Christ the Teacher Catholic Schools

ADMINISTRATIVE PROCEDURES

SECTION:	300 - STUDENTS	**CODE:**	AP 319
PROCEDURE:	**DIABETES MANAGEMENT**		

BACKGROUND

The purpose of this administrative procedure is to provide guidelines to help principals, teachers and the school community to support and ensure the safety of children with diabetes.

PROCEDURES

1. **Introduction**

    1.1. Diabetes mellitus is a disease resulting from a lack of insulin action. Insulin is a hormone produced by the pancreas. Without insulin, carbohydrates (starch and sugars) in the food we eat cannot be converted into the energy (called blood glucose or "blood sugar"1) required to sustain life. Instead, unused glucose accumulates in the blood and spills out into the urine.

    1.2. The majority of people with diabetes develop the problem in adulthood. They can still produce some insulin and may be able to control their diabetes by diet alone or with oral medication.

    1.3. Children and adolescents with diabetes are different; they are unable to make any insulin and must take insulin injections each day.

    1.4. At this time, no one knows why children and adolescents develop diabetes. It is known, however, that this disease is not the result of poor eating habits nor is it infectious.

2. **Philosophy of Diabetes Management**

    2.1. The ultimate goal of diabetes management within the school setting is to have the child be independent with their care. This independence includes the specific management of diet, activity, medication (insulin) and blood sugar testing, as required. Independence of care also includes the development of self-advocacy skills and a circle of support among persons who understand the disease and can provide assistance as needed.

    2.2. Children are diagnosed with diabetes at various stages of their lives. Some will be very young, and others older and more mature, some will have special needs. The goal for all of these children is to become as independent as possible, as soon as possible in managing their diabetes. The school role is to provide support as the child moves from dependence to independence and to create a supportive environment in

which this transition can occur. Nevertheless, the ultimate responsibility for diabetes management rests with the family and the child.

2.3. It is important that the school develop awareness activities emergency procedures for teachers who have a child with diabetes in their class. Sample forms are contained in the appendix of this document.

3. General Information

3.1. School-aged children with Type 1 diabetes spend 30 to 35 hours a week in the school setting. This represents more than half of their waking weekday hours. School personnel can support a student with diabetes by learning about the disease and by having frequent, open communication with parents and the child. This will help to reduce apprehension and anxiety in the child and parent, provide a positive attitude toward the child's participation in school activities and contribute to the student's well-being.

3.2. When the blood glucose is in proper balance, the child or adolescent will behave and achieve as others. In terms of academic performance, physical activity, behaviour and attendance at school, the teacher's expectations of students should be the same as if he or she did not have diabetes.

4. Emergency Versus Non-Emergency

4.1. It is important to distinguish between non-emergency and emergency situations.

4.1.1. Non-Emergency Situations - In non-emergency situations, including routine care, students with diabetes or their parents will administer the insulin injections.

4.1.2. Emergency Situations (Life Threatening) - In emergency, life-threatening situations, where a student suffering from low blood sugar is unable to self-administer the appropriate treatment because they are unresponsive or unconscious, the response of school staff shall be a 911 call for Emergency Medical Services.

4.1.2.1. Glycogen injections (Glucagon) in these situations will not be administered by school staff.

4.1.2.2. Emergency Medical Services personnel require the following, if available:

4.1.2.2.1. student's name date of birth and Saskatchewan Health Services number

4.1.2.2.2. emergency contact information

4.1.2.2.3. medical history and the Emergency Treatment Form observations about what the student was doing prior to the event

4.1.2.2.4. medications and any treatment prior to EMS arrival.

5. Definitions: Three Main Types of Diabetes

5.1. Type 1 Diabetes usually affects children and adolescents and is the focus of this document. In Type 1 Diabetes, the pancreas is unable to produce insulin and injections of insulin are essential.

5.2. Type 2 Diabetes comprises 90% of diabetes in Canada. It usually develops in adulthood, although recently increasing numbers of children in high-risk populations are being diagnosed. In Type 2 diabetes the pancreas may produce some insulin, but the body is unable to use the insulin that is produced effectively. Type 2 diabetes may be controlled with diet and exercise or with oral medication. Eventually, people with Type 2 Diabetes may need insulin.

5.3. Gestational Diabetes affects 4% of pregnant women and usually goes away after the baby is born.

6. Type 1 Diabetes -The Balancing Act

6.1. Overview

6.1.1. The treatment of diabetes is a balancing act. Food on the one side increases the amount of glucose in the blood. Exercise and insulin on the other side lower the blood glucose level by allowing the glucose to be used for energy.

6.1.2. The goal of the balancing act is to keep the blood glucose levels in a healthy range.

6.1.3. The student's doctor determines the target range for each individual child. The parents should inform the school staff of the child's optimal levels if the child is not independent with diabetes management. Most students will be aware of their blood sugar targets.

6.2. Why is it so important to achieve optimal blood sugar control?

6.2.1. Recent research (Diabetes Control and Complications Trial (DCCT) -1993 and the United Kingdom Prospective Diabetes Study (UKPDS) -1995) has provided evidence that good blood sugar control can reduce the risk of complications.

6.2.2. Such complications -kidney disease, blindness, limb amputation and sexual dysfunction not only take their toll in human suffering but cost Canada's health care system over 9 billion dollars annually for direct and indirect health care services.

6.3. Issues of Concern

6.3.1. Adjustment Period After Diagnosis

6.3.1.1. When a child has recently been diagnosed with diabetes, the parents usually feel shocked and scared. They also may feel numb, sad, guilty and angry. The fact that diabetes is a serious disease with significant complications and that their child will have to live with the complexities of its management for the rest of their lives (or until a cure is found) is quite overwhelming. The first year after diagnosis may be difficult while the family and student works with the Diabetes Health Care Team to adjust to all they have to learn and do to cope with life with diabetes.

6.3.1.2. School personnel can help by:

6.3.1.2.1. Learning as much as possible about diabetes at http://www.diabetes.ca Communicating openly with parents

6.3.1.2.2. Providing special considerations as suggested in the Canadian Diabetes Association publications, "Kids with Diabetes in School" and "Kids with Diabetes in Your Care”

6.3.2. Independence Versus Protection

6.3.2.1. Parents and school personnel need to protect the child while encouraging him or her to develop independent diabetes management skills. Children must learn to manage their own diabetes. They can do it. Even very young children can share the work of managing diabetes. How much a student can do depends on his or her age, how long he or she has had diabetes and any disabilities or special needs.

6.3.3. Hypoglycemia (Low Blood Glucose) – An Emergency

6.3.3.1. Hypoglycemia is an emergency situation caused by LOW blood sugar. The situation can develop within minutes of the child appearing healthy and normal.

6.3.3.2. Mild to moderate hypoglycemia is common in the school setting. School personnel need to know the causes, symptoms and treatment of hypoglycemia. Symptoms of mild to moderate hypoglycemia can be misinterpreted by school personnel. The nature of the emergency is often misunderstood, placing a student at serious risk. The following chart is a guide to be consulted.

Causes	Symptoms	Treatment
Low blood glucose usually develops as a result of one or more of the following: • insufficient food due to delayed or missed meal • more exercise or activity than usual without a corresponding increase in food; and/or • too much insulin	A person who is experiencing hypoglycemia will exhibit some of the following signs: • cold, clammy or sweaty skin • pallor • shakiness, lack of coordination(e.g. deterioration in writing or printing skills) • irritability, hostility, and poor behaviour • a staggering gait • eventually fainting and unconsciousness In addition the child may complain of: • nervousness. • excessive hunger • headache • blurred vision and dizziness • abdominal pain and nausea	It is imperative at the first sign of hypoglycemia you give sugar immediately. If the parents have not provided you with more specific instructions which can be readily complied with, give: • 4 oz./125 ml of regular pop (not diet pop); or • 4 oz./125 ml of fruit juice; or • 2 teaspoons/10 ml or 2 packets of sugar; or 2 glucose tablets; or • 2 teaspoons/10 ml honey

6.3.3.3. Severe Hypoglycemia will occur in 3-8/100 students with diabetes per year and occur most commonly at night. Severe hypoglycemia is rare in the school setting.

6.3.3.4. In severe hypoglycemia, the student may be unconscious or conscious. There may be seizures.

6.3.3.5. If the student is unconscious, having a seizure or unable to swallow, do not give food or drink. Roll the student on his/her side. Call 911 or emergency medical services. Inform parents or guardians.

6.3.3.6. It may take some coaxing to get the child to eat or drink but you must insist.

6.3.3.7. If there is no noticeable improvement in about 10 to 15 minutes repeat the treatment.

6.3.3.8. When the child's condition improves, he or she should be given solid food. This will usually be in the form of the child's next regular meal or snack.

6.3.3.9. Until the child is fully recovered he or she should not be left unsupervised. Once the recovery is complete the child can resume regular class work. If, however, it is decided that the child should be sent home, it is imperative that a responsible person accompany him or her.

6.3.3.10. Parents should be notified of all incidents of hypoglycemia. Repeated low blood glucose levels are undesirable and unnecessary and should be drawn to the parent's attention so that they can discuss the problem with their doctor.

6.3.3.11. If unsure whether the child is hypoglycemic, always give sugar! A temporary excess of sugar will not harm the child but hypoglycemia is potentially serious.

6.3.3.12. Do not give food or drink if the child is unconscious. Roll the child on his/her side and seek medical assistance immediately.

6.3.4. Glycogen (Glucagon)

6.3.4.1. Glycogen is an emergency drug that is used to treat hypoglycemia. It should only be used under the direction of a physician. Glycogen is a naturally occurring substance produced by the pancreas and it enables a person to produce his or her own blood glucose to correct a hypoglycemic state.

6.3.4.2. School staff should be educated about the potential for hypoglycemia in a student with diabetes; however, school staff will not be giving glycogen injections.

6.3.4.3. In an emergency situation, where a student is severely hypoglycemic, a glycogen injection may be done by trained EMS paramedics. It is important to note that hypoglycemia presenting in a school setting would not normally be an immediate life-threatening condition -that is, ambulances with advanced care paramedics can respond immediately. Paramedics will make the proper assessment and provide treatment, as required. For specific guidelines for sports, field trips and other co- instructional activities, please see page 10.

6.3.5. Hyperglycemia – High Blood Glucose

6.3.5.1. Hyperglycemia is not an emergency condition requiring immediate treatment. However, prevention of hyperglycemia is key to delaying or avoiding serious complications. The parents and the child's physician need to be aware of persistent hyperglycemia.

6.3.5.2. In the classroom, the behaviour of students with hyperglycemia may be taken for misbehaviour (i.e. frequent requests to go to the bathroom or requests for frequent drinks)

6.3.5.3. Children with diabetes sometimes experience high blood glucose. The earliest and most obvious symptoms of high blood glucose are increased thirst and urination. If noticed, these should be communicated to the parents to assist them in the long-term treatment. They are not emergencies that require immediate treatment.

6.3.5.4. High blood glucose often develops as a result of one or more of the following: too much food, less than the usual amount of activity, not enough insulin, and/or illness. Many times, however, there does not seem to be an obvious explanation.

6.3.6. Interference With School Activities

6.3.6.1. When blood sugar levels are outside the target range (i.e. hypoglycemia or hyperglycemia) the student's learning, behaviour and participation may be affected.

6.3.6.2. Hyperglycemia and hypoglycemia may also affect the students' behaviour. However, having diabetes is not an excuse for inappropriate behaviour.

7. Blood Glucose Self-Monitoring: Testing Blood Sugar

7.1. Why do it?

7.1.1. Self-Monitoring of Blood Glucose is mandatory for achieving the target blood sugar levels.

7.1.2. Blood sugar levels will change with eating, physical activity, stress, or illness. Sometimes the blood sugar fluctuates for no apparent reason.

7.1.3. Knowing blood sugar levels will:

7.1.3.1. Help the student understand the balance of food, insulin and exercise,

7.1.3.2. Help the doctor adjust insulin and food,

7.1.3.3. Help avoid the consequences of hypoglycemia and hyperglycemia,

7.1.3.4. Monitoring will give early warning without waiting for the onset of symptoms.

7.1.4. Equipment

7.1.4.1. A small meter, which runs on batteries (There are various meters on the market)

7.1.4.2. Test strips

7.1.4.3. Lancet device

7.1.4.4. Lancets

7.1.4.5. Logbook

7.1.5. Procedure for Blood Glucose Monitoring (to be done by the student or guardian)

7.1.5.1. The student washes hands with warm water and soap

7.1.5.2. Inserts a lancet in the lancet device

7.1.5.3. Places a test strip in the meter

7.1.5.4. Pokes the side of the fingertip and obtains a drop of blood

7.1.5.5. Places the blood on the area indicated on the test strip

7.1.5.6. Waits for 5 to 45 seconds, depending upon the meter

7.1.5.7. Notes the reading and records in log book or automatically recorded in meter

7.1.5.8. Timing varies with the individual and is done according to the advice of the child's physician and parents. Usually the blood glucose is tested before meals, before bed and before/during/after exercise.

7.1.6. Ketone Monitoring

7.1.6.1. This monitoring is not usually done daily as with blood glucose testing. However, some students with diabetes monitor their ketone levels according to guidelines prescribed by their healthcare professional. Teachers and other school personnel have no responsibilities in the actual procedure. However, it is important for the teacher:

7.1.6.1.1. To understand and accommodate the student who needs to monitor ketones.

7.1.6.1.2. To call the parents immediately if any student with diabetes becomes ill, especially with vomiting (see #5 below)

7.1.7. What Teachers Should Know About Ketones:

7.1.7.1. Hyperglycemia (see High Blood Glucose) may result in ketones in the blood and urine.

7.1.7.2. In hyperglycemia, glucose stays in the blood and the body cannot use it for fuel. The body then breaks down fat for fuel. This process produces ketones as a by- product. If ketone levels continue to rise the blood becomes acidic.

7.1.7.3. Rising ketone levels can spiral into the potentially dangerous condition known as Diabetic ketoacidosis (DKA).

7.1.7.4. Left untreated DKA can kill.

7.1.7.5. DKA usually develops over several days, but frequent vomiting can cause the ketones to build up in just a few hours.

7.1.7.6. The flu and stomach viruses are common contributors to D KA.

7.1.7.7. Students on insulin pumps develop DKA more quickly than if they were using injected insulin.

7.1.7.8. High blood glucose plus ketones may mean that the student needs more insulin than their usual regimen calls for.

7.1.7.9. Each student should have individualized guidelines explaining how to handle sick days and what to do if ketones are on the rise.

8. Insulin Injections

8.1. Recent advances in medical devices allow people with diabetes to choose the way they administer their insulin:

8.1.1. Conventional syringe and vial method

8.1.2. Insulin pen

8.1.3. Insulin pump

8.2. Most insulin injections are administered outside school hours -before breakfast and supper and at bedtime. However, the insulin regimen varies with the individual and some students do require an insulin injection before lunch.

9. Student Responsibility for Diabetes Management

9.1. If a student is not taking responsibility for his or her diabetes care it may be due to other factors, such as language, cognitive ability, maturity level, behavioural issues and psychosocial barriers. This calls for communication between parents, teachers and possibly other professionals.

10. Sports and Co-Instructional Activities

10.1. Children with diabetes should be encouraged to participate in as many activities as they choose. They should not be excluded from school field trips. School sports and other co-instructional activities can promote self-esteem and a sense of well-being.

10.2. For children who wish to participate in vigorous physical activity, good planning is essential so that the blood glucose balance is maintained. The major risk of unplanned vigorous activity is low blood glucose. This can be prevented by eating additional food.

10.3. Parents should be notified of special days that involve extra activity so that they can ensure that the child has extra food to compensate.

10.4. Sports or other activities that take place during mealtime require extra planning. Timing of meals and snacks may be varied and the insulin dose adjusted so that children with diabetes can safely participate.

10.5. It is advisable that both the parent and the child with diabetes carry some form of fast-acting sugar such as glucose tablets or juice boxes on outings or sports events.

10.6. It is critical that the child's teachers, especially Physical Education teachers and coaches, are familiar with the symptoms, treatment and prevention of hypoglycemia.

Reference:

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