A Program to Help Asthmatic Students Reach Their Potential

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The authors were students at the School of Nursing of Auburn University at Montgomery, Montgomery, Ala., when they submitted this paper, which won first prize in the competition for the 1984 Secretary's Award for Innovations in Health Promotion and Disease Prevention, sponsored by the Department of Health and Human Services.

Copies of the slide show, the brochure, and the student packet are available through the American Lung Association of Alabama. For more information, write or call Kitty F. Branyon, American Lung Association of Alabama, 770 S. McDonough St., Suite 202, Montgomery, Ala. 36104 (205: 265–2765).

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Synopsis

Asthma is the most common chronic disease of childhood, affecting 15 percent of Americans under the age of 15. It ranks first among the chronic diseases in causing school absenteeism, and it has been linked to lowered academic performance.

An educational program for elementary school teachers has been developed to assist the asthmatic student in reaching his or her potential. The program addresses needs expressed by members of the Montgomery, Ala., chapter of Parents of Asthmatic Kids (PAK). These parents voiced concern regarding the inadequate preparation of teachers for dealing with the needs of the asthmatic student. Results of a survey of teachers in local elementary schools confirmed their need for asthma education.

The program, consisting of an audiovisual presentation, an informative brochure, and an instructional packet to use with first to sixth graders, is designed to be presented in faculty meetings throughout the school system. To evaluate the effectiveness of the module, a simple test is administered before and after the program.

The program has been accepted by the American Lung Association of Alabama and is under consideration by the American Lung Association at the national level.

ASTHMA IS THE MOST COMMON CHRONIC DISEASE of childhood, affecting up to 15 percent of children under the age of 15 in the United States. Every year 20–25 percent of school absences are due to asthma (*1*). One study has shown that the average asthmatic student is at least 1 year behind in schoolwork (*2*).

America's children spend more of their waking hours in school than in any other place. Because funding for school health professionals is limited, the teacher becomes the alternative person at school for dealing with health problems. Most teachers are inadequately prepared for and feel uncomfortable in assuming that responsibility. They may fear that their uninformed intervention could complicate the situation rather than resolve it. Parents of chronically ill children may be understandably reluctant to send their child to school if they feel the teacher cannot cope with a minor health crisis.

Unnecessary school absences, which may lead to altered academic performance, are not the only problem asthmatic students must face. The developmental theory of Erikson describes the importance of the resolution of "industry-versus-inferiority" for the school-age child (*3*). During this stage of development, the child begins to feel an interest in the work of the world and seeks recognition for his or her efforts. Any problems during this stage can result in feelings of inadequacy. Overrestriction of physical activity and possible social isolation from peers may cause the student with asthma to develop a poor self-image. Feelings of inferiority may prevent the child from adequately resolving this stage of development.

A teacher with a general knowledge of asthma's symptoms and treatments can provide the understanding, acceptance, and special consideration that a student with asthma requires. This could result in a more normal psychological development and a decrease in school absences for the asthmatic student.

Parent-Child Support Programs

In recent years efforts have been made, through education and counseling, to provide support for asthmatic

children and their families. Most of these programs have been sponsored through State lung associations or universities.

Lungs Unlimited, covering a six-county area in northwest Ohio, provides five weekly sessions for asthmatic children and their parents. Parent and child are in separate groups, with each group covering parallel topics. Reports indicate that asthma-related school absences and hospitalizations decreased for children participating in this program (*1*).

Parents of Asthmatic Kids (PAK), now in most States, offers parents an opportunity to learn more about asthma from guest speakers and from each other. Parents have reported that their increased understanding of the illness has reduced the number of times an asthma episode results in a trip to their child's physician (*4*).

A questionnaire designed to determine the understanding of chronic asthma by school health professionals was used to poll 33 teachers and 104 pediatricians and allergists about supervision of an asthmatic child in the classroom. Although 96 percent of the teachers felt supervision was adequate, 65 percent of the pediatricians and allergists felt that it was inadequate (*5*). Asthmatic children and their parents agreed with the pediatricians.

In interviews with 200 families with asthmatic children conducted by Columbia University's College of Physicians and Surgeons, several significant school problems were defined. Inadequate understanding of asthma by the teacher, poor parent-teacher communication, and difficulties in physical education classes were cited as major concerns (*6*).

In our opinion, the sparsity of literature dealing specifically with the asthmatic child in school is an indication of the need for increased public attention.

Components of Asthma Education Module

We developed an educational program in response to a need expressed by members of the Montgomery, Ala., chapter of PAK. Parents were concerned that local teachers lacked the necessary knowledge for handling asthmatic students. The concerns duplicate those expressed by parents in other areas of the country (*5*).

The primary goal of the program is to prepare elementary school teachers to assist asthmatic students in reaching their potentials. The Asthma Education Module consists of an audiovisual presentation, an informative brochure, and a student instructional packet. To evaluate the effectiveness of the module, we also have devised a simple test to be administered before and after the program.

The educators' knowledge about asthma was measured in a survey administered to a group of 84 elementary school teachers in Montgomery. Findings indicated that teachers were unaware of potential triggers of asthma attacks, signs and symptoms of asthma, actions helpful in controlling asthma attacks, and possible side effects of the medications taken by asthmatic students.

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Audiovisual Presentation

In determining how best to present this information, Pohl's principles of learning and teaching were used (*7*), including the principle that visual perception enhances learning. In addition, a research study conducted by Darwin and coworkers showed that learning improves when visual and auditory stimuli are used concurrently (*8*). Therefore, the module's slides are accompanied by a 12-minute taped explanation. The slide presentation introduces educators to basic concepts for understanding the dynamics of asthma. A discussion of these concepts follows.

Asthma physiology. Because knowledge is enhanced when newly learned ideas are compared with previous knowledge or experience (*9*), the first portion of the audiovisual presentation compares the physiology of normal lungs with that of asthmatic lungs. This review reinforces and builds or prior knowledge.

Attack triggers. An asthma attack may often be prevented or the severity of the attack decreased if its cause is recognized and removed. Asthma attack triggers are found in every classroom. Even something as seemingly harmless as chalk dust may precipitate an attack (*10*). Illustrations of common triggers will alert teachers to their presence in the classroom.

Signs and symptoms. A major concern expressed by local PAK members was the inability of teachers to recognize the early signs of an asthma attack. Early signals may often be ignored, allowing the attack to become acute, or the child may be sent home unnecessarily. Slides of children exhibiting common signs of asthma illustrate the early warning signals. To reinforce the importance of properly recognizing these signs, they are shown in one slide in an acronym for

A–S–T–H–M–A that was developed by a local pediatrician.

Actions to be taken. In the survey of Montgomery area elementary school teachers, 92 percent expressed concern that, in the event of an asthma attack, they would act inappropriately. Although individualized treatment is more effective, most teachers are unaware of the specific treatments required by their asthmatic students (*11*). A standard set of procedures is outlined in the audiovisual presentation to provide guidance for the teacher.

Side effects of medications. Most school systems limit the role of the teacher in distributing medications. Many students are responsible for their own drug regimes. It is a concern of parents that the side effects of the medications a student is taking may interfere with his or her performance in class. The presentation's description of the major drugs used in the treatment of asthma and their side effects provides the teacher with this information.

Psychological effects. The psychological effects of asthma are often overlooked. Time lost from school and physical limitations the condition imposes may interfere with the social growth of the student. A discussion of potential problems is designed to help the teacher recognize and effectively manage them. In addition, specific suggestions are made for aiding the student's interaction with peers.

Brochure

Another learning principle defined by Pohl states that repetition strengthens learning (*7*). For this reason, a brochure highlighting information covered in the audiovisual presentation has been developed for distribution to educators. This brochure is designed to serve as a convenient reference for the teacher and should remain on file in the classroom.

Teaching Schoolchildren about Asthma

It has been documented that shared experiences can lead to increased understanding and acceptance (*2*). For this reason, the Asthma Education Module includes an instructional packet for the teacher to use in presenting information on the respiratory system and asthma to the class. Suggested activities include techniques for allowing the student without asthma to experience the shortness of breath associated with an asthma attack and to participate in relaxation and breathing exercises and puzzles and games about asthma. In addition, the packet contains a form letter to be completed by parents of asthmatic students. Responses to this letter will inform the teacher more specifically of the needs of asthmatic students.

Recommendations

Although successful programs exist for educating the asthmatic child and his or her family, the problems faced by the asthmatic child in the school system have not been adequately addressed.

We believe that an educational program for schoolteachers, such as the one we have outlined in this proposal, could significantly lower the rate of absenteeism among asthmatic children and encourage an atmosphere that promotes improved child health and fosters optimal childhood development.

This program has been presented to elementary school teachers in faculty workshops in Montgomery County, Ala., and plans have been made to include private kindergarten and day care centers in future workshops. The program has been listed in the catalog of the American Lung Association Resource Center, Birmingham, Ala. Because the program can reach a maximum level of influence only through distribution by a national organization, it has been submitted to the American Lung Association.

We propose that this educational program, directed at elementary schoolteachers, be offered for nationwide use in the public school system. The program might be disseminated by distributing copies of the brochure, slide show, and instructional packet to State lung associations, which could promote it among city and county boards of education. Members of PAK can encourage teachers to request copies of this informational material.

We believe that use of a similar format could be an effective means of improving the ability of the teacher to cope with other chronic childhood diseases such as epilepsy, diabetes, heart defects, and arthritis. The blind, deaf, or learning-disabled student could also benefit from a similar approach.

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Decreasing the Incidence of Osteoporosis-Related Injuries Through Diet and Exercise

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For this proposal, the authors won second prize in the competition—sponsored by the Department of Health and Human Services—for the 1984 Secretary's Award for Innovations in Health Promotion and Disease Prevention. At the time their proposal was written, Ms. Larson and Mr. Shannon were second-year students at the University of New England College of Osteopathic Medicine, Biddeford, Maine.

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Synopsis

Osteoporosis is the most common systemic bone disorder in the United States. It affects 15 million people—primarily women—causing thousands of injuries and deaths per year at a cost estimated at $3.8 billion annually.

Two important factors in preventing osteoporosis are regular exercise and adequate calcium intake throughout life. Studies have shown that the average daily consumption of calcium by premenopausal and postmenopausal American women is between one-third and one-half that needed to maintain a positive calcium balance and prevent the loss of bone mass.

This proposal elaborates the following specific ways that our health care and educational institutions can change these prospects: (a) a screening program for women of all ages, to identify those most at risk for developing osteoporosis; (b) an increase in the recommended daily dietary allowance for calcium; (c) a public information campaign about osteoporosis, using television and radio; (d) an investigation of the feasibility of calcium additives in the American diet; and (e) the establishment of an organization to develop educational programs and monitor research in osteoporosis prevention. Now is the time to make the appropriate efforts to better the prospects for millions to enjoy a long and healthier life.

OSTEOPOROSIS IS THE MOST COMMON systemic bone disorder in the United States. One of every three women living in the United States either has osteoporosis or will eventually develop it. The condition affects 15–20 million people, causes thousands of injuries and deaths per year, and costs $3.8 billion annually (*1–7*).

Osteoporosis results from an imbalance between bone formation and bone resorption. Women are primarily affected by this condition, which leads to compression vertebral fractures, broken wrists, and fractured hips.

Although the cause of osteoporosis has not been determined, researchers generally agree that the pathological effects of this condition can be lessened and often eliminated simply by maintaining an adequate dietary intake of calcium throughout life and getting regular exercise (*5,6,8*). Unfortunately, this information has yet to reach the general public or many health professionals. This is a public health issue, and it deserves to be the focus of a major public health education effort. Simple lifestyle and dietary changes could improve the quality of life for millions of women and save billions of dollars in health care costs.

The following statistics demonstrate the enormous impact that osteoporosis has on our society:

1. By the age of 65, one-half of women with no noticeable pathology will have a decreased bone mineral content below the fracture threshold (*3,5*).
2. Eighty percent of the 1 million fractures annually in women over 50, and 90 percent of the fractures in women over 60, result from osteoporosis (*2,9,10*).
3. Seventy-five percent of all hip fractures in the United States, totaling 200,000 per year, are the result of osteoporosis. Twenty percent of patients with hip fractures