

### Conclusions

On the basis of the current evaluated education programmes for asthmatic adults and our own experience, it may be concluded that patient education including self-management skills may be a useful component in the long-term treatment of asthma. Due to education programmes the patient's ability to react to changes in airflow limitation improved, thus reducing their fear of severe attacks. Thus, education programmes may diminish the severity of these attacks and decrease the disability of the patients. Through a reduction of emergency admissions, hospitalisations and sick leave days, efficient patient education programmes may contribute to decrease the cost of an often lifelong asthma treatment.

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## Prescription information leaflets for patients

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Despite the widespread prescription of medicines, patients' knowledge about the drugs they take is limited. Awareness of potential side-effects of treatment is often particularly poor. Many patients feel that not enough is explained by doctors and pharmacists, but instructions given verbally are often forgotten or misunderstood. One solution might be to provide patients with information leaflets with their prescribed medicines. Surveys suggest that patients would welcome written information about the drugs they are prescribed [1].

Few patient-oriented leaflets have been available in the UK until recently. Those that were provided have been criticised for being either too complex or too simplistic. Detailed leaflets, available with preparations such as oral contraceptives, are not always easy for patients to understand, whereas leaflets which confine their advice to instructions the correct use of an inhaler, for example, may not provide patients with all the information they desire.

Over the past five years at Southampton we have studied the effects of giving patients written information about their prescribed medicines. We have developed a series of Prescription Information Leaflets (PILs) for patients. Our leaflets give information about six therapeutic groups of drugs, all of which are commonly prescribed in British general practice. One of these leaflets contains information about inhaled bronchodilators, which are indicated for the alleviation and the prevention of asthma attacks.

This paper describes the effects of our bronchodilator PIL on patients' knowledge about their medicine, compliance with treatment and satisfaction with the information received.

### Methods

The leaflets were constructed according to general principles for the design of technical information reviewed by Gibbs *et al.* [4]. A two-sided format was developed in order to provide different levels of information requested by patients [1]. Our PIL giving information about inhaled bronchodilators is shown in figures 1 and 2.

The leaflets were evaluated within the setting of general practice. The studies were conducted in six small Hampshire towns. Leaflets were given patients in four of the towns by either a pharmacist or a general practitioner. Patients in the two control towns received no leaflets. The patients were selected on the basis that they were prescribed one of the study drugs during the survey period. Interviews were conducted with patients in their own homes 1-2 weeks after a consultation using a structured questionnaire. Knowledge was assessed with questions about the name of the drug, the dosage regimen and potential side effects of treatment, and patients were asked how satisfied they were with the information they received. Compliance was assessed by tablet counts and questioning. Each interview lasted for about 30 minutes. The data were analysed using the SPSS-X statistical package. Associations were tested using the chi-squared statistic.

### Results

A total of 1218 patients were interviewed and the studies achieved an 80% response rate. Of the patients interviewed, 165 had been prescribed inhaled bronchodilators: 65 patients were given the PIL and 100 were in the control group and did not receive a leaflet.

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## What you should know about Bronchodilators

Please read this carefully before you start using your inhaler. If you have any questions or are not sure about anything ask your doctor or pharmacist.

The name of your medicine is \_\_\_\_\_  
 This is one in a group of medicines called Bronchodilators.  
 Bronchodilators relieve asthma by relaxing muscle spasm in the lungs. If you use this medicine regularly it may also help to prevent attacks of asthma.

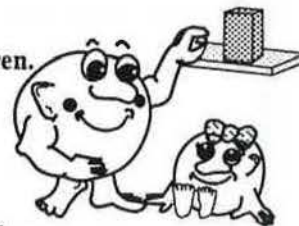
### Things to remember about Bronchodilators

**1 Make sure you know how to use your inhaler.**  
 There are instructions in the box it came in.



**2 Bronchodilators sometimes cause problems.** You can find these listed on the back of this leaflet. \*

**3 Keep your medicine out of reach of children.**



**4 Dispose of old inhalers safely.** Do NOT throw inhalers on to the fire.



Figure 1

The results given below are confined to these inhaled bronchodilator users.

Sixty-two percent of the respondents were women. There were no significant differences in social class between those who received a bronchodilator PIL and others who did not. However bronchodilator users interviewed in the control group were significantly younger than those who received leaflets ( $p < 0.01$ ).

Patients who received a bronchodilator PIL knew more about their medicine than those who did not. Over 80% of those who received a leaflet were aware of the correct way to use their inhaler compared with around 60% of those who were not given a PIL ( $p < 0.02$ ). Awareness of potential side-effects of the treatment showed the most

marked improvement ( $p < 0.01$ ). However, there was little evidence that heightened awareness of the side-effects encouraged patients to experience them by suggestion.

Patients who received a bronchodilator PIL were significantly more satisfied with the information they received about their medicine than those who were not given a leaflet ( $p < 0.01$ ). However, there was little evidence to suggest that patients who received a PIL were more compliant with the dosage instructions for their treatment. Over two-thirds of the bronchodilator users claimed to be using their inhalers exactly as prescribed: around 20% were following the dosage instructions "mostly", and the rest said they had formulated their own dosage regimen.

Your medicine is a Bronchodilator. Bronchodilators relieve asthma by relaxing muscle spasm in the lungs. If you use this medicine regularly it may also help to prevent attacks of asthma.

### ————— Taking your medicine by inhaler —————

- Use your inhaler at the right times. Your doctor will tell you how often to use it. Ask if you are not sure.
- Make sure you know how to use your inhaler.  
The medicine will only work if it reaches your lungs. The leaflet which comes with your inhaler will tell you how to use it properly. If you are not sure ask your doctor or pharmacist to show you.
- If you forget to take a puff, take another as soon as you remember. Then go on as before.
- Don't take more puffs than your doctor tells you to. If your usual dose doesn't work, tell your doctor.

### ————— ✻ After taking your medicine —————

Most people benefit from using this medicine but it can cause side-effects. If you get any of the following, tell your doctor.

- Rapid or irregular heart beat.
  - Feeling extremely nervous.
- Some people get a bad taste in their mouths after using their inhaler. This is not dangerous. You can get rid of the bad taste by rinsing your mouth out with water. Some people find that their hands become a little shaky. This is not dangerous and usually wears off after a few days.

### ————— Storing your inhaler —————

- Keep your inhaler in a safe place out of reach of children. It could harm them.
- Don't use your inhaler after its expiry date.
- Make sure you throw your old inhalers away. Do NOT throw them on to the fire, because they may explode.

**REMEMBER: This medicine is for YOU. Only a doctor can prescribe it for you. Never give it to someone else. It may harm them even if their symptoms are the same as yours.**

Figure 2

Did patients read the leaflets? Ninety-five percent of those who received a bronchodilator leaflet had read it. However, not all of the patients who should have received a leaflet in these studies claimed to have done so: only 60% of the patients who should have received a bronchodilator PIL said they had been given one by their doctor or pharmacist.

### Conclusion

These studies have shown that carefully designed, patient-oriented PILs enhanced patients' knowledge about their medicines. In particular, patients were made aware

of the potential side-effects of their treatment without the production of spurious side effects or widespread alarm. Satisfaction with the information received was significantly improved and almost all patients would welcome the introduction of leaflets. Improved patient satisfaction and greater awareness of the side effects appear to be the major beneficial effects of PILs: the leaflets were not, for the most part, associated with improvements in patients' compliance.

Since our studies, the Association of the British Pharmaceutical Industry has produced guidelines for pharmaceutical manufacturers on the drafting of patient-oriented leaflets [5]. In addition, an EC directive on the labelling of medicinal products is close

to adoption. Patients in the UK and throughout Europe will soon be receiving written information with their prescriptions.

#### References

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## Ensuring compliance in children

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There are many reasons why the asthmatic condition in children is often unsatisfactorily controlled. One of these is poor compliance. Patient compliance is one of the weakest links in the chain of events leading from prescription of a drug to its arrival in appropriate quantities at the target cells in the airways. Therefore, there is a substantial incentive to develop strategies to improve/ensure compliance in children with asthma. That is not easy, however, because very little is known about the reasons why children do not take their asthma medication as prescribed. So instead of recommending fixed rigid guidelines the present paper will briefly discuss some of the problems that in the day to day clinical situation may impede good compliance in children with asthma.

#### Communication problems

The precondition of a good compliance is that the patient and the parents have actually understood what their physician wants them to do! Providing each child and its family with the right amount of information at the right time and in a way that is easily understood is difficult. The physician not only has to communicate with the child but also with the rest of the family (and sometimes also with the school or kindergarten) when the disease and its treatment are explained. That is difficult and time consuming, but if it is not done compliance is bound to become poor. Often the patient's capability to understand and remember the information given is overestimated.

We evaluated the capability of children and their parents to understand and carry out a sequence of different messages which is often given in an asthma clinic: 1) measure PEF for 1 week. 2) reduce the dose of inhaled corticosteroids. 3) after 2 weeks on reduced dose resume

PEF measurements for another 2 weeks. 4) if PEF has fallen >20% increase inhaled corticosteroid to pre-reduction level. 5) if the asthma gets worse contact the clinic.

A total of 75 families were studied. They were not told that we evaluated compliance. The same physician informed/instructed all families. All children suffered from asthma requiring inhaled corticosteroids to maintain control and therefore were supposed to be familiar with the asthma disease and its treatment. The families were split into 3 groups: 25 families (Group A) were told to perform the instructions without any further information. The physician made sure that the information had been understood. 25 families (Group B) were asked to perform the instructions and in addition were told that the purpose was to evaluate whether asthma control could be maintained on a lower dose of inhaled corticosteroids. They were also informed that the reason why they should not resume PEF measurements until 14 days after the reduction in dose was that in an optimally controlled child it would often take some time for a deterioration to occur. Again the physician made sure that the information had been understood. 25 families (Group C) were instructed as group B but in addition received written instructions.

When the families returned to the clinic 5 weeks later with their home recordings it was found that 11/25 families in group A, 18/25 in group B and 24/25 in group C had been compliant *i.e.* performed everything correctly. Even though the families were used to home monitoring and they all appeared to understand the message at the clinic, less than half were actually able to carry out the instructions at home. This finding strongly supports the use of thorough verbal and written information to obtain a good compliance.

Correct timing of the information is also important. Often there is a disproportion between the expectations and priority of the children and its parents and the plans of the physician. The family often has a lot of

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