

## Chapter 23

# The School/ Work and Diabetes

Susie Owen, RN, CDE  
H. Peter Chase, MD

## INTRODUCTION

The first and main job of parents in relation to school is to educate those who will be working with the child at school about diabetes. Parents want to feel that their child is in safe hands while at school (often the place where the majority of the child's waking hours are spent). Parents also want to make sure their child is not treated differently because of having diabetes. The next few pages are meant to be cut out or copied (permission is granted to copy as often as wished) for the school. It is wise for the parent to phone the school nurse, teacher or principal to discuss the best way to inform all of the necessary people. The week before classes start is usually the best time. A checklist is provided in Table 1 to remind parents of their responsibilities. The school may want a School Intake Interview (Table 2). There is also a letter at the back of this chapter that may be helpful.

Some parents in our area will buy or borrow a copy of one of the videos (see Resources at the end of this chapter) on diabetes and the school or on hypoglycemia and take it to show the nurse, health aide, teachers and others likely to be involved with their child. It can be a good starting place for a discussion about hypoglycemia, the most likely emergency to occur at school.

## TOPICS:

Monitoring  
(checking blood  
sugars/ketones,  
giving insulin)

Prevent, Detect  
and Treat Acute  
Complications

Psychosocial  
Adjustment

## TEACHING OBJECTIVES:

1. Assess who will educate school/work personnel about diabetes.
2. Identify supplies needed to prevent acute complications at school/work.
3. Develop a health action plan for school/work.

## LEARNING OBJECTIVES:

Learner (parents, child, relative or self) will be able to:

1. Define who will educate school/work personnel about diabetes.
2. List all supplies needed at school/work to prevent acute complications.
3. Design a health action plan for school/work with healthcare provider(s).

*It is essential for the family to educate the:*

- ✓ teacher(s); including gym, art and music
- ✓ school nurse
- ✓ health aid
- ✓ bus driver
- ✓ lunchroom workers
- ✓ playground aides
- ✓ others involved with their child at school

Sometimes the school nurse or the teacher will help educate other staff. It is also important that when a substitute teacher is at school, the substitute knows that a child in the classroom has diabetes. A copy of your child's school care plan should be placed in the "substitute" folder and in the teacher's attendance book. Attach a recent photo of your child to the plan. **It is important NOT to leave it up to the child to inform and educate the school.** They may be self-conscious or embarrassed and not get the job done.

**A second job of parents is to keep an adequate supply of items at school for the treatment of low blood sugars.**

These might include:

- ✓ instant glucose or cake decorating gel
- ✓ glucose tablets
- ✓ small cans of juice or juice boxes
- ✓ Gatorade or a can of sugar pop (soda)
- ✓ peanut butter or cheese and crackers and/or graham crackers
- ✓ quarters so the school staff can purchase these items

These should be kept in a container in the teacher's, principal's or nurse's office. The container should be clearly labeled with the child's name and a set of instructions (with contact phone numbers). They should be readily available to the child at all times. They shouldn't be locked in the young person's locker. The child may not remember their own locker combination if hypoglycemic.

There is often a special anxiety about a young child starting preschool.

*This anxiety is due to a young child who:*

- ✓ may not yet be able to recognize low blood sugars
- ✓ may not be mature enough to help remember snacks. The teacher will need to remind the child or the child may wear a watch with a preset alarm.
- ✓ might not have been away from the care of the parents for any significant period of time prior to starting preschool

Separation may be difficult for the parents and the child. And yet, preschool may be important for the child in learning social and other skills. It is important to allow participation just as one would if the child did not have diabetes. The information at the end of this chapter may be given to the preschool teacher just as it is to regular schoolteachers.

## SCHOOL HEALTH PLAN

Schools in most states now require a School Health Plan. We have included a possible plan in this chapter (Table 3). It would be appropriate for all children and schools. You have our permission to copy this form as often as you wish. There is also a generic school letter at the end of this chapter that may be of help in introducing your child's diabetes to the school. Also note that there is a letter for sports coaches at the end of Chapter 13. Either of these letters may be copied as often as desired. Finally, directions for accessing a "504" health care plan online are included in the legal portion of this chapter.

## BLOOD SUGAR TESTING IN THE SCHOOL

*All children must have at school:*

- ✓ a blood sugar (glucose) meter; it should NOT be kept in the child's locker

- ✓ strips for the meter
- ✓ a lancing device (finger piker)

At a minimum, a test must be done whenever the child is feeling low. Some physicians and parents ask that a test be done routinely prior to lunch. Often children carry their own meter in their backpack. This should then be noted in the School Health Plan.

We prefer that the child be allowed to test in the classroom. Less school is missed when this is allowed. If the child is testing in the classroom, an adult may need to look at the result. The adult can determine if a low blood sugar has occurred. The biggest disadvantage of testing in the classroom is that the hands cannot be washed first if there isn't a sink. A trace of sugar on the finger can cause a high reading. If alcohol is used to clean the finger, be sure to let it dry completely before lancing.

It should be noted, if the child feels low and no blood sugar equipment is available, **TREAT the low with a source of carbohydrate.**

## INSULIN IN THE SCHOOL

If insulin is to be given at school, the parent and the child's physician must sign a school medication form (see example). It must specify when the insulin is to be given and the dose. This "physician order" is usually mandatory in order for the nurse to deliver a dose of insulin at school. Some parents have difficulty when the school nurse can't just accept a dose from them, but it would be illegal for the nurse to do so. Individual state laws often dictate how this dose can be delivered. In some states, only a school nurse, the child or the child's guardian may administer the insulin. In other's, the nurse or principal may delegate this task to a layperson(s) in the school setting. If a child is drawing up the insulin and giving their own dose, it is a good idea to have an adult check the amount. On other occasions the parent may need to come in and give the injection. If a layperson will be responsible for the job, it's important that there be at least two people trained (in the

event one is absent). These delegates should be recertified routinely and their names should be recorded in the child's care plan. Insulin pens are often a great tool for injections at school. They are very convenient, more accurate and leave less room for error when drawing up the dose at school. Unfortunately insurance may not cover their cost.

## GLUCAGON IN THE SCHOOL

As discussed in Chapter 6, glucagon is a hormone with the opposite effect of insulin. It raises the blood sugar, but it is not sugar. Glucagon is used for emergencies when a person becomes unconscious, has a seizure or is unable to safely drink a liquid carbohydrate due to a low blood sugar. The use of glucagon in the school can be found in the Emergency Response Plan (Table 4). Unfortunately, it must be mixed with a liquid and it is then injected just like insulin. It can be injected under the skin into the subcutaneous fat (like insulin) or deeper into muscle. It works just as well either way. Some physicians, schools and families work out a way that the glucagon can be given at the school in case of an emergency. (The physician must give orders for dose and when to give it.) If the family lives in a rural area, where emergency personnel are not immediately available (we have heard of responses taking as long as 40 minutes), glucagon should be kept in the school. It may have to be administered by a lay person, but most parents are lay people, and they administer glucagon. At least two people should be trained. The school nurse must arrange for routine recertification of these skills for the school staff members assigned to do this task. The instructions from Chapter 6 should be taped to the box. Our 2001 video on hypoglycemia (see Resources at the end of this chapter) also teaches how to give glucagon. You can also access a video and written directions for training online at the American Diabetes Association's website ([www.diabetes.org](http://www.diabetes.org)).

## LOW BLOOD SUGAR (“Insulin Reaction” or “Hypoglycemia”)

See the Emergency Response Plan (Table 4) for the specific care for a given child.

This is the only emergency likely to occur at school. The severity of the low blood sugar is not determined by the glucose value but rather by symptoms.

- A. **Onset:** SUDDEN and, if not treated promptly, can be an emergency.
- B. **Signs:** Variable, but may be **any** of the following:
- hungry
  - sweating, shaking
  - pale or flushed face
  - headaches
  - weak, irritable or confused
  - speech and coordination changes
  - eyes appear glassy, dilated or “big” pupils
  - personality changes such as crying or stubbornness
  - inattention, drowsiness or sleepiness at unusual times
  - if not treated, loss of consciousness and/or seizure
- C. **Most likely times to occur:** Before lunch or after gym class.
- D. **Causes:** Too much insulin, extra exercise, a missed snack or less food at a meal than is usually eaten. Field days or field trips with extra exercise and excitement may result in reactions. The parents should be aware of all field days or trips so that the insulin dose can be reduced and/or extra snacks can be provided.
- E. **IF YOUR CHILD IS SENT TO THE OFFICE, THEY MUST ALWAYS HAVE SOMEONE ACCOMPANY HIM/HER. The child may become confused and not make it to the office if he/she is alone.**

F. **Treatment:** This depends on the severity of the reaction:

1. **Mild Reaction** (also see Table 4: Emergency Response Plan)

**Symptoms:** Hunger, shaking, personality changes, drowsiness, headache, paleness, confusion or sweating.

**Blood sugar:** If equipment is available to do a blood sugar test, this is ideal to do even if treatment has been taken. We prefer this to be done by the student (if old enough) in the classroom so that extra energy is not spent going elsewhere. However, we realize that for some schools this is not possible. It takes up to 20 minutes for the blood sugar to rise after the carbs have been given. Doing the blood sugar tests will help to tell if the blood sugar was truly low and how low. A rapid fall in blood sugar, even though the blood sugar is in a normal range, may cause symptoms of being low and require a solid food snack to stop the symptoms.

**Treatment:** Give three or four glucose tablets, or 4-6 oz or 1/2 cup of juice, or any sugar-containing food or drink. Liquids are absorbed in the stomach more rapidly than are solid foods. Avoid use of high fat foods as a first line of treatment. The higher the fat content the slower the treatment will be absorbed. **INSULIN REACTIONS TREATED WITH LIQUIDS INITIALLY SHOULD BE FOLLOWED IN 10-15 MINUTES WITH MORE SUBSTANTIAL FOOD** (e.g., cheese and crackers or 1/2 sandwich, etc.).

2. **Moderate Reaction**

**Symptoms:** Combative behavior, disorientation, lethargy.

**Blood sugar:** Do the same as in a Mild Reaction (see above).

**Treatment:** Always check for the risk of choking **before** treating. Elevate the child’s head. Give instant glucose or cake

decorating gel immediately, and then give sugar or juice when the person is more alert. After the person is feeling better (10-15 minutes), give solid food as above.

### 3. *Severe Reaction*

**Symptoms:** Seizure or unconsciousness

**Treatment:** CALL 911 IMMEDIATELY

Give glucagon subcutaneously or intramuscularly. Check the School Health Plan for the dose.

A checklist for the school nurse to follow in developing the Individualized Health Care Plan is shown in Table 5.

## HIGH BLOOD SUGAR/KETONES

People with diabetes may have high blood sugars and spill extra sugar into the urine on some occasions. These occasions include periods of stress, illness, overeating and/or lack of exercise. High sugars are generally NOT an emergency (unless accompanied by vomiting). When the blood sugar is above 300 mg/dl (16.7 mmol/L), urine or blood ketones also need to be checked. When the sugar is high, the child will have to drink more and urinate more frequently. **It is essential to make bathroom privileges readily available.** If the teacher notes that the child is going to the bathroom frequently over a period of several days, a parent should be notified. The diabetes care provider can then adjust the insulin dose.

The student may also occasionally need to check ketones at school. This may be because ketones were present earlier at home, because the blood sugar is above 300 mg/dl (16.7 mmol/L) or because the child is not feeling well. The parents should be notified if moderate or large urine ketones (or a blood ketone test shows > 0.6 mmol/L) are present, as extra insulin will be needed. When a child has moderate or large ketones, we recommend that the child be treated by adults who can provide constant supervision, usually at home.



## CLASS PARTIES

If the class is having a special snack, the child with diabetes should also be given a snack. Parents should be notified ahead of time so that they can decide whether the child may eat the same snack as the other students, or they may want to provide an alternate food.

If an alternate snack is not available, the student should be given the same snack as the other children.

## BUS TRAVEL

It is important for the child with diabetes to take some food with him/her on the bus. If the child feels low, he/she must be allowed to eat the food. At times, bus rides take longer than usual due to bad weather or delays, and **the child needs to have a snack available and permission from the bus driver to eat it if necessary.**

## **SUBSTITUTE TEACHERS**

Ask to have a copy of the School Health Plan (Table 3) placed in the substitute teacher's folder and the attendance register so that a substitute would know:

1. which child in the class has diabetes (attach a photo)
2. when he/she usually eats a snack
3. symptoms and treatment of an insulin reaction
4. where the treatment supplies are kept

## **GYM (PHYSICAL EDUCATION) TEACHERS AND COACHES**

It is particularly important for the gym teacher or coach to also have a copy of the School Health Plan. Low blood sugars may occur during exercise and a source of instant sugar should be close. Often a snack is recommended before gym. The child should get the snack early enough to help them be on time. Exercise is even more important for children with diabetes than for other children. They should not be excluded from gym or sports activities. If the child is wearing an insulin pump and disconnects during PE, provision must be made for the pump to be stored in a safe place.

## **AFTER SCHOOL DETENTION**

Children with diabetes should not be singled out or treated differently from the rest of the class. However, if required to remain after school (at noon or in the afternoon) for a longer time than usual, the teacher should be asked to give an extra snack. Most parents will have packets of cheese and crackers, peanut butter and crackers or some such snack for the teacher to keep in the drawer. This is a common time of the day for the morning or

afternoon insulins to be peaking. If a snack is not taken, an insulin reaction is likely to occur.

## **SPECIAL DAYS (FIELD TRIPS, FIELD DAYS)**

Field trips or field days usually involve extra excitement and exercise. Both of these can result in an increased chance of low blood sugars. The parents should ask to be notified beforehand so that they can reduce the dose of insulin. They may also wish to send extra snacks (granola bars, fruit roll ups, etc). It is important for parents to be aware that in the public school system, the child's diabetes should never be a cause for the school to exclude him or her from any school sanctioned activity, whether during or after regular school hours. This includes overnight field trips and band or sporting activities away from the school. If the child would be allowed to participate without diabetes the school must accommodate the child's needs with diabetes.

## **INSULIN PUMPS IN THE SCHOOL**

More and more children are now using insulin pumps. The pumps allow sugar control to be more like that of a person who does not have diabetes. Table 6 lists some of the special issues of insulin pump use in the school. If more information is desired, Chapter 26 deals with insulin pumps.

## **MEDICAL RELEASE**

**It is important for the parent or legal guardian to give the school written permission to contact the child's health care provider. This may be necessary in the event of an emergency. Without this "medical release" in place, the doctor or care provider may not discuss or give advice pertaining to the child's care. An example of a medical release may be found in the School Care Plan (Table 2) later in this chapter.**

## LEGAL RIGHTS

Section 504 of the Rehabilitation Act of 1973 prohibits recipients of federal funds from discriminating against people on the basis of a disability (including diabetes). A formal contractual health care plan outlining all accommodations necessary to care for the child with diabetes during school is known as a “504” plan. Putting this plan together usually involves meetings between the parents, child, school staff (nurse, teachers, principal, special education facilitator) and diabetes health care providers. The child is not only protected from discrimination by this law during the school day but on any school sanctioned activity as well. In our experience, the parents and school staff are usually able to agree on a School Health Care Plan (Table 3). Formalizing the care through a 504 plan is then not necessary. However, in the rare case where it is necessary, additional resources are provided below. A child with diabetes has the right to a free and appropriate public education including accommodations to manage their diabetes at school. The child may also need special accommodations under the “Individuals with Disabilities Act” (IDEA). This law protects children who may be experiencing learning difficulties due to their disability. In the case of diabetes this may arise as a result of reoccurring hypo or hyperglycemia impacting the ability to learn or think clearly on exams. If the child must leave the classroom frequently to test, snack or inject and misses lesson time this may also impact their ability to learn. Accommodations in either of these cases must be made to assist the child to learn. This may, for example, mean making provision for the child to test in the classroom so as not to miss teaching time. It may also provide for the child to test blood sugar before exams in order to bring sugar levels to the appropriate target prior to sitting for an exam. The plan outlining what provisions must be made to assist the child to learn is called an IEP (individualized education plan). It will be put together through the school’s special education program in conjunction with the parents, child and health

care providers. You can review these rights on the ADA website, [www.diabetes.org](http://www.diabetes.org). The ADA also has a brochure called “*Your School and Your Rights*”.

Additional resources for parents who wish to formalize the health care plan through a Section 504 are listed here:

1. The Law, Schools and Your Child with Diabetes at: [www.childrenwithdiabetes.com/d\\_0q\\_000.htm](http://www.childrenwithdiabetes.com/d_0q_000.htm) (please note the underscore)

This website allows access to:

*Your School and Your Rights*, from the American Diabetes Association, discusses the legal obligations of school systems under Section 504 of the Rehabilitation Act of 1973 and the Education for All Handicapped Children Act of 1975, amended in 1991.

*The National Information Center for Children and Youth with Disabilities* (NICHCY) is a U.S. Government-sponsored clearinghouse that provides information about disabilities, including information about obtaining assistance at school.

2. The *US Department of Education* website ([www.ed.gov](http://www.ed.gov)) includes:  
The *Individuals with Disabilities Education Act*, with detailed information about IDEA.  
*IDEA*: The Law contains links to downloadable versions of the law.
3. “*Helping the Student With Diabetes Succeed (A Guide for School Personnel)*”. This is a 76 page primer that can be downloaded from: [www.ndep.nih.gov](http://www.ndep.nih.gov).
4. “*How to Write an IEP*”, a book designed to help parents who have children with disabilities succeed in school.
5. [www.childrenwithdiabetes.com/504](http://www.childrenwithdiabetes.com/504)
6. [www.niddk.nih.gov](http://www.niddk.nih.gov) and search for schools.

## QUESTIONS AND ANSWERS FROM NEWSNOTES

**Q** My son recently had a cold and small urine ketones when he woke up. He felt good enough to go to school and wanted to go. Was I wrong in letting him do this?

**A** As long as he felt well enough and wanted to go, I think it was good that you let him do so. At least he wanted to go and must like school! You might have sent one of the large plastic drinking cups with a straw so that he would remember to drink fluids to help wash away the ketones. Probably a special note to the teacher explaining the situation and the possible need for extra bathroom privileges would be wise. Finally, it would be important for a parent (or the child, if old enough) or the school nurse to make sure the urine ketones were checked again at lunchtime to make sure they went away and did not increase to the moderate or large level. Children with moderate or large urine ketones or blood ketones  $> 0.6$  mmol/L need to stay home with adult supervision until the ketones have gone down.

**Q** We have had difficulty with our child getting the care we request at school of late. What are our legal options?

**A** The Individual Disabilities Education Act (IDEA) provides an opportunity for the school to obtain extra funds for an aide to help with an individualized education program (IEP). Diabetes is listed as one of the covered health conditions, but in order to obtain the assistance the student's diabetes must adversely affect educational performance so that the student requires special education and/or related services. An example is a student who has trouble

concentrating because of recurring high or low blood sugars that adversely affect the student's educational performance. Examples of supplementary aides that might be requested could be: help with administering insulin or glucagon, providing assistance in doing blood sugar checks and help in choosing snacks. The school must apply for the grant through the Office of Special Education Programs (OSEP) in the Office of Special Education and Rehabilitation Services (OSERS) in the U.S. Department of Education.

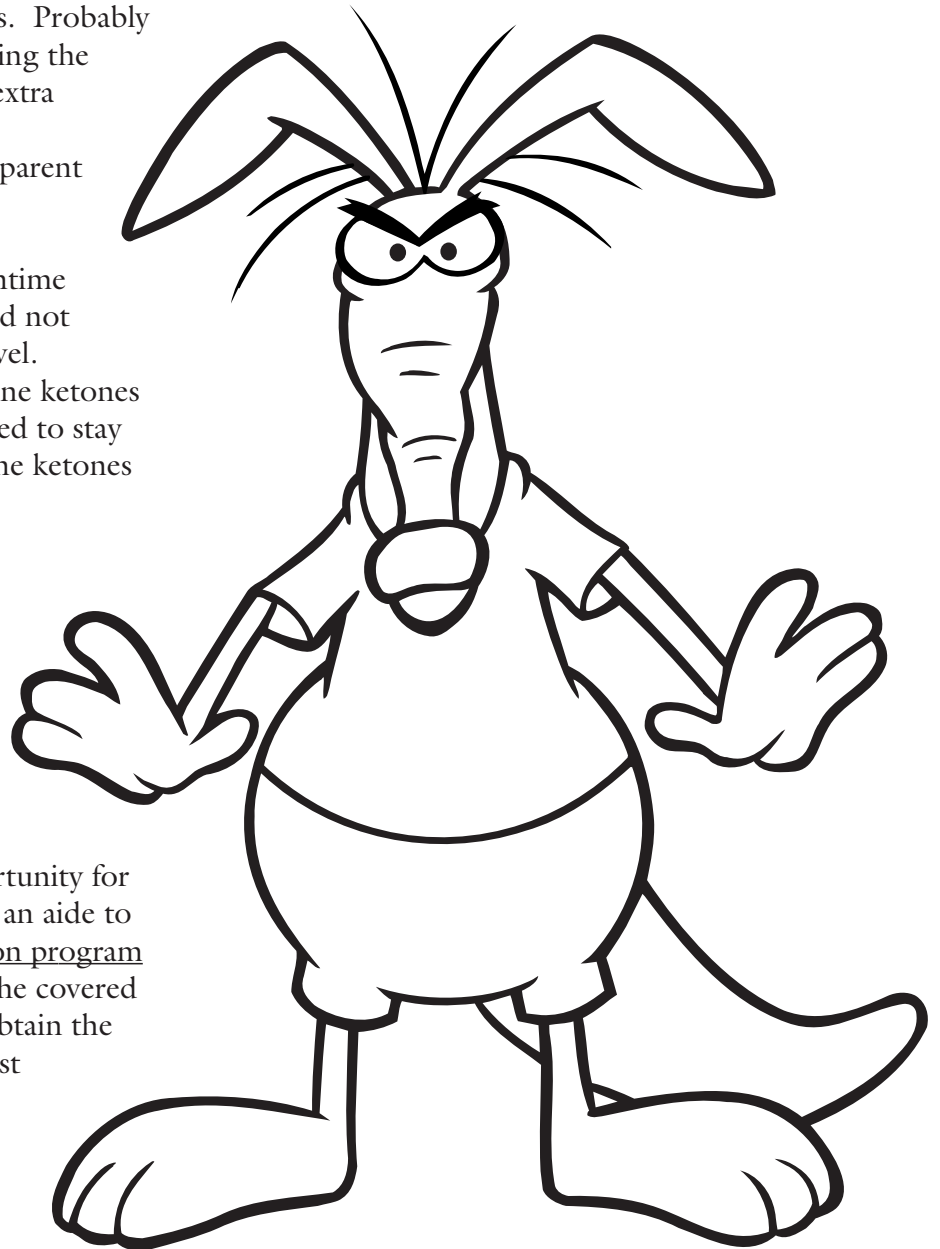


Table 1

## School Diabetes Management Checklist for Parents

- \_\_\_\_\_ Discuss specific care of your child with the teachers, school nurse, bus driver, coaches and other staff who will be involved.
- \_\_\_\_\_ Complete the individualized school health care plan with the help of school staff and your diabetes care staff (see Table 3 and Table 5 in this chapter).
- \_\_\_\_\_ Make sure your child understands the details of who will help him/her with testing, shots and treatment of high or low blood sugars at school and where supplies will be kept. Supplies should be kept in a place where they are always available if needed.
- \_\_\_\_\_ Make arrangements for the school to send home blood sugar records weekly.
- \_\_\_\_\_ Keep current phone numbers where you can be reached. Collect equipment for school: meter, strips and finger-poker, lancets, insulin, insulin syringes or pen, biohazard container, log book or a copy of testing record form, extra insulin pump supplies, ketone testing strips, photo for substitute teacher's folder.
- \_\_\_\_\_ Food and drinks; parents need to check intermittently to make sure supplies are not used up:
  - ▼ juice cans or boxes (approximately 15g of carb each)
  - ▼ glucose tablets
  - ▼ instant glucose or cake decorating gel
  - ▼ crackers ( $\pm$  peanut butter and/or cheese)
  - ▼ quarters to buy sugar pop (soda) if needed
  - ▼ Fruit-Roll Ups
  - ▼ dried fruit
  - ▼ raisins or other snacks
- \_\_\_\_\_ box with the child's name to store these food and drink items

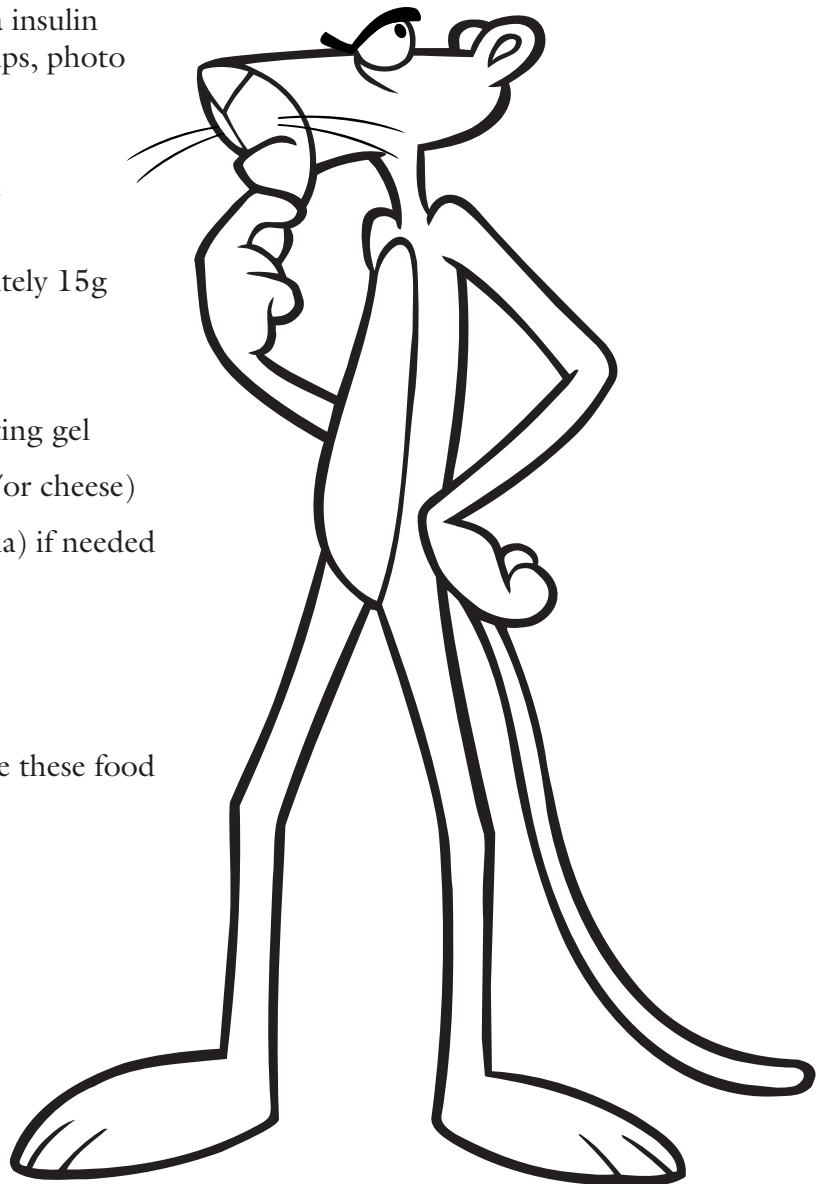


Table 2

# School Intake Interview/Careplan – Diabetes

Student \_\_\_\_\_ Date of Birth \_\_\_\_\_  
School \_\_\_\_\_ Grade \_\_\_\_\_ Homeroom Teacher \_\_\_\_\_  
Parent(s)/Guardian(s) \_\_\_\_\_  
Phone (H) \_\_\_\_\_ (W) \_\_\_\_\_ (Other) \_\_\_\_\_  
Emergency contact (other than parent/guardian) \_\_\_\_\_ Phone \_\_\_\_\_  
Physician name \_\_\_\_\_ Office Phone \_\_\_\_\_ Fax \_\_\_\_\_  
Diabetes Nurse Educator’s name \_\_\_\_\_ Office Phone \_\_\_\_\_  
Medical release of information signed? Yes \_\_\_ No \_\_\_  
Mode of transportation to and from school? \_\_\_\_\_ Bus driver notified of diabetes? Yes \_\_\_ No \_\_\_  
Does child participate in after school activities? Yes \_\_\_ No \_\_\_ Before \_\_\_ or after \_\_\_ care?  
Explain \_\_\_\_\_  
Adult leader notified of diabetes? Yes \_\_\_ No \_\_\_  
Field trip recommendations: \_\_\_\_\_

## Blood Sugar Monitoring:

Test will be performed in \_\_\_\_\_ (location).  
Needs assistance with testing? Yes \_\_\_ No \_\_\_ Explain \_\_\_\_\_  
Required test times \_\_\_\_\_  
Call parent if blood sugar below \_\_\_\_\_ or above \_\_\_\_\_  
Staff to record values and report to parents daily \_\_\_ weekly \_\_\_

Comments: \_\_\_\_\_

## Meds: **Insulin:**

Can child give own injections/operate pump independently? Yes \_\_\_ No \_\_\_  
Explain \_\_\_\_\_  
Order for insulin on file? Yes \_\_\_ No \_\_\_  
Time(s) insulin is to be administered at school: \_\_\_\_\_  
Type/Dosages: \_\_\_\_\_  
Form of administration: \_\_\_\_\_  
(Injection, Pen, Pump)

**Oral medications:** Type \_\_\_\_\_ Times \_\_\_\_\_ Dose \_\_\_\_\_

Comments: \_\_\_\_\_

## Diet: **Assigned** student lunch time(s)? \_\_\_\_\_

Is child following a prescribed meal plan? Yes \_\_\_ No \_\_\_ Assistance required? Yes \_\_\_ No \_\_\_  
Explain \_\_\_\_\_

Snack time(s)? \_\_\_\_\_ Assistance required? Yes \_\_\_ No \_\_\_  
Explain \_\_\_\_\_

Snack will be eaten in \_\_\_\_\_ (location)  
Snacks will be stored in \_\_\_\_\_ (location)  
Recommended snacks \_\_\_\_\_

Parent wishes to be notified in advance of class parties? Yes \_\_\_ No \_\_\_  
Child may partake in class treats? Yes \_\_\_ No \_\_\_ Explain \_\_\_\_\_

Comments: \_\_\_\_\_

## Physical Education:

Scheduled at: \_\_\_\_\_  
Is snack necessary before physical education? Yes \_\_\_ No \_\_\_  
Does child participate in after school sports? Yes \_\_\_ No \_\_\_  
P.E. Teacher/Coach aware of child’s diabetes? Yes \_\_\_ No \_\_\_  
Location pump to be stored when disconnected \_\_\_\_\_

Comments: \_\_\_\_\_

Table 2 (continued)

## Interventions For Emergency Situations

### INTERVENTIONS FOR LOW BLOOD SUGAR

**Hypoglycemia** (Low blood sugar) – Insulin Reaction (**Must be accompanied to Health Office**):

(Any blood sugar level below \_\_\_\_\_ constitutes a low blood sugar.)

If blood sugar cannot be obtained, treat based on symptoms? Yes \_\_\_\_ No \_\_\_\_

**Mild reaction** signs person might exhibit are:

*hunger irritability shakiness sleepiness sweating pallor*

other \_\_\_\_\_

Person usually recognizes the symptoms? Yes \_\_\_\_ No \_\_\_\_

Time reactions most frequently occur? \_\_\_\_\_

✓ **Treat mild** low blood sugar as follows:

\_\_\_\_ glucose tabs    \_\_\_\_ cup juice    \_\_\_\_ cup regular pop (soda)

other: \_\_\_\_\_

Person should \_\_\_\_ should not \_\_\_\_ follow initial treatment with a snack of \_\_\_\_\_ in \_\_\_\_\_ minutes or once symptoms subside.

**Moderate reaction** signs person might exhibit are:

*confusion slurred speech disoriented sleepiness change in personality*

other \_\_\_\_\_

✓ **Treat moderate low** blood sugars as follows:

\_\_\_\_ tube glucose gel    \_\_\_\_ tube cake decorating gel    \_\_\_\_ cup juice

other: \_\_\_\_\_

Person should \_\_\_\_ should not \_\_\_\_ follow with a snack of \_\_\_\_\_ in \_\_\_\_\_ minutes or once symptoms subside.

**Severe reaction** signs person might exhibit are:

*unconscious episode seizure unable/unwilling to take gel or juice*

✓ For **severe low** blood sugar, **treat** as follows:

\_\_\_\_ cc glucagon injection ( \_\_\_\_ units)    Call 911    Notify parents

Order for glucagon on file? Yes \_\_\_\_ No \_\_\_\_

Call parent in the event \_\_\_\_\_

Personnel trained to administer glucagon: 1) \_\_\_\_\_

2) \_\_\_\_\_

### INTERVENTIONS FOR HIGH BLOOD SUGAR

**Hyperglycemia:**

A blood sugar above \_\_\_\_\_ will \_\_\_\_ may \_\_\_\_ require an insulin administration (see insulin dosages).

If blood sugar is greater than \_\_\_\_\_, test blood ketones \_\_\_\_ urine ketones \_\_\_\_.

Child will \_\_\_\_ will not \_\_\_\_ need supervision in testing ketones.

Notify parent if blood glucose is above \_\_\_\_\_ or when ketones are \_\_\_\_\_

Comments: \_\_\_\_\_

**Permission signatures:**

As parent/guardian of the above named student, I give permission for use of this health plan in my student's school and for the school staff to contact the below providers regarding the above condition. Orders are valid through the end of the current school year.

Parent Signature \_\_\_\_\_ Date \_\_\_\_\_

Nurse Signature \_\_\_\_\_ Date \_\_\_\_\_

Physician Signature \_\_\_\_\_ Date \_\_\_\_\_

**Table 3**

# Individualized School Health Care Plan: Diabetes

Date: \_\_\_\_\_ (Also see Emergency Response Plan)

Student \_\_\_\_\_ Date of Birth \_\_\_\_\_

School \_\_\_\_\_ Grade \_\_\_\_\_ Teacher \_\_\_\_\_

Parent(s)/Guardian(s) \_\_\_\_\_

Phone (H) \_\_\_\_\_ (W) \_\_\_\_\_ (Other) \_\_\_\_\_

Additional emergency contact information \_\_\_\_\_

Diabetes Care Provider \_\_\_\_\_ Phone \_\_\_\_\_ Fax \_\_\_\_\_

Diabetes Nurse Educator \_\_\_\_\_ Phone \_\_\_\_\_ Fax \_\_\_\_\_

Hospital of choice \_\_\_\_\_

**ROUTINE MANAGEMENT** Target Blood Sugar Range \_\_\_\_\_ to \_\_\_\_\_

**Required blood sugar testing at school:**

- Trained personnel must perform blood sugar test
- Trained personnel must supervise blood sugar test
- Student can perform testing independently

**Times to do blood sugar:**

- Before lunch
- After lunch
- Before P.E.
- After P.E.
- As needed for signs/symptoms of low or high blood sugar

Call parent if values are below \_\_\_\_\_ or above \_\_\_\_\_

**Medications to be given during school hours:**

- Oral diabetes medication(s)/dose \_\_\_\_\_ Time to be administered: \_\_\_\_\_
- Sliding scale: \_\_\_\_\_ To be administered immediately:
 

	<u>Before lunch</u>	<u>After lunch</u>
Insulin (subcutaneous injection) using Humalog/NovoLog/Regular (circle type)		
____ Unit(s) if lunch blood sugar is between ____ and ____	<input type="checkbox"/>	<input type="checkbox"/>
____ Unit(s) if lunch blood sugar is between ____ and ____	<input type="checkbox"/>	<input type="checkbox"/>
____ Unit(s) if lunch blood sugar is between ____ and ____	<input type="checkbox"/>	<input type="checkbox"/>
____ Unit(s) if lunch blood sugar is between ____ and ____	<input type="checkbox"/>	<input type="checkbox"/>
- Insulin/Carb Ratio \_\_\_\_ Unit for every \_\_\_\_ grams of carbohydrate eaten, plus \_\_\_\_ unit(s) for every \_\_\_\_ mg/dl points above \_\_\_\_ mg/dl
- Student can draw up and inject own insulin     Student cannot draw up own insulin but can give own injection
- Trained adult will draw up and administer injection     Student can draw up but needs adult to inject insulin
- Student is on pump (attach Table 6 to these instructions)     Student needs assistance checking insulin dosage
- Glucagon (subcutaneous injection) dosage (see Table 2 in this chapter); dosage = \_\_ cc

**Diet:**

Lunch time \_\_\_\_\_ Scheduled P.E. time \_\_\_\_\_ Recess time \_\_\_\_\_  
 Snack time(s) \_\_ a.m. \_\_ p.m. Location that snacks are kept \_\_\_\_\_ Location eaten \_\_\_\_\_  
 Child needs assistance with prescribed meal plan (see attached). Parents/Guardian and student are responsible for maintaining necessary supplies, snacks, testing kit, medications and equipment.

**Field trip information:**

1. Notify parent and school nurse in advance so proper training can be accomplished.
2. Adult staff must be trained and responsible for student's needs on field trip.
3. Extra snacks, glucose monitoring kit, copy of health plan, glucose gel or other emergency supplies must accompany student on field trip.
4. Adults accompanying student on a field trip will be notified on a need to know basis.

**People trained for blood testing and response:**

Name \_\_\_\_\_ Date \_\_\_\_\_  
 Name \_\_\_\_\_ Date \_\_\_\_\_

**Permission signatures:**

As parent/guardian of the above named student, I give permission for use of this health plan in my student's school and for the school staff to contact the below providers regarding the above condition. Orders are valid through the end of the current school year.

Parent Signature \_\_\_\_\_ Date \_\_\_\_\_  
 School Nurse Signature \_\_\_\_\_ Date \_\_\_\_\_  
 Physician Signature \_\_\_\_\_ Date \_\_\_\_\_

## Table 4 Emergency Response Plan

Student Name \_\_\_\_\_ Grade/Teacher \_\_\_\_\_ Date \_\_\_\_\_

**Mild Low Blood Sugar:** (Student to be treated when blood sugar is below \_\_\_\_\_.)

Symptoms could include (please circle all that apply): hunger, irritability, shakiness, sleepiness, sweating, pallor, uncooperative, crying or other behavioral changes. Additional student symptoms: \_\_\_\_\_

**Treatment of Mild** Low Blood Sugar: With any level of low blood sugar never leave the student unattended. If treated outside the classroom, a **responsible person should accompany to the health clinic or office for further assistance.**

- Test blood sugar. **If kit is not available**, treat child immediately for low blood sugar.
- If blood sugar is between \_\_\_\_ and \_\_\_\_ and lunch is available, escort to lunch and have child eat immediately! If lunch is unavailable, treat immediately as listed below.
- If blood sugar is below \_\_\_\_, give **4 oz** of juice or **6 oz** (1/2 can) of regular sugar pop (soda) or 2-3 glucose tablets.
- Wait 10-15 minutes. Re-check blood sugar. Re-treat as above if still below \_\_\_\_\_.
- Follow with snack or lunch when blood sugar rises above \_\_\_\_\_ or when symptoms improve.
- Notify \_\_\_\_ school nurse \_\_\_\_ and parent.

Comments: \_\_\_\_\_

**Moderate Low Blood Sugar:**

Symptoms: In addition to those listed above for a mild low blood sugar, student may be **combative, disoriented or incoherent.**

**Treatment of Moderate** Low Blood Sugar:

**If student is conscious yet unable to effectively drink the fluids offered:**

- ✓ Administer 3/4 to 1 tube (3 tsp) of glucose gel, or 3/4 to 1 tube of cake decorating gel.
- ✓ Place between cheek and gum with head elevated. Encourage student to swallow. May be uncooperative.
- ✓ Call \_\_\_\_ parent and \_\_\_\_ school nurse.
- ✓ Re-test in 10-15 minutes. If still below \_\_\_\_, re-treat as above.
- ✓ Give regular snack after 10-15 minutes, when blood sugar rises above \_\_\_\_ or when symptoms improve.

Comments: \_\_\_\_\_

**Severe Low Blood Sugar:**

Student symptoms include: **seizures or loss of consciousness, unable/unwilling to take gel or juice**

- ✓ Stay with student
- ✓ Appoint someone to call 911
- ✓ Roll student on side
- ✓ Protect from injury
- ✓ Do not put anything in mouth
- Give glucagon subcutaneously; dose = \_\_\_\_\_ cc (can use an insulin syringe to administer if needed: number of units of glucagon = \_\_\_\_\_ units)

Comments: \_\_\_\_\_

**High Blood Sugar:** This student needs to be treated when blood sugar is above \_\_\_\_\_. Call parent or guardian when blood sugar is greater than \_\_\_\_\_.

Symptoms could include: extreme thirst, headache, abdominal pain, nausea, increased urination

Additional student symptoms: \_\_\_\_\_

**Treatment of High** Blood Sugar:

- Drink 8-16 oz of water or sugar-free fluids **every hour**
- Use restroom as often as needed
- Be allowed to carry water bottle with them

Check urine ketones \_\_\_\_ or blood ketones \_\_\_\_ if sugar is greater than \_\_\_\_\_ or when ill. If urine ketones are moderate to large, or if blood ketones are greater than 0.6 mmol/L, **call parent immediately! Do not allow exercise.**

- Administer insulin if ordered. If student is on an insulin pump, see pump addendum.

If student exhibits nausea, vomiting, stomachache or is lethargic, notify \_\_\_\_ school staff and \_\_\_\_ parent contact ASAP. Send student back to class if none of the above physical symptoms are present.

Signatures:

Parent: \_\_\_\_\_ Physician: \_\_\_\_\_

Nurse: \_\_\_\_\_ School Principal: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

Table 5

# Individualized Health Care Plan Check List for the School Nurse

STUDENT: \_\_\_\_\_ D.O.B.: \_\_\_\_\_

STUDENT #: \_\_\_\_\_ SCHOOL: \_\_\_\_\_ DATE: \_\_\_\_\_

1. Enter completion date and initial each step listed below.  
2. File completed checklist in the student's health file.

### Date and Initial

\_\_\_\_\_ 1. Health Care Plan developed with \_\_\_\_\_ and \_\_\_\_\_  
parent or guardian area nurse consultant

\_\_\_\_\_ 2. Physician signature needed: \_\_\_\_\_ is not needed: \_\_\_\_\_

\_\_\_\_\_ 3. Send home original Health Care Plan and memo from nurse consultant:  
with student: \_\_\_\_\_ by mail: \_\_\_\_\_ by email: \_\_\_\_\_ for parent signature

\_\_\_\_\_ 4. School staff information and copy of Health Care Plan to the following:  
Clinic aide \_\_\_\_\_ Secretaries \_\_\_\_\_ Classroom teacher(s) \_\_\_\_\_  
Admin. \_\_\_\_\_ P.E. \_\_\_\_\_ Art \_\_\_\_\_  
Music \_\_\_\_\_ Cafeteria \_\_\_\_\_ Transportation \_\_\_\_\_  
Others: \_\_\_\_\_

List Names

\_\_\_\_\_ 5. Copies of signed plan in \_\_\_\_\_ Clinic Health Care Plan Book  
\_\_\_\_\_ Substitute Folder  
\_\_\_\_\_ With student information/emergency page

\_\_\_\_\_ 6. Original plan with signatures in health file

\_\_\_\_\_ 7. Classroom presentation requested: \_\_\_ No \_\_\_ Yes \_\_\_ Who requested: \_\_\_\_\_

\_\_\_\_\_ 8. Inservice: \_\_\_ No \_\_\_ Yes Who requested: \_\_\_\_\_

\_\_\_\_\_ 9. Training/delegation needed: \_\_\_ No \_\_\_ Yes \_\_\_

Procedure: #1 \_\_\_\_\_

Staff: Name: \_\_\_\_\_ Position: \_\_\_\_\_ Date: \_\_\_\_\_

Staff: Name: \_\_\_\_\_ Position: \_\_\_\_\_ Date: \_\_\_\_\_

Staff: Name: \_\_\_\_\_ Position: \_\_\_\_\_ Date: \_\_\_\_\_

Procedure: #2 \_\_\_\_\_

Staff: Name: \_\_\_\_\_ Position: \_\_\_\_\_ Date: \_\_\_\_\_

Staff: Name: \_\_\_\_\_ Position: \_\_\_\_\_ Date: \_\_\_\_\_

Staff: Name: \_\_\_\_\_ Position: \_\_\_\_\_ Date: \_\_\_\_\_

**ALL HEALTH CARE PLANS ARE CONFIDENTIAL**  
(Information to be shared on a need to know basis only!)

## Table 6 Insulin Pumps in the School Setting

\_\_\_\_\_ is a student in your school who has diabetes and is wearing an insulin pump. An insulin pump is a device that provides small amounts of fast-acting insulin (**basal**) every few minutes through a small catheter under the skin. The student then takes an additional amount of insulin doses (**boluses**) through the pump for meals and snacks. We would like to emphasize that problems and complications with insulin pumps are seldom seen. For the most part, you will not be aware that the student is using the pump, although you may hear an occasional quiet beep when insulin is taken for a meal or a snack. The following information may assist you in helping the student wearing an insulin pump.

### Low and High Blood Sugars

These occur with the students receiving insulin pump therapy just as they do with children receiving insulin shots. They are handled similarly, and this should be outlined in the specific student's Emergency Response Plan (Table 4). If a severe low did occur in a person using a pump, it is important for the school personnel to know how to disconnect the plastic tube from the pump to the person's insertion under the skin.

High blood sugars with moderate to large urine or blood ketones (levels > 0.6) **will** necessitate administration of an injection of rapid-acting insulin with a syringe immediately. The student may need to perform a change of infusion set at school. Provision must be made for this in the child's school care plan.

### Basal and Bolus Insulin Pump Dosages

Insulin pumps give a constant basal dose of insulin that is set by the doctor and family. The school personnel will not be involved with the basal settings. A bolus insulin dose is given before or after food intake. It may require assistance from the school staff to help to calculate the bolus dose. **Some children need help from the school staff in remembering to administer their bolus dose, particularly at**

**lunch.** Missing bolus dosages of insulin is the main reason for poor diabetes control (high blood sugars) in people who use pumps.

### Calculating the Bolus Dose

This is usually done by counting grams of carbohydrate and giving a unit of insulin for a certain number of grams of carbohydrate (carb). The latest "smart pumps" allow the entry of this carb value into the pump which then calculates the appropriate dose based on pre-programmed ratios.

In addition, a correction bolus to bring the blood sugar into the desired range is often added to the above dose. This is based on sensitivity (how much one unit of insulin lowers blood sugar) and the desired target glucose level. Both of these parameters are pre-programmed into the pump. An entry of a current blood glucose value into the pump will trigger the pump to automatically calculate the appropriate recommended dose of insulin based on what parameters were programmed. The wearer must activate the pump to deliver these dosages.

### Exercise

During times of vigorous exercise, the student may need to disconnect the pump. For this, the student needs to place the pump in a safe place where it will not be damaged. During prolonged exercise, many students reconnect the pump periodically and take insulin. Some students wear their pump during exercise and use a special case to protect it.

### Alarms

Pumps are programmed to alarm under various circumstances, e.g., low battery, no insulin delivery, out of insulin, etc. This is discussed in detail in Chapter 26. There is also a 1-800 number on the back of all pumps to call for assistance.

There is an entire chapter (Chapter 26) in this book about insulin pumps. This may be helpful for school personnel wanting more information.

## RESOURCES

Three videos parents often take to show the school personnel are:

1. *“Managing and Preventing Diabetic Hypoglycemia”*. This video, made in 2001, is available from the Children’s Diabetes Foundation. Call for prices at 303-863-1200 or 1-800-695-2873. Credit cards may be taken by phone. Their address is: Children’s Diabetes Foundation at Denver, 777 Grant Street, Suite 302, Denver, CO 80203.
2. *“The Care of Children With Diabetes in Child Care and School Settings”*. (This comes as two tapes with the skills part sold separately for approximately \$198.00 or both tapes for \$279.00.) The address is: Managed Designs, Inc., P.O. Box 3067, Lawrence, KS 66046, Phone: 785-842-9088, Fax: 785-842-6881.
3. *“Living With Diabetes: Tips for Teachers”* is a 19-minute video tape available from Maxishare. Call for prices. Their address is: Maxishare, P.O. Box 2041, Milwaukee, WI 53201. Phone: 1-800-444-7747, Fax: 414-266-3443. A customer service representative for Maxishare can be contacted at 414-266-3428. Hospitals can pay for this video with purchase orders and individuals can pre-pay with a check or credit card. Some clinics have copies of these videos that can be loaned to parents to take to their school.
4. *“Diabetes in the School; Students at Risk”*. South Florida Association of Diabetes Educators, P.O. Box 770236, Coral Springs, FL, 33077-0236.



Attention: Principal  
Attention: School Nurse

Date: \_\_\_\_\_

Dear Principal and School Nurse,

\_\_\_\_\_ is a \_\_\_\_\_ year old with type 1/type 2 diabetes who will be attending school at \_\_\_\_\_ this year.

Children with diabetes need to test their blood sugars by poking a finger and placing the blood on a strip in a meter that then gives a number. The blood sugar tests are often done at school prior to lunch and must be done if the child is having a possible low blood sugar. These children may take insulin by injection, by an insulin pump or may take oral diabetes medication (type 2 diabetes) to control their blood sugar.

Children with diabetes can participate in all activities without restrictions, but they may need extra snacks to prevent low blood sugars before or during P.E. or other activities.

Children with diabetes may not feel well if they have low or high blood sugar. A child with a high blood sugar may require increased water intake and access to restroom facilities without embarrassing restrictions. Please refer to the School Health Care Plan for details.

If you or your staff have any questions, you may contact one of our nursing staff at

\_\_\_\_\_.

Sincerely,

\_\_\_\_\_  
Physician

\_\_\_\_\_  
Nursing Case Manager

\_\_\_\_\_  
Parent

Off to school!

