



Guidelines for the Care of Students Living with Diabetes at School

Purpose

To acknowledge and help clarify the essential roles and responsibilities among the **Diabetes Care Team (DCT)**, which is comprised of the student living with diabetes, his or her parents/ guardians, school personnel, and health-care providers, in the care of students living with diabetes at school. These guidelines may be adapted to care for children with diabetes in daycare settings.

Goals

- To enhance the health, safety, emotional well-being and participation of each student with diabetes by providing information and guidance to the DCT regarding the student's diabetes management.
- To protect students with diabetes from stigma and discrimination by promoting a positive, caring, and inclusive learning environment through enhanced communication, education, and cooperation between all members of the DCT.
- To promote a positive sense of self and belonging and help each student with diabetes feel empowered to manage their diabetes effectively during school hours.
- To ensure each student with diabetes is not excluded from any school activities because of diabetes, unless indicated otherwise in the student's **Individual Care Plan (ICP)**.

Issues of Concern

- School-aged children with diabetes most often have type 1 diabetes and require insulin by injection or by a pump, throughout the school day.
- Some students, especially those that are very young, may be unable to check their own blood glucose (sugar) levels or administer their insulin while at school. Without support to perform these daily diabetes management tasks, their health, safety and ability to learn and participate at school are jeopardized.
- Many students managing diabetes require their cellphone and/or smartwatch at all times to access essential diabetes treatment information delivered from their insulin pump and continuous glucose monitoring system.
- There is an increased prevalence of school-aged children with type 2 diabetes who may require oral medication or insulin.
- Students with diabetes spend 30-35 hours per week in a school setting; this represents more than half of their waking weekday hours. It is therefore vital that the student, parent/guardian, school personnel, and health-care providers are clear and confident in their roles and responsibilities during this time.
- It is important that the needs of each student with diabetes are recognized and accommodated according to the student's ICP.
- It is essential that school personnel have accurate and current information about diabetes and how it is managed to reduce stigma and other problems that may put a student's health and safety at risk.

Cognitive Effects of High or Low Blood Glucose (Sugar) Levels:

Hypoglycemia (low blood sugar) and hyperglycemia (high blood sugar) may affect mood and behaviour and a student's ability to learn and to participate in school activities as well as lead to emergency situations, if left untreated.

Students with diabetes will learn and perform best when their blood sugar levels are within the target range outlined by their health care providers and indicated in the student's ICP. Blood sugar levels below or above this range can be associated with a decline in cognitive performance and ability. In order for a student with diabetes to learn and demonstrate their knowledge of a subject, including writing exams and performing other tasks for credit, blood sugar levels should be within their target range. If not, then an alternate time to redo or complete the activity should be provided.

Communication and Education

It is important that regular and ongoing communication is established between DCT members, so an effective change can be made for the student with respect to activities, special events or snacks/meals at school and to the student's ICP.

Roles and Responsibilities

Parents/Guardians or Student

- Notify the school of the student's diabetes diagnosis prior to attending school, or upon diagnosis, and arrange a meeting with the school principal. Include discussion of how to make other school personnel aware of the student's diagnosis.
- In cooperation with the school, arrange for diabetes education, training and resources that are consistent with current *Diabetes Canada Clinical Practice Guidelines*, for all school personnel at diagnosis, on an annual basis, or as needed for any new staff members that are in contact with the student with diabetes.
- Students are encouraged to carry diabetes medical identification at all times.
- With the student's consent, arrange for a presentation to be made to classmates by the student or another member of the DCT about diabetes and how to identify symptoms of hypoglycemia/hyperglycemia.
- Provide at least 24 hours notice to school personnel of any change to the student's ICP, school routine, or of upcoming special events.

School Personnel

Participate in annual diabetes education, training and resource review to learn or to be reminded of how diabetes is managed, including emergency procedures for treating moderate to severe hypoglycemia/hyperglycemia. The student's parent/ guardian, diabetes education team and/or other trained health-care providers could be invited to participate.



- Establish a formal communication system with all school personnel who come into contact with the student with diabetes. This should include appointing at least one staff member to be a point-of-contact for the student and parent/guardian.
- Identify the student with diabetes to all school personnel, including volunteers, substitute teachers, student teachers, and support staff. With permission from the student and parent/guardian, some schools may choose to display identifying information in the staff room or office and/or have emergency information folders made available to all personnel. These folders should contain the student's ICP, information about diabetes as well as information specific to the student. Medical alert stickers can also be placed on the student's file to further identify the student.
- Display posters identifying symptoms of hypoglycemia/hyperglycemia in key locations throughout the school.
- Provide at least 24 hours notice whenever possible to parent/guardian of any change in school routine or of upcoming special events.

Health-care Providers

In cooperation with the parents/guardians:

- Provide posters identifying symptoms of hypo-glycemia/hyperglycemia to all school personnel.
- Act as a resource to the school to provide or arrange for diabetes education and training.
- Assist with the development of the student's ICP as needed.

Individual Care Plan (ICP)

An ICP for a student with diabetes has two distinct sections that provide specific information and instructions to school personnel regarding the student's **daily diabetes management tasks** and **diabetes emergency prevention and treatment**.

An ICP should contain the following information:

- Details informing school personnel, including regular and student/substitute teachers, support staff and volunteers that are in contact with the student on a regular basis, of the student's daily diabetes management tasks and emergency plan that includes emergency contact information and treatment procedures for moderate to severe hypoglycemia or hyperglycemia.
- Details regarding storage for emergency supplies including glucagon.
- The daily support required by the student to perform their daily diabetes management tasks, including insulin administration and blood sugar checks.
- Type of diabetes and diabetes medication/insulin.
- Frequency of blood sugar monitoring and the target range.
- Symptoms commonly experienced for hypoglycemia/hyperglycemia, appropriate treatments and location of treatments.
- A plan for prevention of hypoglycemia during periods of increased or changes in activity.
- Details regarding storage and accessibility of medical supplies and equipment, including the student's retention at all times of their cellphone/smartwatch.
- Details of a daily communication plan between the student, parent/guardian and school.

Roles and Responsibilities

Parents/Guardians or Student

- Meet with health-care providers on a regular basis to develop and review the student's ICP to ensure daily management and emergency plans are indicated.
- Arrange a meeting with the school principal to review the student's ICP.
- Ensure the ICP is current.

School Personnel

- The school principal must meet with the student and parent/guardian to discuss the student's daily diabetes management requirements and the ICP while in school.
- The school principal must ensure the student's ICP is shared with or made available to all school personnel that are in contact with the student on a regular basis.

Ongoing Communication

Ongoing communication between the school and the student and parent/guardian is important to ensure the health and safety of the student and to allow parents/guardians to make necessary adjustments to the student's ICP and should include the following:

- Parents/guardians reporting to the school principal any changes to the student's ICP.
- School personnel assigned to supervise or administer insulin to confirm dosing with the student's parents/guardian.
- School reporting to parent/guardian any issues of concern related to the student's diabetes management.
- School informing parent/guardian via a daily journal or communication log when student experiences hypoglycemia/hyperglycemia that requires assistance.
- School informing parent/guardian in advance of any change in usual school routine including, but not limited to, physical activity schedule, field trips, school bus schedule, changes in recess or lunch schedule.
- Daily communication between the student, parent/guardian and school according to the method and frequency indicated in the student's ICP.



Daily Management

To maintain optimal health, a student living with diabetes must balance medication, including insulin, food, and activity every day. A student experiencing hypoglycemia/hyperglycemia may be unable to perform school-related or other tasks. With support from school personnel, most students can manage their diabetes independently or with minimal support, however some students are unable to perform daily diabetes management tasks and may require trained personnel to administer insulin, monitor blood sugar, or supervise food intake and activity.

Blood Glucose (Sugar) Monitoring

School personnel can only perform blood sugar monitoring and/if there is mutual agreement with the parent/guardian as indicated in the student's ICP and if training is provided to school personnel.

Roles and Responsibilities

Parent/guardian and school personnel need to work together to establish a blood sugar monitoring plan to meet the student's needs. This should be reflected in the student's ICP.

Parents or Student are ultimately responsible for making decisions based on results of blood sugar monitoring.

- Provide very clear information in the student's ICP about blood sugar monitoring by meter/test strips and/or continuous glucose monitoring (CGM) device.
- Provide for training by a health-care provider to school personnel for checking blood sugar levels.
- Ensure that the student's blood glucose meter is in proper working order, with sufficient supplies available on a daily basis.
- Ensure a backup blood glucose meter is available with sufficient supplies.
- Ensure a sharps container is available for safe disposal of sharps.



School Personnel

- Permit the student or assigned trained personnel to check blood sugar conveniently and safely, wherever the student is located in the school or, if preferred by the student, in a private but not isolated location.
- Permit the student to keep their cellphone or smartwatch with them at all times.
- Notify parent/guardian if blood sugar monitoring supplies need to be replenished or if there is a concern regarding the working order of the blood glucose meter.

Medication Administration

Students with diabetes may require multiple doses of insulin by syringe, insulin pen or an insulin pump and/or oral diabetes medications while in school. Some students may require someone to supervise or administer insulin.

School personnel can only administer insulin or oral diabetes medications if there is mutual agreement with parents/guardians as indicated in the student's ICP and training is provided to school personnel.

Roles and Responsibilities

Parents/Guardians or Student

- Provide for training by a health-care provider to school personnel when required for insulin administration.
- Provide insulin dosing instructions to school personnel.
- Ensure a sharps container is available for safe disposal of sharps.
- Inform school personnel of changes to insulin and/or diabetes medication administration schedule and update the student's ICP.

School Personnel

- Supervise the student or administer insulin and/or diabetes medications when there is mutual agreement with the student or parent/guardian and training has been provided.
- Permit the student to keep their cellphone or smartwatch with them at all times.
- Provide each student with a convenient, clean and safe location to administer insulin and/or diabetes medications and, if preferred by the student, in a private but not isolated location.



Hypoglycemia (mild and moderate)

Hypoglycemia can be a result of too much insulin, delayed or missed meals or snacks, or more physical activity than usual without a corresponding increase in food or reduction in insulin.

Signs of Hypoglycemia

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

Treatment of Mild and Moderate Hypoglycemia:

The student should immediately be given (if able to swallow) fast-acting glucose according to the student's ICP. **It is imperative that hypoglycemia is treated immediately as indicated in the student's ICP.**





Roles and Responsibilities

Parents/Guardians or Student

- Treat hypoglycemia anywhere, at anytime, and during any activity immediately with available fast-acting glucose.
- Provide safe and readily accessible storage of the student's emergency snack supply.
- A readily available snack and supply of fast-acting glucose should be situated in several locations throughout the school. Ensure the student has a source of fast-acting glucose with them at all times.
- Ensure the student is not left alone following the treatment of hypoglycemia until their blood sugar level has increased and is stabilized as indicated in the student's ICP.
- Ensure the student has adequate time to treat hypoglycemia prior to participating in any school activities as indicated in the student's ICP.
- Notify parent/guardian when treatment of mild to moderate hypoglycemia was required.
- Understand that the symptoms of hypoglycemia can affect behaviour and the student's ability to perform school-related and other tasks.
- Ensure all snacks and meals are eaten on time, as indicated in the student's ICP. The student also requires adequate time to finish snacks/meals. A designated staff member may be required to ensure that the snack/meal is eaten.

School Personnel

- Review annually with the school the student's ICP for treating mild and moderate hypoglycemia or whenever changes to the student's insulin or diabetes medication regimen are made.
- The student's ICP should define causes, prevention, identification and treatment of hypoglycemia as it pertains to the individual child.
- Provide all snacks as well as an ongoing supply of fast-acting glucose for treating hypoglycemia.
- Encourage the student to keep a source of fast-acting glucose with them at all times.

Severe Hypoglycemia

Severe hypoglycemia in the school setting is rare, but it is important that staff understand how to respond quickly. Severe hypoglycemia requires an emergency response, including glucagon administration and a 911 call.

School personnel should be trained to administer glucagon, nasal or injectable, if there is mutual agreement with parents/guardians as indicated in the student's ICP.

Roles and Responsibilities

Parents/Guardians or Student

- Provide a nasal or injectable glucagon kit to the school and ensure it is replaced before it expires.
- Provide for glucagon administration training by a health-care provider for designated staff.
- Review annually with the school the student's ICP for emergency procedures for treating mild or moderate hypoglycemia or whenever changes to the student's insulin or diabetes medication regimen are made.
- The student's ICP should define causes, prevention, identification and treatment of hypoglycemia as it pertains to the child.

School Personnel

- Call 911 immediately and notify parent/guardian.
- Never give food or drink to a student who is unconscious or otherwise unable to swallow!
- Ensure at least two designated staff are trained to administer glucagon.
- Safely store a readily accessible supply of glucagon.
- Notify parent/guardian when glucagon is near expiry date.
- Administer glucagon according to instructions in the student's ICP.



Hyperglycemia

Hyperglycemia occurs when blood sugar levels are higher than the student's target range and can be caused by too little insulin or other diabetes medication; extra food not balanced with an adequate amount of insulin and/or diabetes medications; decreased physical activity; physical or emotional stress, infection, injury or illness; or insulin pump malfunction. Emergency treatment is usually not required except in the case of diabetic ketoacidosis (DKA) (*see Severe Hyperglycemia below*).

Signs of Hyperglycemia

- Increased thirst
- Increased urination
- Change in appetite or nausea
- Blurry vision
- Fatigue
- Irritability, hostility, poor behaviour, tearfulness

Roles and Responsibilities:

Parents/Guardians or Student

- Provide target blood sugar levels in the student's ICP to the school.
- Provide instructions for when blood sugar is above the target range.
- Students using an insulin pump with blood sugar reading greater than 15.0 mmol/l should check for ketones and notify their parent/guardian, unless otherwise indicated in the student's ICP.

School Personnel

- Notify parent/guardian if the student has consistently high blood sugar levels according to the student's ICP.
- Discuss the treatment of hyperglycemia with the parents/guardians.
- Provide opportunities for the student to deal with the symptoms as necessary, including access to the washroom or to drink water more frequently.
- Additional blood sugar checking as well as ketone checking may be required. Permit the student to check blood sugar and ketones conveniently and safely, wherever he or she is located in the school or in a private but not isolated location according to the student's ICP.
- Administer supplemental insulin according to the student's ICP.
- Understand that the symptoms of hyperglycemia can affect behaviour and the student's ability to perform school-related and other tasks.

Severe Hyperglycemia

Untreated hyperglycemia may lead to the emergency situation diabetic ketoacidosis (DKA). Parents/guardians should be called if a student is nauseous, vomits or shows signs of illness.

Symptoms of Diabetic Ketoacidosis (DKA)

- Dry mouth, fruity breath, extreme thirst, and dehydration
- Increased urination
- Nausea and vomiting
- Severe abdominal pain
- Shortness of breath
- Sleepiness or lethargy
- Depressed level of consciousness

Roles and Responsibilities

Parents/Guardians or Student

- Ensure the student's ICP includes an emergency plan and that all school personnel who work with the student have access to the plan and have been trained to recognize and respond to symptoms of severe hyperglycemia.

School Personnel

- Notify parent/guardian if the student is unable to eat or vomits at school, or shows signs of illness.
- If the student vomits and parent/guardian is unavailable, call 911 immediately or take action according to the student's ICP.

Nutrition/Food

The balance of food, medication and activity is essential to achieving optimal blood sugar control. Timing and quantity of food is based on the individual student's ICP. Missing a meal or snack or eating less than planned may result in hypoglycemia. Conversely, eating more food than planned may result in hyperglycemia. The student's food intake may need to be consistent or it may be flexible when insulin dose is administered based on food intake. With planning, a student with diabetes can enjoy the same foods as everyone else. Unless indicated in the student's ICP, there are no "forbidden" foods.

Roles and Responsibilities

Parents/Guardians or Student

- Inform the school of the student's meal plan including time, type and quantity of food and include this information in the student's ICP.
- Inform the school of any special food restrictions such as in the case of celiac disease or food allergies.

School Personnel

- Ensure all meals and snacks are eaten completely and on time. Provide sufficient time for the student to finish snacks/meals.
- In the case of younger students, provide supervision to ensure entire meal/snack is consumed.
- Communicate to parent/guardian situations where food was not eaten or where there were changes to planned food intake due to school-related activities.





Physical Activity, Sports and Extracurricular Activities

Students with diabetes should be encouraged to be participants in all school activities. Planning is essential, so that blood sugar levels are maintained within a safe target range; the major risk of both planned and unplanned activity is hypoglycemia.

In cases of unplanned activity, eating an extra snack may be necessary. Exercise, sports and extracurricular activities are three of many factors which may affect an individual's blood sugar levels. If activities are found to affect blood sugar levels in a predictable manner then, at the request of parent/guardian and according to the student's ICP, insulin administration may differ from the usual regimen during certain specified activities.

Roles and Responsibilities

Parents/Guardians or Student

- Determine any required changes from the usual regimen during periods of physical activity, sports or extracurricular activities and provide clear instructions to the school in the student's ICP for such activities. For example, any changes to insulin doses should be specified.
- Ensure that the student's ICP indicates when physical activity should be restricted based on blood sugar levels being too low or too high.
- Provide for extra snacks (e.g. carbohydrates) clearly marked for days the student is involved in extra activity.

School Personnel

- Inform parent/guardian of any extracurricular activity, so that plans can be made around diabetes management.
- Have a readily available supply of fast-acting glucose for treatment of low blood sugar.
- Recognize that there is often a higher chance of hypoglycemia in the hours following intense physical activity and other intense activities and be alert to any signs of hypoglycemia in the student.

Glossary

- **Blood glucose:**

The amount of glucose (sugar) in the blood at a given time. It is important that blood sugar levels do not go too low or too high. Checking blood sugar helps students with diabetes balance between food, activity and medication.

- **Blood glucose monitoring/self-monitor blood glucose (SMBG)/monitor:**

Students with diabetes monitor their blood sugar often and regularly with a glucose meter and/or a continuous glucose monitoring device (explained below). For a glucose meter, a drop of blood is placed on a blood glucose test strip inserted into the meter to obtain a reading. Students with diabetes are encouraged to keep a meter with them and if they experience changes in behaviour or symptoms of low or high blood sugar, they should “check, don’t guess.” Some students, especially those who are very young, may be unable check their own blood sugar.

- **Clinical Practice Guidelines:**

The Diabetes Canada’s Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada (CPGs) are evidence-based clinical practice guidelines intended to help health-care professionals provide the best in patient-centered diabetes care and chronic disease management.

- Continuous glucose monitoring (CGM)

- **Diabetes management/self-management/daily management:**

A cornerstone of diabetes care in order for students to live well with diabetes and to prevent or delay complications of diabetes. It involves following prescribed medication, diet and physical activity patterns, checking blood glucose and adjusting treatments. Students and their parents/guardians are encouraged to be actively involved in the decision making around the student’s diabetes care.

- **Diabetic ketoacidosis (DKA):**

DKA is life-threatening and occurs when blood sugar levels are too high and the body breaks down fat for energy. This leads to a high level of ketones in the body. At high levels, ketones are poisonous and can lead to coma or death, if not treated.

- **Fast-acting glucose:**

A rapidly absorbed source of carbohydrate to eat or drink for the treatment of mild to moderate hypoglycemia or low blood sugar (e.g. glucose tablets, juice). A source of fast-acting glucose should be kept with a student at all times as well as in easily accessed locations throughout the school.

- **Glucagon:**

A hormone that raises blood **sugar**. An injectable form of glucagon is used to treat severe hypoglycemia. Training by a health-care provider is required to administer glucagon.

- **Glucometer:**

A medical device used to measure the concentration of sugar in the blood.

- **Glucose:**

Is the fuel that the body needs to produce energy. Glucose (sugar) comes from carbohydrates such as breads, cereal, fruit and milk. To use this sugar, the body needs insulin. Almost all foods contain carbohydrates.

- **Hypoglycemia/low blood glucose (*mild or moderate*):**

An urgent and potentially emergency situation that occurs when the amount of blood glucose (sugar) has **dropped below** a student’s target range (e.g. 4.0 mmol/l). Hypoglycemia can be mild, moderate or severe. Hypoglycemia requires treatment with a fast-acting glucose and rechecking of blood sugar until levels have stabilized within the target range. Hypoglycemia can be a result of having injected too much insulin, or eaten too little carbohydrate, or engaged in unplanned physical activity.

- **Hypoglycemia/low blood glucose (severe):**

An urgent situation requiring assistance of another person and an emergency response. A student displaying symptoms of fainting, seizure, and difficulty speaking requires an emergency response.

- **Hyperglycemia/high blood glucose:**

When the amount of blood glucose (sugar) is higher than an individual's target range. The student may be thirsty, urinate more often, and be tired.

- **Individual Care Plan (ICP):**

A standardized plan that includes details informing school personnel and others who are in direct contact with the student on a regular basis (as well as being available to all substitute personnel) of the type of medical care and monitoring required, and treatment guidelines. The student's ICP also includes a readily accessible emergency procedure for the student, including emergency contact information, storage instructions for glucagon and other emergency supplies, as well as details regarding storage and accessibility to medical supplies and equipment that may be required for ongoing treatment of the student's diabetes. The student's ICP also provides information about what the student will need to do during the school day, for example checking blood sugar, taking insulin injections or oral medications, eating snacks and lunch at a certain time each day and planning for activities. The student's ICP should also outline the support a student will need with their diabetes management activities and who will be responsible to provide it while in school or participating in school activities.

- **Insulin:**

A hormone required to convert glucose (sugar) to energy for the body to use. Without insulin, sugar builds up in the blood instead of being used for energy. Students with type 1 diabetes must administer insulin by syringe, insulin pen or insulin pump. Some students with type 2 diabetes may also require insulin.

- **Insulin Pen:**

A device for injecting insulin for the treatment of diabetes.

- **Insulin Pump:**

A medical device for delivering insulin. Insulin pumps are small portable battery-operated devices worn on a belt, put in a pocket or attached directly to the skin.

- **Ketones:**

Ketones are produced by the body when there is no insulin or not enough insulin in the body. The body uses fat for fuel instead of glucose and this makes ketones. Ketones can make the student feel sick and can lead to a serious illness called DKA (Diabetic ketoacidosis). Ketones should be checked, using a blood ketone meter or urine ketone strips, when the blood sugar is above 13.9 mmol/L.

- **Sharps:**

Used insulin syringes, insulin pen needles and lancets for blood glucose monitoring are sharp items that must be disposed of carefully and in appropriate sharps containers.

- **Target range:**

Acceptable blood sugar levels based on the *Diabetes Canada's Clinical Practice Guidelines* and personalized for the student by parents or guardians and the DCT.

- **Type 1 diabetes:**

Usually diagnosed in children and adolescents, it is an autoimmune disease in which the pancreas stops producing insulin. The cause of type 1 diabetes remains unknown and it is not preventable.

- **Type 2 diabetes:**

Once a condition that occurred only in adults, it is now being diagnosed in teens and even in children. Type 2 diabetes is a disease in which the pancreas does not produce enough insulin, or the body does not properly use the insulin it makes.

With special thanks to the Guidelines Working Committee Volunteers:

Michelle Corcoran

Jennifer Bean

Pamela Palmer

Lorelei Domaschuk

Tracy Berka

Michelle Warren

Janet von Weiler

Cathy Wilson

Sharleen Herrmann

Laurie Hoosier

Rebecca Brooke

Diabetes Canada is the registered national charity that is making the invisible epidemic of diabetes visible and urgent. Almost twelve million Canadians have diabetes or prediabetes. Every three minutes, another person in Canada is diagnosed with diabetes.

Now is the time to End Diabetes – its health impacts, as well as the blame, shame and misinformation associated with it.

Join us to End Diabetes.

