review of Asthma Deaths
PAAP	Personalised Asthma Action Plan
PEF	Peak Expiratory Flow
pMDI	Pressurised metered dose inhaler
SABA	Short-acting beta ₂ agonist
SPC	Summary of Product characteristics (https://www.medicines.org.uk/emc/)

REFERENCES

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3. 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. Available at <http://www.rcplondon.ac.uk/sites/default/files/why-asthma-still-kills-full-report.pdf>
4. Global Initiative for Asthma. Global strategy for Asthma management and prevention.2020 Available at https://ginasthma.org/wp-content/uploads/2020/04/Main-pocket-guide_2020_04_03-final-wms.pdf
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6. Advanced Paediatric Life Support: The Practical Approach. 4th ed., Advanced Life Support Group, Wiley Blackwell; 2004
7. NICE Technology Appraisal Guidance [TA10] Guidance on the use of inhaler systems (devices) in children under the age of 5 with chronic asthma. Available at <https://www.nice.org.uk/guidance/ta10>
8. NICE Guideline [NG43] February 2016 Transition from childrens' to adults' services for young people using health or social services. Available at <https://www.nice.org.uk/guidance/ng43>
9. NICE Technology Appraisal Guidance [TA38] Guidance on the use of inhaler systems (devices) in older children (5-15 years). Available at <https://www.nice.org.uk/guidance/ta38>

APPENDIX 1: EXAMPLE PAEDIATRIC WHEEZE/ASTHMA DISCHARGE PLAN

What do I do if my child is Wheezy / has Asthma? (traffic light advice)

 RED	<p>If your child:</p> <ul style="list-style-type: none"> Becomes unresponsive Becomes blue Is having problems breathing <ul style="list-style-type: none"> using tummy muscles ribs are sinking in Unable to complete sentences Is unable to take fluids and is getting tired Is pale, drowsy, weak or quiet 	<p>You need EMERGENCY help Ring 999 – you need help immediately If you have a blue inhaler use it now – 1 puff per minute via Spacer UNTIL AMBULANCE ARRIVES Nearest hospital: Milton Keynes Hospital (open 24 hours 7 days a week)</p>
 AMBER	<p>If your child is:</p> <ul style="list-style-type: none"> Having some problems with breathing / noisy breathing Mild wheeze and has breathlessness that is not helped by the usual reliever (blue inhaler) treatment Using their blue reliever inhale more than 2 puffs every 4 hours Breathing more quickly than normal 	<p>You need to contact a nurse or doctor today – within 4 hours</p> <p>Increase blue inhaler 10 puffs over 20 minutes and repeat every 4 hours via spacer (1 puff every 5 breaths – today breathing) Please ring your GP surgery during the day or when your GP is closed, please call NHS 111 by dialling 111</p>
 GREEN	<p>If your child is: Using their reliever more than normal or more than 3 times a week but is:</p> <ul style="list-style-type: none"> not breathing quickly can continue doing day to day activities able to talk in full sentences 	<p>Needs doctor / nurse review over the next few days, unless deteriorating. Continue to use the blue inhaler as required. Read this leaflet about how to help with your wheeze / Asthma control.</p>


Warning signs that your asthma is not well controlled include:

- Waking up often to cough, feeling tight / wheezy during the night
- Early morning tightness wheeze or cough
- Needing your blue inhaler often or using it more than 3 times a week
- Coughing or wheezing when exercising

Reassess and monitor your child regularly (symptoms may start or get worse in the evening) – please follow traffic light advice above.

**REMEMBER ALWAYS HAVE YOUR BLUE INHALER AND SPACER WITH YOU
 IMPORTANT: ASTHMA/WHEEZE CAN BE LIFE THREATENING**

This guidance has been produced by the MK Caring for Children Closer to Home Pathway Design Group and is written in the following context
 This assessment tool was arrived at after careful consideration of the evidence available including but not exclusively NICE, SIGN, Bristol guideline, EBM data and NHS evidence. Healthcare professionals are expected to take it fully into account when exercising their clinical judgement. The guidance does not, however, override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer. Issue date: June 2015



How to Treat your Asthma/Wheeze

Name:
 Date:


What is asthma?

Asthma affects your airways (the tubes that take oxygen to and from your nose and mouth to your lungs). It can begin at any age. With asthma, the airways are normally inflamed and are very sensitive to allergens and ‘triggers’. During an asthma attack the airways become narrower making it harder for air to get in and out of the lungs. As air whistles through the airways you can sometimes hear a wheeze.


Everyone’s triggers can be different but the most common include: colds and flu; smoke inhalation; exercise or playing; and allergens, like dust mite, pollen or animal fur. It is important to know your triggers so that you can avoid them.

Useful Websites:

Asthma UK: www.asthma.org.uk
 Teenage Health Freak:
www.teenagehealthfreak.com



Smoking even outdoors will make asthma worse
 National Smoking Helpline: **0800 022 4332**
www.smokefree.nhs.uk



Treatment Plan once you are home

Oral Prednisolone (Dose)
 Length of treatment (in days)
 Start date:.....End date:

Salbutamol (Blue Reliever Inhaler)

Dose.....Start date.....
 Other Medication
 This should be reduced using the Six Steps to reducing your inhaler usage guide below

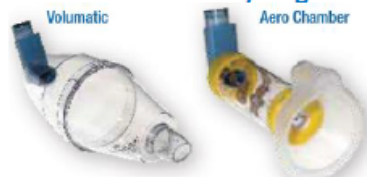
Steroids (preventer Inhaler)

DoseStart date
 Other medication
 Rinse gargle and spit after using steroid inhalers
 A follow up review should be undertaken by your GP/nurse within the next days.

Spacers

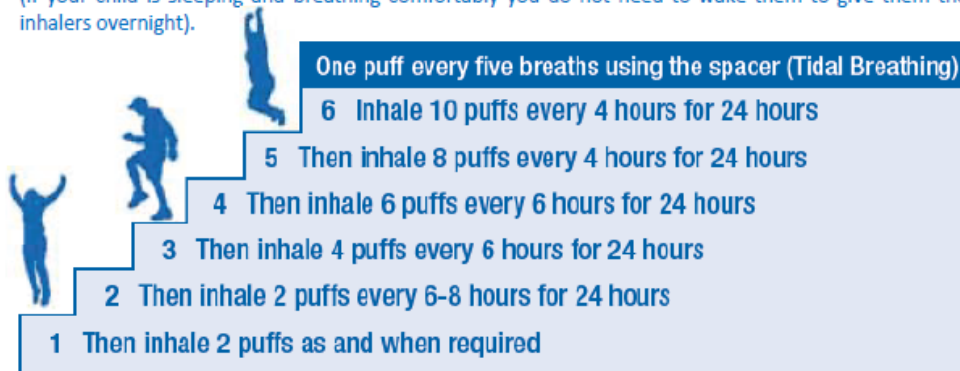
Always take your inhalers via a spacer as this is a much better way of getting medicines into the lungs

- Smaller children (generally under 3 years) to use a spacer with face mask
- Older children (generally over 3 years) to use spacer with mouth piece



Six Steps to reducing your salbutamol (Blue Reliever Inhaler) usage

(If your child is sleeping and breathing comfortably you do not need to wake them to give them their inhalers overnight).



If your child gets more wheezy or breathless, go back up a step and contact your GP as soon as possible

When my asthma is back under control this is what I should do

Reliever (Blue inhaler)



This is my Blue Reliever Inhaler.

This is used to relieve the wheeze/cough and can be used before exercise if necessary – it is best used with a spacer.

This helps me when I am coughing or wheezing by opening up and relaxing my lungs.

If I am using this more often than normal or more than 3 times a week, I should see my doctor or nurse to have my asthma checked.

When my asthma is well controlled I should not need to use my blue inhaler regularly.

Preventer Inhalers (many colours but not blue)

My preventer Inhaler is (colour)

This inhaler prevents my lungs becoming irritated and inflamed.

I must use this every day even when I am well to keep my asthma under control.

Spacer prescribed? YES NO

Health Care Professional has checked technique? YES NO

Top Tips

- Organise a review with your GP or Asthma Nurse at least once a year
- Keep your blue inhaler with you at all times
- Get a new inhaler when you start your last one
- Ask your Health Care Professional how to use your inhaler and spacer properly and check your technique at every appointment
- If you run out, in an emergency a pharmacist may be able to supply a reliever inhaler (there may be a charge for this)
- Avoid trigger factors for your asthma/wheeze e.g. pollen/dust
- Remember to rinse your mouth after using your preventer
- Wash your spacer monthly with warm soapy water, leaving it to drip dry. Replace every 12 months
- Smoking even outdoors will make asthma worse



My Asthma Plan

Your asthma plan tells you when to take your asthma medicines.

And what to do when your asthma gets worse.

Name: _____

1 My daily asthma medicines

- My preventer inhaler is called _____ and its colour is _____
- I take _____ puffs/s of my preventer inhaler in the morning and _____ puffs/s at night. I do this every day even if I feel well.
- Other asthma medicines I take every day: _____
- My reliever inhaler is called _____ and its colour is _____ I take _____ puffs/s of my reliever inhaler (usually blue) when I wheeze or cough, my chest hurts or it's hard to breathe.
- My best peak flow is _____

Does doing sport make it hard to breathe?


If YES I take: _____ puffs/s of my reliever inhaler (usually blue) beforehand.

Remember to use my inhaler with a spacer (if I have one)




Health & care information you can trust

© Asthma UK 2016. Registered charity number: In England 022064 and in Scotland SC009902. Last revised and updated 2016, next review 2018.



My Asthma Plan

3 When I have an asthma attack

I'm having an asthma attack if:

- My blue reliever inhaler isn't helping, or
- I can't talk or walk easily, or
- I'm breathing hard and fast, or
- I'm coughing or wheezing a lot, or
- My peak flow is less than _____

When I have an asthma attack, I should:

Sit up – don't lie down. Try to be calm.

Take one puff of my reliever inhaler every 30 to 60 seconds up to a total of 10 puffs.

Even if I start to feel better, I don't want this to happen again, so I need to see my doctor or asthma nurse today.

If I still don't feel better and I've taken ten puffs, I need to call 999 straight away. If I am waiting longer than 15 minutes for an ambulance I should take another _____ puff/s of my blue reliever inhaler every 30 to 60 seconds (up to 10 puffs).

Make sure you have your reliever inhaler (usually blue) with you. You might need it if you come into contact with things that make your asthma worse.

My asthma triggers:

Write down things that make your asthma worse

I need to see my asthma nurse every six months

Date I got my asthma plan: _____

Date of my next asthma review: _____

Doctor/asthma nurse contact details: _____

Parents – get the most from your child's action plan

Make it easy for you and your family to find it when you need it

- Take a photo and keep it on your mobile (and your child's mobile if they have one)
- Stick a copy on your fridge door
- Share your child's action plan with school, grandparents and babysitter (a printout or a photo).

You and your parents can get your questions answered:

Call our friendly expert nurses

0300 222 5800
(Mon - Sun; Mon - Fri)

Get information, tips and ideas

www.asthma.org.uk

APPENDIX 2B: EXAMPLE PERSONALISED ASTHMA ACTION PLAN FOR ADOLESCENTS AND ADULTS [click here](#)

Every day asthma care:

My asthma is being managed well:

- With this daily routine I should expect/aim to have no symptoms.
- If I've not had any symptoms or needed my reliever inhaler for at least 12 weeks, I can ask my GP or asthma nurse to review my medicines in case they can reduce the dose.
- My personal best peak flow is:

My daily asthma routine:

My preventer inhaler (insert name/colour):

I need to take my **preventer** inhaler every day even when I feel well

I take puff(s) in the morning and puff(s) at night.

My reliever inhaler (insert name/colour):

I take my **reliever** inhaler only if I need to

I take puff(s) of my reliever inhaler if any of these things happen:

- ★ I'm wheezing
- ★ My chest feels tight
- ★ I'm finding it hard to breathe
- ★ I'm coughing

Other medicines and devices (eg spacers) I use for my asthma every day:

When I feel worse:

My asthma is getting worse if I'm experiencing any of these:

- My symptoms are coming back (wheeze, tightness in my chest, feeling breathless, cough).
- I am waking up at night.
- My symptoms are interfering with my usual day-to-day activities (eg at work, exercising).
- I am using my reliever inhaler three times a week or more.
- My peak flow drops to below:

URGENT! If you need your relief **than every four hours, you're having an attack and you need to take eme**

What I can do to get on top of my

If I haven't been using my preventer using it regularly again or if I have t

Increase my preventer inhaler dose times a day until my symp my peak flow is back to my persona

Take my reliever inhaler as needed every four hours).

I carry my reliever inhaler with me v

URGENT! See a doctor or nurse wit If you get worse at any time or you improved after seven days.

Other advice from my GP about v my asthma is worse (eg SMART/N steroid tablets):

My asthma triggers

Taking my asthma medicine each day will help reduce my reaction to these triggers. Avoiding them where possible will also help.

 People with allergies need to be extra careful as attacks can be more severe.

My asthma review

I should have at least one routine asthma review every year. I will bring:

- My action plan to see if it needs updating.
- Any inhalers and spacers I have, to check I'm using them correctly and in the best way.
- Any questions about my asthma and how to cope with it.

Next asthma review date:

GP/asthma nurse contact

Name:

Phone number:

Out-of-hours contact number

(ask your GP surgery who to call when they are closed)

Name:

Phone number:



HA1080216 © 2016 Asthma UK registered charity number in England and Wales 802266 and in Scotland SC039922. Last reviewed and updated 2018; next review 2019.

*Adams et al, Factors associated with hospital admissions and repeat emergency department visits for adults with asthma; Thorax 2006;55:566-573

In an asthma attack:

I'm having an asthma attack if I'm experiencing any of these:

- My reliever inhaler is not helping or I need it more than every four hours.
- I find it difficult to walk or talk.
- I find it difficult to breathe.
- I'm wheezing a lot or I have a very tight chest or I'm coughing a lot.
- My peak flow is below:

How to use it

Your written asthma action plan can help you stay on top of your asthma.

To get the most from it, you could...

- 1 Put it somewhere easy for you and your family to find** – like your fridge door, noticeboard, or bedside table.
- 2 Keep a photo of it on your mobile phone or tablet** – so you can check it wherever you are. You can also send it to a family member or friend, so they know what to do if your asthma symptoms get worse.
- 3 Check in with it regularly** – put a note on your calendar, or a monthly reminder on your phone to read it through. Are you remembering to use your day-to-day asthma medicines? Do you know what to do if your symptoms get worse?
- 4 Take it to every healthcare appointment about your asthma** – including A&E/consultant. Ask your GP or asthma nurse to update it if their advice for you changes.

Get more advice & support from Asthma UK:

-  Speak to a specialist asthma nurse about managing your asthma on: **0300 222 5800**
-  Get news, advice and download information packs at: **www.asthma.org.uk**
-  Follow us on Facebook for news and tips about your asthma: **www.facebook.com/asthmauk**
-  Follow us on Twitter for news and tips about your asthma: **@asthmauk**

The step-by-step guide that helps you stay on top of your asthma

Your asthma action plan

Fill this in with your GP or nurse



If you use a written asthma action plan you are four times less likely to be admitted to hospital for your asthma.*

Name and date:



Any asthma questions? Call our friendly helpline nurses
0300 222 5800
(9am – 5pm; Mon – Fri)

www.asthma.org.uk

Asthma Control Test™

Name: _____

Date: _____

Please note: Any data captured in this form will not be passed on to any third party. It will only be used by your healthcare professional

There are 4.1 million people in the UK with asthma.¹

By taking control of their asthma, most people's day-to-day lives should be free from disruption such as troubled sleep or not being able to exercise.

Why take the Asthma Control Test™?

The Asthma Control Test is one way to quickly assess your asthma control, giving you a simple score out of 25. Your healthcare professional may ask you additional questions during a consultation.

Are you in control of your asthma? Or is your asthma in control of you? Here's how to find out

Step 1: Read each question below carefully, circle your score and write it in the box.

Step 2: Add up each of your five scores to get your total Asthma Control Test™ score.

Step 3: Use the score guide to learn how well you are controlling your asthma.

Q1	During the past 4 weeks, how often did your asthma prevent you from getting as much done at work, school or home?	Score:
	<input type="radio"/> All of the time 1 <input type="radio"/> Most of the time 2 <input type="radio"/> Some of the time 3 <input checked="" type="radio"/> A little of the time 4 <input type="radio"/> None of the time 5	
Q2	During the past 4 weeks, how often have you had shortness of breath?	Score:
	<input type="radio"/> More than once a day 1 <input type="radio"/> Once a day 2 <input type="radio"/> 3-6 times a week 3 <input type="radio"/> 1-2 times a week 4 <input type="radio"/> Not at all 5	
Q3	During the past 4 weeks, how often did your asthma symptoms (wheezing, coughing, chest tightness, shortness of breath) wake you up at night or earlier than usual in the morning?	Score:
	<input type="radio"/> 4 or more times a week 1 <input type="radio"/> 2-3 nights a week 2 <input type="radio"/> Once a week 3 <input type="radio"/> Once or twice 4 <input type="radio"/> Not at all 5	
Q4	During the past 4 weeks, how often have you used your reliever inhaler (usually blue)?	Score:
	<input type="radio"/> 3 or more times a day 1 <input type="radio"/> 1-2 times a day 2 <input type="radio"/> 2-3 times a week 3 <input type="radio"/> Once a week or less 4 <input type="radio"/> Not at all 5	
Q5	How would you rate your asthma control during the past 4 weeks?	Score:
	<input type="radio"/> Not controlled 1 <input type="radio"/> Poorly controlled 2 <input type="radio"/> Somewhat controlled 3 <input type="radio"/> Well controlled 4 <input type="radio"/> Completely controlled 5	
Total Score		

What does your score mean?

Score: 25—WELL DONE

- Your asthma appears to have been **UNDER CONTROL** over the last 4 weeks.
- However, if you are experiencing any problems with your asthma, you should see your doctor or nurse.

Score: 20 to 24—ON TARGET

- Your asthma appears to have been **REASONABLY WELL CONTROLLED** during the past 4 weeks.
- However, if you are experiencing symptoms your doctor or nurse may be able to help you.

Score: less than 20—OFF TARGET

- Your asthma may **NOT HAVE BEEN CONTROLLED** during the past 4 weeks.
- Your doctor or nurse can recommend an asthma action plan to help improve your asthma control.

APPENDIX 4: RECOMMENDATIONS FROM WHY ASTHMA KILLS -THE NATIONAL REVIEW OF ASTHMA DEATHS REPORT (NRAD)

Organisation of NHS services

Every NHS hospital and general practice should have a designated, named clinical lead for asthma services, responsible for formal training in the management of acute asthma

Patients with asthma must be referred to a specialist asthma service if they have required more than two courses of systemic corticosteroids, oral or injected, in the previous 12 months or require management using British Thoracic Society (BTS) stepwise treatment 4 or 5 to achieve control.

Follow-up arrangements must be made after every attendance at an emergency department or out-of-hours service for an asthma attack. Secondary care follow-up should be arranged after every hospital admission for asthma, and for patients who have attended the emergency department two or more times with an asthma attack in the previous 12 months.

A standard national asthma template should be developed to facilitate a structured, thorough asthma review. This should improve the documentation of reviews in medical records and form the basis of local audit of asthma care.

Electronic surveillance of prescribing in primary care should be introduced as a matter of urgency to alert clinicians to patients being prescribed excessive quantities of short-acting reliever inhalers, or too few preventer inhalers.

A national ongoing audit of asthma should be established, which would help clinicians, commissioners and patient organisations to work together to improve asthma care.

Medical and professional care

All people with asthma should be provided with written guidance in the form of a personal asthma action plan (PAAP) that details their own triggers and current treatment, and specifies how to prevent relapse and when and how to seek help in an emergency.

People with asthma should have a structured review by a healthcare professional with specialist training in asthma, at least annually. People at high risk of severe asthma attacks should be monitored more closely, ensuring that their personal asthma action plans (PAAPs) are reviewed and updated at each review.

Factors that trigger or exacerbate asthma must be elicited routinely and documented in the medical records and personal asthma action plans (PAAPs) of all people with asthma, so that measures can be taken to reduce their impact.

An assessment of recent asthma control should be undertaken at every asthma review. Where loss of control is identified, immediate action is required, including escalation of responsibility, treatment change and arrangements for follow-up.

Health professionals must be aware of the factors that increase the risk of asthma attacks and death, including the significance of concurrent psychological and mental health issues.

Prescribing and medicines use

All asthma patients who have been prescribed more than 12 short-acting reliever inhalers in the previous 12 months should be invited for urgent review of their asthma control, with the aim of improving their asthma through education and change of treatment if required.

An assessment of inhaler technique to ensure effectiveness should be routinely undertaken and formally documented at annual review, and also checked by the pharmacist when a new device is dispensed.

Non-adherence to preventer inhaled corticosteroids is associated with increased risk of poor asthma control and should be continually monitored.

The use of combination inhalers should be encouraged. Where long-acting beta agonist (LABA) bronchodilators are prescribed for people with asthma, they should be prescribed with an inhaled corticosteroid in a single combination inhaler.

Patient factors and perception of risk

Patient self-management should be encouraged to reflect their known triggers, eg increasing medication before the start of the hay-fever season, avoiding non-steroidal anti-inflammatory drugs or by the early use of oral corticosteroids with viral- or allergic-induced exacerbations.

A history of smoking and/or exposure to second-hand smoke should be documented in the medical records of all people with asthma. Current smokers should be offered referral to a smoking-cessation service.

Parents and children, and those who care for or teach them, should be educated about managing asthma. This should include emphasis on 'how', 'why' and 'when' they should use their asthma medications, recognising when asthma is not controlled and knowing when and how to seek emergency advice.

Efforts to minimise exposure to allergens and second-hand smoke should be emphasised, especially in young people with asthma.

