

# Opinion

## Personal Asthma Action Plans

### What are Personal Asthma Action Plans?

Personal asthma action plans (PAAPs), formerly called self-management plans, are designed to encourage people with asthma (and their carers) to take more responsibility for the management of their asthma in partnership with health care professionals.

PAAPs are a written record of what action to take when symptoms and/or peak flow readings deteriorate. They should include information about when to seek medical help or when to access emergency services.

Although people with severe symptoms, or hospital admissions have the most to gain, all people with asthma should be aware of how to recognise that their condition is deteriorating and know what action to take. In order to prevent severe asthma attacks the action plan involves an explanation by a doctor or nurse about the signs and symptoms of deteriorating asthma control and information about prescribed medication. This needs to be tailored to the individual: some people will feel confident to start emergency courses of treatment, others may prefer to seek medical advice first.

Most severe attacks do not happen suddenly – they usually develop over several days, or in the context of poorly controlled asthma – and patients need to know what they can do to recognise and prevent worsening symptoms and how they can be treated.

Successful education and self-management programmes vary considerably but should encompass:

- Structured education, reinforced with a written PAAP.
- Specific advice about recognising loss of asthma control. This may involve monitoring symptoms or peak flows or both.<sup>1,2</sup>
- Action to take if asthma deteriorates, including seeking emergency help, commencing steroid tablets (if the patient has been given an emergency supply) and, if appropriate, temporarily increasing inhaled steroids.<sup>3</sup> A patient who has stopped their preventative medication should be reminded to recommence their inhaled steroids.

### Types of Plans

#### 1. Peak flow-based asthma action plan

These are designed for people who wish to

be closely involved in their asthma management, like the objectivity of peak flow measurement, have regular symptoms, or who are at risk of attacks.

The plan informs people how to measure a peak expiratory flow rate (PEF) and how to interpret the measurements. They also include instructions on how to respond in the event of an asthma attack.

They are appropriate for patients:

- Who prefer to check a peak flow before changing treatment.
- With more severe asthma.
- Who have had frequent courses of oral steroid tablets.
- Who have been previously admitted to hospital as a result of their asthma.

Setting peak flow targets is a useful way of establishing a framework for a peak flow-based action plan. The fundamental prerequisite is to obtain the patient's best peak flow reading (assessed once treatment has been optimised and peak flows are stable) and then to use this as the level against which subsequent peak flow readings can be measured and calculated as a percentage of the best value. Action levels then correspond to different percentages of the patient's best reading. Best PEF should be updated every few years in adults and more frequently in growing children

The 'Be In Control' Asthma UK materials, which include peak flow-based plans, are available from [info@asthma.org.uk](mailto:info@asthma.org.uk). They also include advice for healthcare professionals on how to complete these plans.

The most recent BTS/SIGN Asthma

Guidelines<sup>4</sup> recommend the following:

- PEF < 80% of best: increase inhaled steroids.
- Those on low doses e.g. 200mcg of inhaled steroid daily should be advised to increase the dose substantially e.g. to 1200mcg beclometasone daily at the onset of a deterioration.<sup>5</sup>
- Increasing inhaled steroids is ineffective if patients are already taking moderate or high doses (>400mcg daily) and these patients should move straight to the oral steroid step.
- PEF < 60% of best: commence oral steroids.
- PEF <40% of best: seek urgent medical advice.

There is no single measure of asthma severity that is 100% sensitive, 100% specific, and works for all patients. The choice of measures to be used will vary between patients and between clinical settings. The most recent asthma guidelines recommend the measurement of PEF rate in ascertaining the severity of asthma and as a useful tool in monitoring recovery following an acute attack.

Many patients can manage their asthma by monitoring their symptoms. However, some are poor at judging the severity of their condition. In these cases a measure of PEF and comparing this to the patient's best recorded PEF can determine if changes in treatment or an admission is required.

In a recent systematic review of five trials in children, PAAP use significantly reduced acute care visits, school absenteeism, nocturnal waking and improved

Figure 1: The Asthma UK 'zoned' PAAP

ACTION PLAN		
Symptoms are:	Peak Flow is:	Action is:
No symptoms	<input type="text"/>	Normal – continue your treatment or talk to your doctor/nurse about taking less treatment
Getting a cold, symptoms during daytime and/or nighttime	<input type="text"/>	Take ..... of ..... (times a day) and blue inhaler for relief of symptoms
Out of breath Blue inhaler does not help	<input type="text"/>	Continue as a above and start steroid tablets ..... mgs x ..... and contact .....
Too breathless to speak	<input type="text"/>	This needs emergency action straight away. See back page

symptom scores. Compared with peak flow based plans symptom based plans reduced the risk of a patient requiring an acute care visit, suggesting that symptom-based plans were superior to peak flow based plans in children and adolescents.<sup>5</sup> However in adults there was no significant difference between both types of plan.<sup>6</sup>

## 2. Symptom-based asthma action plan

Asthma symptoms are frequently triggered by viral infections or on exposure to a known asthma trigger factor. Symptoms indicating worsening control include:

- Night-time waking due to cough and wheeze.
- Exercise-induced symptoms.

The 'Be in Control' asthma action plan recommends the following:

### ZONE 1

- Asthma is under control if the patient has no or minimal symptoms during the day or night (no wheezing, cough, tightness in the chest or shortness of breath).

- Normal activities are easily carried out without inducing asthma symptoms.

Patients are advised to continue their usual asthma medications (which are written in the management plan).

### ZONE 2

- Asthma is getting worse if the reliever inhaler is required more than once/day.
- The patient is having difficulty sleeping because of asthma symptoms.

Patients are advised to increase their preventer medication to 1200mcg beclometasone daily at the onset of a deterioration<sup>5</sup> (see above for more detail) and use their reliever inhaler as required.

### ZONE 3

- Asthma is more severe if the reliever inhaler is required every four hours or more, and the patient is experiencing constant symptoms.

Patients are advised to start oral prednisolone - assuming they have their own supply - for 5 days or until symptoms have improved, and to inform their doctor or nurse within 24-36hrs. Alternatively they should make arrangements to be seen at the surgery that day.

### ZONE 4

- It is an asthma emergency if the reliever inhaler is not alleviating symptoms.
- The symptoms are getting worse.
- The patient is too breathless to speak in sentences.

Patients are advised to obtain emergency help and phone 999 if symptoms do not improve. In the meantime, patients they should take their reliever inhaler as often as required. Parents can administer multi-doses of salbutamol (10 puffs) or equivalent, via an MDI and

spacer. Adults can take up to 20 puffs.

Patients on the combination product budesonide/formoterol (Symbicort) who are using the SMART approach i.e a single inhaler used as rescue medication instead of a short acting  $\beta_2$ -agonist, in addition to its regular use as a controller treatment will need the following action asthma plan:

- Take their regular daily maintenance inhalations every day.
- If they are having asthma symptoms:
  - Take one additional inhalation of Symbicort
  - If the symptoms do not improve after a few minutes take a further inhalation
  - Take no more than 6 inhalations on a single occasion for relief of symptoms and no more than 12 inhalations on the same day (total of maintenance and relief)
  - If more than 12 inhalations in the same day are required contact their doctor or nurse as soon as possible
  - In an emergency - if the Symbicort inhaler is not helping - seek medical advice immediately by calling their doctor or an ambulance and go directly to hospital

## Implementation

Self management advice should be offered to most patients; asthma action plans encourage patients to take a more central role in controlling their own condition, thereby preventing attacks.

Patients need to be offered certain basic facts and acquire certain skills in order to monitor their own condition and to understand the significance of certain symptoms. This should include advice on how to make lifestyle changes or treatment changes.

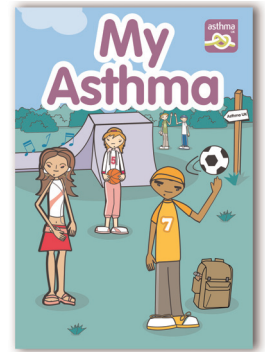
Every asthma consultation is an opportunity to review, reinforce, and extend, knowledge and skills

- A hospital admission represents a window of opportunity to review self-management skills. No patient should leave hospital without a written PAAP and if appropriate, their own peak flow meter.
- An acute consultation offers the opportunity to determine what action the patient has already taken to deal with the exacerbation. Their self-management strategy may be reinforced or refined and the need for consolidation at a routine follow-up considered.
- A consultation for an URTI or other known trigger is an opportunity to rehearse with the patient their self-management in the event of their asthma deteriorating.<sup>4</sup>

Self-management programmes will only achieve better outcomes if the prescribed

asthma treatment is appropriate and within guideline recommendations, and there is some evidence that patients provided with an asthma action plan receive more effective treatment.<sup>9</sup>

Health care professionals providing education and guiding self management should be trained to acquire and maintain the skills necessary to deliver this form of education to patients with asthma.<sup>10</sup>



**My Asthma Plan – a personal asthma action plan for young children produced by Asthma UK**

## References

1. Adams RJ, Boath K, Homan S, *et al*. A randomized trial of peak flow and symptom-based action plans in adults with moderate-to-severe asthma. *Respirology* 2001;**6**(4):297-304.
2. Yoos HI, Kitzman H, McMullen A, *et al*. Symptom monitoring in childhood asthma: a randomized clinical trial comparing peak expiratory flow rate with symptom monitoring. *Ann Allergy Asthma Immunol* 2002;**88**(3):283-91.
3. Madge P, McColl J, Paton J. Impact of a nurse-led home management training programme in children admitted to hospital with acute asthma: a randomised controlled study. *Thorax* 1997;**52**:223-8.
4. British Thoracic Society / Scottish Intercollegiate Guidelines Network British Guideline on the Management of Asthma 101. Updated May 2011 [www.sign.ac.uk/guideline](http://www.sign.ac.uk/guideline)
5. Zemek RL, Bhogal SK, Ducharme FM. Systematic review of randomized control trials examining written action plans in children and adolescents: what is the plan? *Arch Pediatric Adoles Med* 2008;**162**(2):157-63.
6. Powell H, Gibson PG. Options for self-management education for adults with asthma. *Cochrane Database of Systematic Reviews* 2002, Issue 3. Art. No.: CD004107. DOI: 10.1002/14651858.CD004107.
7. Wolf F, Guevara JP, Grum CM, Clark NM, Cates CJ. Educational interventions for asthma in children. *Cochrane Database of Systematic Reviews* 2002, Issue 4. Art. No.: CD000326. DOI: 10.1002/14651858.CD000326.
8. Gibson PG, Powell H. Written action asthma plans for asthma: an evidence based review of the key components. *Thorax* 2004;**59**:94-9.
9. Osman LM, Calder C, Godden DJ, *et al*. A randomised trial of self-management planning for adult patients admitted to hospital with acute asthma. *Thorax* 2002;**57**:869-74.
10. Cote J, Bowie DM, Robinchaud P, *et al*. Evaluation of two different educational interventions for adult patients consulting with an acute asthma exacerbation. *Am J Respir Crit Care Med* 2001;**163**:1415-9.
11. Thoonen BP, Schemer TR, Vanden Boom, *et al*. Self-management of asthma in general practice, asthma control and quality of life: a randomised controlled trial. *Thorax* 2003;**58**:30-6.
12. McDonald VM & Gibson PG. Asthma self management education. *Chronic Respir Dis* 2006;**3**:29-37.

**Date of Preparation:** March 2007, **Revised** October 2011 **Author:** Ruth McArthur, Hunter Health Centre, East Kilbride, Glasgow **Conflict of interest:** R McArthur has undertaken and received payment for educational training sessions sponsored by the following organizations Boehringer Ingelheim/Pfizer, AstraZeneca, Allen & Hanburys (the respiratory division of GSK), Novartis, Napp and Chiesi

**Editor:** Dr Hilary Pinnock, Whitstable, Kent

**Address for Correspondence:** PCRS-UK, Smithy House, Waterbeck, Lockerbie, DG11 3EY, UK **Telephone:** +44 (0)121 351 4455 **Facsimile:** +44 (0)121 336 1914

**Websites:** <http://www.pcrs-uk.org>, <http://www.thepcrj.com> **Email:** [info@pcrs-uk.org](mailto:info@pcrs-uk.org)

©Primary Care Respiratory Society UK. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, without the prior permission of the PCRS-UK. The PCRS-UK is a registered charity (Charity Number: 1098117) and a company, registered in England and limited by guarantee (Company number 4298947). Registered Offices: 2 Wellington Place, Leeds, LS1 4AP