Waterloo Region District School Board

Administrative Procedure 1530

DIABETES MANAGEMENT

Responsibility:	*Superintendent, Human Resource Services*
Legal References:	PPM161 MFIPPA
Related References:	Board Policy 1006 - Supporting Students With Prevalent Medical Conditions Board Policy 1008 - Equity and Inclusion *AP1460 Administration of Medication* *Appendix A – Hypoglycemia Emergency Action Flowchart*
Revisions:	September 2018, March 2019
Reviewed:	October 2018

1. Preamble

1.1 The procedures that follow provide guidelines and expectations for responding to children with diabetes. It outlines the nature of diabetes, its various types and related issues of concern.

1.2 Diabetes Management is a protocol to be used by school and community personnel to support and ensure the safety of children with diabetes in our schools. The development of this document was a collaborative project involving representatives from The Waterloo/Wellington Local Health Integrated Network (LHIN), the Canadian Diabetes Association and Waterloo Region District School Board (WRDSB) internal and external stakeholders (including families).

2. Purpose

2.1 To provide school personnel in the WRDSB with information and guidelines regarding the requirements of care for students with diabetes.

2.2 To provide information about the management of risks associated with diabetes for all parties involved.

2.3 To develop information and resources for school personnel about the management of diabetes in school children including the importance of a communication and Plan of Care.

3. Definition

3.1 Diabetes mellitus is a disease resulting from a lack of insulin. 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” [note: terms ‘blood glucose’ and ‘blood sugar’ are interchangeable]), which required to sustain life. Instead, unused glucose accumulates in the blood and spills out into the urine.

3.2 Children and adolescents with diabetes are different; however, both are unable to make any insulin and must take insulin injections each day.

4. Plan of Care – Alert Form

4.1 It is essential that the school develops a Plan of Care for each student who has diabetes and that all staff are aware of how to implement it. Each plan should be developed in conjunction with the student's parent(s)/caregiver(s) and summarized on the Plan of Care Alert-Form.

5. Philosophy of Diabetes Management

5.1 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. Independence of care also includes the development of self-advocacy skills and a circle of support among persons who understand the condition and can provide assistance as needed.

5.2 The role of the school 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.

5.3 It is important that the school develop awareness for all staff, that each student has a Plan of Care and that there are clear emergency procedures for all teachers who have a child with diabetes.

6. General Information

6.1 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 parent(s)/caregiver(s) and the child. This will help to reduce apprehension and anxiety in the child and parent(s)/caregiver(s), provide a positive attitude toward the child's participation in school activities and contribute to the student's well-being.

6.2 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 the student should be the same as for a child who does not have diabetes.

7. Emergency Versus Non-Emergency

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

7.1 Non-Emergency Situations
In non-emergency situations, including routine care, students with diabetes or their parent(s)/caregiver(s) will administer the insulin injections.

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

7.2.1 Emergency Medical Services personnel require the following, if available:

- Student's name;
- Date of birth;
- Health Number;
- Emergency contact information;
- Medical history – available on the Plan of Care;
- Observations about what the student was doing prior to the event;
- Medications and any treatment prior to EMS arrival.

8. Definitions: Three Main Types of Diabetes

8.1 Type 1 Diabetes

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.

8.2 Type 2 Diabetes

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.

8.3 Gestational Diabetes

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

9. Issues of Concern

9.1 Adjustment Period After Diagnosis

When a child has recently been diagnosed with diabetes, the parent(s)/caregiver(s) usually feel a variety of emotions. The fact that diabetes is a serious condition 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 work with the Diabetes Health Care Team to adjust to all they have to learn and do to cope with life with diabetes.

9.2 Hypoglycemia (Low Blood Glucose) – An Emergency

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

9.2.1 Mild to Moderate hypoglycemia

Common in the school setting. School personnel need to know the causes, symptoms and treatment of hypoglycemia. School personnel can misinterpret symptoms of mild to moderate hypoglycemia. The nature of the emergency is often misunderstood, placing a student at serious risk. The Signs and Symptoms of Hypoglycemia chart in this section is a guide to be consulted.

9.2.2 Severe Hypoglycemia

Occurs in 3-8/100 students with diabetes per year and occurs most commonly at night. Severe hypoglycemia is rare in the school setting. In severe hypoglycemia, the student may be unconscious or conscious. There may be seizures. If the student is unconscious, having a seizure or unable to swallow, **do not** give food or drink. Roll the child on his/her side and seek medical assistance immediately.

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. Low blood sugar is below 4 mmol/l on a blood glucose meter. Symptoms may not always be present.	A person who is experiencing hypoglycemia will exhibit some of the following signs: · cold, clammy or sweaty skin; · pallor; · shakiness, lack of coordination (i.e., 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 parent(s)/caregiver(s) have not provided you with more specific instructions which can be readily complied with, give one of the following: · 4 oz./125 ml of fruit juice; · 2 teaspoons/10 ml or 2 packets of sugar; · 2 glucose tablets; · 2 teaspoons/10 ml honey. After treating with sugar, wait 15 minutes, retest blood glucose. If meal or snack is longer than 1 hour away, add small snack (10-15g of starch with protein i.e., granola bar, cheese/crackers).

If there are any symptoms apparent, sugar should be given immediately.
In terms of academic performance, physical activity and attendance at school, the teacher's expectations of students should be the same as if he or she did not have diabetes, unless otherwise directed.

9.2.3 Notes

- It may take some coaxing to get the child to eat or drink but you must insist.
- If there is no noticeable improvement in about 10 to 15 minutes, repeat the treatment. 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.
- 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.
- Parent(s)/caregiver(s) 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)/caregiver(s)'s attention so that they can discuss the problem with their doctor.
- **Do not give food or drink if the child is unconscious. Roll the child on his/her side and seek medical assistance immediately.**

9.3 Glycogen (Glucagon)

9.3.1 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.

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

9.3.3 In an emergency situation, where a student is severely hypoglycemic, trained EMS paramedics may do a glycogen injection. It is important to note that hypoglycemia presenting in a school setting would not normally be an immediate life-threatening condition, 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 section 12.

9.4 Hyperglycemia – High Blood Glucose

9.4.1 Hyperglycemia is not usually an emergency condition requiring immediate treatment, however, prevention of hyperglycemia is key to delaying or avoiding serious complications. The parent(s)/caregiver(s) and the child's physician need to be aware of persistent hyperglycemia.

9.4.2 High Blood Glucose

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 parent(s)/caregiver(s) to assist them in long-term treatment. They are not emergencies that require immediate treatment.

9.4.3 Causes

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;
- Illness

9.4.4 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).

9.5 Interference with School Activities

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

9.5.2 Hyperglycemia and hypoglycemia may also affect the student's behaviour however, having diabetes is not an excuse for inappropriate behaviour.

10. Blood Glucose Monitoring: Testing Blood Sugar

10.1 Why do it?

Monitoring of blood glucose is mandatory for achieving the target blood sugar levels. Blood sugar levels will change with eating, physical activity, stress or illness. Sometimes the blood sugar fluctuates for no apparent reason.

10.1.1 Knowing blood sugar levels will:

- Help the student understand the balance of food, insulin and exercise
- Help the doctor adjust insulin and food
- Help avoid the consequences of hypoglycemia and hyperglycemia
- Monitoring will give early warning without waiting for the onset of symptoms

10.2 Ketone Monitoring

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 this procedure.

10.2.1 It is important for the teacher:

- To understand and accommodate the student who needs to monitor ketones
- To call the parent(s)/caregiver(s) immediately if any student with diabetes becomes ill, especially with vomiting (see 9.5.5 below)

10.3 What Teachers Should Know about Ketones

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

10.3.2 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.

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

10.3.4 Left untreated DKA can kill.

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

10.3.6 The flu and stomach viruses are common contributors to DKA.

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

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

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

11. Insulin Injections

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

11.2 Most insulin is administered outside of school hours (before breakfast, supper and at bedtime). However, the insulin regimen varies with the individual and some students do require an insulin during the school day.

12. Student Diabetes Management: Roles and Responsibilities

Area	Who	Role & Responsibilities	Special Considerations
School Registration (new students) and New Diagnosis	Principal Parent(s)/caregiver(s) Student (If appropriate)	Together determine whether or not the student is able to safely manage his/her diabetes management. Collaborate with Parent(s)/caregiver(s), Student and Principal to develop a Plan of Care.	Diabetes Management will be outlined in the Students Plan of Care and on the Student's Plan of Care - Alert Form.
Communications	Principal School Staff Parent(s)/caregiver(s)	Establish clear communication methods between school and home. Update Plan of Care at the beginning of every school year and/or throughout the school year as necessary/appropriate. Follow established procedures for alerting staff of student medical needs.	Safe storage of equipment should be communicated to all staff.

Referral	Principal LHIN	Principal contacts LHIN to provide supervision/recommendations to school staff (i.e., regarding training) or direct treatment, if required.	Contact Information: LHIN – Waterloo Wellington 141 Weber St. South Waterloo 519-748-2222 www.waterloowellingtonlhin.on.ca
Training	Principal	Decide upon the need for: General in-service for all staff in contact with the student. Specific training for team support (i.e., according to development level and medical needs). Contact LHIN to arrange training in collaboration with parent(s)/caregiver(s). Determine which staff should attend the training.	Contact Information: Cambridge Memorial Hospital Diabetic Education Clinic, Nurse Diabetic Educator 519-621-2330 Grand River Hospital Diabetic Education Clinic, Nurse Diabetic Educator 519-749-4300 Establish a team of staff members to be trained to provide support for specific training, as required.
Support	Staff	Enter student medical information into data base Develop a Plan of Care Offer support to student by: -learning about diabetes -promoting open communication with parent(s)/caregiver(s) -offering positive attitude toward student's full participation in school activities -providing safe and hygienic location for student to conduct diabetes management -monitoring the self-care practices and routines by the student	
Supplies	Parent(s)/caregiver(s) Student Staff	Clear procedures provided to staff and student about the safe disposal of materials that come in contact with blood	
Invasive Procedures: injections blood glucose testing	Parent(s)/caregiver(s) Student Trained Staff	**Staff will not make medical judgments nor perform invasive procedures (i.e., injections, blood testing).** **In emergency situations, life-threatening situations where a student is unresponsive or unable to self-administer the appropriate treatment, the school response shall be a 911 telephone call.**	

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 parent(s)/caregiver(s), teachers and possibly other professionals.

13. Sports and Co-Instructional Activities

13.1 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.

13.2 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. Eating additional food can prevent this.

13.2.1 Parent(s)/caregiver(s) should be notified of special days that involve extra activity so that they can ensure that the child has extra food to compensate.

13.3 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.

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

13.4 It is critical that the child's teachers, especially Physical Education Teachers and Coaches, are familiar with the symptoms, treatment and prevention of hypoglycemia and hpyerglycemia. It is also important for teachers to communicate in advance, changes in the student routines and schedules that may impact insulin testing and insulin levels (i.e., unplanned vigorous physical activity not normally in a student timetable).

14. Resources

14.1 Appendix A – Hypoglycemia Emergency Action Flowchart

Diabetes fact sheet – Ministry of Education
www.edu.gov.on.ca/eng/healthyschools/pmc_diabetes_fact_sheet_en.pdf

Canadian Diabetes Association
https://www.diabetes.ca/

Diabetes Education Centres in Waterloo Region:

Cambridge Memorial Hospital
Diabetic Nurse Educator
Telephone: (519) 621-2330
Ext. 2345

Grand River Hospital
Diabetes Nurse Educator
Telephone: (519) 749-4300
Ext. 3714

Appendix A

HYPOGLYCEMIA EMERGENCY ACTION FLOWCHART
(Low Blood Sugar)

OVERVIEW

HYPOGLYCEMIC REACTION

This student has Type1 Diabetes and could develop hypoglycemia (low blood sugar reaction) which is an acute condition. It means that the blood sugar level has fallen below 4.0 which is too low for the brain to function properly. If this condition is not treated immediately it can lead to unconsciousness or seizure. A hypoglycemic reaction can occur at any time or place. Each student will have their own unique symptoms of feeling low. Refer to the students "Hypoglycemic Emergency Action Plan" for individual signs and symptoms of a hypoglycemic reaction.

SYMPTOMS

Possible symptoms are observed
- -cold, clammy, sweaty skin
- -hunger
- -quietness, pallor, extreme - tiredness
- -dizzy, blurry vision
- -shakiness
- -headache

or

If the student states they are feeling "low", looking unwell or acting strangely.

Or

Signs of a severe hypoglycemic reaction are observed –
Unresponsive
Unconscious
Having a seizure

ACTION/EMERGENCY PLAN

Instruct student to check their blood sugar using his/her meter to confirm symptoms.
If meter is unavailable, manage as if blood sugar is below 4.0.

If reading is above 4.0 and student feels unwell:
-stay with student
-notify parent(s)/caregiver(s) for further instructions

If reading is **below 4.0** and student is alert, manage low blood sugar **immediately** with <u>one</u> of the following:

6 oz (175 ml) juice/pop (not diet)
Or 3 glucose tabs
Or 5-6 _____

Stay with student.
Do not allow student to use stairs.

Student is:
1. Unresponsive
2. Unconscious
3. Having a seizure

- ❑ remain with student
- ❑ place student on his/her side (if unconscious)
- ❑ call 911 or notify principal/designate to call 911 and advise the dispatcher that the student has Type 1 diabetes and his unconscious/unresponsive/seizuring
- ❑ stay with student until the ambulance arrives
- ❑ call parent(s)/caregiver(s)

Repeat blood sugar check 15 minutes after taking above intervention.

If blood sugar reading is above 4.0 and next scheduled snack/meal is less than 1 hour NO further follow-up required.

If next snack/meal is *more* than 1 hour student needs a snack - provided by parent(s)/caregiver(s)

If blood sugar reading is still below 4.0, repeat previous interventions.

If after two interventions blood sugar is still less than 4.0
- ❑ stay with student
- ❑ notify parent(s)/caregiver(s)
- ❑ repeat above action