



**Guidelines for
Diabetes Management
in Schools**

Acknowledgements

This document is based largely on the New Brunswick Department of Education and Early Childhood Development *Handbook for Type 1 Diabetes Management in Schools*. We are indebted to New Brunswick for allowing us to use this valuable resource. The Department of Education and Early Childhood Development also wishes to acknowledge the Diabetes in Education working group for their contribution to the development and adaptation of this document.

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Background and Purpose

Newfoundland and Labrador has one of the highest incidences of type 1 diabetes reported worldwide in children 0-14 years old (Newhook et al., 2012) and a high incidence of type 2 diabetes that is more prevalent in adults but also emerging as a medical issue among children as a result of a combination of factors (Armed et al., 2010). It is important that the needs of students with diabetes are addressed while in school. These guidelines clarify the roles and responsibilities of parents/guardians, educators, school administrators and other school-based personnel to ensure students with diabetes are provided a safe and caring learning environment. The information in these guidelines is for educational purposes only and is not a substitute for professional medical advice.

Gaining independence at home, at school, and in the community is central to the development of self-reliance, confidence and daily functioning in society. Promoting independence starts early and continues throughout life. It is important for students to be able to meet their potential and not be restricted by dependence on others.

The provision of health support services is the ongoing responsibility of the parent/guardian. In requesting the assistance of school personnel in the provision of these services, parents/guardians are temporarily delegating limited authority to the personnel of the public education system, for a particular purpose, rather than relinquishing any part of their parental responsibility.

What is Diabetes?

There are two main types of diabetes:

Type 1 diabetes occurs when the pancreas is unable to produce insulin. Insulin is essential for ensuring that the body's energy needs are met.

Type 2 diabetes occurs when the pancreas does not produce enough insulin or when the body does not effectively use the insulin that is produced.

Symptoms of diabetes can include unusual thirst, frequent urination, unusual weight loss, extreme fatigue or lack of energy, tingling or numbness in the hands or feet, and blurred vision.

Treatment

Treating diabetes requires a combination of food, medication and physical activity. The maintenance of a proper balance of food, insulin, physical activity and other healthy lifestyle choices are essential to achieving normal blood glucose in students with type 1 diabetes. Diabetes self-care depends on the student's age, knowledge, skills, and maturity.

Insulin

All students with type 1 diabetes need insulin to manage their diabetes. Insulin can be administered by injection or pump. Students with type 2 diabetes more commonly use oral medications to manage the disease, although some will require insulin.

Insulin pumps

Many families of students with type 1 diabetes choose to use a pump to administer insulin. The pump is a safe medical device. The pump can allow for greater flexibility and improved quality of life as it eliminates the need for multiple daily insulin injections. The pump delivers a continuous infusion of insulin throughout the day plus a bolus (or 'burst') of insulin when the student eats. In order for the pump to work properly, the student must wear it day and night, although it can be removed for short periods (e.g. during a physical education class) though no more than one hour at a time.

Diabetes Management: A Shared Responsibility

Diabetes management in schools shall be based on strong collaboration between parents/guardians, students, school personnel and health care professionals.

Responsibilities of Parents/Guardians of a Student with Diabetes

In order for students with diabetes to benefit from a safe and caring learning environment, their parents/guardians are expected to:

a) Be familiar with the *Guidelines for Diabetes Management in Schools* and fulfill their obligations.

b) Practice appropriate diabetes management

Parents/guardians are responsible for:

- decisions concerning treatment;
- minimizing the school's involvement by ensuring their child's condition is as stable as possible and ensuring that he/she follows the medically prescribed care;
- ensuring that their child's blood glucose meter is in proper working order, with sufficient supplies available on a daily basis;
- ensuring a sharps container is available for their child for safe disposal of sharps;
- programming and maintaining the insulin pump, changing its parameters and the batteries;
- encouraging their child to inform school personnel when he/she experiences symptoms of hypoglycemia or hyperglycemia;
- ensuring safe transportation of medication and disposal of items requiring special precautions, such as syringes and sharps;
- informing the school in writing of any changes or any relevant information; and
- fostering their child's independence in the monitoring and treatment of his/her diabetes in keeping with the child's age, knowledge, skills, and maturity level.

c) Make a plan

- Parents/guardians are responsible for meeting with the principal or designate, prior to the beginning of each school year, or as soon as possible. During this meeting, they need to develop/update a written agreement on the services required and the school's and student's (if applicable) respective roles. This information will be recorded and signed by the parent/guardian, the principal or designate and the student (if applicable).
- To facilitate the establishment of a service agreement for a student with diabetes, it is recommended that parents/guardians and designated staff use the Diabetes Management and Emergency Plan.
- Ensure modifications are in place for special events/outings.

d) Attend and participate in training

- Parents/guardians are responsible for working with the school to meet the school's training needs.
- Parents/guardians are encouraged to attend training provided for designated school personnel.
- When appropriate, parents/guardians are also encouraged to participate in the delivery of training.

e) Provide supplies

- Parents/guardians must provide all necessary supplies, equipment and appropriately labeled medication (including glucagon, if required), and ensure these are available to the school at all times and replaced prior to their expiration.
- Parents/guardians must ensure that their child always has access to a kit containing all the elements required for his/her diabetic care (including on the school bus). If a student with diabetes arrives at school without his/her kit, it is the parent's/guardian's responsibility to ensure the kit is provided to the school as quickly as possible.
- For students who require assistance counting carbohydrates, parents/guardians are responsible for providing the separate carbohydrate counts for all foods to be consumed at recess and lunch.

f) Provide medical ID

- Parents/guardians shall ensure their child wears a MedicAlert® bracelet or other suitable identification at school and school related field trips.

Responsibilities of the Principal (or designate)

The Principal (or designate) will:

a) Provide Guidelines for Diabetes Management in Schools and appropriate forms to parents/guardians as soon as possible.

b) Ensure the Diabetes Management and Emergency Plan is developed.

- Parents/guardians must be provided the opportunity to meet with designated staff to develop/update the Diabetes Management and Emergency Plan as required for the student. This should occur at the beginning of the school year, or as soon as possible, and be updated/revised if changes are required.
- The plan must include an agreement on the procedures to be followed for the daily management of diabetes and in case of an emergency.
- It must describe the parent's/guardian's, school's and student's (when appropriate) respective roles.
- Each year, the plan must be reviewed by the school's principal or designate and the parent/guardian.
- If the service requirements remain the same, only the signatures from the principal or designate and a parent/guardian are required to renew the plan.
- If the service requirements are different from the last plan, a new plan must be developed.

c) Ensure measures are put in place

- The principal (or designate) will ensure measures agreed to, described in the Diabetes Management and Emergency Plan, are put in place. The principal (or designate) will ensure there are sufficient trained school personnel available to provide assistance for the care specified in the plan.
- Where appropriate, the school principal (or designate) should establish an emergency responder team. The size of the team may vary depending on the size and the structure of the school, the number of students with diabetes and the age group.

d) Arrange for training

- When a student with diabetes attends the school, an information session must be provided to all appropriate school personnel at the beginning of each school year or as soon as possible.
- Additional training will be required for school personnel with more direct contact with the student with diabetes.
- Parents/guardians shall be asked to attend training.
- When appropriate, parents/guardians shall be asked to participate in training delivery.
- When appropriate, the student shall be asked to attend and/or participate in training.

All school personnel will receive basic information to ensure they:

- can identify students with diabetes by their MedicAlert bracelet or other medical identification;
- recognize the signs of hypoglycemia and hyperglycemia;
- recognize diabetes supplies;
- know where to find fast-acting glucose; and
- are familiar with the established emergency procedure.

Other school personnel with more direct contact with the student with diabetes shall receive additional training to ensure that, in addition to the above, they can:

- verify the amount of food consumed by the student and count carbohydrates (as per the parent/guardian count) for students who require assistance;
- supervise the student as he/she calculates and prepares the correct amount of insulin for carbohydrates consumed;
- supervise the student during blood glucose checking;
- supervise the student's self-administration of insulin;
- measure blood glucose with the glucometer;
- replace glucometer batteries;
- put in place other procedures that may be required;
- know where to find glucagon kit, if required; and
- carry out the emergency plan including the administration of glucagon, **if appropriate**.

e) Medication and materials management

Medication services will be managed according to the established procedures and the agreed student Diabetes Management and Emergency Plan. Adequate precautions must be taken to store and handle medications, such as insulin and glucagon, with respect for the particular storage requirements of the medication. An appropriate location must

be available to perform blood glucose checks and injections. Depending on the age, knowledge, skills, and maturity of the student:

- A member of the school personnel should be designated to verify, during the first period of the day, that the student has his/her diabetic kit at school. If the student does not have his/her kit, the parent/guardian will be contacted to ensure the kit is provided to the school as quickly as possible.
- Students should not be left unattended to check their blood glucose levels or administer their insulin.
- The principal (or designate) should make arrangements for parents/guardians to count carbohydrates or, if available, obtain a carbohydrate count for foods served in the cafeteria.

f) Considerations for special events and activities

After consultation with parents/guardians, modifications must be in place for special events and activities at the school and other extra-curricular events in order to be prepared for any medical emergencies that may occur.

- Parents/guardians of students with diabetes should be given advance notice, to the extent possible, of changes to the regular schedule (e.g. field trips, extra physical activities, food-related activities) so that the parent/guardian can adjust care accordingly;
- Teachers should be notified of any modification to the plan for special events/activities;
- An adult should be designated to ensure the student's care is managed according to his/her plan and ensure the student has his/her diabetes care kit and glucagon kit, if required; and
- **A copy of the Diabetes Management and Emergency Plan should be available on all excursions off school grounds.**

g) Establish a plan for other school personnel

Measures must be in place to ensure student safety when the student is under the supervision of a casual employee including a substitute teacher who has not received the appropriate diabetes training. Casual employees must be provided with written instructions concerning the care of each student (when appropriate)

If required, the principal (or designate) may specify a member of the school personnel who can intervene rapidly in the case of an emergency.

Responsibilities of Teachers

Teachers are expected to:

- know the identity of students with diabetes in their classroom;
- allow students to eat their snacks and meals according to the care plan;
- allow students to carry out the necessary diabetic care as specified in the Diabetes Management and Emergency Plan;
- be able to recognize the signs of hypoglycemia and hyperglycemia and provide assistance and treatment as per guidelines; and
- be able to recognize a student's equipment, which is necessary to carry out diabetic care, such as a blood glucose meter, insulin pump, etc.
- be aware of modifications in the plan for special events/activities.

Emergency Treatment

There are two types of diabetic emergencies which school personnel may encounter:

- Low blood sugar level (hypoglycemia)
- High blood sugar level (hyperglycemia)

When dealing with cases of hypo/hyperglycemia, the student's individual emergency plan should be followed. The following reference tool for hypo/hyperglycemia was designed to provide all school personnel with signs and procedures in case of such an emergency.

School personnel and others (e.g. bus drivers) entrusted with the supervision of students with diabetes are expected to be able to recognize the signs of mild to moderate hypoglycemia and hyperglycemia and provide assistance in case of an emergency.

Hypoglycemia Low Blood Glucose

Occurs when the amount of blood glucose (sugar) is lower than 4.0 mmol/L.

Signs:

- Cold, clammy or sweaty skin
- Paleness
- Shakiness, tremor or lack of co-ordination
- Irritability, hostility, poor behaviour, tearfulness
- Staggering gait (appearing drunk)
- Fatigue
- Confusion
- Eventually loss of consciousness and possible seizure, if not treated early

Do not leave a student unattended until completely recovered.

It is imperative that low blood glucose is treated immediately.

When in doubt, treat with fast-acting glucose.

If the student is conscious:

If possible, ask the student to check his/her blood glucose. If not possible or less than 4mmol/L:

- Give fast-acting glucose immediately:
(e.g. 4-6 oz. of fruit juice or 3 packets of sugar diluted in a little water or 1 tablespoon of unsweetened jelly, honey, corn syrup, jam or equivalent provided by the parent/guardian)
- Call parent/guardian and follow the parent's/guardian's recommendations or wait 10 to 15 minutes, if there is no improvement, treat again
- Repeat treatment as per individual plan
Once blood glucose is at 4mmol/L, give the student a snack comprised of a carbohydrate and a protein (e.g. 4-6 crackers and cheese). Do not change the time of the next meal or snack.

If the student is unable to swallow, having a seizure or is unconscious:

- Call 911 (or emergency services).
- DON'T attempt to give anything by mouth.
- Roll the student onto his/her side (if possible).

Contact designated school personnel to:

If possible check blood glucose. If less than 4mmol/L or not possible:

- Administer glucagon* as prescribed.
- Disconnect the insulin pump (if the student has one).
- Call parent / emergency contact

*Glucagon shall only be administered if prescribed in the student's plan. Only trained school personnel should administer glucagon

Hyperglycemia High Blood Glucose

A situation that occurs when the amount of blood glucose (sugar) is higher than an individual's target range.

Signs

- Dry mouth
- Extreme thirst
- Frequent urination
- Drowsiness
- Stomach pain
- Blurred vision
- Nausea and vomiting
- Fruity smell to breath

What to Do:

In case of mild hyperglycemia (thirst, frequent urination, fatigue), school personnel will:

- Allow free use of the bathroom
- Encourage the student to drink water only
- Inform the parent

In case of increased hyperglycemia (drowsiness, nausea or vomiting), school personnel will:

- Confirm hyperglycemia by checking blood glucose (if possible).
- Call parents/emergency contact immediately to have the child picked up, (the care required in such a case goes beyond the abilities of school personnel).

Call 911 (or emergency services) if the student is vomiting and it is not possible to reach the parents.



Diabetes Management and Emergency Plan

School Year 2_____ - 2_____

Part 1- Student Information

Name of Student: _____

Date of Birth: _____

MCP Number: _____

Home Room Teacher: _____

Staff with Additional Training: _____

Contact Information

Parent/Guardian: _____

Telephone: Home _____ Work: _____ Cell: _____

Address: _____ Email: _____

Parent/Guardian: _____

Telephone: Home _____ Work: _____ Cell: _____

Address: _____ Email: _____

Student's Physician: _____ Telephone: _____

Other/Emergency Contact:

Name: _____ Relationship: _____

Telephone: Home: _____ Work: _____ Cell: _____

Notify parents/guardian or emergency contact in the following situations: _____

Any other conditions that may affect the treatment of your child: _____

The student is able to manage his/her diabetic care independently and does not require any special care from the school. Yes No

If "Yes", go directly to Part III Emergency Services

Part II – Diabetes Management Plan (if applicable)

Blood Glucose Monitoring

Target range is: _____

Usual time(s) to check blood glucose: _____

The student can perform his/her own blood glucose check. Yes No

Additional information: _____

Food Management

Regular time for meal and snack: _____

The student can count carbohydrates. Yes No

Instructions when food is provided to the class: _____

Additional Information: _____

Insulin injection

For students with insulin syringes/pen:

The student can give own injection. Yes No

The student can determine correct amount of insulin. Yes No

or students with an insulin pump:

The student can calculate and administer correct dose Yes No

Additional Information: _____

Student Name: _____

DOB: _____

Part II – Diabetes Management Plan (if applicable) - Continued

Diabetes Management Kit

The diabetes management kit accompanies the student. All supplies, including sharp containers, to be provided and replenished by parents/guardians.

The diabetes management kit shall include

- Blood glucose meters, test strips, and batteries
- Insulin vials and syringes / or insulin pump supplies / or insulin pen and supplies.
- Fast-acting source of glucose

Special Events

Instructions when food is provided in class, special events in school, and other extra-curricular events: _____

Student Name: _____

DOB: _____

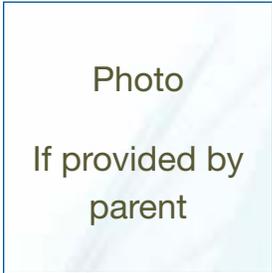
Part III – Diabetes Emergency Plan

Name: _____

An emergency kit will be kept at the school but will accompany the student during offsite activities. All supplies, including sharp containers, to be provided and replenished by parents/guardians.

The emergency kit shall include:

- Carbohydrate containing snack (e.g. crackers and cheese)
- Glucagon emergency kit, if required
- A backup supply of fast-acting glucose
- Simple and clear instructions for teacher



Hypoglycemia (Low Blood Sugar)

Usual symptoms of _____

Treatment of hypoglycemia: _____

Hyperglycemia (High Blood Sugar)

Usual Symptoms of hyperglycemia: _____

Treatment of hyperglycemia: _____

Glucagon

In case of an emergency this student is to receive a Glucagon injection. Yes No

Additional Information: _____

Part IV – Trained School Personnel

The personnel listed below have received the necessary training to assist with the emergency intervention described above.

Name:

Title

Student Name: _____

DOB: _____

Part V - Sign-off

I have read and understand the Diabetes Management and Emergency Plan and agree to the care described in this plan and the sharing of information relevant to the service requested with those who must know in order to provide the service

Student (16 years and older): _____ Date: _____

I hereby request and authorize school personnel to provide the care described above to my child. I understand the trained persons have no medical qualifications and will perform the requested service in good faith and within the scope of the training received in accordance with this agreement.

In the event of an emergency, I authorize school personnel to administer the medication specified in this agreement and provided by me, and to obtain suitable medical assistance. I agree to assume responsibility for all cost associated with medical treatment.

I hereby acknowledge my responsibilities, as set out in these guidelines and agree to carry these out to the best of my ability.

I agree to notify the school in writing of any changes to the information provided on this form.

I agree that the information provided on this form will be shared on a need-to-know basis with anyone who will be involved in the care of my child on behalf of the school.

I agree to have relevant information about my child's health/medical condition available in strategic areas of the school (e.g. classroom, kitchen, principal's office, staff room, school bus) to assist in providing emergency services to my child. I will provide a photo of my child for this purpose.

Yes No

I agree that the principal or his/her designate may contact my child's physician in the event of a medical emergency or should he/she require clarification about the school's responsibilities as set out in this agreement.

Yes No

Parent/Guardian _____ Date: _____

Part VI – Annual Review

Note: If the requirements of the service requested have changed, complete a new Diabetes Management and Emergency Plan. If there are no changes, use this sign-off sheet to confirm the plan has been reviewed with the parent.

This plan remains in effect for the 2_____ to 2_____ school year without change.

Parent/Guardian: _____ Date: _____

Principal (or designate): _____ Date: _____

This plan remains in effect for the 2_____ to 2_____ school year without change.

Parent/Guardian: _____ Date: _____

Principal (or designate): _____ Date: _____

This plan remains in effect for the 2_____ to 2_____ school year without change.

Parent/Guardian: _____ Date: _____

Principal (or designate): _____ Date: _____

This plan remains in effect for the 2_____ to 2_____ school year without change.

Parent/Guardian: _____ Date: _____

Principal (or designate): _____ Date: _____

This plan remains in effect for the 2_____ to 2_____ school year without change.

Parent/Guardian: _____ Date: _____

Principal (or designate): _____ Date: _____

Student Name: _____

DOB: _____

Terminology

Blood glucose: The amount of glucose (sugar) in the blood at a given time.

Blood glucose monitoring or self-monitoring of blood glucose: People with diabetes must monitor their blood glucose regularly as part of the process for achieving their target blood glucose level. Levels will change depending on food consumption, physical activity, stress, illness, problems with the insulin delivery system and many other unknown factors. To test blood glucose, the individual pricks his or her finger with a lancing device and places a drop of blood on a blood glucose strip, which is inserted into a blood glucose meter to obtain a reading.

Carbohydrate: One of the main sources of energy (calories). All forms of carbohydrate are broken down into glucose during digestion and increase blood glucose. Carbohydrates are found in fruits, vegetables, milk and grains/starches such as rice, potatoes, corn and legumes, and refined sugars.

Carbohydrate carb counting: A popular meal planning approach for children and adolescents with diabetes that involves calculating the number of grams of carbohydrate, or choices of carbohydrate, eaten at meals or snacks.

Fast-acting carbohydrate: A carbohydrate to eat or drink for the treatment of mild to moderate hypoglycemia (e.g. juice, glucose tablets)

Glucagon: A hormone that raises blood glucose. An injectable form of glucagon is used to treat severe hypoglycemia.

Glucose: The fuel that the body needs to produce energy. Glucose (sugar) comes from carbohydrates such as breads, cereal, fruit and milk.

Hyperglycemia or high blood glucose: A situation that occurs when the amount of blood glucose (sugar) is higher than an individual's target range.

Hypoglycemia or low blood glucose: Occurs when the amount of blood glucose (sugar) is lower than 4.0 mmol/L. Hypoglycemia can be mild, moderate or severe.

Severe hypoglycemia: Typically occurs when the amount of blood glucose (sugar) is lower than 2.8 mmol/L. Severe hypoglycemia requires the assistance of another person as unconsciousness may occur. Guardians should call emergency services immediately. Symptoms of severe hypoglycemia include fainting, a seizure and difficulty speaking.

Insulin: A hormone that facilitates the conversion of glucose to energy. Since people with type 1 diabetes cannot produce their own insulin, glucose builds up in the blood instead of being used for energy. They must therefore administer insulin by syringe, insulin pen or insulin pump.

Insulin pump: A computerized device that is programmed to deliver small, steady doses of insulin throughout the day. Additional doses are given when needed to cover food intake and to lower high blood glucose levels. The insulin is delivered through a system of plastic tubing (infusion set).

Quick-acting glucose: Foods or products containing simple sugar that are used to raise blood glucose levels quickly during a hypoglycemic episode. Examples include 3 or 4 glucose tablets or 1 tube of glucose gel or 4 ounces of fruit juice (not low-calorie or reduced sugar) or 6 ounces (half a can) of soda (not low-calorie or reduced sugar).

Sharps: Used syringes, insulin pen needles, and lancets. These items must be carefully disposed of in appropriate containers.

Target blood glucose range: Acceptable blood glucose levels based on the Canadian Diabetes Association's Clinical Practice Guidelines and personalized for the student, by their diabetes care team and their parent or guardian.

Type 1 diabetes: An autoimmune disease that occurs when the pancreas no longer produces any insulin or produces very little insulin. Type 1 diabetes usually develops in childhood or adolescence and affects approximately 10% of people with diabetes. There is no cure. It is usually treated with lifelong insulin injections and careful attention to diet and physical activity.

Type 2 diabetes: A disease that occurs when the pancreas does not produce enough insulin to meet the body's needs and/or the body is unable to respond properly to the actions of insulin (insulin resistance). Type 2 diabetes usually occurs later in life (although it can occur in children) and affects approximately 90% of people with diabetes. There is no cure. It is treated with careful attention to diet and exercise and usually requires medication (oral antihyperglycemic agents) and/or insulin.

Websites

BC Children's Hospital. Online module for educators, "Taking Care of Diabetes at School":
<http://learn.phsa.ca/BCCH/insulin/schools/>

Canadian Diabetes Association. Guidelines for the Care of Students Living with Diabetes at School (September 2014):
<http://www.diabetes.ca/getmedia/173678f6-1a4a-4237-bd55-aa7ba469a602/guidelines-for-students-in-school.pdf.aspx>

IWK Health Centre Pediatric Diabetes Team in Halifax. Online video training modules for teachers, 3 modules from 9 to 13 minutes each:
<http://www.iwk.nshealth.ca/page/video-diabetes-school>

Video Trillium Health Centre (Ontario)
http://www.trilliumhealthcentre.org/programs_services/womens_childrens_services/ChildrensHealth/familyCareCentre/media/diabetesmov.php

References

Newhook et al. Recent incidence of type 1 diabetes mellitus in children 0-14 years in Newfoundland and Labrador, Canada climbs to over 45/100,000: a retrospective time trend study. BMC Research Notes 2012 5:628.

Armed S, Dean, H.J, Panagiotopoulos C et al. Type 2 diabetes, medication-induced diabetes, and monogenic diabetes in Canadian children: A prospective national surveillance study. Diabetes Care, 2010; 33(4):786-791.

