



School Children with Asthma: An Introduction

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The Problem:

- Asthma is the most common chronic disorder in children and is a leading cause of disability. (1)
- Asthma in children leads to decreased participation in school and play activities. Common asthma triggers can be found in schools – dust mites, chalk dust, animals, chemicals, and strong odors. (2)
- Approximately 5 million children under the age of 18 have asthma. (2)
- Each year children with asthma experience restriction in daily activities – attending school, participating in play activities, participating in sports. (3)
- Children living in urban areas, African American children, children living in poverty, and children living in single family homes have a higher prevalence of asthma. (3)

One Solution:

- Asthma education to provide children with the knowledge and skills to manage their disease. Programs should include:
 - Definition, signs, and symptoms of asthma
 - Asthma triggers and treatment
 - Correct use of inhalers
 - Communication with the school
 - National Heart, Lung, Blood Institute has updated guidelines for asthma management, models for asthma management programs, and asthma education programs.
- Children who take part in school-based asthma education programs have decreased asthma exacerbation and reduced hospitalizations. (4,5)

Programs:

- The Open Airways for Schools program, developed by the American Lung Association for children ages 8 – 11 (<http://www.lungusa.org/events/astopen.html>).
 - Decreases total number of asthma attacks
 - Teaches children to recognize the signs and symptoms of asthma
 - Decreases the severity of asthma attacks
- The Asthma Awareness program developed by the National Heart, Lung, Blood Institute for children in kindergarten through sixth grade. (<http://rover.nhlbi.nih.gov/health/prof/lung/asthma/school/index.htm>.)
 - Provides a basic understanding of asthma
 - Informs students of appropriate actions to help people with asthma
 - Provides resources to share with parents and family members

Journal Articles:

- Lana M, Rosenbaum S, Rachelefsky G, et al. Improving childhood asthma outcomes in the United States: A blueprint for policy action. *Pediatrics*. 2002; 109(5):919-930. Eleven policy recommendations in two categories, 1. improving health care delivery and finance and 2. strengthening the public health infrastructure were identified by a committee of experts and leaders in childhood asthma. By coordinating the implementation of these recommendations on the national, state and community level with a commitment of national and local resources, childhood asthma outcomes should be improved in the United States.
- Lwebuga-Mukasa J, Dunn-Georgiou E. A school-based asthma intervention program in the Buffalo, New York, schools. *Journal of School Health*. 2002; 72(1):27-32. An investigation of the feasibility and effectiveness of a school asthma program. The pilot intervention program, in five schools, required students with asthma to have a written plan from a health care provider on file in the school. This resulted in an 80% decrease in rescue treatments in the first year of the program.
- Henry RL, Gibson PG, Vimpani GV, et al. Integrated health and education input in the development of educational resources about asthma for schools. *Journal of Paediatrics and Child Health*. 1994; 30(6):492-496. This paper describes an integrated health and education input in the development of an educational package about asthma for high school students. Ownership and educational relevance of the package (ensuring its appropriateness for inclusion within the Personal Development/Health/Physical Education curriculum) was achieved by collaboration between teachers with an understanding of the principles of curriculum design and health professionals with content knowledge about asthma. The model used for the production of the package about asthma could be extended to other health topics.
- Smedje G, Norback D, Edling C. Asthma among secondary schoolchildren in relation to the school environment. *Clinical & Experimental Allergy*. 1997; 27(11):1270-8. The aims of this project were to study the prevalence of current asthma among secondary pupils and its relationship to the school environment, but also to personal factors and domestic exposures. Eighth grade students in 11 randomly chosen schools in the county of Uppsala in Sweden were surveyed for asthma diagnoses. Data on exposures at school were gathered by measurements in 28 classrooms. Results showed that the majority of students with current asthma were in schools that were larger, had more open shelves, lower room temperature, higher relative air humidity, higher concentrations of formaldehyde or other volatile organic compounds, viable molds or bacteria, or had more cat allergen in the settled dust.
- Lurie N, Bauer EJ, Brady C. Asthma outcomes in an inner-city school-based health center. *Journal of School Health*. 2001; 71(9):9-16. This study measured asthma outcomes after initiation of a school-wide focus on asthma detection and treatment through a school-based health center. Hospitalization rates due to asthma in the school population decreased 75% over the study period. There was also improved use of peak flow meters, asthma care plans and correct use of inhalers.
- Bruzzese JM, Markman LB, Appel D, Webber M. An evaluation of Open Airways for Schools: Using college students as instructors. *Journal of Asthma*. 2001; 38(4):337-42. This study looked at whether college students were as effective as professionals in providing the Open Airways program to elementary school children. Results show that facilitators with little prior experience but who received a brief asthma training could effectively teach the Open Airways for Schools program.

Web Sites:

- *Updated guidelines* issued by the National Asthma Education and Prevention Program, an expert panel coordinated by the National Heart, Lung, and Blood Institute, recommends inhaled corticosteroids as safe, effective, and preferred first-line therapy for children as well as adults with persistent asthma. The asthma treatment update stresses that inhaled corticosteroids, which treat chronic inflammation of the airways, a key characteristic of asthma, are preferred for controlling and preventing asthma symptoms and for improving lung function and quality of life. The update reports that large clinical trials have shown that the risk of delay in growth in children linked to corticosteroids is temporary and possibly reversible, and other potential concerns such as reduced bone mineral density, suppressed adrenal function, and increased incidence of cataracts are not significant risks for children.
- "Nurses: Partners in Asthma Care"
Written for and by nurses, this practical guide describes how nurses can establish and maintain partnerships to help patients manage their asthma. Includes photographs, illustrations, and charts for easy reference. Also provides reproducible patient handouts that include a peak flow diary and illustrated instructions for using peak flow meters, inhalers, and nebulizers.
To download guide go to
http://www.nhlbi.nih.gov/health/prof/lung/asthma/nurs_gde.pdf
(PDF/48 pgs/1.9MB)
http://www.nhlbi.nih.gov/health/prof/lung/asthma/nurs_upd.pdf
(updated section)
- For a downloaded version of the Executive Summary of the NAEPP Expert Panel Report, "Guidelines for the Diagnosis and Management of Asthma, Update on Selected Topics, 2002," go to <http://www.nhlbi.nih.gov/guidelines/asthma/index.htm>.
- For an Asthma Management Model System, go to <http://www.nhlbisupport.com/asthma/index.html>.
- Information about the National Asthma Education and Prevention Program is available at <http://www.nhlbi.nih.gov/about/naepp/index.htm>.
- Numerous resources related to asthma control, asthma data, and resources for speakers are available on the web site of the National Center for Environmental Health Asthma, Centers for Disease Control and Prevention (CDC). <http://www.cdc.gov/nceh/airpollution/asthma.htm>.
- Indoor Air Quality Tools for Schools: Managing asthma in the school environment are found on the web site of the Environmental Protection Agency (EPA). <http://www.epa.gov/iaq/schools/asthma/index.html>.
- The American Academy of Allergy, Asthma and Immunology provides information for parents, children and professionals about allergies and asthma, and what can be done for them <http://www.aaaai.org>.

References

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2. American Academy of Allergy, Asthma and Immunology. AAAI Initiatives: Update on pediatric asthma: Promoting best practice. 1999. Milwaukee, Wisconsin.
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