Educating the Educators*
How to Improve Teaching About Asthma

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Although there has been a significant increase in knowledge about the physiopathogenesis of asthma and an improvement in therapeutic modalities, the mortality rate for the disease has increased in many countries over the last two decades. Previous studies showed that deaths due to asthma may be preventable in 60 to 80% of cases. Potentially avoidable factors have been identified, such as failure to adhere to prescribed therapies, underrecognition of asthma severity, underutilization of self-monitoring in assessment of airway obstruction, lack of a plan of action to manage asthma flare-ups, and delay in medical treatment during acute attacks.

Furthermore, although it is unacceptable, mortality from asthma represents only a small fraction of the problem, while asthma-related morbidity is tremendous and still seems to be on the increase. For instance, in the United States, the direct cost related to asthma, including hospitalizations, emergency department visits, physicians’ services, and medication was $6.2 billion in 1990. Reduced productivity related to absenteeism from work and school represented the largest indirect cost, approaching $1.6 billion. In Canada, the estimated annual cost for hospitalization due to asthma for 1988 to 1989 was more than $120 million. A recent Canadian survey showed that during the past decade, mortality from asthma has remained stable, while the number of hospitalizations for asthma has increased, especially in patients younger than 35 years of age.

Although there is no definitive explanation for the increase in asthma mortality and morbidity, it is widely believed that patient education might help to decrease them. However, some barriers must be overcome before a greater number of asthmatic subjects can gain access to effective asthma education programs. Our focus is on the needs and requirements of asthma educators and on the problems they encounter.

**Education as a Response to the Increasing Morbidity From Asthma**

Asthma education can improve knowledge about asthma, compliance with treatment, asthma control, self-assessment skills, and relationships with the physician and other health professionals. Programs promoting early intervention during asthma exacerbations have been more successful in improving control over asthma than those aimed only at improving knowledge. Specific aspects of asthma education have been evaluated; for example, after participation in an asthma education program, 80% of the patients were able to use their inhalation device properly compared with 10% before. Different reviews of asthma education programs have been published, as reported elsewhere in these proceedings.

Teaching about asthma is currently provided by physicians, nurses, respiratory therapists, and other health educators. Therefore, these professionals should possess the basic skills and knowledge to transmit adequately to the patient the concepts that will lead to improvements in self-management. Educators should also be able to assess individual needs and the effectiveness of the education program. However, different reports suggest that the knowledge and skills of nonspecialists are low and should be improved. Improving the efficacy of the education can follow interventions as simple as mailed information, individual training in asthma clinics, or result from specific programs aimed at improving knowledge and education techniques.

Educators must be aware of the current consensus on asthma treatment, management strategies, and particularly on how to teach asthmatics to determine the severity of asthma and modify therapy according to their assessment (Table 1). In the rapidly evolving field of asthma treatment, educators should keep up to date with new therapies, devices, and approaches.

**The Pivotal Role of the Family Physician in Asthma Education**

At least two thirds of asthmatics are treated by primary care physicians. Asthma management has changed dramatically in the past 10 years and general practitioners must adapt to several changes. First, asthma treatment now relies on anti-inflammatory drugs rather than on bronchodilators. Second,
primary care physicians often underestimate the degree of airflow obstruction often failing to measure it objectively. One study showed that general practitioners measure lung function in only 50% of their patients. They were found to instruct their asthmatic patients in how to use peak flowmeters at home in less than 10% of cases.17 This does not include difficulties in establishing the diagnosis. Considering these facts, it appears that there is a need to educate physicians about how to diagnose asthma and the self-management problems faced by the patient.

Asthma education has gained in popularity in the past 5 years. However, most general practitioners are unaware of the benefits of asthma education, and some family physicians think that self-management plans could even be dangerous for their asthmatic patients. Although most family physicians consider asthma education to be important, it is well known that the time-consuming nature of patient education is often a disincentive to physician involvement in preventive medicine.17 In most of the asthma education programs that were found to be successful at enhancing health outcomes, at least 2 h of one-on-one counseling or group education was given to the asthmatic patients. In a questionnaire that was administered to 66 asthmatic patients, it was found that they had spent an average of less than 30 min talking about their disease with their physicians.17 Moreover, physicians often use vocabulary that patients do not understand, and asthmatic patients often feel uncomfortable when asking questions of their physicians.18 Asthma education might therefore be delivered optimally by specialized nonphysician health educators (nurses, inhalation therapists, and other related health personnel). Family physicians could train staff in their own offices and should be aware of the asthma education facilities available in their community.

A Need for Specialized Health Educators

Based on the few studies addressing this problem, it appears that education provided by a trained health educator, after the establishment with the physician of a treatment plan, is efficient and can modify some of the behaviors of asthmatics.12,13,19 So, specialized health educators should collaborate closely with the physician in charge of the treatment plan to provide effective asthma education.

It has been suggested that health educators should have special training and an interest in asthma.12,19,20 Charlton et al10 reported that a nurse-run clinic reduced significantly the number of physician consultations as well as the need for oral steroids, short-term treatments, and days lost from work and school.

Health professionals’ knowledge can be improved so that they can efficiently teach asthmatics. A recent study showed that only 65% of house officers, 57% of nurses, and 92% of respiratory therapists performed at least four of the seven steps required for correct use of metered-dose inhalers.21 As mentioned above, several studies have shown that nurse-administered asthma education programs are able to improve some of the behavior of asthmatics. However, when a questionnaire about asthma was administered to nurses prior to attending an asthma education program, on average only 60% of the questions were answered correctly.21 In a recent evaluation of our training program for health educators, mean level of knowledge about asthma and its treatment was 61.5% prior to attending the education program.22

The Asthma Education Team

Physicians and specialized educators should work as a team to improve the knowledge and self-management skills of asthmatic patients.

Communication between the different members of the treating team and collaboration with health educators should be improved to optimize management of asthma. Experience with diabetes has shown that the success of an education program is often related to interactions within the educating team.23 There should ideally be a uniform overall approach to asthma management among the different health professionals, based on recent national and international consensus. Conflicting messages can be confusing to the patient. At present, continuing medical education programs tend to separate physician and nonphysician audiences. A more homogeneous message and approach might result if training programs kept these groups together with occasional satellite

Table 1—Training Program for Educators on Asthma

| (1) Professionals involved in asthma education referred by their institutions |
| (2) Initial training session (1 day) |
| | Lectures and discussions on basic knowledge about asthma physiopathology, preventive measures, medication, how to recognize asthma, its etiologies and severity, how to establish control of asthma and maintain it with a minimum of medication, inhaler use, peak flow monitoring, risk factors, and how to treat exacerbations early and effectively with the use of action plans |
| | Pedagogic methods to provide asthmatics and their families with effective self-management skills and relevant knowledge |
| | Small workshops on case reports specifically developed to cover most aspects of asthma education and related problems |
| | Before/after self-assessment questionnaire |
| | Educational materials provided to the educator (demonstrators, plans of action, booklets, etc) |
| (3) One- to 2-week sessions at experienced asthma clinics |
| (4) Regular updates on asthma and its treatment (bulletin, network meetings, and educational activities) |
| (5) Teaching assessment during accreditation visits to their centers |
sessions to meeting specific professional needs.

Physicians, nurses, and the other professionals working in emergency departments also have an important role in motivating patients to attend education programs and in starting the educational process to try to reduce acute care needs. Mayo et al described this kind of intervention with patients attending an emergency department and found significant improvement, better asthma control, and a reduction in emergency department visits following an asthma education program. Other professionals, such as teachers, sport coaches, day care workers, summer camps, counselors, etc, would also benefit from training in asthma management, adapted to their specific needs.

Programs Aimed at Improving Educators' Skill at Providing Asthma Education

Programs have been developed in different countries and are generally aimed at increasing the knowledge and management skills of primary care physicians or nurses. These training programs are still too few in number; more have to be developed and their value assessed.

Although it is very important to build programs aimed at enhancing the knowledge and skill of related health professionals in health institutions, we must not forget that asthma is the most common chronic illness in childhood and also the principal cause of school absenteeism. A program designed to increase the managing skills of medical and nonmedical school personnel has been developed by Eisenberg and his group in Oregon. Although the program dealt mostly with nonmedical personnel, it was successful in increasing the children's managing skills as well.

Educating the Educators

The Quebec Experience

In an effort to improve the teaching skills of specialized asthma educators and to make asthma education programs more widely available, we designed a teaching program aimed at improving the skills of nurses, inhalation therapists, family physicians, and other health educators frequently involved in the care of asthmatics. The program was begun in 1991 in the Quebec City metropolitan area. Owing to its popularity, the program is now being extended to other cities. The program is regularly updated, based on comments by participants and current research work. The participants' knowledge about asthma before and after participation in the program was assessed after each session.

The teaching program consists of an 8-h session divided up as follows (Table 1): a half day of lectures and discussions on the main issues of asthma and its treatment. Another half day is spent in small groups of about ten participants discussing practical aspects of asthma education. The teaching sessions are provided by four specialized health educators (three nurses and one respiratory therapist), and eight adult and two pediatric pulmonologists. A book, which includes most of the important issues on asthma management, is given to each participant at the end of the session.

The theoretical part of the course covers the following issues: physiopathogenesis of asthma; asthma triggers and environmental control; goals of treatment; monitoring of asthma (spirometry, peak flowmeters, inhalation tests); the role of medication, how it should be taken, and side effects; criteria of asthma control and loss of control; management of flare-ups; and determination of plans of action. Particular aspects of treating asthma in children and other subgroups of patients (the elderly, adolescents, etc) are discussed, as well as how to set up an asthma education program.

The aim of the small group sessions is to present different clinical profiles and to discuss with the participants the most appropriate steps to take in each particular situation. A session on practical issues is aimed at enabling all the participants to become skilled at instructing their patients on how to use different types of inhalation devices (such as metered-dose inhalers, powder inhalers, spacing chambers), how to use a peak flowmeter, and how to use action plans.

At the end of the session, participants should be able to teach patients about the nature and mechanisms of asthma, to instruct them in using their inhalation device properly, to identify and avoid triggers with the exception of exercise, to recognize the early signs of an asthma attack, and finally, to assess its severity. Much emphasis is put on how to use an action plan for early intervention and self-management of flare-ups.

To date, more than 200 participants have attended this education program on a voluntary basis. They were invited to attend through mailings to institutions and community centers. To evaluate the program and gain insight into the needs of the participants, a validated questionnaire, including 30 questions about asthma, was administered to each participant before and after completion of the program and a written assessment report was filled in by them. Questions dealt with the main issues mentioned above. Overall, the knowledge of participants as measured by the percentage of correct answers to the questionnaire increased from 61% prior to attending the teaching session to 85.5% afterwards. One striking observation was made during the ses-
sion; educators focused on their respective fields when teaching. For example, pharmacists emphasized medication, respiratory therapists inhalation devices, and so on. Although this is understandable, educators must not forget to provide complete training to asthmatics, including the important aspects of control of the environment, prevention and early intervention during asthma flare-ups, and psychosocial and economic aspects. A specific education program can therefore help them to complete their training by improving their knowledge and skills in other areas in which they have less experience.

So far, the program has been quite successful. It has been recognized by the Quebec Lung Association and is being extended to include the entire province of Quebec. Up to now, four “regional” committees, made up of professionals from Quebec’s main universities, should ensure that the course meets with the general guidelines suggested by the network. The guidelines are based on recent national and international guidelines on asthma treatment and on our experience with the initial courses.

The UK Experience

In the United Kingdom, a major initiative in asthma education has been the educational programs of the Asthma Training Centre aimed primarily at nurse educators. Launched in 1987, the program began modestly offering 3-day courses to cohorts of eight nurses every few weeks. The program expanded rapidly and by November 1993, more than 4,000 practice nurses had been trained to diploma level. The focus on practice nurses circumvents the perceived difficulties of limited physician time, the use of technical language by physician, to reluctance of some patients to share openly with the physicians. However, by involving a physician “mentor” for each nonphysician participant, the program aims to produce a consistent team approach within National Health Service practice groups. The program is described in greater detail elsewhere in this supplement.

The US School Experience

The severity of asthma is often underestimated by patients and caregivers. Educating asthmatics directly would plausibly raise their expectations and encourage them to participate more meaningfully in their own care. In effect, physicians and other health providers would be educated indirectly via their patients’ improved understanding of asthma. The American Lung Association (ALA) has explored this approach to educating the educator in the pediatric field. Exploiting an existing community resource, the public school system, the ALA has developed an educational package to be administered by school nurses, respiratory therapists, or even selected lay volunteers.

In 1991, the ALA adopted a school-based education program developed by Columbia University’s College of Physicians and Surgeons in New York. The ALA and the Columbia researchers believed that by positioning the asthma program within the elementary school system, the greatest promise existed for reaching the most number of children on a regular basis—particularly, low-income, minority children whose asthma had gone undetected or undertreated. The program, entitled “Open Airways for Schools,” featured an interactive teaching approach that combined role-plays, stories, group discussion, and games. In the program, children were brought together in small groups—in effect, forming peer support groups. When the program was first assessed in New York, children who participated in the program took more steps to manage their own asthma, suffered fewer attacks of asthma, expressed more confidence in their own ability to manage asthma, and exerted greater influence on their parents’ management decisions. Whether an indirect consequence of improved asthma control or a direct consequence of the program, children achieved better school grades following the program. Further, implementation of the program in the school tended to alter the school environment to one that was more supportive of children with asthma. Asthmatic children were more willing to help one another and nonasthmatic children were more empathetic and helpful toward children with asthma. Of interest, parents reported more appropriate asthma management decisions up to 1 year following their child’s participation in the program. Parents worked with their children at home on specially designed assignments. These “take-home” assignments were given to children to encourage them to rehearse new skills at home with their parents to increase family communication about asthma. In addition, written information about asthma was provided to parents to familiarize them with what children learned—that is, building family support for new asthma management skills.

The ALA has adopted the goal of making the Open Airways program a permanent part of every elementary school in the United States. To achieve this end, with the support of Fisons Pharmaceuticals, the program has been produced as an easy-to-read, easy-to-use kit costing $30 (US). It is comprised of a six-lesson curriculum with handouts that can be photocopied, an instructor’s guide, and a flip chart with posters. In some states, the program has been implemented in hundreds of schools. In Minnesota, for example, the program is in more than 300 schools. In addition, the ALA of Minnesota has developed a 1-h in-service program to instruct school nurses on how
to use the program. School nurses taking the program receive a continuing education credit. In Broward County Florida, respiratory therapists are involved in the program, which is approved to go into 120 elementary schools. Because the program is described in simple medical terms, it can be taught by a variety of nonprofessional volunteers where nurses, respiratory therapists, and other health care professionals are unavailable. Volunteer recruitment sources include schools of nursing and respiratory therapy, pharmaceutical representatives, parents of asthmatic children, elders, and retirees.

The goal of implementing the Open Airways program in 60,000 elementary schools across the United States is an ambitious and worthwhile one. Improved knowledge and heightened asthma management skills of asthmatic children and their parents is an important part of asthma management. This increased patient awareness and skill management will surely ease the task of knowledgeable and motivated caregivers while encouraging appropriate remedial education among those who need it.

A LOOK TOWARD THE FUTURE

Resources should be increased in institutions treating asthmatics to facilitate the development of efficient asthma education programs. Furthermore, research should be done to find out what is optimal in asthma education methods, and good teaching materials should be developed. Research is needed to find solutions to the difficulties and barriers to effective asthma education.31,32 Specific programs designed to help health professionals improve their skills at teaching asthmatics effectively should be developed. The efficacy of teaching should be assessed by reviewing the clinical outcome of the patients.

Attention should be focused on methods for helping educators to influence some aspects of the behavior of asthmatic patients that are more difficult to modify. Asthma education has been found to be less successful at reducing contact with allergens such as pets and housedust mites and at convincing parents to stop smoking even when they know it might be deleterious to their child.10 Further research is particularly needed to improve interventions aimed at changing behavior and improving compliance with treatment.33

In conclusion, asthma education programs aimed at increasing the knowledge and skill of primary care physicians and related health personnel should be developed, standardized, and made available to as many educators as possible. The future of asthma education depends on a multidisciplinary approach involving physicians, the specialized educators, asthmatic patients, and their families working together as a team. The barriers faced by those who are involved in the management and education of asthmatic patients should be identified and solutions should be suggested.

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