UNIT NO. 5

ASTHMA ACTION PLAN (AAP)

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CONCEPT OF THE ASTHMA ACTION PLAN

The concept of using a guided self-management written Asthma Action Plan (AAP) arose as clinicians realised that delays in recognising asthma exacerbations and initiating appropriate therapy are important factors contributing to asthma morbidity and mortality. An AAP guides asthma patients to make changes to their treatment in response to changes in the severity of their asthma, in accordance with predetermined guidelines.

The AAP is an individualised written self-management guide for asthmatic patients by their doctors. It grades patient's severity of asthma into the green, yellow and red zones, according to their symptoms and, if desired, the peak expiratory flow rates (PEFR), and describes the dose, frequency and duration of the appropriate treatment. An example of a written AAP is shown in Figure 1.

The main aim of the AAP is to abort exacerbations by rapid step up of both reliever and preventor medication. It also prompts the patient to seek urgent hospital treatment in instances of severe exacerbations and/or failure of self-medication. The use of asthma action plans will lead to reduction in hospital admissions, emergency room visits, unscheduled visits to the doctor for asthma, days off work, nocturnal wakening and in the risk of death from asthma.

CHECKLIST

A simple checklist to be used at each clinic visit provides the basic tools (check box & checklist, Figure 2) for quick patient review and revision of management steps and drug treatment that can be completed in a few minutes. The doctor matches the severity of the patient's current asthma symptoms with the intensity of current asthma treatment based on the STEP approach to asthma therapy.

Ask the patient the following questions:

a. Has your asthma awakened you at night (night wheeze/ cough/shortness of breath)?
b. Have you needed more reliever medications than usual?
c. Have you needed any urgent medical care?
d. Has your peak flow been below your personal best?
e. Are you participating in your usual physical activities?
f. Have you taken any days off (MC) in the past month due to asthma?

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Action to consider

Adjust medications and management plan as needed (step up or step down). But first, compliance should be assessed. Inhaled rapid-acting beta$_2$-agonists in adequate doses are essential. Oral glucocorticosteroids introduced early in the course of a moderate or severe attack help to reverse the inflammation and speed recovery.

Patients who are well and in clinical remission merely need a repeat prescription accompanied by a check on:

a. Their proficiency with the inhaled device
b. Compliance with the preventive drug and
c. Skills with self-management of an acute exacerbation as prescribed in the written AAP

CUES TO ACTION

Fundamental to the success of a written AAP is the ability of the patient to recognise deterioration in asthma control. The patient is taught to assess asthma control by interpreting key symptoms like wheezing, shortness of breath, chest tightness and coughing.

How to recognise worsening asthma?

List down for the patient indicators such as increasing cough, chest tightness, wheezing, difficulty in breathing, sleep disturbance, or PEFR below personal best despite increased use of medications.

Patients should immediately seek medical care if:

a. The attack is severe
b. The response to the initial bronchodilator treatment is not prompt and sustained for at least 3 hours
c. There is no improvement within 2 to 6 hours after oral glucocorticosteroid treatment is started
d. There is further deterioration

How and when to seek medical attention?

List down indicators such as an attack with sudden onset, shortness of breath while resting or speaking a few words, feeling panicky, PEFR below a specified level, or a history of acute severe attacks. List down the name, location, and telephone number of the clinic or hospital to seek treatment.

Simple advice to step up medication if there are any night-time symptoms, especially nocturnal awakening, or if symptoms do not respond to increased use of inhaled beta$_2$-agnoist therapy are key messages to convey. Domiciliary measurements of PEFR – with values interpreted as a percentage of normal predicted or previous best achieved recordings – may be used as an objective assessment of the degree of airflow obstruction for some patients.

Figure 1 – **Written Asthma Action Plan**

ZONE		
GREEN Good Control	YELLOW Asthma Getting Worse	RED Asthma is Severe
Symptoms O No wheeze/coughing night/day O Perform all activities O Sleep well O Peak flow L 80% best	O Any wheeze/cough/shortness of breath/chest tightness day/night O Usual activities affected O Sleep disturbed O Peak flow I 80% best	O Cannot talk/walk O Unable to sleep O Use of reliever I 3 hourly, little response of symptoms to reliever O Peak flow I 60% best
What You Should Do Continue usual medications Preventer _____Dose____ _____ Reliever _____ _____Dose____ Other medications **Avoid/control triggers**	Increase usual medications Preventer _____Dose____ Reliever _____ _____Dose____ Other medications **Avoid/control triggers** If you respond, continue this regime for 1 week, then return to the green zone regime If you do not respond within 60 minutes **GO TO THE RED ZONE!** If you need reliever L 1x/week for more than 1 month, you should get an earlier appointment to see your Doctor to improve the long term control of your asthma.	SEEK EMERGENCY TREATMENT Go to the nearest clinic/A&E Call ambulance 995 IF YOU HAVE _____ Severe shortness of breath, or unable to speak comfortably, or blueness of the lips/fingers CONTINUE Reliever _____Dose_____ stat dose medication_____ until you reach hospital

Figure 2 – **Asthma Check Box and Checklist**

Visit # _____

Current treatment	Changes
Preventer Drug(s)	
Quick Relief Drug(s)	

Height

Days off (MC) in past month	Day wheeze/cough/SOB (per month or week)	Night wheeze/cough/SOB (per month or week)
Daily activities stopped Per month or week	Good Compliance Yes No	Good inhaler technique Yes No
PEFR_____% Best / Predicted (Optimal)	Since the last clinic visit: Nebulisation/EMD/Admit (Dates)	Follow up_____Weeks

Definition of Persistent Asthma: Day Symptoms: O 1 per week; Night Symptoms: L 2 per month

CHECKLIST:

a. Good inhaler technique
b. Compliance with preventive treatment
c. Compliance with follow up visits
d. Reinforce written **Asthma Action Plan** (AAP)

ENCOURAGING COMPLIANCE

An important part of achieving good asthma control is encouraging compliance and encouraging adherence to treatment. Because non-adherence is difficult for clinicians to detect, it is prudent to explore potential barriers to adherence with every patient by asking what concerns they have about medicines (e.g. safety) or other aspects of treatment. The followings are useful to consider:

a. Early in each visit, elicit the patient's concerns, perceptions, and unresolved questions about his or her asthma.
A question such as "What worries you most about your asthma?" which cannot be answered yes or no, encourages patients to voice issues, personal beliefs, or concerns they may be apprehensive about discussing. Potential barriers to adherence can be dealt with only if they are identified. By asking about and discussing such concerns, clinicians build trust and a sense of partnership with the patient. Most non-adherences originate in personal beliefs or concerns about asthma that have not been discussed with the clinician. Until such fears and worries are identified and addressed, patients will not be able to adhere to the clinician's recommendations.

b. Assess the patient's and family's perceptions of the severity level of the disease.
Two questions may prove useful: "How severe do you think your asthma is?" and "How much danger do you believe you are in from your asthma?" When patients who are overwhelmed by fear of death are identified, put their fears in perspective by providing them with the results of objective assessment and expert opinion. A clearly written AAP that directs the patient on how to respond to worsening asthma may be extremely helpful in reducing anxiety.

c. Assess the patient's and family's level of social support.
Ask: "Who among your family or friends can you turn to for help if your asthma worsens?" Counsel patients to identify an asthma "partner" among their family or friends who are willing to be educated and provide support.

d. Encourage or enlist family involvement.
Ask patients to identify ways in which their family members can help them follow the plans. Ask the patient to share the plans with family members, elicit their input, and agree on actions they can help with.

e. Use methods to increase the chances that the patient will adhere to the written AAP.
Adherence to the AAP is enhanced when the plan is simplified as much as possible, when the number of medications and frequency of daily doses are minimized, when the medication doses and frequency fit into the patient's and family's daily routine, and when the plan considers the patient's ability to afford the medications.

AUDITING YOUR OWN PRACTICE

The goals for successful management of asthma are:
a. Minimal or no symptoms, including night-time symptoms
b. Minimal asthma episodes or attacks
c. No emergency visits to physicians or hospitals
d. Minimal need for reliever medications
e. No limitations on physical activities and exercise
f. Nearly normal lung function
g. Minimal or no side effects from medication.

The following are indices of poor clinical outcome that should be monitored in each patient:
a. Excessive use of inhaled quick relief agents O 2 units per month
b. Severe acute exacerbations requiring nebulisation O 2 per year
c. Status asthmaticus: failure to improve after treatment with $beta_2$-agonists
d. Short bursts of oral steroids O 2 per year
e. No patient should be on long-term oral corticosteroids in primary care
f. Hospital admission/re-admission for asthma.

Quality indicators for asthma management:
a. Patients who require acute relief medication one or more times a week should be started on inhalation corticosteroid therapy
b. Asthmatics who present to the clinic with sudden severe episodes of acute exacerbation should be given a one week course of oral corticosteroids
c. All patients requiring asthma treatment should be given patient education which includes a written asthma action plan.

COMMUNITY RESOURCES

The main community-based resource for patients that the family physician can refer patients to will be the Asthma Association, Singapore. The Health Promotion Board also has useful educational materials for asthma patients. The Singapore Thoracic Society and the Singapore Paediatric Society provide regular asthma-related continuing medical education updates and resources for family physicians. Useful asthma resources (as at December 2001) available on the internet are:

http://www.ginasthma.com
Global Initiative for Asthma, National Institutes of Health, National Heart, Lung, and Blood Institute, Bethesda, Maryland

http://www.asthma-association.org.sg
Asthma Association, Singapore

http://www.familydoctor.org/
American Academy of Family Physicians (Patient education handouts)

http://www.thoracic.org
American Thoracic Society

http://www.aaai.org
American Academy of Allergy, Asthma and Immunology

http://www.asthma-help.co.uk/
Asthma-Help in the United Kingdom

http://www.worldallergy.org/
World Allergy Organization

Learning Points:

- The main use of the AAP is to abort exacerbations by rapid step up of both reliever and preventer medications.
- Use the check box and check list for quick patient and management review.
- The written AAP provides the cues of action for the patient to recognise worsening asthma, take action, and know when to seek medical attention.
- Encourage compliance by addressing concerns, knowledge, social support as well as encourage family involvement.
- Audit your own practice on the quality indicators for asthma care.
- Acquaint the patient to community resources including sources of information on the Internet.

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