NHS
Tees, Esk and Wear Valleys
NHS Foundation Trust

Asthma Guidance for Adults and Children

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Contents

1 Purpose

Following this procedure will help the Trust to:-

- Standardise practice for all clinical staff for the management of Asthma in adults and children
- Ensure that patients with Asthma receive safe, effective and appropriate care that is supported by current national guidance and best practice.
- Reduce the clinical risk(s) associated with inappropriately managed long term chronic condition(s).

2 Related documents

This procedure describes what you need to do to implement the Management of Long Term Conditions section of the Physical Health and Wellbeing Policy.

The Physical Health and Wellbeing Policy defines a clear purpose, objectives and standards relating to physical health care provision which you must read and understand in conjunction with the information described in this document

This guideline also refers to:-

- ✓ Administration of oxygen in an emergency situation
- ✓ Antibiotic prescribing policy
- ✓ Oxygen-administration, prescribing, storage and safety
- ✓ Medicines-medical gases
- ✓ Medicines Overarching Framework
- ✓ Physical Health and Wellbeing Policy
- ✓ Physiological Assessment Procedure
- ✓ Policy for Consent to Examination or Treatment
- ✓ Patients own drug procedure
- ✓ Procedure for Using Early Warning Score for The early Detection and Management of The Deteriorating Patient
- ✓ Royal Marsden Online

3 Introduction

3.1 Definition

Asthma is a common and potentially serious long term condition that affects the airways which can affect people of all ages but often starts in childhood. The two defining elements of asthma are respiratory symptoms and signs, with variable expiratory airflow limitations. Recent descriptions include airway hyper-responsiveness and airway inflammation which acknowledges the different subtypes of asthma with different underlying disease processes. Asthma causes respiratory symptoms, limits activity and increases the risk of exacerbations. Asthma exacerbations, also referred to as asthma attacks or flare-ups, may require urgent medical attention and can be fatal, even with those classed as mild asthma (Global Initiative for Asthma (GINA), 2019)).

The aims of asthma management is to achieve early and effective symptom control to reduce the burden to patients and, minimise the risk of Asthma Related Deaths (ARDs), exacerbations, lung function decline and unwanted medication side-effects. Asthma, although currently cannot be cured, can be effectively treated and most can achieve good control (British Thoracic Society and Scottish Intercollegiate Guidelines Network (SIGN158), 2019)) (SIGN 158 British guideline on the management of asthma.

3.2 Prevalence

Asthma UK (2019) reported that 5.4 million people in the UK are currently receiving treatment for asthma: 1.1 million children (1 in 11) and 4.3 million adults (1 in 12). In 2017, 1,484 people in the UK died from an asthma attack and in the North-East there were 3,791 asthma related emergency hospital admissions. Epidemiological studies show that anxiety, depression and stress are common among people with asthma and associated with worse symptoms and quality of life. Poor control correlates with non-concordance, increases symptoms and asthma attacks, resulting in more emergency hospital admissions. In addition, hyperventilation associated with panic attacks may feel like an asthma attack, which can be difficult to differentiate making asthma harder to control. A validated tool to assess anxiety in asthma includes NIJMEGEN which is available online. Furthermore, it is well documented that life expectancy of those diagnosed with a psychiatric disorder is significantly less than that of the general population. Therefore, ongoing effective asthma management, consideration of differential diagnosis and treatment optimisation is essential.

4 Signs and Symptoms

Asthma symptoms are variable in their occurrence, frequency and intensity and can include;
• Shortness of breath
• Wheezing
• Tightness in the chest
• Coughing (especially at night)

4.1 Diagnosis and Screening Tests

Making a diagnosis of asthma can be difficult due to the variable and intermittent nature, which calls for a pragmatic approach. To assess the initial probability of asthma, a structured clinical assessment of signs and symptoms and history of atopy is essential. In addition, objective diagnostic measurement including serial peak expiratory flow (PEF) monitoring and quality assured spirometry which demonstrates variability and response to treatment, as outlined in SIGN158 (2019), (Appendix 1). Obstructive spirometry with positive bronchodilator reversibility increases the probability of asthma. However, normal spirometry in an asymptomatic patient does not rule asthma out, as objective measurements do have their limitations. Clearly, the diagnostic process is not a one-time event and should be reviewed in accordance to level of control, exacerbation history and use/ordering of short-acting beta$_2$ agonists (SABA). At any point in the diagnostic algorithm differential diagnosis must be considered. Also, there may be a need for referral for additional investigations and/or specialist advice.

Making a diagnosis of asthma can be difficult once the patient has commenced an inhaled corticosteroid (ICS), therefore diagnosis, if possible should be confirmed prior to starting therapy. For patients with a high probability of asthma this should be documented in the patients Physical Health Case Notes on PARIS with an up-to-date smoking history. According to GINA (2019) a 20 pack year history is a significant risk factor for COPD, which should be considered. Also, Healthcare professionals must ask about vaping due to the emerging scientific evidence of lung injuries (British Lung Foundation, 2019).

5 Asthma Management

5.1 Managing Stable Asthma

Asthma management involves assessment, reviewing and adjusting respiratory treatments, and regular reviews which actively promotes the patient in their own care. The aim of asthma management is complete control of the condition which is defined as; 'no daytime symptoms, no nocturnal wakening due to asthma, no need for SABA, no exacerbations, no limitation on activity, normal lung function (Forced Expiratory Volume (FEV_1) and/or PEF >80% predicted or best), minimal side effects from medication' (BMJ, 2018). Tools such as the Asthma Control Test (Appendix 2) should be utilised to assess the level of symptom control which can also be a useful tool for patients to recognise deterioration. Co-morbidities should be identified and managed effectively. In addition, identification of modifiable risk factors should be examined annually or sooner for those who are experiencing exacerbations.

Patients should be offered an annual review to assess symptom control and future risk which includes; education and consideration of co-morbidities and treatment issues. Evidence suggests at least 50% of those with asthma do not take medication as prescribed. Individualised asthma action plans (Appendix 3) with regular reviews are considered the most effective way to achieve optimal outcomes. These plans provide step by step guidance which helps patients stay in control of their asthma and deal with worsening symptoms and can be downloaded from www.asthma.org.uk

Due to the variability associated with asthma, the ongoing management incorporates a cycle to prevent exacerbations and control symptoms. GINA (2019) advocates the Asthma Management Cycle which includes Assess, Adjust and Review Response (Appendix 4).

Patients should start treatment at the most appropriate level to the initial severity of their asthma and adjust accordingly to achieve best control on the minimum therapy. SIGN158 (2019) provides national guidance for the pharmacological management of adults and children with stable asthma (Appendix 5 & 6). However, points out that the stepwise approach is meant to assist, not replace, the clinical decision-making required to meet individual needs.

5.2 Difficult to Control Asthma / Severe Asthma

Asthma severity is assessed based on the treatment required to control people's symptoms and exacerbations. Despite being prescribed high-dose therapy, some people still experience difficult to control symptoms and in some cases life-threatening attacks. Both difficult and severe asthma patients will require referral to specialist services. Patients with difficult to control asthma or severe asthma should be managed by specialist care (SIGN158, 2019). Asthma may be uncontrolled for a variety of reasons as shown in Table 1:

Table 1: Reasons for uncontrolled asthma may include:

• Multi co-morbidities and Long-term conditions
• Smoking/Passive smoking
• Non concordance and Polypharmacy
• Poor inhaler technique.
• Lack of appropriate level of support from health professionals.
• Barriers to healthcare (financial, language, cultural or social).
• Misdiagnosis.

Severe asthma is a debilitating form of the condition which is difficult to define. It is made more confusing as people use the term differently (difficult, brittle, refractory). Despite international research and much debate amongst health professionals, the definition of severe asthma is not universally agreed. SIGN158 (2019) defines 'difficult' asthma as 'persistent symptoms and/or frequent asthma attacks despite treatment with high-dose therapies or continuous or frequent use of oral steroids. The patient is considered to have severe asthma, which affects 5-10% of people with asthma, once differential diagnoses have been addressed or ruled out. Asthma UK (2019) includes the following as people with severe asthma.

People (including children) that have severe asthma, do not respond to usual treatments, can often have multiple emergency hospital admissions and have an increased risk of ARDs.

5.3 Monitoring

Patients should be monitored on a regular basis and offered an annual review or sooner if any concerns, to prevent exacerbations and control symptoms. Due to the variability nature of asthma the frequency of reviews should be determined by the patients' initial level of control and response to treatment. Asthma reviews should be completed by a suitably qualified practitioner which should include the core components as suggested by SIGN158 (2019), (Table 2)). Research shows those who have had an asthma self-management program which incorporates education and an individualised asthma action plan, are four times less likely to be admitted to hospital with asthma (Asthma UK, 2019).

Table 2: Components of an asthma review:

Parameters	Suggested assessment
Current symptom control	• Bronchodilator use • Validated symptom score • Time off work/school/usual activities due to asthma
Future risk of attacks	• Past history of asthma attacks • Oral corticosteroid use • Prescription data: frequent SABA and infrequent ICS • Exposure to tobacco smoke
Tests/investigations	• Lung function (spirometry or by PEF) • Growth (height and weight centile) in children
Management	• Inhaler technique • Adherence (self-report, prescription refill frequency) • Non-pharmacological management (trigger avoidance, breathing exercises) • Pharmacological management • Consider multi-morbidity and polypharmacy
Supported self-management	• Education/discussion about self-management • Provision/revision of a written personalised asthma action plan

Adapted and available from: www.sign.ac.uk

6 Medications used to treat asthma

Treatment is based on disease severity using a step-up/step down approach, starting treatment at the level appropriate to disease severity. SIGN158 (2019) advocates moving up through treatment steps to improve control as needed and moving down to find and maintain lowest controlling therapy. If medication is adjusted, it is important to review the response to treatment in 4 to 8 weeks. Respiratory drug delivery includes inhalation, oral and parenteral.

The three main categories in the pharmacological management of asthma include; controller medications, reliever medications and add-on therapies for those with moderate to severe asthma. Controller medication helps to control asthma but work in different ways including reducing inflammation and reducing allergens, which makes the airways less sensitive. Reliever medication opens the airways within minutes and is the first-line therapy used to rapidly reverse airflow limitation. Add-on medications target some aspects of the inflammatory or allergic response. Initial treatment for people with asthma is a low dose ICS for adults and children >12 years with a short-acting bronchodilator as needed. Contemporary guidance advocates that those with asthma should always take an ICS as SABAs do not help with inflammation. Additionally, for patients whom need to use their reliever medication more than three times a week, this suggests poor control and should be advised to arrange an asthma review to make adjustments to their treatment accordingly. Initial add-on therapy is a LABA normally as a combination inhaler with an ICS but medication and dosages should be individualised appropriately.

6.1 Inhalers

Most asthma medicines are inhaled directly into the lungs of which there are several treatment options (Appendix 7). There are differences in inhaler type, schedule and dosing, requiring various techniques of use. All inhaler devices should be used in conjunction with the patients' preference and the recommended method of use in order to ensure that medication is delivered effectively and safely. These include: Pressurised Metered Dose Inhalers (pMDI), Breath actuated metered dose inhalers (BAI), Dry Powder Inhalers (DPI) and Soft Mist Inhalers (SMI) (Appendix 8). Inhaled therapy is categorised into the following therapeutic groups:

Inhaled Corticosteroids (ICS): are used to reduce inflammation within the airways
- e.g. Beclomethasone, Budesonide, Fluticasone, Mometasone

Short-acting bronchodilators: are used for the short-term relief of asthma symptoms
- Short-acting beta$_2$ agonists (SABA) e.g. Salbutamol and Terbutaline
- Short-acting muscarinic antagonists (SAMA) e.g. Ipratropium

Long-acting bronchodilators: are used to relax the muscles that surround the airways. They may be used in the prevention of exercise-induced asthma and is often prescribed with an ICS but should not be used on their own (if no response consider stopping)
- Long-acting beta$_2$ agonists (LABA) e.g. Formoterol and Salmeterol
- Long-acting beta$_2$ muscarinic antagonists (LAMA) e.g. Tiotropium

Combination Therapy: refers to inhalers that are a combination of LAMA + LABA + ICS,
- e.g. Symbicort and Fostair. They are more convenient which can aid with concordance.

6.2 Inhaler techniques

Most patients, irrespective of their age, are able to acquire and maintain effective inhaler technique given adequate instruction. It is important to assess the patients inspiratory effort required using in-check-dials, to ensure optimal delivery of inhaled therapy. Inhalers should be prescribed only after patients have received training in the use of the device and have demonstrated a satisfactory technique. All patients should have their ability to use an inhaler device checked regularly and modified accordingly. See www.asthma.org.uk or www.RightBreathe.org.uk for further information on inhaler techniques and demonstration. Furthermore, the Medicines & Healthcare products Regulatory Agency (MHRA, 2019) advises brand prescribing and highlights licensing issues with generics.

6.3 Spacer Devices

Spacer devices assist inhaled medication to get into the lungs (rather than remaining in the patient's mouth or upper airway), therefore, help to deliver the prescribed medication more effectively. Not all inhalers are suitable for use with a spacer but wherever possible, a compatible spacer should be provided (Appendix 8). Spacer devices are not compatible with BAIs or DPIs. It is recommended that spacers are used as shown in Table 3.

Table 3: The recommended way spacers should be used:

• The spacer should be compatible with the patients' pMDI.
• The drug is administered by repeated single actuations of the pMDI into the spacer, with each followed by inhalation.
• There should be minimal delay between inhaler actuation and inhalation.
• Tidal breathing can be used as it is as effective as single breaths.
• Plastic spacers should be cleaned no more than monthly as more frequent cleaning affects their performance (due to a build-up of static). They should be cleaned with water and washing up liquid and allowed to air dry (with exception to the new silicone spacers which are not statically charged).
• The spacer should be used in accordance with individual manufacturers' guidelines.

6.4 Oral Medication

Oral medication for the treatment of asthma includes bronchodilators of which they are 2 types; $Beta_2$ agonists e.g. Salbutamol and Terbutaline and Methylxanthines e.g. Theophylline and Aminophylline. Inhaled bronchodilators are the preferred choice as they are more effective and have fewer side-effects. Most people with asthma do not need oral bronchodilators, but in some

cases, may need to be prescribed. Oral Beta$_2$ agonists are also available as capsules, tablets and liquids.

Methylxanthines which includes Theophylline and Aminophylline have a modest bronchodilator effect and for some patients, may improve lung function. Theophylline should only be used after a trial of short-acting bronchodilators and long-acting bronchodilators or, for patients who are unable to use inhaled therapy. The efficacy of theophylline should be reviewed and assessed by its effectiveness regarding symptom control, activities of daily living, exercise capacity and lung function. Particular caution should be used when prescribing theophylline in older people because of the key differences in pharmacokinetics and the increased likelihood of comorbidities and polypharmacy. The dose of theophylline may need to be reduced for patients who are having an exacerbation depending on whether they are prescribed certain types of antibiotics or other drugs known to interact. Aminophylline is less potent and shorter-acting than theophylline and is used intravenously to treat severe acute asthma in those not previously treated with theophylline. For those with chronic asthma or reversible airway obstruction oral aminophylline can also be used.

Corticosteroids (oral steroids), reduces inflammation and have been shown to speed resolutions of exacerbations and are recommended for short term use. The recommended dose is 40-50mg for the management of an exacerbation of asthma in adults. The long-term use of corticosteroids is not normally recommended however, long-term steroidal therapy may be necessary. In such cases, the prescribed dose should be kept as low as possible. Furthermore, Nice (2017) recommends an appropriate prophylaxis for osteoporosis for patients over 65 years of age and prescribed oral steroids. People on long-term oral steroids or requiring frequent courses of oral steroids must have further monitoring as specified in Table 4.

Table 4: Additional monitoring for those on long-term/requiring frequent courses of oral steroids

Blood pressure.
Urine or blood glucose (measured by HbA1c).
Cholesterol.
Bone mineral density.
Vision (to assess for cataracts and glaucoma).

Leukotriene Receptor Antagonists (LTRAs) block the leukotriene receptor and prevents the chemical reactions that cause airway narrowing. LRTAs are used to prevent and treat acute asthma exacerbations. Guidance from NICE (2017) advocates the use of LRTAs in exercise-induced asthma and in those with concomitant rhinitis, but state they are less effective in those with severe asthma who are also receiving high doses of other drugs.

Omalizumab is an Anti-IgE antibody which block Ige which is the antibody attributed to many allergy symptoms. Omalizumab is an add-on treatment for those with severe persistent allergic asthma which is given subcutaneously every 2 or 4 weeks. The dosage is determined by the concentration of serum IgE before the start of treatment and body weight. Other drugs such as beta$_2$ agonists, corticosteroids, and aminophylline can be given by injection in acute severe asthma, usually given in hospital.

6.5 Nebulised Medication

A nebuliser converts a solution of drug into a fine mist for inhalation. It is used to deliver high doses of reliever medication usually in an emergency. Nebulisers can also sometimes be used to deliver higher doses of inhaled steroids or antibiotics and are useful for those who are very tired with the increased effort of breathing.For most people with asthma, nebulisers are not recommended. The latest research shows that those with mild and moderate asthma should be

treated with a pMDI and spacer with titrated doses according to clinical response. Using a reliever inhaler with a spacer device is easier and just as effective for treating mild to moderate asthma without the associated side-effects.

7 Acute (Exacerbation)

An acute asthma exacerbation rarely happens without warning however; symptoms can start suddenly and get progressively worse. Patients often refer to an exacerbation as a flare up of symptoms, particularly when symptoms are severe and come on quickly as an 'asthma 'attack'. Many patients with asthma are poor perceivers of the severity of their asthma, therefore objective assessment of lung function correlates more accurately with the severity of an asthma exacerbation than patient self-assessment.

An asthma attack is defined as 'an acute or subacute episode of progressive worsening of symptoms of asthma, including shortness of breath, wheezing, cough (sometimes described as dry and hacking), and chest tightness. Signs of an asthma attack can change and can include a cough that doesn't go away. Exacerbations are marked by decreases from baseline in objective measures of pulmonary function, such as PEF and FEV1. To prevent an asthma emergency it is important to recognise when a patient's asthma is getting worse so appropriate intensification of therapy is commenced. In addition, following an asthma attack, patients should be seen within 48 hours by a qualified practitioner so that medication can be adjusted or their treatment reviewed. The BMJ (2019) provide guidance to assess asthma severity (Table 5).

Table 5: Diagnostic criteria to assess asthma severity

Mild
Dyspnoea only with exertion Peak expiratory flow rate (PEFR) >70% of predicted or personal best Oxygen saturation >95% Prompt relief with inhaled short-acting beta-2 agonist.
Moderate
Dyspnoea limits usual daily activity PEFR 40% to 69% of predicted or personal best Oxygen saturation 91% to 95% Relief from frequent inhaled short-acting beta-2 agonist Some symptoms last for 1 to 2 days after treatment is started.
Severe
Dyspnoea at rest (interferes with conversation) PEFR <40% of predicted or personal best Oxygen saturation can be <95% Partial relief from frequent inhaled short-acting beta-2 agonist Some symptoms last for >3 days after treatment is started.
Life-threatening

Too dyspnoeic to speak PEFR <25% of personal best Oxygen saturation can be <95% Minimal or no relief from frequent inhaled short-acting beta-2 agonist Presence of cyanosis and respiratory acidosis despite tachypnoea indicates need for urgent ICU admission.

Adapted and available from: https://bestpractice.bmj.com

Patients who are prescribed a Symbicort inhaler on the Symbicort SMART regime should follow the specific advice given by the respiratory specialist, to relieve symptoms.

Whilst guidance outlined above ought to be taken in to account, when making a clinical decision regarding patient care they do not over-ride the responsibility of the registered practitioner to make decisions appropriate to the needs, circumstances and presentation of the patient.

If the 'attack' is not eased by the reliever inhaler it will be necessary to seek expert advice from the Acute Trust. Always refer patients to hospital if any signs or symptoms suggesting a more serious illness or condition. In an Emergency phone 9/999.

7.1 Oxygen Administration in an Emergency

Oxygen should be and can be administered in an emergency or life threatening situation by any member of staff who has completed and is up to date with Basic Life Support (BLS) or Immediate Life Support (ILS) training. If oxygen saturations are 93% or below, or are below the target range specifically prescribed for the patient (such as those patients at risk of hypercapnic respiratory failure) oxygen should be administered at 15 litres per minute via a non-rebreathe mask with reservoir bag. Further information can be obtained from: Medication Safety Series: MSS10: Oxygen - Administration in an Emergency and also from Oxygen and Other Medical Gases - Administration, Prescribing, Storage and Safety.

If an individual patient's symptoms are getting worse, refer to their personal action plan. If they don't have a plan, make an appointment to see a Physical Health Practitioner to ask for one (Asthma UK, 2019).

- **Observe for an increase in respiration rate.**
- **Observe for a raise in temperature which may indicate infection.**

Remember to record patient's observations on the appropriate Early Warning Score Chart (EWS) and escalate accordingly (Royal College of Physicians 2012)

8 Long Term Complications

The long term complications of asthma can impact differently based on age as shown in Table 6.

Table 6: Complications in adults vs. children:

Complications in children	Common to both	Complications in adults
Growth delay	Permanent narrowing	Severe sleep deprivation
	Higher risk of obesity	
Permanent structural changes in the airways	Decreased lung function	Higher risk of depression
	Chronic cough	
	Fatigue	Adapted and available from:
	Frequent visits to the GP	
	Higher hospital admissions	

https://www.webmd.com/asthma/asthma-symptoms#

8.1 Respiratory Complications

Respiratory complications can be life threatening and can include the following:

• Pneumonia
• Pneumothorax
• Respiratory failure

All these complications are life threatening and will need appropriate medical treatment. NHS Choices www.nhs.uk

8.2 Emergency Situations: Red Flags

If a patient has followed their Asthma Action Plan, which includes instruction for emergencies too, (Table 7) or feels worse at any point this is an Emergency situation.

Red Flags may include:

- Failure to respond to rescue medication
- Persistent shortness of breath / breathlessness even when lying
- Inability to speak in full sentences

- May complain that the chest feels 'closed'
- Cyanosis- a bluish tint to the skin
- Pale and sweaty face
- Feelings of anxiety or panic
- Agitation, confusion and inability to concentrate

Adapted and available from Asthma Information and Resources | Asthma.com

Table 7: What to do in an asthma attack:

Available from: Overview | Asthma: diagnosis, monitoring and chronic asthma management

9 What to avoid

Asthma complications or triggers include frequent or heavy exposure to irritants or allergens. Anything small enough to be inhaled or that irritates and inflames the airways can make asthma worse, see Table 8 for common triggers. Patients should know their individual triggers and have the knowledge and skills, so they can be prepared for occasions when additional treatment is needed. To reduce the risk of asthma triggers, symptoms and exacerbations, patients should be instructed on the importance of taking their preventer regularly and encouraged to use their asthma action plan. Also, keeping a diary of activities, symptoms and of each attack too, can help identify the likely underlying cause (British Lung Foundation).

Table 8: Common triggers that can exacerbate asthma symptoms:

Inhaled	Certain Situations	Medications/Food Additives
Animals Pet dander Cockcroaches Infection from Colds and flu viruses Moulds and fungi Pollen Pollution House hold cleaners House dust mites Smoking and second-hand smoke Smoke from burning wood/ grass	Exercise Weather Cold or humid air Sex Heightened Emotions Stressful situations	Ibuprofen Aspirin Alcohol Wine sulfites Fragrances Recreational drugs Acid reflux

Adapted and available from: https://www.webmd.com/asthma/asthma-symptoms#

9.1 Education

Patient education and self-management is essential to the effective control of asthma. The education methods and material should be age appropriate and should be reinforced at every opportunity, in any setting (Table 9). There are many online resources available to support patients include advice around breathing techniques, exercise, healthy eating, weight control and smoking. Encouraging patients with asthma to stop smoking is the most important component of the management of asthma. All patients who are still smoking regardless of age, should be encouraged to stop, and offered help to do so at every opportunity (British Lung Foundation).

All patients should be educated in order to:

- Understand what asthma is and what defines well-controlled
- Demonstrate the correct inhaler technique
- Identify what an asthma attack looks like and feels like
- Recognise the warning signs of an impending attack
- Know what to if they have an asthma attack
- Be clear on the contents of their asthma action plan
- Adopt measures to prevent or limit exposure to asthma triggers

9.2 Breathing Techniques

The goal of breath retraining in asthma is to normalise the breathing pattern through slow, steady "diaphragmatic" breathing and exercises to strengthen the muscles to help patients breathe. Popular complementary therapies for asthma should be used in addition to asthma medications not in place of. NHS Choices

9.3 Exercise

Physical activity is a common trigger for asthma symptoms and cold weather and outdoor exercise increases exposure to irritants and allergens. Although asthma management can be more challenging, with professional support, guidance and treatment, can be effectively managed. Exercise is and can improve fitness and lung function. Although, practitioners should not recommend one type of exercise over the other some activities are better than others. Activities that involve short, intermittent periods of exertion, such as swimming, gymnastics, baseball, walking, and wrestling, are generally well tolerated by people with exercise-induced asthma.

Those who exercise can have fewer asthma symptoms and better quality of life. Avoid exercise induced asthma by taking inhaled therapy as prescribed, by warming up and using a SABA 15 minutes before exercise and consult asthma safety tips during exercise (Table 9). Advice regarding specific exercise plans can be sought from the Trust wide Physiotherapy Service.

Table 9: Tips to Prevent and Treat Exercise-Induced Asthma

If exercise continues to trigger an asthma attack, the asthma is not as well controlled as it could be and an asthma review is advised.
If asthma symptoms occur during exercise, stop and ensure that the reliever inhaler is used. Wait five minutes for symptoms to resolve and then recommence exercise.
Wait at least 90 minutes after eating before commencing exercise.
Wear loose fitting clothing such as jogging bottoms and a t-shirt.
If cold air triggers the asthma, don't exercise outside when it's really chilly or use a scarf.
If pollen is a trigger, don't exercise outside when the pollen count is high.

Adapted and available from: Asthma - NICE CKS

9.4 Weight Reduction / Diet

Being overweight can increase breathlessness and breathlessness caused by asthma can make it difficult to exercise. All patients should be recommended to exercise because of the general health benefits. Similarly, healthy eating advice is the same as the general population which is to follow a well-balanced, low fat, healthy diet. For advice and support on healthy eating and weight management refer to the Trust wide Dietetic service. Refer to the Physical Health and Wellbeing Policy for guidance on healthy eating.

10 Vaccination

Pneumococcal vaccination and an annual influenza vaccination should be offered to all patients with asthma as recommended by national guidance. Where possible, patients should be encouraged to avoid contact with people (including babies) who have colds, flu, sinus infections or a sore throat. If patients do get an infection or have an exacerbation treat appropriately in accordance with local guidance.

11 Definitions

Term	Definition
Atopy	Atopy refers to the genetic tendency to develop allergic diseases such as allergic rhinitis, asthma and atopic dermatitis (eczema). Atopy is typically associated with heightened immune responses to common allergens, especially inhaled allergens and food allergens.
Bronchiectasis	Clinical features include copious sputum, frequent chest infections, a history of childhood pneumonia, and coarse lung crepitations.
Bronchodilator	A medicine which makes breathing easier by relaxing the muscles in the lungs and widening the airways
Chronic obstructive pulmonary disease (COPD)	Asthma and COPD can be difficult to distinguish clinically and may co-exist. Clinical features of COPD include a productive cough and dyspnoea on exertion in a person over 35 years of age who is a current or previous smoker.
Ciliary dyskinesia	Clinical features include persistent moist cough present from birth.
Cystic fibrosis	Clinical features include persistent moist cough and gastrointestinal symptoms that are often present from birth, finger clubbing, and failure to thrive in children.
Cyanosis	Cyanosis is a bluish discolouration of the skin and mucous membranes resulting from an inadequate amount of oxygen in the blood.
Dysfunctional breathing	Clinical features include breathlessness, dizziness, light-headedness, and peripheral tingling
Gastroesophageal reflux disease	Clinical features include cough, postural and food-related symptoms, and vomiting
Interstitial lung disease	(Asbestosis, pneumoconiosis, fibrosing alveolitis, sarcoidosis) — clinical features include a dry cough and fine lung crepitations
Peak Flow Meter	A peak flow meter is a device that measures the fastest rate of air (airflow) that can be blown out of the lungs. It records airflow in litres per minute.
Pertussis	Clinical features include paroxysms of coughing. There may be vomiting after coughing, or an inspiratory whoop (especially in children, although this may be absent in infants). Occasionally the cough may persist for several months.
Pulmonary embolism	Suggested by acute-onset breathlessness, pleuritic pain, haemoptysis,

	crackles, and sinus tachycardia.
Pulse oximeter	Is a device that measures peripheral oxygen saturations by passing two wavelengths of light through a part of the body (usually the finger) the light is then measured by a photo-detector.
Spacer device	Spacer devices remove the need for co-ordination between actuation of a pressurised metered-dose. It is important that a spacer device that is compatible with the metered dose is prescribed.
Spirometer	A spirometer is a device used for measuring the volume of air inspired and expired by the lungs. A spirometer is the main piece of equipment used for basic Pulmonary Function Tests (PFTs) in lung diseases such as asthma.
Tuberculosis	Features include persistent productive cough, which may be associated with breathlessness and haemoptysis
Upper airway cough syndrome	Clinical features include frequent throat clearing and associated symptoms of chronic sinusitis (nasal blockage or discharge with facial pain or pressure over the affected sinus) or allergic rhinitis (nasal itching, sneezing, discharge, and blockage)
Vocal cord dysfunction	Clinical features include dyspnoea and stridor

12 How this procedure will be implemented

[In this section, write about how the procedure will be disseminated and implemented. Identify any training needs and who is responsible for its delivery.]

- This procedure will be published on the Trust's intranet and external website.
- Line managers will disseminate this procedure to all Trust employees through a line management briefing.
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12.1 Training needs analysis

Staff/Professional	Type of Training	Duration	Frequency of Training

Group			
None identified			

13 How the implementation of this procedure will be monitored

Auditable Standard/Key Performance Indicators		Frequency/Method/Person Responsible	Where results and any Associate Action Plan will be reported to, implemented and monitored; (this will usually be via the relevant Governance Group).
1	None identified		

14 References

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www.ginasthma.org

National Institute for Health and Care Excellence. (2018) *Chronic Obstructive Pulmonary Disease in Over 16s: Diagnosis and Management* (NICE Guideline 115). London: NICE.

National Institute for Health and Clinical Excellence (2017) **Asthma: diagnosis, monitoring and chronic asthma management.** NICE: London
https://www.nice.org.uk/Guidance/NG80

National Institute for Health and Clinical Excellence (2013) Asthma **NICE Quality Standard 25**. NICE: London
www.guidance.nice.org.uk/qs25

Royal College of Physicians (2017) **National Early Warning Score (NEWS) 2. Standardising the assessment of acute-illness severity in the NHS**. Updated Report of a Working Party: Executive Summary and Recommendations. London: RCP.

NHS Choices. **Complimentary remedies and therapies for asthma**.
www.nhs.uk/Livewell/Asthma/pages/complimentryremediesforastham.aspx

Royal College of Physicians (2012) **National Early Warning Score (NEWS). Standardising the assessment of acute-illness in the NHS**. Report of a working party.

Tees CCG Adult Asthma Inhaler Guide (for patient's 18y+) The Pharmacological Management of Stable Asthma for Adults
http://joint-formulary.tees.nhs.uk/3-respiratory-system/

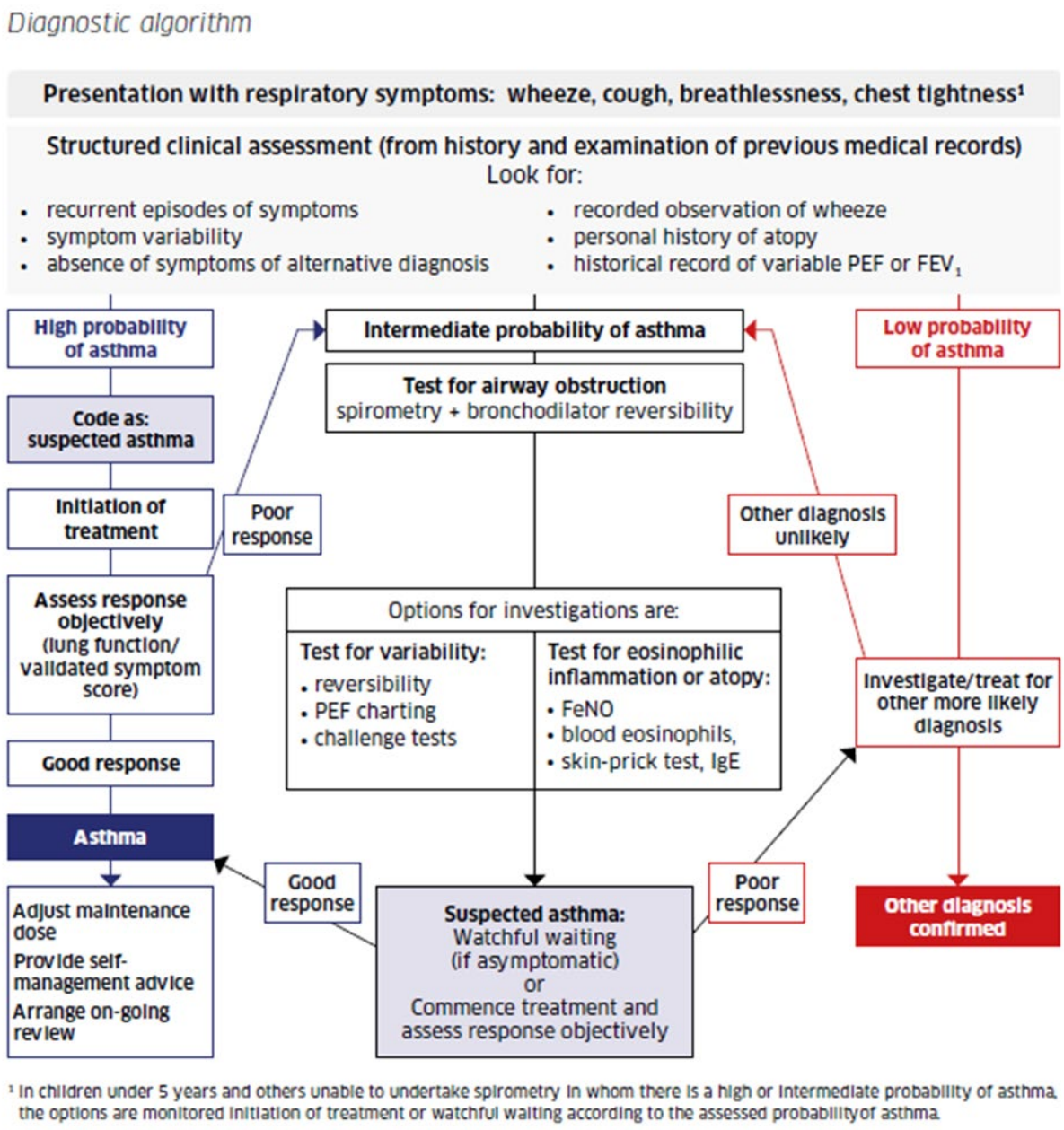
WebMD (2019) Asthma Symptoms and Signs.
https://www.webmd.com/asthma/asthma-symptoms#1

Suggested Further Reading:

The Royal Marsden Manual of Clinical Nursing Procedures Ninth Edition (Online):
http://www.rmmonline.co.uk/

15 Appendices

15.1 Appendix 1: Algorithm for diagnosis of asthma



British Thoracic Society Scottish Intercollegiate Guidelines Network (2019) **SIGN158 British guideline on the management of asthma.** Healthcare Improvement Scotland: Edinburgh Available from: www.sign.ac.uk

15.2 Appendix 2: Asthma Control Test

asthma.com

Name: _____ Today's Date: _____

ASTHMA CONTROL TEST™

Know your score.

The Asthma Control Test™ provides a numerical score to help you and your healthcare provider determine if your asthma symptoms are well controlled.

Take this test if you are 12 years or older. Share the score with your healthcare provider.

Step 1: Write the number of each answer in the score box provided.

Step 2: Add up each score box for the total.

Step 3: Take the completed test to your healthcare provider to talk about your score.

IF YOUR SCORE IS 19 OR LESS, **Your asthma symptoms may not be as well controlled as they could be. No matter what the score, bring this test to your healthcare provider to talk about the results.**

NOTE: If your score is 15 or less, your asthma may be very poorly controlled. Please contact your healthcare provider right away. There may be more you and your healthcare provider could do to help control your asthma symptoms.

					SCORE
1. In the past 4 weeks, how much of the time did your asthma keep you from getting as much done at work, school or at home?	All of the time [1]	Most of the time [2]	Some of the time [3]	A little of the time [4]	None of the time [5]	.....
2. During the past 4 weeks, how often have you had shortness of breath?	More than Once a day [1]	Once a day [2]	3 to 6 times a week [3]	Once or twice a week [4]	Not at all [5]	.....
3. During the past 4 weeks, how often did your asthma symptoms (wheezing, coughing, shortness of breath, chest tightness or pain) wake you up at night or earlier than usual in the morning?	4 or more nights a week [1]	2 to 3 nights a week [2]	Once a week [3]	Once or twice [4]	Not at all [5]	.....
4. During the past 4 weeks, how often have you used your rescue inhaler or nebulizer medication (such as albuterol)?	3 or more times per day [1]	1 to 2 times per day [2]	2 or 3 times per week [3]	Once a week or less [4]	Not at all [5]	.....
5. How would you rate your asthma control during the past 4 weeks?	Not Controlled at All [1]	Poorly Controlled [2]	Somewhat Controlled [3]	Well Controlled [4]	Completely Controlled [5]	.....

TOTAL: .....

This material was developed by GSK.

Available from: Asthma Information and Resources | Asthma.com

15.3 Appendix 3: Asthma Action Plan

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:

asthma UK

Health & care information you can trust

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 2000;55:566–573

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:

asthma UK

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

NHS
Tees, Esk and Wear Valleys
NHS Foundation Trust

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 reliever inhaler more than every four hours, you're having an asthma attack and you need to take emergency action now.

What I can do to get on top of my asthma now:

If I haven't been using my preventer inhaler, I'll start using it regularly again or if I have been using it...

Increase my preventer inhaler dose to puffs times a day until my symptoms have gone and my peak flow is back to my personal best.

Take my reliever inhaler as needed (up to puffs every four hours).

I carry my reliever inhaler with me when I'm out.

URGENT! See a doctor or nurse within 24 hours if you get worse at any time or you haven't improved after seven days.

Other advice from my GP about what to do if my asthma is worse (eg SMART/MART or rescue steroid tablets):

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:

What to do in an asthma attack

1. **Sit up straight** — try to keep calm.

2. **Take one puff of your reliever inhaler (usually blue)** every 30 - 60 seconds, up to a maximum of 10 puffs.

3. **If you feel worse** at any point OR you don't feel better after 10 puffs call 999 for an ambulance.

4. **Repeat step 2 after 15 minutes** while you're waiting for an ambulance.

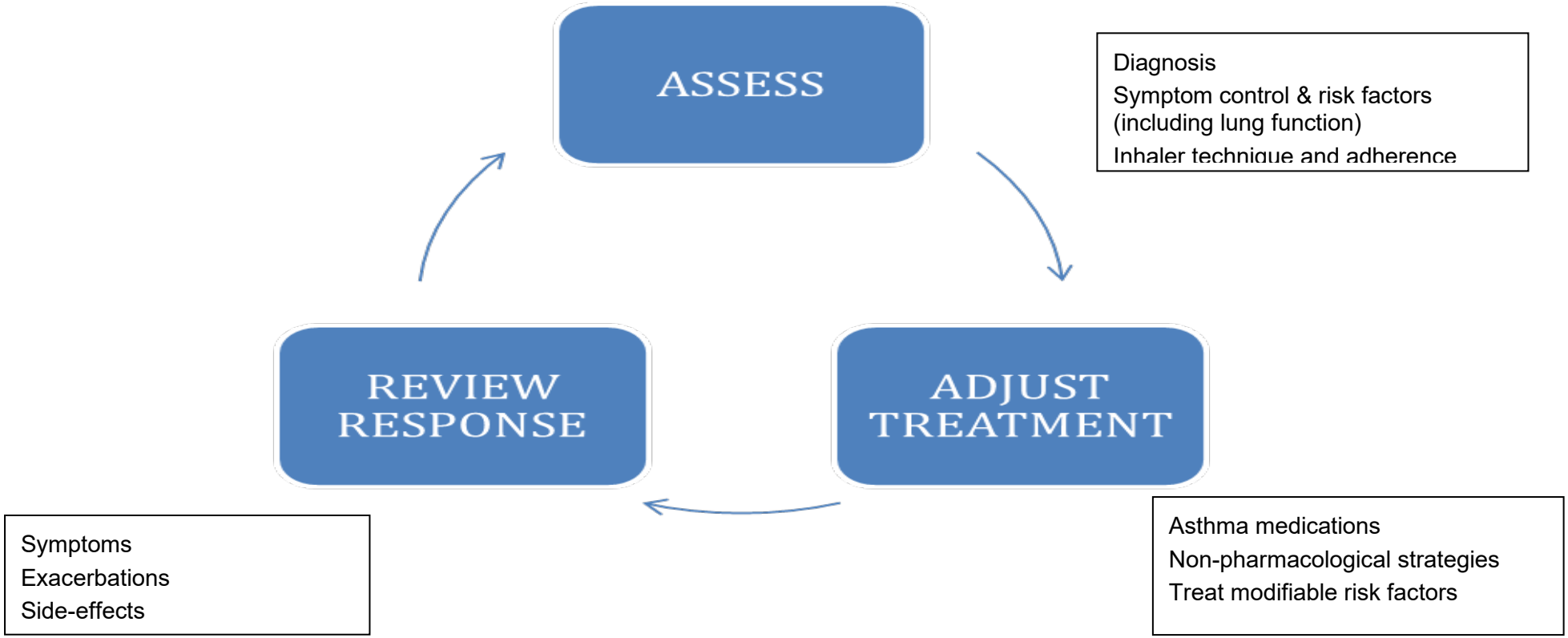
After an asthma attack:

See your GP within 48 hours to make sure you're not at risk of another attack. If you get worse see them urgently. Finish any medicines they prescribe you, even if you start to feel better. If you don't improve after treatment, see your GP urgently.

What to do in an asthma attack if I'm on SMART/MART:

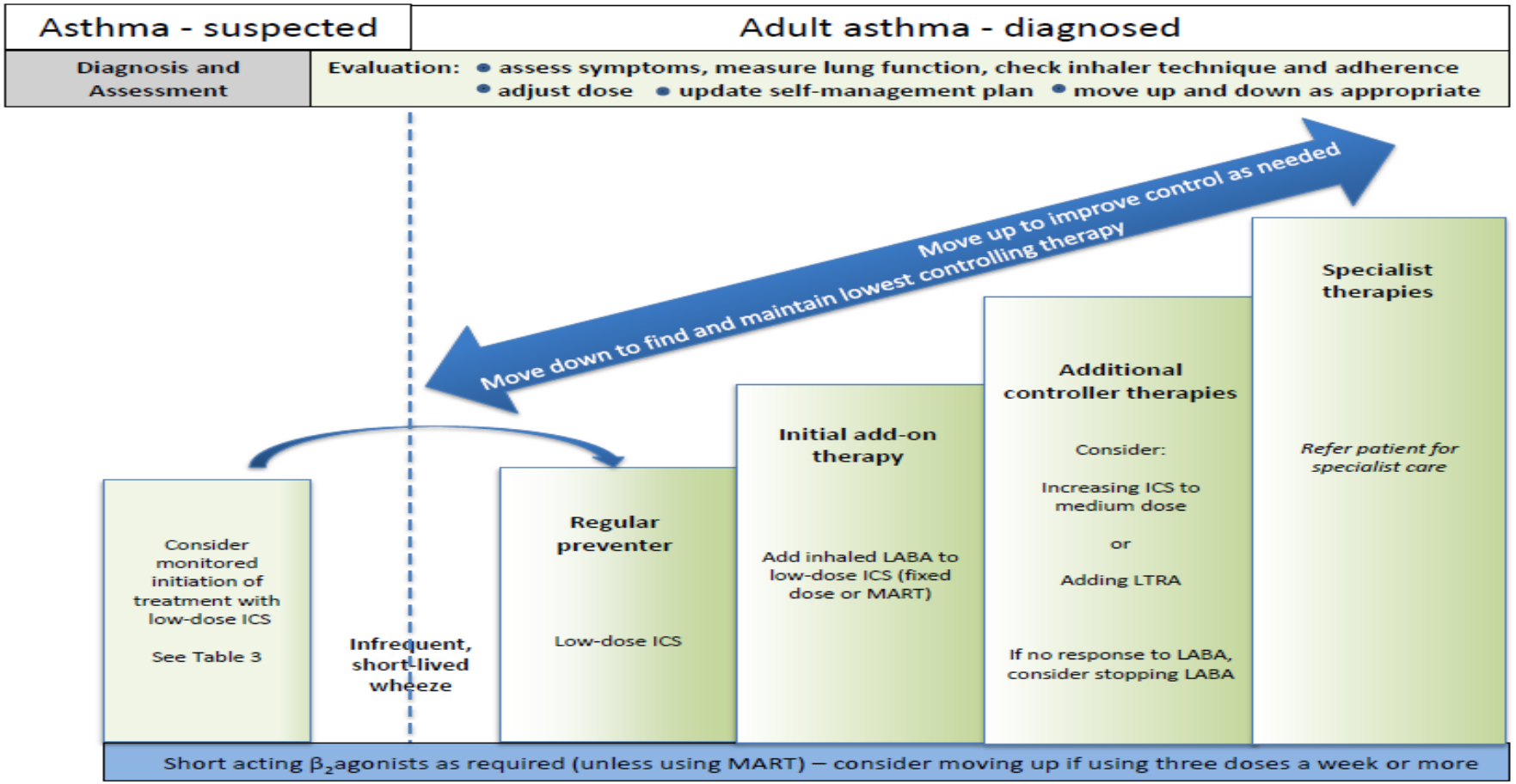
Available from: http://www.asthma.com

15.4 Appendix 4: The control-based asthma management cycle



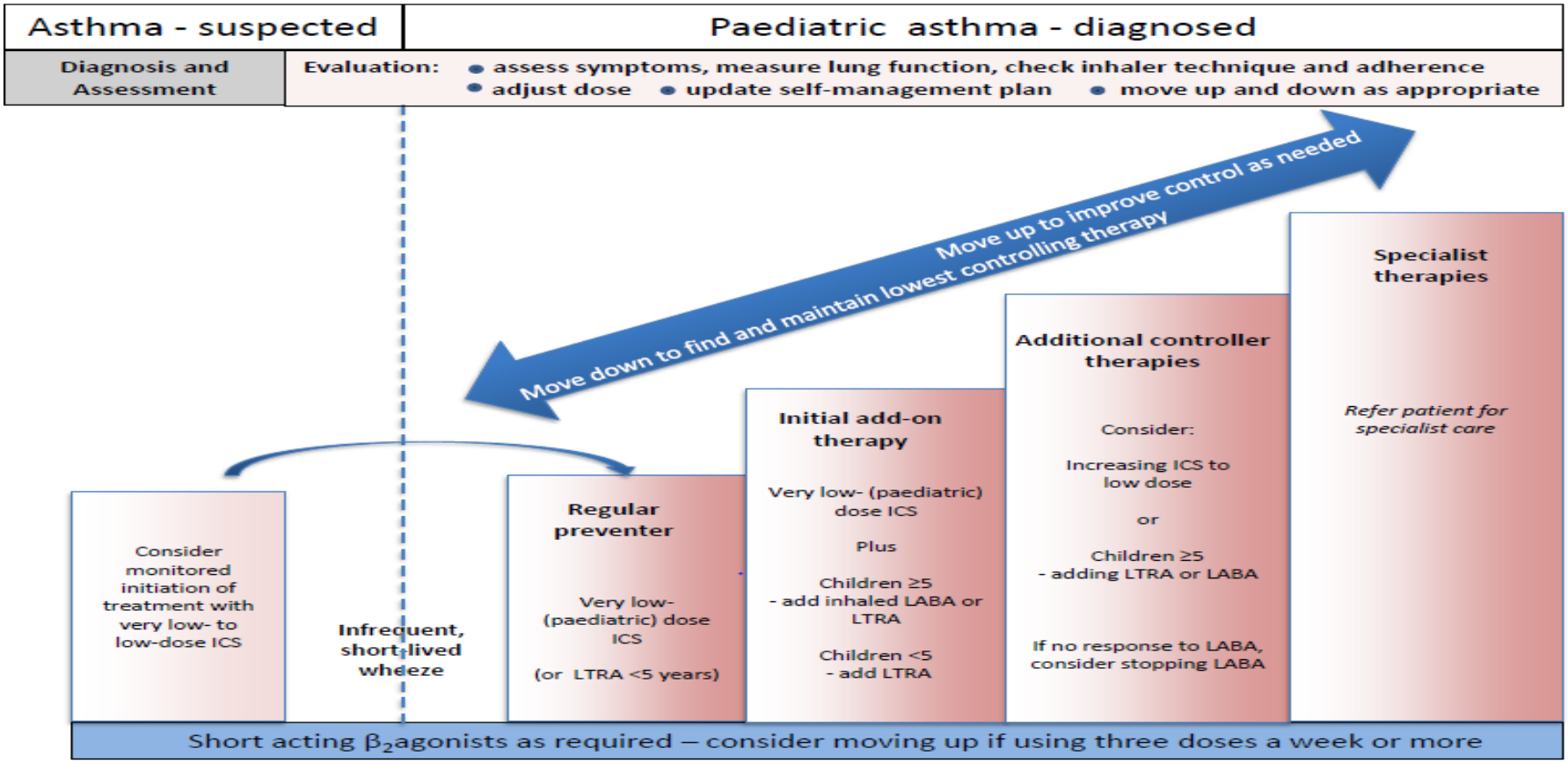
Adapted from: Global Initiative for Asthma (2019) Global Strategy for Asthma Management and Prevention. Available from: www.ginasthma.org

15.5 Appendix 5: Summary of the management of adults with asthma



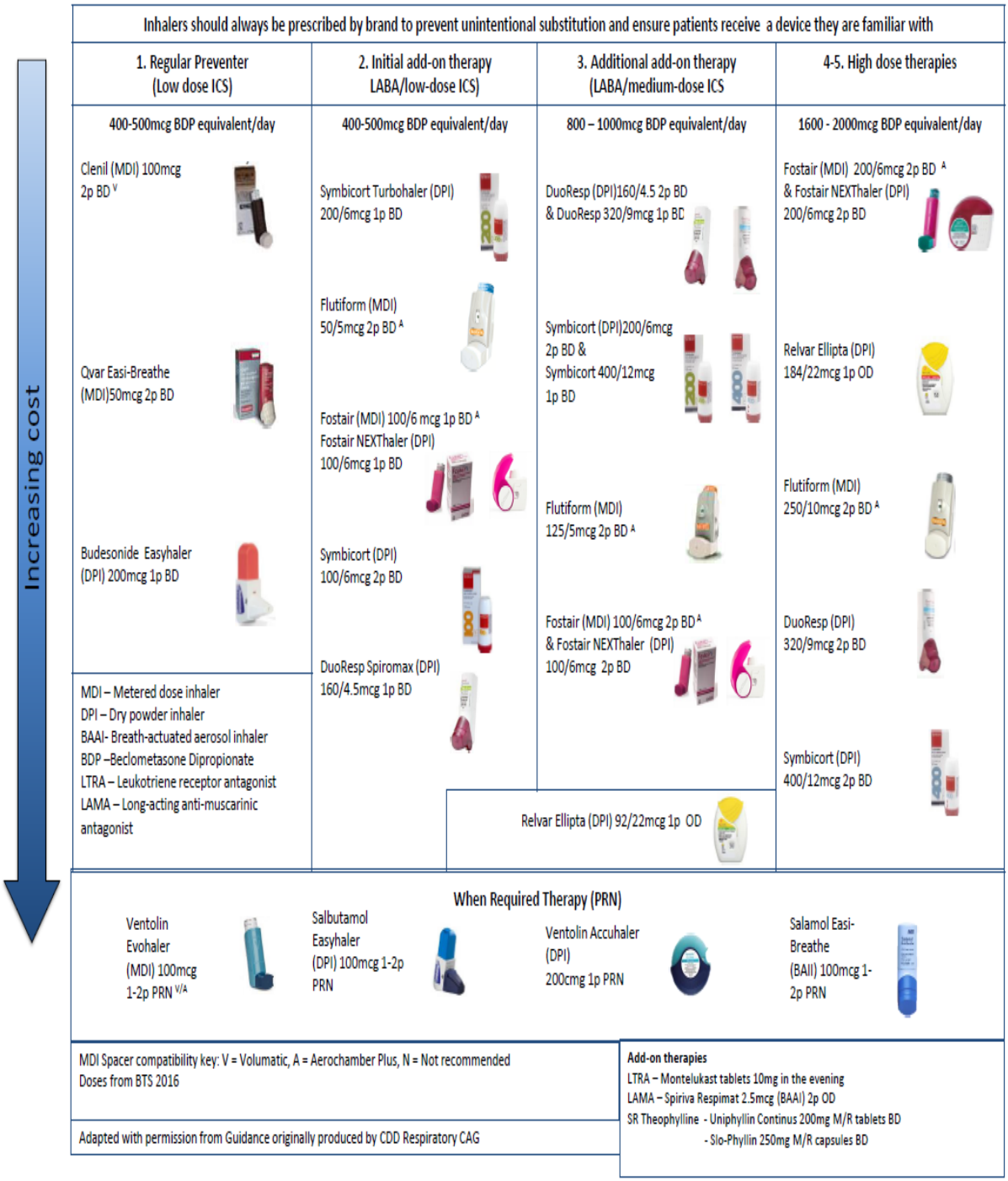
British Thoracic Society Scottish Intercollegiate Guidelines Network (2019) **SIGN158 British guideline on the management of asthma.** Healthcare Improvement Scotland: Edinburgh www.sign.ac.uk

15.6 Appendix 6: Summary of the management of stable asthma in children



British Thoracic Society Scottish Intercollegiate Guidelines Network (2019) **SIGN158 British guideline on the management of asthma.** Healthcare Improvement Scotland: Edinburgh www.sign.ac.uk

15.7 Appendix 7: Visual summary of the pharmacological management of stable asthma for adults

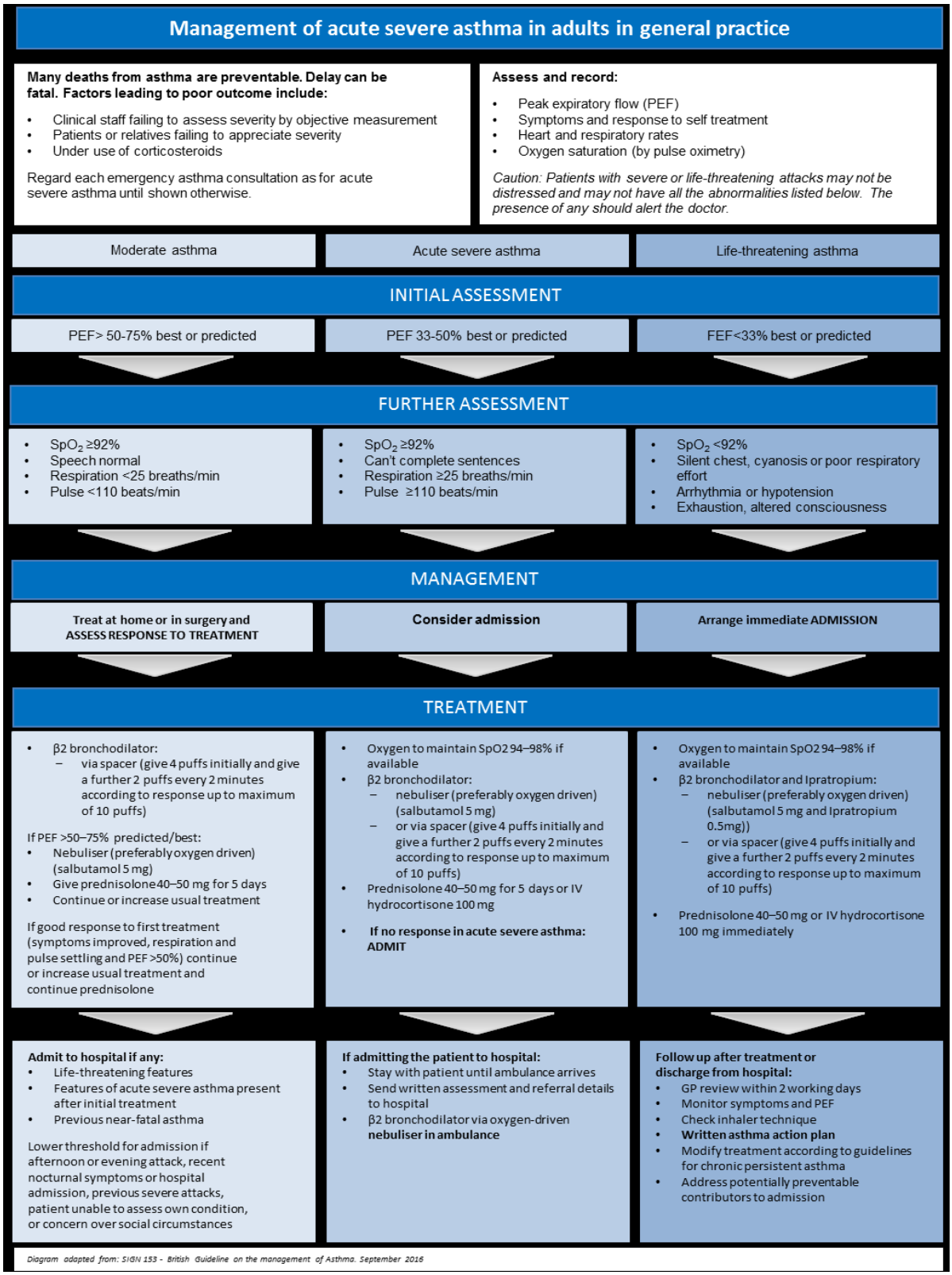


Available from: http://joint-formulary.tees.nhs.uk/3-respiratory-system/

15.8 Appendix 8: Inhaler devices and spacers

<table>
<tr><th>Inhalers</th><th colspan="3">Examples on how to use devices are available at Asthma UK</th></tr>
<tr><td>Breath actuated metered dose inhalers (BAI)</td><td colspan="2">Easi-Breathe
  </td><td>Autohaler, K-haler
   </td></tr>
<tr><td rowspan="2">Dry Powder Inhalers (DPI)</td><td>Accuhaler
  </td><td>Easyhaler
  </td><td>Ellipta
  </td></tr>
<tr><td colspan="3">Other DPIs include Aerolizer, Forspiro, Twisthaler, Novolizer</td></tr>
<tr><td>Pressurised Metered Dose Inhalers (pMDI)</td><td colspan="2">Salbutamol
  </td><td>Other pMDI include: Ventolin, Salamol, Fostair, Flixotide, Flutiform, Clenil, Qvar, Seretide plus many more</td></tr>
<tr><td>Soft Mist Inhaler (SMI)</td><td colspan="3">Respimat, this is currently the only device available in a SMI
  </td></tr>
<tr><td rowspan="2">pMDI plus Spacer</td><td colspan="2">Volumatic
  </td><td rowspan="2">Other spacers include: A2A spacer, Able Spacer, Antistatic Spacer Chamber plus devices, DispozABLE, Optichamber, Diamond, Pocket Chamber, Space Chamber plus devices, Vortes</td></tr>
<tr><td colspan="2">Aerochamber Plus
  </td></tr>
</table>

15.9 Appendix 9: Pharmacological management of an acute asthma exacerbation



Available from: http://joint-formulary.tees.nhs.uk/3-respiratory-system/

15.10 Appendix 10 - Equality Analysis Screening Form

Please note; The Equality Analysis Policy and Equality Analysis Guidance can be found on InTouch on the policies page

Name of Service area, Directorate/Department i.e. substance misuse, corporate, finance etc.	Physical Healthcare					
Name of responsible person and job title	Ann Thomas- Nurse Consultant					
Name of working party, to include any other individuals, agencies or groups involved in this analysis	Asthma Working Group Deborah Harvey- Physical Health Nurse Practitioner. Kizzie Hodgson- Modern Matron for Physical health.					
Policy (document/service) name	Asthma Guidance for Adults and Children. Guideline clinical ref CLIN-0084-001.v2					
Is the area being assessed a…	Policy/Strategy		Service/Business plan		Project	
	Procedure/Guidance			X	Code of practice	
	Other – Please state					
Geographical area covered	TEWV					
Aims and objectives	To standardize practice for all clinical staff for the management of Asthma. Update guidelines in accordance with BTS/SIGN (2019) Guidelines.					
Start date of Equality Analysis Screening	5TH November 2019					
End date of Equality Analysis Screening	18TH November 2019					

1. Who does the Policy, Service, Function, Strategy, Code of practice, Guidance, Project or Business plan benefit?

Guidelines for Trust staff.

2. Will the Policy, Service, Function, Strategy, Code of practice, Guidance, Project or Business plan impact negatively on any of the protected characteristic groups below?

Race (including Gypsy and Traveller)	No	**Disability** (includes physical, learning, mental health, sensory and medical disabilities)	No	**Sex** (Men, women and gender neutral etc.)	No
Gender reassignment (Transgender and gender identity)	No	**Sexual Orientation** (Lesbian, Gay, Bisexual and Heterosexual etc.)	No	**Age** (includes, young people, older people – people of all ages)	No
Religion or Belief (includes faith groups, atheism and philosophical belief's)	No	**Pregnancy and Maternity** (includes pregnancy, women who are breastfeeding and women on maternity leave)	No	**Marriage and Civil Partnership** (includes opposite and same sex couples who are married or civil partners)	No

Yes – Please describe anticipated negative impact/s

No – Please describe any positive impacts/s

To ensure that patients with Asthma receive safe, effective and appropriate quality care which is supported by contemporary national guidance and best practice.

To reduce the clinical risk(s) associated with inappropriately managed long term conditions

3. Have you considered other sources of information such as; legislation, codes of practice, best practice, nice guidelines, CQC reports or feedback etc.? **If 'No', why not?**	**Yes**	X	**No**	

Sources of Information may include: • Feedback from equality bodies, Care Quality Commission, Equality and Human Rights Commission, etc. • Investigation findings • Trust Strategic Direction • Data collection/analysis • National Guidance/Reports	• Staff grievances • Media • Community Consultation/Consultation Groups • Internal Consultation • Research • Other (Please state below)

4. Have you engaged or consulted with service users, carers, staff and other stakeholders including people from the following protected groups?: Race, Disability, Sex, Gender reassignment (Trans), Sexual Orientation (LGB), Religion or Belief, Age, Pregnancy and Maternity or Marriage and Civil Partnership

Yes – Please describe the engagement and involvement that has taken place
N/A
No – Please describe future plans that you may have to engage and involve people from different groups

5. As part of this equality analysis have any training needs/service needs been identified?					
Yes	Please describe the identified training needs/service needs below To ensure staff work within updated national guidance so that patients with Asthma receive safe, effective and appropriate quality care.				
A training need has been identified for;					
Trust staff	Yes	Service users	Yes	Contractors or other outside agencies	no
Make sure that you have checked the information and that you are comfortable that additional evidence can provided if you are required to do so					
The completed EA has been signed off by: Deborah Harvey You the Policy owner/manager: Type name: Deborah Harvey				Date: 18/11/19	
Your reporting (line) manager: Type name: Ann Thomas				Date: 18/11/19	
If you need further advice or information on equality analysis, the EDHR team host surgeries to support you in this process, to book on and find out more please call: 0191 3336267/3046					

15.11 Appendix 11 – Approval checklist

To be completed by lead and attached to any document which guides practice when submitted to the appropriate committee/group for consideration and approval.

	Title of document being reviewed:	Yes/No/ Unsure	Comments
1.	**Title**		
	Is the title clear and unambiguous?	Yes	
	Is it clear whether the document is a guideline, policy, protocol or standard?	Yes	
2.	**Rationale**		
	Are reasons for development of the document stated?	Yes	
3.	**Development Process**		
	Are people involved in the development identified?	Yes	
	Has relevant expertise has been sought/used?	Yes	
	Is there evidence of consultation with stakeholders and users?	Yes	
	Have any related documents or documents that are impacted by this change been identified and updated?	Yes	
4.	**Content**		
	Is the objective of the document clear?	Yes	
	Is the target population clear and unambiguous?	Yes	
	Are the intended outcomes described?	Yes	
	Are the statements clear and unambiguous?	Yes	
5.	**Evidence Base**		
	Is the type of evidence to support the document identified explicitly?	Yes	
	Are key references cited?	Yes	
	Are supporting documents referenced?	Yes	
6.	**Training**		
	Have training needs been considered?	Yes	
	Are training needs included in the document?	Yes	

	Title of document being reviewed:	Yes/No/ Unsure	Comments
7.	**Implementation and monitoring**		
	Does the document identify how it will be implemented and monitored?	Yes	
8.	**Equality analysis**		
	Has an equality analysis been completed for the document?	Yes	
	Have Equality and Diversity reviewed and approved the equality analysis?	Yes	
9.	**Approval**		
	Does the document identify which committee/group will approve it?	Yes	
Signature: Deborah Harvey			

16 Document control

Date of approval:	30 October 2020	
Next review date:	28 February 2025	
This document replaces:	CLIN-0084-001 v1 Asthma Guidance	
Lead:	Name	Title
	Deborah Harvey	Physical Healthcare Practitioner
Members of working party:	Name	Title
	Kizzie Hodgson	Modern Matron for Physical Health
This document has been agreed and accepted by: (Director)	Name	Title
	Elizabeth Moody	Director of Nursing and Governance
This document was approved by:	Name of committee/group	Date
	Drug & Therapeutics Committee	January 2020
This document was ratified by:	Name of committee/group	Date
	IPC and Physical Health Group	30 October 2020
An equality analysis was completed on this document on:	18th November 2019	

Version	Date	Amendment details	Status
1	2 Mar 2016	New document	Withdrawn
1	15 Feb 2019	Document under review, review date extended from 03 Dec 2018 to 01 April 2019 allow review work to be done.	Withdrawn
1	08 Aug 2019	Review dated extended from 01 April 2019 to 01 Nov 2019	Withdrawn
2	30 Oct 2020	Full revision	Published
2	Oct 2024	Review date extended till 28 Feb 2025	Published