ARTICLE

Rational prescribing for asthma in adults – written asthma action plans

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SUMMARY

Written asthma action plans are an essential part of effective asthma management, but very few adult patients have them.

The key components of a written asthma action plan are how to recognise deteriorating asthma, what treatment to use and when to seek medical help. A section on the first aid to give in an emergency can also be included.

An action plan should be simple and personalised. Most plans advise patients to increase the dose and frequency of their inhaled treatments. Oral corticosteroids are advised for severe exacerbations.

Asthma action plans should be reviewed at least once a year.

Introduction

For the last 20 years, guidelines have recommended that all patients with asthma, regardless of severity, should have a personal asthma action plan giving instructions for how to recognise and respond to worsening asthma. The plan should be written, so the patient has a record of the instructions. It should describe the actions they should take, including changes in treatment and when to seek health care. Plans should be personalised for the patient's level of asthma control, their treatment, and their capability for appropriate self-management. Despite systematic reviews of randomised controlled trials supporting the benefits of written asthma action plans as part of self-management education,[1,2] only a small minority of people have one.[3] Although a lack of time contributes, uncertainty about therapeutic options is a significant barrier to provision of written asthma action plans by health professionals.[4,5]

Before writing an asthma action plan

Ask the patient about their usual triggers for worsening asthma, the words they use to describe it,[6] and the typical time frame. Patients with a history of sudden deterioration should be encouraged to seek medical care early. They should be referred for investigation of trigger factors and to assess if they have poor perception of airway obstruction. Also, ask what the patient usually does in response to worsening asthma, as this may alert you to problematic health beliefs or use of complementary therapies.

If asthma is not currently well controlled, write a temporary action plan. Update it once any change in maintenance management has been effective.

Action plan templates

Writing and reviewing action plans are required components of the Asthma Cycle of Care Service Incentive Payment available to Australian general practitioners. Preparing an action plan is simplified by using a template, which pre-prints some information and provides prompts for the personalised instructions. Clinicians should become familiar with a small number of action plan templates relevant to their practice population.

Tear-off action plan pads are available free of charge from the Department of Health and Ageing,* and new wallet-sized action plan cards were launched by the National Asthma Council in 2011. A range of action plan templates, some with translations, are available for free download from the National Asthma Council website,[7] including specific templates for children and for patients using the budesonide/eformoterol as maintenance and reliever regimen. Action plan templates are also available in some practice software packages.

What an action plan template should include

Check that your template includes prompts or spaces for:

- the patient's name
- current preventer and reliever drugs and doses
- the level of symptoms or peak flow at which they should move to the next step in the plan
- specific treatment changes for each step
- when to contact their general practitioner or a hospital

* National Mailing and Marketing, Department of Health and Ageing, phone (02) 6269 1000. Asthma Cycle of Care action plan pads (25 action plans per pad) are delivered free of charge within a few days after an order is placed.

- the doctor's name and phone number
- the date.

For most patients, symptom-based action points are sufficient.[2] Peak flow monitoring is only needed for patients with severe asthma, frequent exacerbations, or poor perception of airway obstruction.

Check that the patient can correctly use all inhaler devices included on their action plan.[8,9]

Prescribing options for worsening asthma

A wide variety of criteria have been proposed for defining mild or moderate exacerbations, but none has been validated.[10] Instead, the clinician should specify a level of symptoms and reliever use which is beyond the usual range of the patient's day-to-day variation. It is important to customise the plan to the patient's usual status, to avoid over- or underuse of the action plan. Night waking is an important (but late) indicator of worsening asthma.

Reliever medication

If asthma worsens, remind the patient to use their reliever inhaler, for example salbutamol, as often as needed. Although this may seem obvious, patients with well-controlled asthma often need a prompt to keep a reliever inhaler on hand.

Preventer medication

For patients taking conventional fixed-dose inhaled corticosteroids or inhaled corticosteroids with long-acting beta$_2$ agonists, current guidelines do not recommend doubling the dose of inhaled corticosteroid when asthma worsens. However, the evidence for not increasing the dose was from placebo-controlled studies in which the extra inhaled corticosteroids were not started until around five days after the patient's asthma began to worsen.[11] A recommendation to double preventer medication may be useful for some patients to remind them to take at least some, since poor adherence may have contributed to the deterioration.

Recently, there has been some evidence to support increasing inhaled corticosteroids to high doses for worsening asthma.[11] This can be done by quadrupling the usual dose of inhaled corticosteroid or, for those using a combination corticosteroid/long-acting beta$_2$ agonist inhaler, adding a high-dose corticosteroid inhaler (for example adding fluticasone 250 microgram inhaler or ciclesonide 160 microgram two puffs twice daily by spacer to the patient's usual preventer regimen). This approach may be helpful for patients who have major adverse effects with oral corticosteroids. It may be unsuitable if cost is a major issue, or for people such as singers who use their voice professionally, for whom a small risk of dysphonia may be unacceptable.

For patients using the combination of salmeterol with fluticasone, ensure that the action plan prescribes a dose that will provide the recommended dose of salmeterol (100 microgram/day). For example, if the usual dose is salmeterol/fluticasone 25/125 one puff twice daily, increase it to at least two puffs twice daily during exacerbations.

Patients prescribed the combination of budesonide with eformoterol as maintenance and reliever therapy should be reminded to use extra as-needed inhalations (100/6 or 200/6) as symptoms increase. The combined daily maximum for either formulation is 12 inhalations, but such high usage is uncommon.

Peak flow monitoring is only needed for patients with severe asthma, frequent exacerbations, or poor perception of airway obstruction

When asthma improves

Patients prescribed conventional fixed-dose inhaled corticosteroids or inhaled corticosteroids with long-acting beta$_2$ agonists should be prompted to continue any increased dose for two weeks and to contact the clinician if they do not improve within two weeks or are worsening. Patients using the budesonide/eformoterol combination inhaler as maintenance and reliever therapy should reduce their as-needed inhalations as symptoms improve.

Prescribing options when asthma is severe

There are no validated objective criteria for activating the severe section of an action plan. For each patient, the clinician should specify a level of symptoms or peak flow at which urgent action would be needed to prevent serious outcomes such as hospitalisation. Typical indicators for this step might be failure to improve after 2–3 days on the previous step, or rapid deterioration, or needing the reliever again within three hours. For patients using budesonide/eformoterol as maintenance and reliever therapy, addition of oral corticosteroids should be considered if the patient exceeds six reliever inhalations a day or is not improving over 2–3 days.

Reliever medication

Emphasise that for short periods the reliever can be used as often as needed, but that if it is needed more than four-hourly, medical review should be obtained. If the patient is using a metered dose inhaler, the reliever should be inhaled through a spacer (one puff at a time, shaking the inhaler between each puff) to improve effectiveness.[8,9] Stress that a nebuliser is not needed, as inhaler plus spacer is just as effective.[12]

Oral corticosteroids

For severe exacerbations, a short course of prednisolone, started by the patient following agreed criteria, is the recommended option. These criteria should state when the patients should also call their doctor or go to hospital.

Evidence for adults supports a daily dose of 50 mg (2 x 25 mg tablets) for a period of five days. Longer courses are not usually needed, so there is no need to taper the dose except if adverse effects are troublesome or treatment has been continued for more than two weeks.[5] It is important to discuss potential adverse effects such as irritability, depression, insomnia and weight gain, to emphasise that these resolve quickly, and to advise that the dose can be adjusted in future. Insomnia is reduced by taking prednisolone in the morning rather than twice daily.

While underuse of prednisolone is a danger for patients who experience depression, irritability or increased weight, a tendency to overuse (and hence greater risk of osteoporosis and cataracts) may be seen in patients who experience euphoria. Patients with diabetes should be asked to check their blood glucose more often when taking oral steroids as they may need to adjust their treatment.

Preventer medication

Remind patients to keep taking their preventer medication during severe exacerbations. Explain that although they are also taking an oral corticosteroid, inhaled corticosteroids work by a different mechanism so both are needed.

When asthma improves

Additional inhaled therapy should be continued for at least a week after symptoms resolve. Arrange for a follow-up visit after any severe exacerbation, to identify the trigger and assess whether maintenance treatment needs to be modified. The action plan should also be reviewed (see Box).

Asthma emergencies

The final section of a written asthma action plan often provides information about asthma first aid. Ask the patient to show this section, about what to do in an emergency, to their friends and family. Asthma first aid training is available through asthma foundations and other organisations.† The basic principle for pressurised metered dose inhalers is '4 x 4 x 4' – that is, a single puff separately into a spacer followed by four breaths through the spacer, shaking the inhaler between each puff; this is repeated four times. After another four minutes the process is repeated again.

Terbutaline or budesonide/eformoterol, by dry powder inhaler, may also be used for first aid. Give an initial two inhalations then repeat after a few minutes.

If the patient obtains little or no improvement, is having difficulty speaking or their lips turn blue, call an ambulance and say someone is having a severe asthma attack. Keep giving reliever medication while waiting for the ambulance. Emphasise to patients that in an asthma emergency they should never try to drive themselves to hospital.

Reviewing a written asthma action plan

Action plans should be reviewed (see Box) whenever maintenance medications are changed, or at least yearly.

Conclusion

Evidence-based principles can be applied to any written asthma action plan template. Health professionals should become familiar with an action plan template for each of the two main asthma treatment regimens (preventer therapy with short-acting beta$_2$ agonist reliever, and budesonide/eformoterol maintenance and reliever therapy), and know how to complete each. An action plan can be used during consultations to help with patient self-management education, and to encourage shared decision-making about how worsening asthma will be managed. ≺

Box **Reviewing a written asthma plan**

Write any new drugs or doses into the 'usual management' section

Check that the criteria for worsening asthma are appropriate for the patient's usual status when well

Ask whether the patient's asthma has worsened since the last visit and what the trigger was

Ask if the action plan was used. If not, does the patient need another copy? Where will they keep it so they can find it in future? If the action plan was used, did the patient feel that it worked? Were they happy with the action points and the treatment changes? Did they have any adverse effects? Does anything need to be modified?

Emphasise that the action plan is personalised for each patient's needs

Write an updated prescription for oral corticosteroids and any other drugs needed for the action plan. These should be dispensed before travel or for patients with a history of sudden exacerbations.

† www.nationalasthma.org.au/emergency
www.asthmaaustralia.org.au/training

Associate Professor Reddel has served on advisory boards for AstraZeneca, GlaxoSmithKline and Novartis, and has provided consulting for Biota, GlaxoSmithKline and Novartis. She has received honoraria from AstraZeneca, Boehringer Ingelheim and GlaxoSmithKline for educational presentations, is chairing a joint data monitoring committee for AstraZeneca, GlaxoSmithKline, Merck and Novartis, and has received research funding from AstraZeneca and GlaxoSmithKline. She contributed to the development of action plan templates for budesonide/eformoterol maintenance and reliever therapy, and a generic action plan template and an asthma first aid chart for the National Asthma Council.

Note: The April 2012 issue of *Australian Prescriber* featured an article on rational prescribing for ongoing management of asthma in adults, also by Dr Reddel.

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Q:

SELF-TEST QUESTIONS

True or false?

1. Action plans should advise against the use of spacers during exacerbations of asthma.
2. Patients with an exacerbation of asthma should not start oral corticosteroids before being examined by a doctor.

Answers on page 103

Dental note

Asthma action plans

Although asthma frequently presents in childhood, it can occur for the first time at any age. An asthma attack can occur during dental treatment so a plan for managing these attacks is always prudent.

Patients who regularly use inhalers should be advised to bring them to dental appointments so that they can self-medicate if necessary. Ideally patients would have a written asthma action plan to provide information about asthma first aid. Dentists should ask their patients to bring their written asthma action plan and discuss with them what to do in an asthma emergency. This discussion may further prompt the patient to undertake a written asthma action plan with their doctor.

The basic principle of management of acute asthma is giving repeated doses of an inhaled bronchodilator (the 4 x 4 x 4 rule). More detail is given in Therapeutic Guidelines: oral and dental.[1]

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