

Asthma 411—Addition of a Consulting Physician to Enhance School Health

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CASE STUDY OBJECTIVES

- To determine the impact of the addition of a consulting physician (CP) upon school absences among students with asthma
- To identify and address barriers to the addition of a sustainable CP position
- To demonstrate how a CP can benefit school health services and enhance the role of the school nurse

SCHOOL DEMOGRAPHICS

The urban school district described comprised 9 elementary schools, 2 middle schools, and 1 high school. The student body is predominantly African American (95%), 75% of students qualify for free or reduced-price meals (Table 1), and approximately 12% of the students are identified as having asthma. The total enrollment reported by the district for the 2004-2005 academic school year is 8583 children in kindergarten through 12th grade, with a nurse-to-student ratio of 1:621.

PROGRAM CONTEXT

The Asthma 411 Initiative was developed as part of a grant to the St. Louis Regional Asthma Consortium from the Centers for Disease Control and Prevention (CDC) entitled “Controlling Asthma in American Cities Project/Controlling Asthma in St. Louis.” The school district described in this case study was the initial pilot school district during the planning phase of the grant and continues to participate through implementation. This community-based, multiorganizational and multi-institutional project focuses on components identified as important to the overall care of a person with asthma in our community. The community of focus is historically underserved with high disparities in morbidity and mortality due to asthma. The title “Asthma 411” is derived from the now antiquated telephone information system, and a slang term now common among the target population and known among the school nurses. The initiative’s name gives nurses, and potentially students, a name that is memorable and evocative of information and knowledge. No additional asthma-specific programs were in active use during this time. The Saint Louis University Institutional Review

Board reviewed and approved implementation and evaluation designs.

Asthma 411 is designed to target high- or at-risk students with asthma and introduce methods to reduce morbidity as measured through outcomes such as absenteeism. Asthma 411 describes high- or at-risk students as those students whose asthma is not well managed and who tend to be absent or exhibit asthma symptoms frequently, both of which can contribute to poor academic achievement. The program leaves it to participating schools and districts to identify which students fall into this category.

CASE STUDY

The intent of Asthma 411 is the reduction of asthma morbidity and the improvement of quality of life through the identification of and outreach to children with asthma in schools. The initiative focuses on providing tools, methods, and strategies where needed to school health and administrative structures to help control and reduce the effects of asthma on school absences and academic achievement. Asthma 411’s specific tools and strategies are (1) the addition of a PC to enhance the role of the school nurse, (2) systematic identification and tracking of students with asthma, (3) use of electronic records to track absences and missed class time, (4) improved collection and use of asthma action plans, (5) use of asthma knowledge and symptom-severity assessments to help identify high- or at-risk students, (6) providing accessible asthma education software for students, and (7) connection of students to, and emphasis on, the use of primary care physicians.

CP Role

While Asthma 411 is designed to introduce a number of strategies aimed at improving asthma management by school nurses, the element most critical to Asthma 411 is the introduction of a CP. The CP is an important component in the CDC publication “Strategies for Addressing Asthma Within a Coordinated School Health Program,”¹ an element of health services supported by the National Association of School Nurses,² and an area of need identified and endorsed by the pilot district’s school nurses during focus-group meetings in the summers of 2001 and 2002. A local group of physicians who have a particular interest in and experience with school health in underserved communities received a contract to provide the CP services. Although the economic analysis of the cost of the CP to a school district is incomplete at this time and will be published in future publications, the cost is considered minimal. The CP service model used in Asthma 411 is tailored to the pilot district’s unique structure, function, and needs. However, regardless of the school district, emphasis on the physician’s role as a consultant, as opposed to direct medical care, is central to this strategy because only a physician can enhance nurses’ health service practice by providing

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school-based standing orders. The CP began working with this district's school nurses on health policies in the summer of 2003 before becoming fully integrated into health services in the 2004-2005 school year. The CP is a family practice physician contracted to provide 1 half-day per week of on-site activity or its equivalent and on-call availability during school hours for all school nurses. During on-site visits, the CP not only provides and reinforces asthma education, but also addresses other issues related to common chronic illnesses and school health topics. The CP uses this time to respond to nurses' concerns about specific students' health; conduct group health education for school nurses, teachers, staff, students, and parents; and meet with school nurses and administrators to discuss health service policies and procedures. On-call activities include guidance for school nurses, as needed, physician contact and referral, and recommendations to parents, particularly those of students whose asthma is compromising academic achievement.

Consistent feedback from school nurses indicates that the on-call facet of this model has been especially helpful. For example, 1 elementary school nurse consulted the CP about a child with uncontrolled asthma who was routinely missing school and whose physician had been unresponsive to the nurse. Following this consultation, the CP contacted the child's parent and primary care physician. Following the identification of barriers and solutions, the child's asthma management improved significantly. By providing written standing orders for treatment of respiratory distress as well as minor illnesses and injuries, a CP enhances the nurse's ability to properly and promptly treat students in crisis, both with and without asthma. This has enabled the school nurse not only to treat potentially life-threatening asthma episodes immediately, but

also to decrease the number of children sent home or to the emergency room.

Preliminary Results

Table 2 shows selected evaluation measures of both processes and outcomes. The first short-term impact observed has been an increase in the number of current asthma action plans submitted to the school nurse by October of the school year. The percentage of students identified as having asthma with a current asthma action plan on file with the school nurse increased from a baseline of 7.5% in 2003 to 8.6% by October of the 2004 school year. This increase is directly attributed to enhanced methods for promoting and collecting up-to-date asthma action plans and improved communication

**Table 2
Outcome Measures for the School District for the
2003 and 2004 Academic Years**

	2003-2004 N (%)	2004-2005 N (%)
Absence rate (days/year)*		
Children with asthma [†]	10.4	9.74
Children without asthma	9.2	9.35
Children sent home by the school nurse		
Total count	2666	2083
Due to asthma symptoms	114 (4.3)	103 (4.9)
Asthma action plan		
Beginning of school year	68 (7.5) [‡]	88 (8.6)
911 calls		
Total calls	20	20
Due to asthma symptoms	7 (35.0)	2 (10)
Standing order albuterol treatments given		
Total students	—§	42
CP activities		
Interventions	—§	44
Consultations		52
Parent follow-up		10
Referral to student's primary care physician (PCP)		8
Contact PCP on student's behalf		7

* Absence rates are adjusted for number of days a student was enrolled for the year.

[†] The school nurse identifies children with asthma from the following sources: emergency health form, parent or child brings or has medication, contact with physician, asthma action plan on file, information carried over from previous year or school.

[‡] This number may be higher upon initial data collection due to the inclusion of outdated asthma action plans. The following year's count did not include outdated asthma action plans.

[§] The CP and standing orders were not in place during this time period.

**Table 1
Demographics for School District for the 2003
and 2004 Academic Years**

	2003-2004 N (%)	2004-2005 N (%)
Total students	8652 (100.0)	8583 (100.0)
African American	8206 (94.8)	8227 (95.9)
Caucasian	413 (4.8)	321 (3.7)
Total students with asthma	912 (10.5)	1024 (11.9)*
African American	855 (96.8)	901 (97.8)
Caucasian	28 (3.2)	19 (2.1)
Students qualified for free or reduced-price meals		
Free	5831 (64.0)	5806 (67.6)
Reduced price	878 (9.6)	668 (7.8)

* The school nurse identifies children with asthma from the following sources: emergency health form, parent or child brings or has medication, contact with physician, asthma action plan on file, information carried over from previous year or school.

among school, primary care physicians, and home, facilitated by both the school nurse and the CP.

The second impact has been a reduction in the number of students sent home by the school nurse, either for asthma- or for nonasthma-related symptoms. During the 2004 school year, there was a 22% overall reduction in students sent home due to injury or treatable symptoms compared to the previous year and a 10% decrease for asthma-related symptoms. Our hypothesis attributes these reductions to the use of the CP's written standing orders. This change means that not only did more students remain in school to learn, but also that school nurses had more time to address other priorities. For example, school nurses in this district have reported that the process of sending a child home requires an average of 20 minutes. Therefore, for the 2004 school year, 583 fewer students sent home gave nurses 193 hours, or 21 hours per month, to devote to other health activities.

Standing orders for medication and the associated protocols were also implemented during the 2004 school year. A total of 42 students presented with respiratory distress and received an albuterol treatment per standing orders written by the CP. Before that year, these children would have had to spend crucial time waiting for the arrival of a parent or an ambulance before obtaining any treatment; now, these children receive immediate treatment from the school nurse and in many cases return to class.

The third impact indicated by preliminary results is a significant reduction in the absence rate for children with asthma following implementation of the Asthma 411 program for the 2004 school year from an average 10.4 missed days to 9.7 missed days ($p = .02$). In 2003, the number of missed days for students with asthma was significantly higher than those without ($p < .05$) but did not differ statistically for 2004 ($p = .36$).

The CP has also taken an active role in helping nurses improve the health of students. Since the addition of the CP in 2004, the CP has performed 44 interventions (ie, any activity performed by the CP that potentially improves the health or health care of a specific student). Although interventions are primarily based on a review of the student's records or consultation with the school nurse, teachers, staff, or parents, interventions may also involve a medical evaluation of the student when warranted by the physician and approved by the parent. The CP also provided 52 nurse consultations (ie, communication between the nurse and CP to assist the nurse in her professional role and capabilities) and personally followed up with 10 parents. Because linking children to medical homes is a crucial element of having a consulting physician in a school district, the CP does not provide direct medical care to students; instead, the CP refers them to their primary care or other physician for treatment or follow-up, as needed. The CP has referred 8 students to their primary care physician and contacted 7 primary care physicians on behalf of a student. The CP has also conducted community outreach to area physicians known to be treating district students with asthma to introduce himself and the activities of the Asthma 411 Initiative and to encourage communication with the school nurses. These activities have enhanced and reinforced the role of the school nurse and school health services.

Barriers to Implementation

The primary barriers encountered have been associated with administrative changes within the district, school accreditation, and integration of the role of the CP into district hierarchy and function. When Asthma 411 began introducing the concept of the CP, the superintendent, the assistant superintendent overseeing health service personnel, and a majority of school board membership changed. This turnover required reintroducing the benefits of adopting Asthma 411 and the use of a CP to the new administration and, consequently, delayed implementation. The pilot district, like many low-income urban school districts, faces financial difficulties and academic achievement hurdles to meet accreditation standards. These internal challenges resulted in health services being considered a lower priority.

To enhance the likelihood of sustainability, which is an important element of Asthma 411, the initiative offset the financial burden of the CP by providing 100% of the funding for the first 2 years of the project, with 25% incremental reductions planned for the following 4 years. For this district and others in financial crisis or instability, lack of funding to pay for the services of a CP coupled with a lack of understanding of the benefits are barriers to implementation. A barrier to evaluation has been the timely and complete collection of information, which depends upon school nurses for whom data collection is considered secondary to routine duties.

LESSONS LEARNED

- The CP introducing the strategies of Asthma 411 in collaboration with the nurses maximizes the likelihood of sustainability. Introduction of Asthma 411 strategies by representatives of the district increases the likelihood of their utilization.
- Administrative support, which may be difficult to obtain, is crucial to the institutionalization and sustainability of the CP.
- Gradually transferring the cost of the program to the district can help to ensure continued district support. The pilot school district has indicated that it will assume responsibility for funding the CP.
- Simultaneous buy-in by administrators and school nurses can help to expedite overall school nurse support.
- Flexibility is essential when implementing a health initiative in a district facing accreditation challenges.
- Benefits quickly become apparent; sharing them with administrators improves the likelihood of continued support. ■

References

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