Pharmaceutical care of asthma patients

Module 2
Asthma: Beyond the 5 steps
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Asthma: Beyond the 5 steps
Acknowledgements

This pack was brought together with the help of Dr Anne Boyter, Senior Lecturer, Strathclyde Institute of Pharmacy and Biomedical Sciences, University of Strathclyde.

Disclaimer

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An estimate of CPD times

While documenting your CPD entries for the RPSGB, you will be asked to estimate the time spent on your CPD. In an attempt to assist you with this, the table below gives a rough guide to the number of hours you may wish to spend on each activity.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Number of Hours</th>
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<tbody>
<tr>
<td>Completion of pre course activities:</td>
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<tr>
<td>• Completion of Module 1 (A revision of Asthma including MCQ assessment)</td>
<td>2.5 hours</td>
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<tr>
<td>Attendance at the Asthma CORE evening event</td>
<td>2.5 hours</td>
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<tr>
<td>Completion of post course activities:</td>
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<tr>
<td>• Completion of Module 2 (Asthma: Beyond the 5 steps)</td>
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<tr>
<td>INCLUDING</td>
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<tr>
<td>• Submission of 3 pharmaceutical care plans from practice</td>
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<tr>
<td>PLUS</td>
<td></td>
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<tr>
<td>• Submission of a copy of 2 RPSGB CPD entries as a result of the learning obtained from Module 1 and 2</td>
<td>2.5 hours</td>
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Introduction

Pharmaceutical care of asthma patients

This course offers Scottish pharmacists training on how they can contribute, as part of their normal working practice, to the care of people who have asthma by applying the principles of pharmaceutical care for patients with chronic diseases. This invaluable training for community pharmacists will help prepare them for the future and should link with previous NES Core Course materials.

The evening will start with a lecture on asthma – mainly covering the disease, acute management and secondary prevention. This will be delivered by a local expert and will explore the aims of treatment and review the various clinical management options for the disease. The workshops will include very practical patient case studies followed by a group discussion on ways to improve care.

The course will be of interest to pharmacists working in both sectors of care in order to help with integrated seamless care and will provide a useful CPD opportunity on the current recommendations for the management of asthma patients.

Aim

To revise basic lung physiology and the pharmacology of asthma treatments and to update chronic disease management of asthma.

Objectives

At the end of the session participants will be able to:
• Revise the physiology of the lung by completion of Module 1
• Outline the current asthma management based on the SIGN/BTS guideline
• Outline the current evidence base for the guidelines
• Relate the guideline to management of individual patient cases
Pre-course Work  

*This entire module is pre-course work*

- Module 1: A Revision of Asthma booklet
- Both lectures on the DVD, Basic Asthma and Asthma: the 5 steps should be watched prior to attending the evening (approximately 30 minutes each)
  (Slides from both talks are available in the Module 1 booklet should you wish to take notes)
- 10 MCQ questions must be completed either on paper and brought along on the evening or done online (www.nes.scot.nhs.uk/pharmacy).

In addition, it is recommended that, before coming along to the course, you update yourself on any local guidelines that exist within your NHS Board for the treatment and prevention of asthma.

Slides  

The slides accompanying this module are indicative of those that will be used in the CORE course evening. The slides may vary depending on the presenter but should cover some of the areas in these slides.
Asthma: beyond the five steps

Dr Anne Boyter
School of Pharmacy
Strathclyde Institute of Pharmacy & Biomedical Sciences
University of Strathclyde

The 5 steps - revision

Aims of treatment

People with asthma should:
- Achieve and maintain control of symptoms
- Prevent asthma exacerbations
- Maintain normal activity levels, including exercise
- Maintain pulmonary function as close to normal levels as possible

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Beyond the 5 steps

Inhaler devices

### Inhaler technique

<table>
<thead>
<tr>
<th></th>
<th>Pre-teaching</th>
<th>Post-teaching</th>
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<tbody>
<tr>
<td>pMDI</td>
<td>23 – 43%</td>
<td>63%</td>
</tr>
<tr>
<td>DPI</td>
<td>53 – 59%</td>
<td>65%</td>
</tr>
<tr>
<td>pMDI + spacer</td>
<td>55 – 57%</td>
<td>75%</td>
</tr>
<tr>
<td>Breath actuated</td>
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</table>
Choice of inhaler

- Beta agonists
  - Mild – moderate exacerbations
    - Treated with pMDI & spacer with dose titrated to response
  - Stable asthma
    - pMDI and spacer as effective as other inhalers
    - Patient preference
- Inhaled steroids
  - pMDI & spacer as effective as other devices
    - Patient preference

CFC MDI

- Salbutamol HFA
  - 1:1 equivalence
- BDP
  - Qvar – 1:2 equivalence with HFA BDP
  - Clenil – 1:1 equivalence
- Fluticasone
  - 1:1 equivalence

Prescribing of devices

- Choice of device may be determined by the drug
- Patients should be able to use the device – if not choose another
- Ability to use an inhaler should be assessed by a competent healthcare professional
- Titrate dose against clinical response
- Inhaler technique should be reviewed as part of structured clinical review

Care of spacers

- Compatibility
- Actuation followed by inhalation – not multiple actuations
- Tidal breathing as effective as single breaths
- Spacers cleaned monthly
  - Wash in detergent and dry in air
- Plastic spacers – replaced annually
Special situations

Exercise induced asthma

- Give protection
- Chronic administration
  - inhaled steroids
  - SABA
  - LABA
  - theophylline
  - LTRA
  - Cromones
  - Oral beta agonists
- Do not give protection
  - Anticholinergics
  - Ketotifen
  - Antihistamines

Exercise induced asthma

- LABA & LTRA – more prolonged action than SABA
- Tolerance may develop to LABA
- No tolerance demonstrated with LTRA
- Consider exercise induced asthma may be poorly controlled asthma
  - Review regular treatment including ICS
- Immediately before exercise SABA is drug of choice

Aspirin induced asthma

- Theory that LTRA may be of value
- Little evidence to manage patients with aspirin induced asthma any differently from other patients with asthma
GORD
- Treatment of GORD makes no difference to asthma symptoms or lung function
- Reduction in dry cough probably not due to improved asthma control

Difficult asthma
- Asthma symptoms despite high dose asthma therapy
- Prevalence unknown
- Evaluate patients
  - confirm diagnosis
  - identify persisting symptoms and assess adherence
- Assessment by multidisciplinary team

Difficult asthma
- Factors contributing
  - poor adherence
  - psychosocial factors
  - dysfunctional breathing
  - allergy

Pregnancy
- Pregnancy can affect asthma and asthma can affect pregnancy outcomes
  - offer pre-pregnancy counselling
    - importance and safety of continuing asthma medication
    - ensure good control
  - monitor pregnant women closely
  - smoking cessation counselling
Acute asthma in pregnancy

- Give drug therapy as for a non-pregnant woman
- Deliver oxygen to maintain oxygen saturations at 94 – 98%
- Acute severe asthma is an emergency – treat in hospital

Drug therapy in pregnancy

- SABA and LABA
  - use as normal
- ICS
  - use as normal
- Theophylline
  - use as normal
  - monitor concentrations in acute severe asthma & patient maintained on this chronically
- Steroids tablets
  - use as normal – benefits outweigh the risks
- LTRA
  - do not start but may be continued in patients with significant benefit
- Chromones
  - use as normal

Breast feeding

- Consult manufacturers recommendations but generally use as normal

- Encourage breast feeding

Occupational asthma

- Remove precipitating factor

- Treat as normal
Acute asthma

Brittle asthma
- Wide PEFR variation – > 40% for more than 50% of 150 days
  or
- Sudden severe attacks on background of well controlled asthma

Moderate asthma exacerbation
- Increasing symptoms
- PEFR > 50 – 75% of best or predicted
- No features of acute or severe asthma

Acute severe asthma
Any one of
- PEFR 33 – 50% of best or predicted
- Respiratory rate ≥ 25 / min
- Heart rate ≥ 110 / min
- Unable to complete sentences
Life threatening asthma

• Any one of the following in a patient with severe asthma
  PEFR < 33% of best
  SpO₂ < 92%
  PaO₂ < 8kPa
  Normal PaCO₂
  Silent chest
  Cyanosis
  Feble respiratory effort
  Bradycardia
  Arrhythmia
  Hypotension
  Exhaustion
  Confusion
  Coma

Near fatal asthma

• Raised PaCO₂ and / or requiring mechanical ventilation with raised inflation pressures

Assessment

Clinical features
Symptoms
Respiratory rate
CV signs
FEV₁ or PEFR
Measurements improve recognition of severity, appropriateness / intensity of therapy.
None are specific and their absence does not exclude a severe attack
PEFR is more convenient

Assessment

Pulse oximetry
Measure to determine adequacy of oxygen therapy and need for ABG
Blood gases
Measure in patient with SpO₂ ≤ 92%

Aim of oxygen therapy to maintain SpO₂ 94 – 96%
Assessment

- Chest x-ray
  - Not used unless
    - Suspected pneumothorax
    - Suspected consolidation
    - Life threatening asthma
    - Failure to respond to therapy
    - Ventilation required

Criteria for admission

- Life threatening or near fatal asthma
- Any feature of severe asthma persisting after initial treatment
- Patients with PEFR > 75% one hour after initial treatment can be discharged unless
  - Still have significant symptoms
  - Concerns about compliance
  - Lives alone or isolated
  - Psychological problems
  - Physical disability or learning difficulties
  - Previous near fatal or brittle asthma
  - Exacerbation despite adequate steroid/reliever pre-presentation
  - Presentation at night
  - Pregnancy

Treatment

Oxygen
- Give high flow oxygen to all patients with acute severe asthma
- Maintain O₂ sat ≥ 94 – 98%
- Use oxygen as the driving gas for nebulised bronchodilators needs 8U/min or use large volume spacers

Beta agonist bronchodilators
- Use inhaled 5 agonists as first line
- Use early
- Only use IV therapy when inhaled cannot be used
- Consider continuous nebulisation
  - (requires appropriate nebuliser)

Steroid therapy
- Give in adequate doses
- Prednisolone 40 – 50mg for at least 5 days or until recovery
- Tapering of doses is not required
- Continue ICS

Ipratropium bromide
- Add for patients with acute severe or life threatening asthma or those with poor response

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Treatment

**IV magnesium sulphate**
- Consider in patients
  - with acute severe asthma who have not responded
  - life threatening or near fatal asthma

**IV aminophylline**
- Use only in consultation with senior physicians

Treatment

**LTRA**
- Insufficient evidence of benefit in acute asthma

**Antibiotics**
- Not indicated for acute asthma

Discharge and follow up

- **Timing**
  - PEFR > 75% and less than 25% diurnal variation
  - Stable patient
  - Reducing beta agonists

- **Patient education**
  - Before discharge
  - Action plan

- **Follow up**
  - Inform primary care within 24 hours

Acute asthma in Children

**Acute severe**
- Can't complete sentences
- Pulse
  - > 120 (aged >5 years)
  - 130 (aged 2 – 5)
- Respiration
  - > 30 breaths/min (≥ 5)
  - > 39 breaths/min (2 – 5)

**Life threatening**
- Silent chest
- Cyanosis
- Poor respiratory rate
- Hypotension
- Exhaustion
- Confusion
- Coma
Management in Children

- Oxygen
- Beta agonist bronchodilators
- Steroid therapy
- Ipratropium bromide

Combination inhalers

SMART dosing

- Patients
  - Step 3 poorly controlled
  - Step 2 above BDP 400microgr daily
- Use budesonide / formoterol as a single inhaler for controller and rescue medication
- Total daily dose of ICS should not be decreased
- Using rescue medication >once daily should have treatment reviewed

Combination or separate inhalers

- No difference in efficacy in giving combination or single
- Once on stable therapy
  - Combination have the advantage of guaranteeing that the patient doesn’t take the LABA without the ICS
A NES asthma pharmaceutical care plan has been developed to help pharmacists apply their learning, develop their assessment skills, help their patients get the most out of their medication and reduce any associated risks. It incorporates a simple assessment and follows the same systematic inquiry as the other chronic condition PCNA tools in the previous NES Core Courses. A care plan also allows you to document pharmaceutical care issues which have been identified during your consultation. Learning to use a care plan will also be useful for when the Chronic Medication Service (CMS) is introduced.

The NES asthma care plan has been designed with direct patient contact in mind and will help pharmacists to speak with patients in a more systematic and focused way. You can adapt the questions to your own style and the needs of your patients. Use it in conjunction with your computerised pharmacy medication records to identify patients you would like to actively target.

Ten blank care plans are available in your core pack. Please use these when attempting Case Studies 1-3. There are extra care plans for post-course activities.
### Pharmaceutical Care Needs Assessment

#### Asthma

<table>
<thead>
<tr>
<th>Name</th>
<th>Doctor's name</th>
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<th>Date of birth or CHI no.</th>
<th>Date</th>
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**1.** Can you tell me what medical condition(s) you have? Or have had?

<table>
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<tr>
<th>dose frequency no ordered monthly</th>
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**2.** What is/are the name(s) of the medication you take for your condition(s) and how do you take it/they?

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**3.** Do you ever forget or choose not to take your medication?

- [ ] yes
- [ ] no

**If yes, how often – weekly/monthly?**

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**4.** Do you know what to do if you have missed a dose of your medication?

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**5.** What, if any, side-effects do you experience from your medication?

- [ ] yes
- [ ] no

**6.** Do you feel that your medication is controlling your symptoms or have you noticed any changes since you started taking your medication? Do you know the trigger signs?

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**7.** Do you have a regular check/blood test/review? Can you tell me when that was, and the outcome?

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**8.** Would you like any information/advice on anything about your condition/medication/health promotion areas?

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**9.** Do you smoke? If yes how many cigarettes and for how long?

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### Specific asthma questions

- Please show me your inhaler technique?
- Do you wake at night coughing or wheezing?
- How often do you use your reliever inhaler each week?
- Does your asthma stop you doing anything that you want to do?
- If you have a peak flow meter – what is your most recent PEFR?
Pharmaceutical Care Needs Assessment

Asthma

<table>
<thead>
<tr>
<th>Care Issue/Desired Output</th>
<th>Action</th>
<th>Output</th>
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Case Study 1

Mr Thomson, a 32 year old asthmatic who is well known to you comes into your pharmacy. He is known to have a best peak flow of 640 L/min. He tells you that over the last few weeks he has been wakening up once or twice a week coughing, and he is using his salbutamol inhaler a couple of times a day. He has recorded his morning and night-time peak flows these have averaged 580 L/min and 540L/min respectively. He has recently changed his job and is now working in the open air rather than in an office.

His PMR shows that he has been maintained on

- salbutamol MDI, 2 puffs as required
- beclometasone 100 MDI, 2 puffs twice a day (recently changed to non CFC (Clenil Modulite))

for the last four years. He also buys antihistamine tablets from you during the summer.

His prescription today is for a Seretide® MDI 50, 2 puffs twice a day.

Based on the information available construct a care plan for Mr Thomson. He is under pharmacist care for his asthma. Include in the plan the immediate management of the patient and the monitoring you would carry out to ensure that the patient is benefitting from your plan.

One month later Mr Thomson returns with a repeat prescription for his Seretide® 50 inhaler. He tells you that he feels a little better and is now sleeping but his peak flow still only averages 600 L/min and is using his salbutamol inhaler 6 times a week.
At this consultation update your care plan for this patient.

Include in your plan any monitoring for the patient and any suggested changes in therapy. What would you use as criteria for referral of this patient to the GP or secondary care?

Six months later Mr Thomson is admitted to hospital with an exacerbation of asthma. On admission his pulse is 120 beats per minute, his respiratory rate is 28 breaths per minute and his PEFR is 390 L/min.

How would you define Mr Thomson's asthma control now?

What would you include in his care plan now? Could Mr Thomson be managed in the community or does he need to be admitted to hospital?
Case Study 2

You are asked to dispense a prescription for Angela, age 10 years, for

- salbutamol MDI, 2 puffs when required
- Seretide® 50 Evohaler, 2 puffs twice daily

Angela has been a patient of your pharmacy since she was a small child and has suffered from eczema and hay fever since she was 3 years old. Two years ago she was diagnosed with asthma and her GP has commenced this prescription. You know that she has been referred to the local hospital to see the respiratory paediatrician as her asthma was not controlled on Seretide 50, 2 puffs twice a day. She saw the hospital paediatric respiratory consultant last week.

Construct a care plan for this child.

In the care plan you should include prescribing, monitoring and follow-up for Angela. Indicate when you would expect to see her again and how often she should attend for follow-up. What other health-care professionals would you involve in the care of this patient.

Angela is discharged from hospital following an acute exacerbation she is now prescribed

- salbutamol MDI, 2 puffs as required
- Seretide® 125 Evohaler, 2 puffs twice daily
- prednisolone 50mg, 3 days to complete a 5 day course

How would you alter the care plan for Angela following her hospital admission? Does this change the monitoring and follow-up for the child?
Case Study 3

Mrs White, a 35 year old woman who is 28 weeks pregnant, comes in to your pharmacy on a Saturday afternoon with a repeat prescription for a terbutaline turbohaler. She last received a prescription for terbutaline 10 days ago and on that occasion received 2 turbohalers. From your PMR you note that at the same time she was also prescribed:

Symbicort® 100/6 Turbohaler 2 doses twice daily

On questioning Mrs White regarding her symptoms she says her asthma is usually worse at this time of year. She has used her last two terbutaline turbohalers and that although you dispensed the Symbicort® she has not been using these for the last six months as she was concerned about the effect that the corticosteroids may have on her unborn child. She has been using up all the terbutaline inhalers that she had at home and is now wheezy.

Mrs White is breathless.

What is the immediate care that Mrs White requires? How can this be delivered?

Construct a care plan for Mrs White to deal with her breathlessness. Include in this recommendations for prescribing and monitoring

Mrs White returns to your pharmacy with a prescription for

prednisolone, 50 mg each morning for 7 days
Symbicort® 100/6 Turbohaler 2 doses twice daily
terbutaline turbohaler, as required

Mrs White requests that only the terbutaline is dispensed.

Update your care plan for Mrs White. Include in this the counselling that you would need to undertake to ensure that Mrs White has an effective prescription.
Post-course activities

**CPD entries**

You should complete two RPSGB CPD entries. One of these should be based on the educational session you have undertaken and one should be related to changes in patient management that have resulted from the session. Copies of these completed RPSGB CPD entries can be submitted to NES.

**Pharmaceutical Care Plans**

At the end of this course you should construct three Pharmaceutical Care Plans for patients you have seen in your practice. You can then submit these completed care plan to NES. If required you will receive one to one remedial feedback and support on the care planning process. A general summary of care plan feedback will be posted on the NES website at the end of the current education and training year. All documentation you submit will be anonymised and may be used for the purposes of research and development of the service. If you would not like your submissions used for this purpose, please indicate this to us in writing.