Improving Students’ Diabetes Management Through School-based Diabetes Care

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ABSTRACT

Introduction: The purpose of this pilot study was to conduct periodic diabetes care visits in school, with the goal of promoting optimal management of diabetes for high-risk youth.

Method: A convenience sample of 27 students receiving care at a university-affiliated children’s diabetes center and enrolled in a large urban school district received the diabetes visit intervention. Intervention effect was measured by parent survey of home/school diabetes management practices, the Self-Efficacy for Diabetes Tool, and a diabetes care-provider survey of subjects’ usual care, management competence, and glycemic control.

Results: The frequency of diabetes care office visits, insulin adjustment, and home and school blood sugar monitoring all increased. The percentage of children receiving insulin in school doubled. Pre-intervention to postintervention changes in glycemic control and student self-efficacy did not reach statistical significance. The response to the program was universally positive.

Discussion: This study demonstrated that diabetes care visits in school are feasible and not disruptive to the students’ educational program. The visits improved diabetes management at home and at school. School nurses’ knowledge about diabetes and confidence in diabetes management was improved through a role-modeling approach. J Pediatr Health Care. (2005) 19, 301-308.

Diabetes is a common chronic condition, affecting nearly 1 in every 400 to 500 children (Centers for Disease Control and Prevention [CDC], 2004). This prevalence rate is exceeded only by asthma (American Diabetes Association [ADA], 2000) and is increasing rapidly as the diagnosis of type 2 diabetes becomes increasingly common among youth. Previously rare in children, type 2 diabetes is occurring at an alarming rate in response to the unprecedented rates of obesity in the United States (Rocchini, 2002). Thus, schools, day care centers, recreation programs, camps, and other venues that serve children must become knowledgeable about this disease.

The management of diabetes is complex, requiring daily self-care and major lifestyle modifications. For children with diabetes, research clearly demonstrates the need for parental support and involvement in daily diabetes management to achieve tight glycemic control (Anderson, Ho, Brackett, Finkelstein, & Laffel, 1997; Weisberg-Benchell & Perlmuter, 2002; Wysocki et al., 2000). In many cases, however, parents are already highly stressed with work and other parenting responsibilities and may be unable to adequately manage the additional demands that diabetes management imposes. This situation can be particularly difficult for single parents and the high-risk, multi-need families that populate the practices of...
pediatric diabetes tertiary care centers.

Youth with diabetes spend from 6 to 10 hours a day in school and school-related activities. As a result, the school environment may have a significant impact on overall diabetes control. Experts are realizing the importance of changing the nutrition environment of schools and engaging school personnel in increasing students' knowledge of healthy eating and activity patterns. Moreover, school nurses and teachers often are willing to support diabetes management programs in school but often lack the specific information and confidence to do so.

The ADA recommends that parents and health care teams work together to provide school systems with the information necessary to allow children with diabetes to participate fully and safely in the school experience (ADA, 2005). School personnel may in fact be considered part of the multidisciplinary team that supports optimal diabetes management.

The project described in this article was undertaken in upstate New York State to improve the care of children with diabetes in the large urban district in which many of the high-risk patients in a university-affiliated children's diabetes center were enrolled. The objectives of the project included: (a) increasing the knowledge and confidence of school nurses in treating children with diabetes; (b) strengthening collaboration between school health personnel and the children’s diabetes center staff to resolve diabetes-related school problems and enhance diabetes management; (c) providing increased access for high-risk children with diabetes to the specialized expertise of the children's diabetes center; and (d) improving glycemic control of high-risk children with diabetes through enhancement of self-efficacy and achievement of the other objectives.

This project used a role-modeling, problem-solving approach to promote learning in students and school personnel. Monthly school visits by a pediatric nurse practitioner (PNP) from a university-affiliated children’s diabetes center were used to review home and school blood glucose records and adjust insulin doses as needed. Students and school nurses were provided with school menus that included carbohydrate servings for all food items listed so that they could easily ensure that the student's individualized meal plan was followed in school. In addition, problems with persistent hypoglycemia or hyperglycemia that traditionally could have disrupted the student’s educational program and/or school attendance were promptly identified and corrected by an adjustment in the meal plan or insulin dose. Thus, the diabetes education that was provided to students and school personnel occurred within the context of daily diabetes management, modeling its direct application.

REVIEW OF THE LITERATURE

An emphasis on self-management education can be found in any comprehensive review of the care and management of children with diabetes. A review of the literature on educational interventions for children and adolescents reveals some key gaps in knowledge of the effectiveness of diabetes education, however (Grey, Kanner, & Lacey, 1999). The majority of studies focus on adolescents rather than a broader age range of children, and very few include minority youth. Metabolic control has been the most common outcome studied, but the theoretical rationales for the interventions often are missing, making it difficult to discern how the investigators postulated that metabolic control would be improved. Knowledge is the second most frequent outcome measured, and the failure of increased knowledge to change behavior is well-known (Brown, 1990; Clement, 1995; Padgett, Mumford, Hynes, & Carter, 1988).

During the past 15 years, much of the research on diabetes education has focused on self-management programs that incorporate behavioral interventions designed to directly affect diabetes self-management. In one study, Delameter et al. (1990) reported a positive effect of self-management training on glycosylated hemoglobin in children ages 3 to 16 years. This educational program emphasized the use of self-monitored blood glucose data in making management decisions. In a second study, Grey and colleagues (Grey,oland, Davidson, Yu, & Tamboran, 1999) utilized a group educational program known as coping skills training to significantly lower HbA1c levels and improve diabetes-related quality of life for adolescents beginning intensive therapy. Anchored instruction, an approach that simultaneously involves learners in both factual content and problem solving in the context of realistic living situations, also has been found to promote improved self-management practices in children and adolescents (Pichert et al., 1994). This finding was reinforced by the In Control program, which was developed by McNabb and colleagues for 8- to 12-year-old children. The In Control program demonstrated the value of a structured approach for the gradual transfer of self-care responsibility in maintaining adequate metabolic control (McNabb, Quinn, Murphy, Thorp, & Cook, 1994). The Choices diabetes program for adolescents, which focused on improving diabetes problem-solving skills, also positively influenced metabolic control (Cook, Herold, Eddin, & Briars, 2002).

Other studies have demonstrated the importance of self-efficacy as a psychosocial factor,
not only because it can be used to predict behavior, but also because it can be enhanced by interventions and therefore can be used to change behavior. In a study of 142 adults with diabetes, Hurley and Shea (1992) found that persons with higher levels of self-efficacy were better able to manage self-care. Two additional studies involving children and adolescents found similarly positive relationships between adherence to diabetes self-care recommendations and self-efficacy (Charron-Prochownik, Becker, Brown, Liang, & Bennett, 1993; Littlefield et al., 1992). Grossman, Brink, and Hauser (1987) also found a significant positive correlation between self-efficacy and metabolic control in adolescent girls, although this finding was not true for adolescent boys.

The education of school personnel concerning diabetes care is also not a new concept. The diabetes education literature is filled with strategies and resources to assist families and providers in accomplishing this task. Moreover, educational legislation now mandates that schools provide reasonable accommodation and health-related services to children with diabetes (ADA, 2005).

A systematic review of studies of the effectiveness of educating school personnel in the school setting identified only four studies that evaluated this process (Nichols & Norris, 2002). The existing studies found suboptimal teacher knowledge and gaps in areas critical to the safety of children with diabetes (Gesteland, Sims, & Lindsay, 1989; Jarrett, Hillam, Bartsch, & Lindsay, 1993; Siminerio & Koerbel, 2000; Vanelli et al., 1999). Nonetheless, engaging school personnel who are already stressed by educational mandates in learning about a disease that affects a small number of students may be difficult for school systems. Some school personnel also may resist traditional educational efforts, believing that the knowledge they have obtained from personal/family experience with adults with diabetes is sufficient. Nichols and Norris (2002) determined that the most effective method of educating school personnel about diabetes in children and adolescents has not yet been defined because of the lack of high-quality research.

**CONCEPTUAL FRAMEWORK**

The conceptual framework for this pilot study was based on both social learning theory and developmental theory. Self-efficacy, the central concept of Bandura’s Social Cognitive Theory (Bandura, 1977), served as the theoretical framework for the study intervention described. Self-efficacy is defined as a belief in one’s ability to organize and carry out a plan to meet the demands of a specific situation. It not only affects which behaviors an individual will engage in but also how long a person will persist and how much energy will be expended to achieve a goal. A developmental framework also was used in this study to determine specific, individualized approaches to promote improved diabetes self-care behavior.

**RESEARCH DESIGN AND METHODS**

**Procedures**

A descriptive, pre/postintervention evaluation design was used to determine the effect of a PNP-directed school-based intervention on diabetes management at home and school.

**Setting**

The diabetes management program was introduced in 23 inner-city schools in an urban district that serves 37,000 students in upstate New York. The secondary schools in the study ranged in size from a small alternative high school with 240 students to several large middle and high schools with up to 1800 students. The elementary schools had an average enrollment of 400 to 500 students, although there were two small schools with only 250 students, and several larger elementary schools with 700 to 900 students. In almost every school, at least 75% of the students received free or reduced-price meals, and in some schools, the percentage was as high as 95% to 97%.

**Sample**

All students with diabetes in the district (N = 80) were identified as potential participants; 30 students (38%) enrolled in the program. The final convenience sample for this study consisted of 27 students (15 boys and 12 girls) who continued to be seen throughout the school year and for whom complete study data were available. Students were enrolled in kindergarten through 11th grade: six were high school students, four were middle school students, and 17 were elementary school students. The ethnic composition of the sample was similar to that of the district: 15 (55%) were African American, seven (25%) were Hispanic, five (18%) were White, and two students (1%) were of other ethnic backgrounds.

A majority of students (89%) received their diabetes care from the university-affiliated children’s diabetes center. One student was cared for by an adult endocrinologist, while two received their diabetes care from their primary care provider.

According to the provider ratings at the beginning of the project, only 37.9% of the sample was rated as “competent” in diabetes management; 31% were rated as “quite problematic.” These ratings were based on long-standing relationships between patients and providers, with 75.9% of the sample having been patients of their diabetes providers for 1 to 5 years. An additional 17.2% had been seen for more than 5 years, with only 3.4% of the sample having been...
patients for less than a year. The mean number of office visits per year to the diabetes providers for the year prior to the intervention was 3.5 (SD = 2.9). Duration of diabetes in the sample ranged from 6 months to 10 years, with a mean of 3.9 (SD = 2.7) years.

**Intervention**

School visits were arranged with teachers, students, and school nurses at the beginning of the school year and continued monthly at a consistent time. The visits were planned to avoid interrupting the student's educational program and often took place during home room, study hall, lunch period, recess time, or brief “free times” in the classroom. Parents and students were reminded that the PNP would be coming the day prior to the visit and were asked to send the child's blood glucose records and glucose meter to school for review.

During each school visit, the PNP and student met for 20 to 30 minutes in a place where confidentiality could be ensured. A variety of places were used, including the school nurses’ offices, unoccupied staff offices, playground benches (in nice weather), or quiet corners in the school library. School visit activities incorporated the following:

- A review of home blood glucose readings and, except for very young students, a discussion of the blood glucose records. The focus of these discussions was on the extent to which blood glucose goals were being achieved, and if not, how to problem solve solutions, including adjustments in insulin dose.
- A review of school blood glucose readings with the student and the school nurse. Concerns about the in-school management plan were addressed when needed.
- Developmentally appropriate teaching focused on increasing the students’ understanding of diabetes management and improving diabetes-related problem solving skills and coping. The youngest students were engaged in play activities, using stories about diabetes, injection play, storytelling, and drawings. Various other resources were used for older elementary grade students, including activities from Diabetes: One Part of Me (Hollerorth et al., 1986) and the American Diabetes Association Wizdom Kit (undated). Students of all ages were instructed in learning about healthy eating, the impact of food on blood glucose levels, carbohydrate concepts, and how to make appropriate choices about food. Food models and games were utilized to reinforce this content.

Occasionally, the school visit was expanded to include interactions with teachers or school administrators, especially when concerns about the child’s school-based diabetes management were evident. Several mothers also came to school on the days the PNP visited; two participated on a regular basis.

**Procedures**

The study was approved by the Institutional Review Board of the Medical Center and the administrators of the schools involved. Study participants were recruited from the population of students with diabetes who were enrolled in a school within the targeted urban district. Children with diabetes were identified by school nurses through the use of a list of students with health concerns. A letter about the study was sent to the parents of these students prior to the beginning of the school year. The study coordinator contacted all parents who returned a confirmation of interest form and scheduled an enrollment appointment with the child and parent. The enrollment process took place either at the school or during a home visit. Before any interventions were begun, written informed consent was obtained from parents. Written assent to participate was obtained from students older than 13 years, and verbal assent to participate was obtained from younger students.

**Assessment Measures**

The effectiveness of the intervention was assessed by a variety of physical and perceptual factors measured at the beginning and end of the school year.

**Student self-efficacy.** The Self-Efficacy for Diabetes (SED) Tool (Grossman et al., 1987) was used to measure middle school and high school students’ self-efficacy before and after the intervention. This 35-item tool has adolescents rate the degree to which they believe they are able to do what is asked, using a 6-point Likert scale, with responses ranging from “Very sure I can’t” to “Very sure I can.” Previous studies have produced reliability estimates using the Kuder-Richardson coefficient α of 0.90 and 0.92 (Grossman et al., 1987). The tool, which has been validated with adolescents, was revised for use with the school-aged children in this study. Many of the items were reworded to increase understanding, and 10 items not reflective of appropriate development and self-care autonomy for school-aged children were omitted. The revised 25-item SED Scale for Younger Children was submitted to three child psychologists for content validation. Several sample questions about common situations were added to help the student understand the concept of a Likert scale, and the final tool was verbally administered. The coefficient α for the revised scale was 0.89. Clinical and research experts reviewed the revised scale for content validity to ensure the revisions did not change the meaning of the scale. Because of the small sample size and study design, no other reliability and validity testing was done.
Parent perceptions. Parents were surveyed about their diabetes-related experiences with schools and their satisfaction with the school’s handling of their child’s diabetes care. A 15-item survey developed for the state of New Jersey was used (Melchionne, 1994). This short answer survey included questions about home and school diabetes management practices. Additionally, parents were asked to indicate who (their child, the school, and/or a parent) performed various diabetes management tasks such as insulin injection, blood glucose monitoring, insulin adjustments, and monitoring for hypoglycemia and hyperglycemia. The final survey was reviewed by experts for content validity and by several parents for readability, but no formal reliability and validity testing was done because of the small sample size and the variable response options for the questions.

Care provider perceptions. The physician or PNP who was directly involved in the child’s diabetes care also completed a preintervention and postintervention survey about usual diabetes care practices. This investigator-developed instrument addressed the frequency of diabetes office visits and insulin adjustments, family knowledge about diabetes, and management competence of the parent and child. Information was gathered concerning the development of acute complications requiring emergency department visits and hospitalizations. Glucose control as assessed by glycosylated hemoglobin levels also was reported on the diabetes care provider survey. The content of this survey was validated by experts, but a calculation was not appropriate because of the variability in the type of question and response options.

Data Collection Process
The pre-intervention Parent Survey and the SED Tool were completed at the time of enrollment visit. If an enrollment visit was unable to be scheduled at the beginning of the school year, the Parent Survey was mailed to the home and the SED Tool was completed by the student at the first school visit. Provider surveys were distributed and returned by fax or mail. At the end of the study, the postintervention SED Tool was completed at the last school visit, and the Parent Survey was mailed to parents and returned either by the student at the last school visit or by mail. Parents and children were each paid $10 for completion of pre-study assessment tools, and an additional $10 for completion of the same post-study tools. In addition, families who participated in the study throughout the school year were paid an additional $10. Thus, it was possible for a family (parents and children combined) to receive a total of $50 for their participation in the project.

Changes in parent, provider, and student perceptions were compared through the use of Student t tests, chi square, and descriptive statistics. Similar procedures were used to compare physiologic and diabetes complication indicators.

RESULTS
No statistically significant differences were seen between pre-intervention and postintervention mean scores on the SED Tool. Neither were statistically significant differences seen between pre-intervention and postintervention self-care practices, parent satisfaction with school care, HbA1c, family knowledge and competence in diabetes management, or frequency of hospitalization or emergency department visits.

Despite the lack of statistically significant outcomes, some encouraging trends were seen. In particular, blood glucose monitoring at home increased, the frequency of insulin administrations at school doubled as need for intensification of insulin regimens was demonstrated by increased blood glucose monitoring, and insulin adjustments in response to documented need increased (see Table 1). Had the study been extended for another school year and the sample size been larger, a stronger outcome might have been achieved.

In addition to the encouraging clinical trends observed, several other important objectives were accomplished. First, an ongoing collaborative partnership between the University-affiliated Children’s Diabetes Center and the large urban school district was established. As a result, nurses increased their expertise in diabetes management through informal consultations with the Diabetes Center nurse practitioners and dietitians and through regular formalized in-service programs. Resistance to the implementation of intensified diabetes management plans decreased, as evidenced by increased insulin administration in school, reflecting nurses’ increased confidence and knowledge. Second, the feasibility of incorporating school visits into the diabetes management plans of selected high-risk students was demonstrated. School nurses were willing to facilitate visit scheduling and the arrangement of private space. They also adjusted students’ individualized diabetes management plans as new recommendations emerged from the visits.

School visits were positively received by students and parents. Elementary students particularly enjoyed the extra attention from the PNP and clearly demonstrated increased knowledge of diabetes management over the course of the school year. In the post-program Parent Survey, many parents expressed appreciation for the regular visits and the knowledge, confidence, and motivation they believed their child had gained.

School visits also were favorably received by school personnel.
A post-program survey distributed to nurses and health aides determined that the overall perception of the program was positive. Of the 52% (n = 22) who responded, 100% believed that the program was helpful to students, and 59% stated that the program was “very helpful.” Nursing personnel commented on the students’ increased knowledge and confidence, their pride in achieving good glucose control, and their perception that the students enjoyed learning. Among the nursing respondents, 68% (n = 19) reported that their own knowledge about diabetes increased as a result of the program. In particular, they noted an increased understanding of technology, food selection, insulin action, daily management of the disease, and techniques for effectively motivating and communicating with students with diabetes. They also reported that they felt less fearful about acute situations (hypoglycemia or hyperglycemia), were more aware of students’ blood glucose trends, and were more comfortable reporting these trends so that changes could be made in insulin dose.

LIMITATIONS

Limitations of this study include the small sample size and the use of a nonexperimental evaluation design. The lack of valid and reliable instruments to measure the impact of the intervention on school nurse confidence and some of the intermediary gains by students, such as blood glucose stabilization in school and gains in diabetes problem-solving ability, also constitutes a limitation. In addition, the self-selected nature of the study sample limits the generalizability of findings. Although all students with diabetes were invited to participate, only those who responded to the initial letter were enrolled. The parents of students who were ultimately enrolled may have been more highly motivated to improve their child’s diabetes care or were more concerned about diabetes management at school. Insulin adjustment frequency was obviously affected by monthly visits to the school and may not reflect any lasting change in self-management related to blood glucose analysis or problem-solving ability. Furthermore, several students did not complete the study, illustrating the challenge of managing a transient population such as the one targeted in these inner-city schools. A longitudinal study design would also have been beneficial in evaluating change over time and might have yielded more robust results.

DISCUSSION AND IMPLICATIONS FOR PRACTICE

This pilot study demonstrated that regular school visits by a diabetes center PNP are feasible and can be conducted without disruption to the students’ educational program. The visits provided in this project increased blood glucose monitoring at home and at school and improved insulin administration practices and insulin adjustment. In addition, the school visits increased the school nurses’ knowledge about diabetes and their confidence in assisting students with diabetes management through a role-modeling approach. The findings of this pilot project are important for a number of reasons. First, the value of school nurses in the care of children with diabetes was demonstrated. Although many schools, including those in this pilot study, do not have full-time school nurses, when the nurses’ level of expertise is fully utilized by schools and by diabetes care centers, disruptions in educational programming for children with diabetes may be minimized and school diabetes management improved.

Second, the project provided school nurses with an opportunity to learn concepts about diabetes management and then to observe these concepts immediately ap-

<table>
<thead>
<tr>
<th>TABLE. Pre-/Post-intervention outcomes*</th>
<th>Pre-intervention (%)</th>
<th>Post-intervention (%)</th>
<th>% Change</th>
</tr>
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<tbody>
<tr>
<td>Frequency of blood glucose monitoring at home</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rarely</td>
<td>3.4</td>
<td>3.8</td>
<td>+0.4</td>
</tr>
<tr>
<td>&gt;1×/day</td>
<td>79.3</td>
<td>92.3</td>
<td>+13.0</td>
</tr>
<tr>
<td>Frequency of blood glucose monitoring at school</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daily</td>
<td>37.9</td>
<td>34.6</td>
<td>-3.3</td>
</tr>
<tr>
<td>&gt;1×/day</td>
<td>31.0</td>
<td>46.2</td>
<td>+15.2</td>
</tr>
<tr>
<td>Frequency of insulin administration at school</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not at all</td>
<td>65.5</td>
<td>46.2</td>
<td>-19.3</td>
</tr>
<tr>
<td>Daily</td>
<td>10.3</td>
<td>23.1</td>
<td>+12.8</td>
</tr>
<tr>
<td>&gt;1×/day</td>
<td>3.4</td>
<td>3.8</td>
<td>+0.4</td>
</tr>
<tr>
<td>Frequency of insulin adjustment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rarely</td>
<td>34.5</td>
<td>26.9</td>
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</tr>
<tr>
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</tr>
<tr>
<td>Monthly</td>
<td>6.9</td>
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<td>+16.2</td>
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*Percent do not add up to 100%. Missing and clinically irrelevant % removed.
plied in daily practice. Role modeling by an experienced practitioner was a powerful tool in increasing the school nurses level of confidence in addressing common diabetes-related concerns with students, parents, and other school personnel.

By utilizing the school setting for monthly diabetes care visits, the gap between high-risk patients and the tertiary care center was narrowed. Because children and adolescents with diabetes from high-risk, multi-need families are among the most challenging for pediatric diabetes centers, this was an important outcome. Lack of transportation, poverty, parental difficulty obtaining time-off from employment, and other competing priorities may limit access to the specialized expertise of the diabetes center and cause children to be seen infrequently, despite vigilant follow-up on unkept appointments. Consequently, a model that increases the frequency of contacts with specialists by bringing services into the school may hold great promise for ultimately improving health care for high-risk children with chronic medical conditions. Speciality practices that care for children with a variety of chronic conditions requiring daily management, such as asthma, cystic fibrosis, sickle cell anemia, and seizures, could potentially utilize schools as a key setting for achieving more consistent and long-lasting results.

The findings of this pilot project suggest further research is needed to determine whether the trends seen here can be replicated or extended in other studies. Specifically, random assignment to the study intervention would be ideal. A larger sample, studied longitudinally, also would assist with determining the true magnitude of the effect and whether it can be sustained over time. A larger study should also include measurement of the impact of school visits on school attendance and school blood glucose stability. The study also could be replicated with other populations of chronically ill students who require daily disease management activities during school hours.

Although the students in this study did not achieve a significant change in perceived self-efficacy, many students appeared to benefit from their interactions with the PNP. On a monthly basis, students had a chance to discuss their daily diabetes management in an environment that was nonthreatening and in which the PNP was the visitor rather than the perceived authority. Students were encouraged to identify problems with diabetes control and to use problem-solving skills to develop potential solutions. When interactions focused on increasing the student’s knowledge, such as some of the play activities with younger children around food choices, the students were given opportunities to apply this knowledge immediately. Perhaps significant gains in self-efficacy would have been demonstrated had the study continued beyond one school year.

Implementing this project was a challenge; a great deal of initial groundwork was required to gain access to students. Because the administrators of the targeted schools must carefully screen requests to conduct research within the schools, they were understandably reluctant to approve anything that could interrupt the primary educational mission of the district. As a result, it was necessary to link potential outcomes such as improved attendance and classroom performance to diabetes control before they would allow periodic PNP visits in the schools. A nonexperimental evaluation design also was necessary because the researcher was unable to obtain permission to randomize assignment of students to a usual care or experimental intervention group. In addition, although the original intent was to collect school blood glucose records as another indicator of glucose stability, this became impossible because of the number of schools and personnel involved.

School-based health centers deliver a wide range of health care services to students in many urban districts. Most of the services provided are comparable to those delivered within primary care practices and include screening, the diagnosis and treatment of mild acute illness, and health supervision. Consequently, the school-based health center may be a highly desirable place for the supervision of chronic illnesses, such as diabetes, that require a great deal of daily management by students. Parents in particular may be reassured by knowing that the health staff in their child’s school are well prepared to handle the diabetes-related situations that arise over the course of the day.

A recent ADA statement on the care of children and adolescents...
with type 1 diabetes includes this statement: “The school can present significant challenges or be a source of support to the child with diabetes” (Silverstein et al., 2005, p. 190). This study demonstrated the latter—that a partnership between school nurses and a nurse practitioner from a diabetes center may provide the framework for improved outcomes for children with diabetes.

REFERENCES


