Introduction: Learning From Each Other About Managing Asthma in Schools

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ASTHMA'S EFFECT ON CHILDREN AND YOUTH IN THE UNITED STATES

Asthma is a major public health problem of increasing concern in the United States;[1,2] between 1980 and 1996, the lifetime prevalence of asthma in the United States increased 45% among children 5 to 14 years of age.[2] In 2003, 7.6 million (14.3%) school-aged children had a diagnosis of asthma in their lifetime, and 5 million (9.5%) school-aged children currently had asthma.[3] On average, in a classroom of 30 students, about 3 are likely to have current asthma.

Asthma presents a considerable burden to families and society. In 2002, children aged 0-17 years had 5 million clinic and physician visits, more than 727,000 emergency department visits, and 196,000 hospitalizations due to asthma.[4] Indeed, asthma is the third-ranking cause of hospitalization among US children younger than 15 years.[5] Asthma can be fatal: 187 children aged 0-17 years died from asthma in 2002.[4] The impact of emergency department visits, hospitalizations, and deaths due to asthma is disproportionately greater among low-income populations, minorities, and children living in inner cities than in the general public.[6,7] The estimated cost of treating asthma in those younger than 18 years is $3.2 billion per year.[7,8]

The burden of asthma extends beyond these traditional measures of morbidity. Asthma symptoms not severe enough to require urgent care can still be severe enough to interfere with a child's ability to get a good night's sleep, play vigorously, and participate fully in academic or school-related physical activities. It is estimated that children miss almost 15 million days of school each year because of asthma.[4] School absence figures vary widely depending upon the population studied, the source of the data, and the questions asked. An analysis of the 2002 National Health Interview Survey found that parents report children with asthma miss about 3 more days of school annually than children without asthma.[8] Some students with asthma may be at a higher risk for poor school performance.[9]

THE NEED FOR ASTHMA-FRIENDLY SCHOOLS

Most of this burden can be prevented. Effective control treatments for asthma are now available so that most children with asthma should experience minimal symptoms, engage in ordinary activities, and have no school absences related to asthma episodes.[10] Why do children with asthma continue to suffer? There are several possible explanations: children with asthma and their families may not appreciate that the child's asthma is out of control and can be effectively treated; children and families may not consistently follow a prescribed asthma management plan; children may not have appropriate or consistent medical care; children may not receive effective self-management education; the school environment, where children spend most of their waking hours, may not allow them to follow their management plan.

Schools can play a major role in addressing these problems. Asthma-friendly schools have policies and procedures that help students and their families learn about asthma management, allow students to successfully manage their asthma during school hours and school events, and facilitate communication with the family and the family's medical care provider about the child's asthma.[11,12] School-based asthma education programs teaching self-management skills and behaviors may improve overall control of asthma and school performance.[13,14] School nurse activities, like case management and medication administration, can facilitate the use of quick-relief medications at school and reduce asthma symptoms.[15,16]

SCHOOLS TAKE ACTION

One of the most important functions of schools has always been to maintain and improve health.[17,18] However, schools cannot do it alone. They need meaningful commitments and collaboration from the community and especially from the health sector. Schools provide a setting for families, health care providers, universities, state and local health agencies, and community organizations to work together to improve the health outcomes of children with asthma.

Over the past decade, several important programs were launched to foster and sustain asthma-friendly schools at the national level. The National Heart, Lung, and Blood Institute supported research to develop and evaluate asthma self-management education programs that could be delivered in the school setting as well as implementation and evaluation of comprehensive, coordinated asthma health programs. The National Asthma Education and Prevention Program's School Education Committee developed several guidance documents to promote asthma-friendly schools and educational materials for school administrators, teachers, and students.[11,19-21] The Centers for Disease Control and Prevention (CDC) instituted programs and developed guidance documents and tools to help state and local health and education agencies better address asthma in schools.[12,22-24] CDC also funded national organizations to develop targeted materials and education programs for widespread dissemination through partnerships

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with schools, professional organizations, asthma coalitions, and asthma organizations.[25-27] The Environmental Protection Agency developed and disseminated materials to help schools identify and remedy environmental factors that exacerbate asthma.[28,29] National organizations, such as the American Lung Association and the Asthma and Allergy Foundation of America, developed materials for use in asthma education programs in schools across the country.[30,31] At the local level, school health nurses and educators, community-based asthma coalitions, and dedicated health professionals and parents have worked together to make their schools asthma-friendly.

Are these efforts working? At recent national meetings, we were struck by 2 competing observations. On the one hand, there is a rich variety of programs in schools and tremendous enthusiasm among asthma educators and school nurses. On the other hand, limits to the success of these programs are apparent. Clearly, we are not sufficiently learning from each other: we reinvent unstable wheels and stumble into the same pitfalls rather than building on each others' successes and making modifications based on others' lessons about weaknesses. We are, perhaps, missing opportunities to create innovative programs that can have the strong positive effects we desire.

In the spirit of promoting a dialogue among all those dedicated to improving the lives of children with asthma by improving asthma management in the school setting, we offer this special issue of the *Journal of School Health*. Papers were solicited for this issue to present success stories and also describe challenges, pitfalls to avoid, and important lessons learned. The "Call for Papers" was widely distributed in the fall of 2004. More than 50 papers were submitted. An external peer review process was used to select papers that provided insights into some of the most common challenges confronted by those creating and implementing asthma programs in schools.

OVERVIEW OF TOPICS COVERED

Identifying a school system's needs, resources, and barriers is an essential first step in developing and implementing asthma-friendly programs. In this issue, the first 3 papers describe impediments to establishing asthma-friendly schools. Forbis et al. detail barriers to appropriate asthma care identified by school nurses, while Ayala et al. describe what middle school students have to say about their asthma and how this might impact program needs. Dozier and colleagues describe discrepancies between parents' and health care providers' perceptions of asthma control that may impact families' participation in programs.

A critical component of developing asthma-friendly schools is the process of identifying and educating students with asthma, and several articles address this issue. Wheeler and Boyle relate their experience with a district-wide asthma case identification system, while Vargas and colleagues describe statewide, population-based case detection procedures. Petronella et al. describe the development of a statewide asthma surveillance program for school-aged children. Wittich et al. and Yawn et al. describe parent-child agreement on questions about asthma symptoms and how this may impact case finding.

Providing a healthy school environment to reduce asthma triggers is an important component of a school asthma program. The paper by Abramson et al. describes allergen levels in 3 school systems.

Throughout the years, those involved in creating and implementing asthma-friendly school programs have realized that successful programs must establish appropriate management and support systems. Langenfeld et al. describe their success in garnering administrative support. Cicutto et al. relate their experience with developing and implementing an asthma-friendly schools resource kit.

One component of asthma-friendly schools is proper asthma education for school staff and students. Goei et al. examine the role that formative evaluation and persuasion theory played in creating an information packet to be sent to schools statewide. Keysser et al. share the process used to develop and evaluate an asthma resource manual and training materials for school health personnel. Brasler and Lewis describe use of the PowerBreathing curriculum to educate teens with asthma.

Several articles detail experiences and results from multicomponent asthma management programs. Nelson et al. describe an attempt to implement such a program in Head Start. Splett et al., Bartholomew et al., and Gerald et al. present the results of trials of self-management programs in school systems. Guglielmo and Little tell the story of one community's response that includes education, school environmental improvements, and treatment of asthma episodes at school. Mangan and Gerald relate the development of an interactive computer-based asthma education program and an Internet-based asthma-monitoring system designed to increase children's daily use of the peakflow meter. To increase the use of written asthma action plans, Frankowski et al. describe education programs that concurrently target physicians and school nurses.

Linking children to proper medical care has been a common theme of difficulty among many asthma programs. Bruzzese et al., Liao et al., and Levy et al. share novel approaches to establishing such links.

Many school programs ensure the provision of asthma care at school. McLaughlin et al. examine the availability and use of asthma action plans in school-based asthma care. Barbot et al. tell how preprinted rescue medication order forms and health information technology can be used to monitor and improve the quality of care for students. Richmond et al. describe how physician consultants are used to enhance school asthma programs. Byrne et al. relate their experience with providing nebulizers and education on their use to schools that then provide treatment on-site instead of sending students to the emergency department.

We hope the papers in this special issue will help readers learn from others' experiences in order to replicate and build upon their successes and avoid some of the identified barriers. By working together and continuing to share our findings, we are confident that school asthma programs will improve the lives of affected children and their families.

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