Chapter 3: Respiratory System (9th Edition)

For the Sheffield asthma guideline please see Sheffield Asthma Guideline

For the Sheffield COPD guideline please see the COPD treatment algorithm

Contents

Inhaler Choice

For inhaler device choice please see Sheffield Inhaler Device Type Choice Guide
For greener inhaler prescribing see Sheffield Greener Inhaler Guide

Spacers

pMDIs should be used with a spacer, particularly for children. See Spacers Devices for pMDIs

pMDI plus spacer remains the preferred delivery method for most children under 12 years. An appropriate time to consider DPIs for children is towards the end of primary school/before transition to secondary school (age 11/12 years). See SY CYP Alliance Spacers and Children Advice

Combination Products

Use combination inhalers where appropriate for asthma and COPD to improve compliance, decrease costs to patients and to support greener inhaler prescribing.

The National Review of Asthma Deaths – Why Asthma Still Kills made a key recommendation for the use of combination inhalers in asthma.

Brand Prescribing

Prescribing of inhalers by brand is recommended to ensure consistency of device. Where brand prescribing is required for specific safety reasons, this in specified in the formulary entry.

Asthma age groups

Classified as per BTS/SIGN

Nebulised Drugs

Regular nebulised drugs should only be initiated on a respiratory consultant's recommendation. NICE NG 115 states that a COPD patient with distressing or disabling breathlessness despite maximal therapy using inhalers should be considered for nebuliser therapy.

Asthma: Children up to 5 years old

For place in therapy please see Sheffield Asthma Guideline

Asthma age groups are classified as per BTS/SIGN

3.1 Bronchodilators

3.1.1.1 Selective β 2 agonists -short-acting

Salamol CFC free Inhaler 100 micrograms pMDI *(salbutamol sulfate)*

3.2 Corticosteroids

Soprobec 50 micrograms, 100 micrograms pMDI *(beclometasone dipropionate CFC free)*
prescribe by brand for safety reasons.

Where beclometasone is required in a pMDI and a dose counter is requested by the patient or carer please prescribe Clenil® Modulite®

Dosage equivalents
Beclometasone containing inhalers should be prescribed by brand as preparations are not equivalent See Drug Safety Update.

Steroid treatment cards/NHS Steroid Emergency Card
The MHRA provides guidance on where a steroid treatment card should be issued to patients using high dose inhaled corticosteroids. (see page 5 of linked document)

In August 2020 a National Patient Safety Alert was published which highlighted the risk of adrenal crisis in certain groups of patients and the importance of using an NHS steroid emergency card for the early recognition and treatment of adrenal crisis
See appendix 1 for further information

Medium to high dose inhaled corticosteroids in children
Caution use of doses of inhaled steroids in children ≥ 400 micrograms a day of beclometasone diproprionate or equivalent. These doses are unlicensed and should only be prescribed after referring the patient to secondary care. See appendix 2 for further information.

3.3 Cromoglycate, Leukotriene and phosphodiesterase type 4 inhibitors

3.3.2 Leukotriene receptor antagonists

Montelukast chewable tablets 4mg (Age 2-5 years)
Montelukast granules 4mg (Age 6 months-5 years)

MHRA alert for montelukast - Prescribers should be alert for neuropsychiatric reactions in patients taking montelukast and carefully consider the benefits and risks of continuing treatment if they occur.

Asthma: Children 5 to 12 years old

For place in therapy please see Sheffield Asthma Guideline

Asthma age groups are classified as per BTS/SIGN

3.1 Bronchodilators

3.1.1.1 Selective β 2 agonists –short-acting

DPI:
Easyhaler® Salbutamol 100 micrograms *(salbutamol sulfate)*
pMDI:
Salamol CFC free inhaler 100 micrograms *(salbutamol sulfate)*

Inhaler Devices for Children

pMDI plus spacer remains the preferred delivery method for most children under 12 years. An appropriate time to consider DPIs for children is towards the end of primary school/before transition to secondary school (age 11/12 years).

See DPIs and Children in Sheffield Inhaler Device Type Choice Guide
See SY CYP Alliance Spacers and Children Advice

3.1.1.1 Selective β2 agonists –long-acting

Single long acting β agonists (LABA) inhalers are not recommended. LABA should be used as add on therapy in combination with inhaled corticosteroids
See Combination Products
MHRA advice on prescribing of long-acting β2 agonists for chronic asthma

3.1.3 Theophylline

Theophylline - Uniphyllin® Continus® 200mg, 300mg, 400mg modified release tablets (Age 6+ years)

Only start theophylline in consultation with secondary care specialists.

Brand prescribing and monitoring of theophylline
Because of its narrow therapeutic window theophylline should be prescribed by brand and care taken with potential interactions. Monitoring of theophylline levels is recommended (see Common Blood Monitoring Schedules)

3.2 Corticosteroids

DPI:
Easyhaler® Budesonide 100 micrograms, 200 micrograms
Pulmicort® Turbohaler® 100 micrograms, 200 micrograms *(budesonide)*
pMDI:
Soprobec 50 micrograms, 100 micrograms *(beclometasone dipropionate CFC free)*
prescribe by brand for safety reasons
Flixotide® Evohaler® 50 micrograms *(fluticasone propionate CFC free)*

Where beclometasone is required in a pMDI and a dose counter is requested by the patient or carer please prescribe Clenil® Modulite®

Compound preparations (ICS/LABA) -prescribe by brand

DPI:
Symbicort® Turbohaler® 100 micrograms/6 micrograms *(budesonide/formoterol fumarate)*
(Age 6+ years)
Does not have MART or Reliever licence in children under 12 years
pMDI:
Combisal 25 microgram/50 microgram *(salmeterol (as xinafoate) /fluticasone propionate)*
(age 4+ years)

Licensing
We advise that individual Summary of Product Characteristics are consulted to confirm the licensed doses for specific ages. Where possible a licensed product should be chosen.

Inhaler Devices for Children
pMDI plus spacer remains the preferred delivery method for most children under 12 years. An appropriate time to consider DPIs for children is towards the end of primary school/before transition to secondary school (age 11/12 years).
See DPIs and Children in Sheffield Inhaler Device Type Choice Guide
See SY CYP Alliance Spacers and Children Advice

Dosage equivalents
Beclometasone containing inhalers should be prescribed by brand as preparations are not equivalent. See Drug Safety Update.
Fluticasone propionate is approximately twice as potent as beclometasone (in Soprobec/Clenil® Modulite®) and budesonide.

Steroid treatment cards/NHS Steroid Emergency Card
The MHRA provides guidance on where a steroid treatment card should be issued to patients using high dose inhaled corticosteroids. (see page 5 of linked document)

In August 2020 a National Patient Safety Alert was published which highlighted the risk of adrenal crisis in certain groups of patients and the importance of using an NHS steroid emergency card for the early recognition and treatment of adrenal crisis
See appendix 1 for further information.

Medium to high dose inhaled steroids in children
Caution use of doses of inhaled steroids in children ≥ 400 micrograms a day of beclometasone or equivalent. These doses are unlicensed and should only be prescribed after referring the patient to secondary care. See appendix 2 for further information.

3.3 Cromoglycate, Leukotriene and phosphodiesterase type 4 inhibitors

3.3.2 Leukotriene receptor antagonists

Montelukast chewable tablets 4mg (Age 2-5 years)
Montelukast chewable tablets 5mg (Age 6-14 years)
Montelukast granules 4mg (Age 6 months-5 years)

MHRA alert for montelukast - Prescribers should be alert for neuropsychiatric reactions in patients taking montelukast and carefully consider the benefits and risks of continuing treatment if they occur.

Asthma: Adults and Children over 12 years old

For place in therapy please see Sheffield Asthma Guideline

Asthma age groups are classified as per BTS/SIGN

3.1 Bronchodilators

3.1.1.1 Selective β 2 agonists –short-acting

DPI:
Easyhaler® Salbutamol 100 micrograms (salbutamol sulfate)
pMDI:
Salamol CFC free inhaler 100 micrograms (salbutamol sulfate)

3.1.1.1 Selective β 2 agonists –long-acting

Single long acting β agonists (LABA) inhalers are not recommended. LABA should be used as add on therapy in combination with inhaled corticosteroids
See Combination Products
MHRA advice on prescribing of long-acting β 2 agonists for chronic asthma

3.1.2 Antimuscarinic bronchodilators – long-acting

Spiriva® Respimat® 2.5 microgram, inhalation solution (tiotropium bromide monohydrate)

Spiriva® Respimat® is the only single long-acting muscarinic antagonist (LAMA) licensed for the management of asthma.

Spiriva® Respimat® is licensed from 6 years of age however is not included in the Sheffield asthma guideline for children and young people under 18 years of age. If LAMA is considered for < 18 years, please refer patient to SCH.

See corticosteroids closed triple for compound preparations containing LAMAs

3.1.3 Theophylline

Theophylline - Uniphyllin® Continus® 200mg, 300mg, 400mg modified release tablets

Only start theophylline in consultation with secondary care specialists.

Brand prescribing and monitoring of theophylline
Because of its narrow therapeutic window theophylline should be prescribed by brand and care taken with potential interactions. Monitoring of theophylline levels is recommended (see Common Blood Monitoring Schedules)

3.2 Corticosteroids

DPI:
Easyhaler® Budesonide 100 micrograms,200 micrograms
Pulmicort® Turbohaler® 100 micrograms, 200 micrograms (budesonide)
pMDI:
Soprobec 50 micrograms, 100 micrograms, 200 micrograms (beclometasone dipropionate CFC free) *prescribe by brand for safety reasons*.
Flixotide® Evohaler® 50 micrograms, 125 micrograms (fluticasone dipropionate)
Kelhale 50 micrograms, 100 micrograms (extra fine particle beclometasone dipropionate) ≥18 years

Where beclometasone is required in a pMDI and a dose counter is requested by the patient or carer please prescribe Clenil® Modulite®

Compound preparations (ICS/LABA) – prescribe by brand

DPI:
Atectura® Breezhaler® 125 micrograms/62.5 micrograms, 125 micrograms/127.5 micrograms, 125 micrograms /260 micrograms inhalation powder hard capsules (indacaterol acetate/mometasone furoate)
Fobumix Easyhaler® 160 micrograms/4.5 micrograms *, 320 micrograms /9 micrograms (budesonide/formoterol fumarate dihydrate)
Fostair® NEXThaler® 100 micrograms/6 micrograms *, 200/6 (extra fine beclometasone dipropionate/formoterol fumarate dihydrate) ≥18 years
Relvar® Ellipta® 92 micrograms/22 micrograms, 184 micrograms/22 micrograms (fluticasone furoate/vilanterol (as trifenatate))
Symbicort® 100 micrograms/6 micrograms *, 200 micrograms/6 micrograms *#, 400 micrograms/12 micrograms Turbohaler® (budesonide/formoterol fumarate dihydrate CFC free)

pMDI:
Fostair® 100 micrograms/6 micrograms *, 200 micrograms/6 micrograms (extra fine beclometasone dipropionate/formoterol fumarate dihydrate CFC free) ≥18 years
Combisal 25 micrograms/50 micrograms, 25 micrograms/125 micrograms, 25 micrograms/250 micrograms (salmeterol (as xinafoate)/fluticasone propionate)

* Licensed for maintenance and reliever therapy (MART)
# Licensed for as needed Reliever Therapy (see Sheffield Asthma Guideline)

Closed triple preparations (ICS/LABA/LAMA) – prescribe by brand

DPI:
Enerzair® Breezhaler® 114 micrograms/46 micrograms/136** micrograms inhalation powder, hard capsules (indacaterol(as acetate)/glycopyrronium bromide/mometasone furoate) ≥18 years
** Please note due to product formulation and lung deposition this is a **high dose ICS.**
Enerzair Breezhaler is licensed from 18 years.
pMDI:
Trimbow pMDI 87 micrograms/5 micrograms/9 micrograms, 172 micrograms/5 micrograms/9 micrograms (extra fine beclometasone dipropionate, formoterol fumarate dihydrate, glycopyrronium bromide) ≥18 years

Licensing for inhaler devices in adolescents ages 12-17
We advise that individual Summary of Product Characteristics are consulted to confirm the licensed doses for specific ages. Where possible a licensed product should be chosen.

Dosage equivalents
Beclometasone containing inhalers should be prescribed by brand as preparations are not equivalent. See Drug Safety Update

Fluticasone propionate is approximately twice as potent as beclometasone (in Soprobec/Clenil® Modulite®) and budesonide,

Fostair® 100/6 and Kelhale 100 contain 100 micrograms extra fine beclometasone and are equivalent to approx. 250 micrograms beclometasone in Soprobec/Clenil® Modulite®

Steroid treatment cards/NHS Steroid Emergency Card
The MHRA provides guidance on where a steroid treatment card should be issued to patients using high dose inhaled corticosteroids. (see page 5 of linked document)

In August 2020 a National Patient Safety Alert was published which highlighted the risk of adrenal crisis in certain groups of patients and the importance of using an NHS steroid emergency card for the early recognition and treatment of adrenal crisis
See appendix 1 for further information.

High dose inhaled corticosteroids
Due to the risk of systemic effects doses of fluticasone propionate above 500 micrograms bd should be prescribed only for adult patients with severe asthma and should be initiated by a specialist.

3.3 Cromoglycate, Leukotriene and phosphodiesterase type 4 inhibitors

3.3.2 Leukotriene receptor antagonists

Montelukast chewable tablets 5mg (Age 6-14 years)
Montelukast tablets10mg (Age 15+ years)

MHRA alert for montelukast - Prescribers should be alert for neuropsychiatric reactions in patients taking montelukast and carefully consider the benefits and risks of continuing treatment if they occur.

COPD

For place in therapy please see the Sheffield COPD treatment algorithm

3.1 Bronchodilators

3.1.1.1 Selective β 2 agonists –short-acting

DPI:
Easyhaler® Salbutamol 100micrograms (salbutamol sulfate)
pMDI:
Salamol CFC free inhaler 100micrograms (salbutamol sulfate)

3.1.1.1 Selective β 2 agonists –long-acting

Please note: There is no place for treatment with a single long-acting beta 2 agonist in the Sheffield COPD treatment algorithm therefore these are no longer listed in the formulary

3.1.2 Antimuscarinic bronchodilators – long-acting

Tiogiva® 18microgram inhalation powder capsules and device (tiotropium bromide)
Incruse Ellipta® ▼55 micrograms (umeclidinium)

Please note: There is no place for monotherapy treatment with a long-acting antimuscarinic bronchodilator in the Sheffield COPD Treatment Algorithm

3.1.3 Theophylline

Theophylline - Uniphyllin® Continus® 200mg, 300mg, 400mg modified release tablets

Only start theophylline in consultation with secondary care specialists

For existing patients: Consider a two-week trial without theophylline in patients who have COPD only (no asthma component) for continued need.

Brand prescribing and monitoring of theophylline
Because of its narrow therapeutic window theophylline should be prescribed by brand and care taken with potential interactions. Monitoring of theophylline levels is recommended (see Common Blood Monitoring Schedules)

3.1.4 Compound bronchodilator preparations (LABA/LAMA) – prescribe by brand

DPI:
Anoro Ellipta® ▼ 55 micrograms/22 micrograms (umeclidinium/vilanterol trifenatate)
Duaklir Genuair® ▼ 340 micrograms/12 micrograms (aclidinium bromide/formoterol fumarate dihydrate)
Ultibro Breezhaler® 85 micrograms/43 micrograms inhalation capsules and device (indacaterol maleate/glycopyrronium bromide)
pMDI:
Bevespi Aerosphere® 7.2 micrograms/5 micrograms (glycopyrronium bromide /formoterol fumarate dihydrate)

3.2 Corticosteroids

Compound preparations (ICS/LABA) – prescribe by brand

DPI:
Fostair® NEXThaler® 100 micrograms/6 micrograms (extra fine beclometasone dipropionate/formoterol fumarate dihydrate)
Relvar Ellipta® 92 micrograms/22 micrograms (fluticasone furoate/vilanterol trifentate)
Symbicort 400 micrograms/12 micrograms Turbohaler® (budesonide / formoterol fumarate dihydrate)
pMDI:
Fostair® 100 micrograms/6 micrograms (extra fine beclometasone dipropionate/formoterol fumarate CFC free)

Closed triple preparations (ICS/LABA/LAMA) – prescribe by brand

DPI:
Trelegy Ellipta® 92 micrograms/55 micrograms/22 micrograms (fluticasone furoate/umeclidinium bromide/vilanterol trifenatate)
Trimbow NEXThaler 88 micrograms/5 micrograms/9 micrograms (extra fine beclometasone dipropionate/formoterol fumarate dihydrate/glycopyrronium bromide)

pMDI:
Trimbow® pMDI 87 micrograms/5 micrograms/9 micrograms (extra fine beclometasone dipropionate/formoterol fumarate dihydrate/glycopyrronium bromide)
Trixeo Aerosphere® 5 micrograms/7.2 micrograms/160micrograms (formoterol fumarate dihydrate/glycopyrronium bromide/budesonide)

Steroid treatment cards/NHS Steroid Emergency Card
The MHRA provides guidance on where a steroid treatment card should be issued to patients using high dose inhaled corticosteroids. (see page 5 of linked document)

In August 2020 a National Patient Safety Alert was published which highlighted the risk of adrenal crisis in certain groups of patients and the importance of using an NHS steroid emergency card for the early recognition and treatment of adrenal crisis
See appendix 1 for further information

3.6 Oxygen

Referral can be made to the Sheffield Oxygen Service (HOS-AR) for assessment, if oxygen saturations are consistently below 93% on air in a stable phase, via the proforma accessed HERE

The administration of supplemental oxygen is an essential element of appropriate management for a wide range of conditions. Failure to administer oxygen appropriately can result in serious harm to the patient. Oxygen should be regarded as a drug and home oxygen should only be prescribed for persistent hypoxemia after careful evaluation.

Long term oxygen therapy (LTOT) at least 15 hours per day prolongs survival in some patients. Assessment should be in a period of clinical stability with the measurement of 2 blood gases within criteria, at least 3 weeks apart.

Long term oxygen criteria:

- pO2 <7.3kpa in COPD
- pO2 <8 kpa in COPD with heart failure, secondary polycythaemia, Pulmonary hypertension, and Interstitial lung disease

The National Home Oxygen Safety Committee identified that patients should be assessed for both clinical need and risk of oxygen therapy using a risk mitigation form (IHORM) for every oxygen order or change to an oxygen prescription. CLICK HERE for IHORM and HERE for additional IHORM supporting notes and additional information when considering oxygen at home.

NICE guideline NG115– Chronic Obstructive pulmonary disease in over 16s: diagnosis and management states:

- 1.2.60 For people who smoke or live with people who smoke, but who meet the other criteria for long-term oxygen therapy, ensure the person who smokes is offered smoking cessation advice and treatment, and referral to specialist stop smoking services (see the NICE guidelines on stop smoking interventions and services and medicines optimisation). [2018]

- 1.2.61 *Do not offer long-term oxygen therapy to people who continue to smoke* despite being offered smoking cessation advice and treatment, and referral to specialist stop smoking services. [2018]

Sheffield Teaching Hospitals have chosen to deviate from the NICE guideline, allowing individual assessment with regard to oxygen provision (including smoking) and have ratified local variation from NICE policy, which has been agreed by the Trust wide committees.

It is the responsibility of the registered health care professional completing the IHORM to identify and communicate any risks before ordering oxygen. If risks on the IHORM indicate significant levels of risk the patient should be discussed directly with the oxygen service, as discussion in the COPD/ Oxygen MDT (every Wednesday morning) may be required and/ or a full risk assessment.

If no risks are identified or minor risks can be mitigated, oxygen can be ordered via a HOOF A HERE. The HOOF A and IHORM need to fully be completed and emailed to Baywater healthcare and the Sheffield Oxygen Service, (see contact details below). A HOOF A will only provide static temporary oxygen equipment at home, for portable oxygen equipment you will need to discuss this will the oxygen service.

- *For ambulatory oxygen* (oxygen on movement) you need to refer to the pulmonary function team (PFU) for an outpatient assessment.

- *Oxygen for cluster headaches* needs to be assessed and ordered by the responsible GP or Neurologist on a HOOF A, once the risk mitigation has been completed. To liaise with the oxygen service if risks are identified.

- *Oxygen for palliative purposes* can be ordered directly by the GP on a HOOF A, if any risks on the risk mitigation (IHORM) have been addressed.

Contact details:

Sheffield oxygen service (HOS-AR): Tel: 0114 2269175/ 2269207. Email: sht-tr.oxygenservice@nhs.net
Baywater Healthcare: Telephone: 0800 373580 Email: Bhltd.ehoof@nhs.net

3.7 Mucolytics

NACSYS® (N-acetylcysteine) 600mg effervescent tablets (orange flavour)
Acepiro® (acetylcysteine) 600mg effervescent tablets (lemon flavour)

NICE NG 115 states that mucolytic therapy should be considered in patients with a chronic cough productive of sputum and continued only if there is symptomatic improvement. Patients should be reviewed after four weeks in order to assess if there has been symptomatic improvement.

Some patients may not find NACSYS® or Acepiro® palatable (flavour may be important). If it has been trialled and a patient cannot tolerate it then carbocisteine capsules 375mg may be used; however, it is essential that these patients are reviewed after 4 weeks ensuring the dose is reduced to the maintenance dose or, if there has been no benefit, it is stopped.

NACSYS® contains 115mg sodium per tablet and therefore should be used with caution in patients who are on a salt restricted diet.

Acepiro® contains 139mg sodium per tablet and therefore should be used with caution in patients who are on a salt restricted diet.

Acepiro® contains lactose, patients with rare hereditary problems of galactose intolerance, total lactase deficiency or glucose-galactose malabsorption should not take this medicine. Acepiro® also contains sorbitol. Consider these differences and choose NACSYS if appropriate.

Spacer devices for use with pMDIs in Asthma and COPD

See Sheffield Spacer Devices for pMDIs Guide

See SY CYP Alliance Spacers and Children Advice

Volumatic® - large volume spacer device

AeroChamber Plus® Flow-Vu® - medium volume spacer device
Available as:

Children
Small mask (Age 0-18 months) (orange)
Medium mask (Age 1-5 years) (yellow)
Youth mouthpiece (Age 5+ years) (green)

Adults
Mouthpiece (Age 5+ years) (blue)
Adult small mask (purple)
Adult large mask (blue)

Check individual inhaler summary of product characteristics for recommended spacer.

Spacer Cleaning
Volumatic spacer devices should be washed with washing up liquid and allowed to dry in air without rinsing or wiping before first use and once a month thereafter. This reduces static charge on the device and increases the amount of drug delivered. Replace every 6-12 months.

Aerochamber Plus Flow-Vu is made of antistatic plastic and therefore it can be washed in the top rack of a dishwasher at temperatures up 70°C, or it can be washed in lukewarm water and detergent and then rinsed and allowed to air dry. Replace every 12 month.

3.4 Antihistamines, Hyposensitisation and Allergic emergencies

3.4.1 Antihistamines – Non sedating

Loratadine tablets 10mg, liquid 5mg/5ml sugar free	OTC
Cetirizine tablets 10mg	OTC

3.4.1 Antihistamines – Sedating

Chlorphenamine tablets 4mg, oral solution sugar free 2mg/5ml	OTC

South Yorkshire ICB self-care guidance recommends self-care for mild to moderate hayfever and seasonal rhinitis and conjunctivitis.

If prescribing is indicated see chapter 11 (eye) and chapter 12 (ear, nose and oropharynx)

3.4.3 Allergic Emergencies - Anaphylaxis

Adrenaline Autoinjectors
Intramuscular injection for self-administration

A decision has been made to no longer have a formulary choice product in this section due to persistent supply issues with the various brands available.

Adrenaline Auto-Injectors (AAIs) safety campaign
The MHRA has produced new guidance for AAIs - MHRA Guidance Adrenaline Auto-injectors (AAIs) 2023 including an infographic showing The correct use of your Adrenaline Auto-Injector (AAI) and videos describing what anaphylaxis is and what to do in an emergency. It aims to ensure that patients, healthcare professionals and the wider public can be better informed and therefore equipped to understand the importance of AAIs as a potential lifesaving medicine.

It is essential that patients are trained to use the specific device they have been prescribed as each brand functions differently. Patient must:

- Carry **TWO** devices with them at all times
- Receive training from a healthcare professional on how to use any new brand of auto-injector
- Recognise the signs of anaphylaxis and the actions they should immediately take. Remember ABC (Airways, Breathing, Circulation). Use the AAI immediately if any signs of anaphylaxis, then dial 999 straight away and say 'anaphylaxis' (even if symptoms are improving). The individual should lie down with their legs raised (if pregnant, lie on their left side) and, if at all possible, should not be left alone. The second AAI should be used if there is no improvement after 5 minutes.
- Be aware manufacturers can provide training pens that do not contain adrenaline. It is strongly recommended these are ordered, and used to practise regularly, so patients / carers are fully prepared for use of a real pen in an emergency.

Spare Pens in Schools This website contains advice about how many AAIs a pupil should have at school.

Videos showing how to use adrenaline auto-injectors: Epipen®, Jext®

3.8 Aromatic Inhalations
3.9 Cough preparations
3.10 Systemic nasal decongestants

No products are recommended in these sections as these have limited clinical value. Topical nasal decongestants (BNF legacy section 12.2.2) are also not recommended as they are of limited value and may give rise to rebound congestion.

References to national and local guidance:

Asthma

- BTS/SIGN Guideline
- NICE NG80 Asthma
- NICE Pathway Asthma
- NICE Quality Standard Asthma
- 2023 GINA Main Report
- Sheffield Asthma Guidelines

COPD

- NICE CG115 COPD
- NICE Pathway COPD
- NICE Quality Standard COPD
- 2023 GOLD COPD Report
- Sheffield COPD Treatment Algorithm

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Appendix 1

High doses of inhaled steroids and steroid treatment cards

People using prolonged high doses of inhaled steroids should routinely be provided with steroid treatment cards. High doses of steroids include [1]:

- people on 'off-label' high doses of inhaled steroids
- people who receive a combination of maximum licensed dose of inhaled steroid and other steroids (such as oral steroids)
- people who use inhaled corticosteroids together with medication which inhibit their metabolism e.g. - cytochrome P450 inhibitors (HIV protease inhibitors)
- other high-risk people (at the discretion of the prescriber/pharmacist)

People who have inadequate control of the disease despite receiving maximal inhaled corticosteroid therapy and additional other therapies should be referred to a specialist [1].

NHS Steroid Emergency Card

In August 2020 a National Patient Safety Alert was published which highlighted the risk of adrenal crisis in certain groups of patients and the importance of using an NHS steroid emergency card for the early recognition and treatment of adrenal crisis.

Therefore, in addition to the above an NHS Steroid Emergency Card should be issued to all patients with (or likely to develop) adrenal insufficiency or steroid dependence as they are at risk of an adrenal crisis during intercurrent illness or an invasive procedure/surgery if not managed appropriately. Please see additional guidance which contains detailed information to support identifying which patients require a Steroid Emergency Card and additional 'sick day rules'. The following advice should be offered to patients:

• Glucocorticoids should preferably be taken in the morning (if the condition being treated will allow it) to minimise adverse effects
• Those without a history of chickenpox or measles should avoid close contact with people who have chickenpox, shingles, or measles and to seek urgent medical advice if they are exposed
• To seek medical advice if any mood or behavioural changes are experienced
• That regular monitoring is required

References:

1. MHRA. High dose inhaled steroids: new advice on supply of steroid treatment cards. Current Problems in Pharmacovigilance 2006;31
2. National Patient Safety Alert: Steroid Emergency Card to support early recognition and treatment of adrenal crisis in adults. 13/08/2020

Appendix 2

Medium to high dose inhaled steroids in children

Caution use of doses of inhaled steroids in children ≥ 400 micrograms a day of beclometasone or equivalent (especially in children under 12 years). These doses are unlicensed in this age group and should only be prescribed after referring the patient to secondary care.

Administration of medium or high dose ICS may be associated with systemic side effects. These may include growth failure and adrenal suppression. Isolated growth failure is not a reliable indicator of adrenal suppression and monitoring growth cannot be used as a screening test of adrenal function.

The dose or duration of ICS treatment required to place a child at risk of clinical adrenal insufficiency is unknown but is likely to occur at ≥800 micrograms beclometasone per day or equivalent (medium dose ICS and above) for more than 3-6 months.

Prescribers are reminded that:

- It is important to monitor therapy regularly and titrate down to the lowest dose at which effective control of asthma is maintained.
- Growth (height and weight centile) should be monitored at least annually in children with asthma.
- If a clinician considers that a child's asthma is not controlled on the maximum licensed dose of their inhaled corticosteroid, despite the addition of other therapies, the child should be referred to a specialist in the management of paediatric asthma.
- BTS/SIGN recommend for children treated with medium or high dose ICS:
    - Specific written advice about steroid replacement in the event of a severe intercurrent illness or surgery should be part of the management plan.
    - The child should be under the care of a specialist paediatrician for the duration of the treatment.
- Locally Sheffield Children's Hospital issue a standard blue steroid card to children receiving Seretide® 250 inhaler or beclometasone ≥ 400 micrograms per dose (or equivalent).

References

- Inhaled corticosteroids and adrenal suppression in children – CSM advice October 2002 *'Adrenal suppression may be under-recognised'.*
- BTS SIGN British Guideline on the Management of Asthma 2019