

The Role of the School Nurse:

Several years ago, I wrote an article for the Journal of the National Association of Independent Schools, pointing out to administrators of private and parochial schools the advantages of having a school nurse on staff. The editor told me that there had never been an article on school health in the Journal as long as he had been there, some 12 years, so it would be welcome! This is the first paragraph of that article:

“It is every administrator’s worst nightmare: A child suddenly experiences shortness of breath. Who determines what the cause is likely to be, and how to treat the distress? Who should be called first? 9-1-1? The parents? Or the child’s physician? In the case of anaphylaxis brought on by a bee sting allergy, death can occur within minutes. Is there someone on staff who can administer life-saving epinephrine? In the case of persistent asthma, lack of proper treatment can lead to permanent damage to the lungs. Is there someone to monitor the student’s peak flow reading and assess the effectiveness of the inhalant medication? Who monitors the blood glucose test results on students who are at risk for hypoglycemia, seizures and loss of consciousness due to insulin-dependent diabetes?”

Statistically, in any population of school-age children, one in about 500 is diabetic, one in 100 has a life-threatening allergy, and one in 10 has had one serious asthmatic episode. Do you have a school nurse in your school to care for these chronic conditions?”

The article went on to describe the advantages of a comprehensive school health program, you know, the 8 components: school nursing services, health education, environment, faculty wellness, food service, physical education, community involvement and mental health, all coordinated by the school nurse.

When the galley proofs arrived in the mail, I read the article, and found no trace of my opening paragraphs. When questioned, the editor explained that he felt the scenarios were too alarming, so he cut them out of the article. Is that the definition of denial?

The 13,000 new cases per year of Type 1 diabetes in school age children should make them sit up and take notice: when someone has insulin-dependent diabetes, denial can kill. Unless there is a balance of insulin, food and activity, serious damage can occur to the diabetic person any hour, any day, anywhere. Thus we are using type I diabetes as an example of a chronic health impairment, but one can apply these principles to many other chronic diseases.

Slide 2

Dorothea Orem's Nursing Theory of Self-Care calls for the school to be an extension of the family who supports the child who is learning how to care for his own needs. Thus the cognitive strengths and weaknesses of the student, the family and the caregivers/teachers in school must be assessed. The developmental level of the student, and his physical ability to care for himself, are also assessed.

Faculty members must realize the importance of balancing nutritional intake, exercise and insulin levels to maximize the utilization of glucose. For example, scheduling PE classes after lunch, when the cells' use and storage of glucose takes place, is preferred over a PE class before lunch, which brings with it the potential for hypoglycemia in students whose insulin delivery system includes a combination of short and long-acting hormones. If the family adheres to the recommendations of the DCCT study (Diabetes Control and Complications Trial), it may keep traditional complications of diabetes under control, but will increase the potential for episodes of hypoglycemia, which impact on brain

function as well as physical discomfort. The lack of insulin-producing islet cells in the pancreas means that the normal mechanism, which unlocks the cell membrane to allow glucose to enter and be converted to energy, is halted. Imagine a car without a fuel pump.

Coordination of care for any health-impaired student begins with a face-to-face meeting of the child, family and school nurse long before the first day of classes, if possible. A mechanism is developed for communication between home and school. This could be a daily noontime phone call or a notebook to let Mom know the blood glucose readings and what the child had for lunch and snacks. Any unusual occurrence (such as running the mile!) is shared as well, since it could affect BG levels several hours later.

The wise school nurse will also assess community resources in the area, including the physical environment of the school, level of EMS services and distance to the ER. A copy of the student's schedule is readily at hand. Teachers will already have been in-serviced regarding BBP and how to minimize exposure of teachers and students to the blood or body fluids of another.

Slide 3 – School Responsibilities

Whether or not a student is academically impaired, if a child must have special accommodations because of a chronic health condition, federal law protects their right to attend school in the least restrictive environment. A Section 504 plan, as it is commonly known, is an individualized daily emergency plan. Although it pertains to entities receiving federal funding, usually not private or parochial schools, I believe it's the right thing to do.

When I became a school nurse in New Jersey back in the late 70's, we had a state law upon which IDEA and ADA were modeled. I had my first run-in with teachers who wanted to ban a child with

spina bifida from attending the public school in her wheelchair, or refusing three students (who happened to have their arms or legs in casts) from accompanying their classmates on an overnight camping experience! We managed to accommodate these children in creative ways, and had a wonderful bonding experience on the trip.

In the school, a plan is developed to spell out the time and location of blood glucose monitoring, special allowances for snacks, provisions for field trips, lunches and parties. Fact sheets and informational booklets on diabetes are explained during a faculty meeting, with more specific information shared with the students' regular teachers and staff. A photo of the student with diabetes (or bee sting allergy!) should be posted along with emergency numbers and supplies for that student in a place where substitutes for the teacher or nurse can have access.

About three years ago, we had a hostage situation on our campus, and I was thankful for updating my emergency plans for the school, particularly for the diabetic students. It was during the middle of lunch periods, when the incessant racket of a helicopter circling overhead told us something was amiss. A policeman ran into the building and urged everyone away from the windows and into the concrete 3 story science building next door. An armed and dangerous fugitive had taken a couple hostage in their driveway, directly across from the school. Just then a class of 8th graders hurried down the hall. Seth was among them. I grabbed my cell phone and followed. Most of the 7th and 8th graders were crowded into the safety of the computer labs. Some were cowering and crying, while others calmly found computer games to play. My first thought was of Seth. He had not yet eaten lunch! His glucose level must be dropping fast. I mentioned my concern to the PE teachers, and we searched the classroom for any brown bag lunches, but came up empty. The dining hall was across campus, which was swarming with police SWAT team members. Without

a word, the coaches left the classroom we were in, and returned about 15 minutes later carrying half a dozen pizzas! They had risked their lives to run out to the pizza delivery van, which was stalled in traffic due to the police roadblocks. Seth got the first two pieces of pizza. The standoff ended peacefully, thank goodness!

Now, here is where your state's Nurse Practice Act comes into conflict with education law. The principal may delegate a member of the staff who may not be a registered nurse to do the blood glucose testing, insulin injections, and even glucagon administration! This is a hot issue in Florida, where a task force has been directed to set up guidelines for "unlicensed health aides" to be trained in administration of insulin, and possibly, glucagon as well, "notwithstanding the provisions of the Nurse Practice Act.."

Slide 4 – Parent Responsibilities

Parents are responsible for sending equipment and supplies to the school. For diabetics, that includes BGM strips, lancet pen and needles, ketone strips for testing urine, insulin and syringes or spare pump apparatus, and glucagon syringe and diluent. (Our health department assists us in recycling, replacing sharps containers at no charge.) The family is responsible for sending enough nutritious snacks, plus emergency glucose tablets, cake frosting tubes or honey sticks for treatment of occasional lows. An ID Alert bracelet must be worn at all times identifying the student as having diabetes, and referencing a number to have access to the student's health information. Specific orders on insulin coverage from the student's M.D. are signed and updated annually.

Slide 5 - Communication

Of course, emergency telephone numbers, cell phones, pagers, email, voice mail, notes, logs, every method of communication is

kept up to date. Each BG monitor has a memory chip to keep a record of blood glucose levels, with a time and date stamp for verification. We track BGM results on an annual log sheet, and double check the accuracy of the log by searching the memory of the disk.

Slide 6 – Student Responsibilities

By age 5, child can help with choosing sites for finger sticks and insulin shots. By age 6, has learned which foods to limit, and can recognize when he is “low”. By 8-10, can begin own injections, monitor and record BGM results, and select foods from the meal plan. May understand the immediate effects of diabetes, but not the long term. By 11-13, can mix and draw up two types of insulin, interprets BGM results in relation to exercise and intake, and knows long-term effects on the body from hyperglycemia. By 14-16, can program own computer/pump.

The student must communicate findings of BGM <70 or >240 to nurse and parent. The aim is for a reading of 80-180 before lunch. A tightly controlled diabetic will yield a Hgb A1c at less than 7, but he/she risks the deadly side effects of low blood sugar. Life depends on maintaining a balance of the two.

Slide 7 – Erikson’s Stages of Man’s Psychosocial Development

Let’s analyze for a moment how a chronic health problem like diabetes affects the child as he progresses through the “Stages of Man” according to Erik Erikson’s theory of psychosocial development. In infancy, the child learns to trust an adult to provide food and stimulation in response to his needs. The toddler, in the stage of autonomy, learns to hold on/let go, say no! –the terrible twos . Threes and fours demonstrate initiative, becoming more independent and willing to separate from the parent as

preschoolers. During the long school-age years, the industrious child wants to be “just like” everyone else, knowing he is capable and “normal” and not inferior. Peer identity becomes very important during the early teen years, as the child will “hang out” with like-minded (and dressed-alike) members of his school class. This is the rebellious period we see in high school students. Next comes a desire for intimacy, to fall in love, to lose oneself in another in order to find oneself, or else suffer isolation in life. The next stage, generativity, refers to the long period of adult maturity, when families are created, businesses formed, and artistic creativity at its peak. As the years slow us down, one struggles with ego integrity, which is a sense that “one’s life was worth living”. This stage occurs during old age, or at a much younger age in persons afflicted with a life-threatening disease such as cancer, or at times, diabetes. Can you see how Seth has struggled through his stages of development so far, dragging the burden of the reality of his diabetes along with him? He is such an adolescent! Listen to him crow about his “independence” without looking down to see the safety net his parents, nurses and teachers have stretched out beneath him, sometimes with white knuckles!

Seth mentioned another diabetic student who was diagnosed a couple of years ago, during his teen years. His outlook on life with diabetes is very different from Seth’s, who has known no other way of life.

Slide 8 – Family Stress

The family of a student with a chronic disease is under severe stress. Members exhibit the stages of grief over one’s loss of health in a never-ending cycle of denial, anger, blame, bargaining, depression and acceptance, but often out of sync with one another. Parents experience sleep deprivation if they have to minister to the child during the night, and have the awesome responsibility of calculating carbohydrates and preparing the child’s meal plan

during the daytime hours in school. The timing of meals means that everyone's schedule is affected. Trips must be carefully planned. Parents worry over their healthy teenagers becoming drivers, how much more the parent of a diabetic, whose hypoglycemia may lead to blackouts and impairment of judgment and visual acuity! Although discrimination in the workplace due to a disability is a violation of the Americans with Disabilities Act, there may be anxiety over a person's earning potential. Periodic mental health counseling can be helpful to maintain good relationships among siblings and marital partners.

Slide 9 – In-Service for Staff

During the Staff Inservice, teachers are told that Type I diabetes is an auto-immune disorder – that is, antibodies that formed to fight off a virus instead attack beta cells in the pancreas, destroying all of them. In Type II, for example, some insulin-producing cells remain functional. Clear, graphic explanations of hypo- and hyper-glycemia are reviewed annually, and handouts reinforce the edict “when in doubt, feed me”. Confidentiality is always an issue – teachers, parents and other students might not feel bound by it. People have reacted to type 1 diabetes as if it were the same as “grandma's type II”. There is also confusion about giving a sugared drink to a diabetic. Exchange lists have given way to “counting carbs”, as they are the quickest to digest and yield the glucose that the brain needs to function and survive.

The PE coach who carried Seth into my office as Seth relates, said he had a funny, mad look about him, which the coach remembers his own grandfather used to evidence when he was having a very low blood sugar, and so was watching him carefully. That was the scariest moment for me!

Slide 10

Type I

No insulin in pancreas
Unable to transport glucose
Hypoglycemia risk: death
A1c <7 = good control

Slide 11

Type II

Some insulin produced
Insulin resistance by cell
Damage from hyperglycemia
A1c >10 = risk kidney, eye,
nerve and heart damage

Slide 12 – Issues in School

Issues in school currently being discussed or incorporated in Section 504 plans include these points:

1. Blood glucose monitors in the classroom or nurse's office?
2. Emergency snacks in every classroom or nurse's office
3. Who administers insulin – RN? LPN? Self? UAP? Principal?
4. Glucagon – needs to be premixed and injected by another person. Be prepared for student to vomit and be sleepy, but his condition should never reach that point! Hypoglycemia should be recognized and treated with glucose. If the nurse has done a good job of in-service education, there should never be an incident where glucagon is needed.

Florence Nightingale wrote that the aim of Nursing is to “place the person in the very best condition for nature to act upon him” Go forth, now, school nurses, and make the conditions for your chronically health-impaired students the very best you can for nature to act upon them.