

The Essentials

A guide for children and families living with a new diagnosis of Type 1 diabetes



PEDIATRIC DIABETES SERVICES FEBRUARY 2021

Introduction

This handbook provides information to assist you and your child to live with a new diagnosis of Type 1 diabetes. It is intended to be a workbook to guide your learning and development of diabetes skills with support from the Pediatric Diabetes Team.

Finding out that your child has diabetes can be an emotional time. Your emotions can range from feeling shocked, angry and/or frightened. Naturally, you are asking many questions. How did this happen to my child? Did I do something wrong as a parent? Is this a result of too much sugar in my child's diet?

We do not know why your child has diabetes and why now. However, we do know that it is not from eating too much sugar or anything else that you and your child have done wrong.

Diabetes is not your fault.

As you learn more about diabetes and what it means to your child's care, you will begin to feel more comfortable and confident. Family life and daily routines may seem more complicated in the beginning but, over time, and with the support of the Pediatric Diabetes Team, it will become more of a routine.



Getting to know your Pediatric Diabetes Team

Your child will be cared for by a team of diabetes specialists that will work closely with you, your inpatient team, and follow your child in the outpatient service.

The Pediatric Diabetes Team includes a pediatric diabetes specialist (endocrinologist), nurses, dietitians, social work and clerical support.

However, the most important members of the team are you and your child.

At the time of diagnosis, you will receive education and support to assist in the day-to-day management by the pediatric diabetes team.



Your diabetes team consists of:

Diabetes Specialist	A pediatric endocrinologist who specializes in caring for children with diabetes
Most Responsible Educator	Is a nurse or dietitian who will be your point of contact for you, your family, school and other care providers. They will help in the planning and coordinating your child's care plan.
Nurse	Will support and teach specific diabetes skills to manage your child's diabetes and assist with problem solving.
Dietitian	Will help you understand the relationship between food and blood sugars, while taking into account developmental stages, lifestyle and cultural diverse foods.
Social Work	Will provide guidance to support adjusting to challenges, adopting healthy coping skills, community resources and financial concerns.
Clerical Support	Will assist you in scheduling or rescheduling appointments, and directing calls to the right team member to answer your questions.

Contact Information:

My Pediatric Diabetes Team Members:

Phone: 905-338-4437 or 1-844-739-0020 (for long distance calls)

Location: Oakville Trafalgar Memorial Hospital, Halton Diabetes Program
2-C-112 - 3001 Hospital Gate, Oakville

Please fill in below, so you can keep track of your pediatric team members involved in your child's care:

	Name
Most Responsible Educator	
Nurse	
Dietitian	
Pediatric Endocrinologist	
Social Work	

Other Important team members:

NOTES:

What is Diabetes?

When you have diabetes, your body cannot use sugar (known as glucose) properly. This raises your blood sugar, which is called blood glucose. Diabetes can occur at any age.

What are the types of diabetes?

There are a few different types of diabetes. The two most common types of diabetes are:

- Type 1 diabetes
 - Can occur at any age but typically occurs under the age of 30
 - Lack of hormone called insulin
 - Requires insulin injections
 - Not caused by anything a person did or did not do

- Type 2 diabetes
 - Usually occurs later in life
 - Insulin may be present but not working properly
 - Body may be insulin resistant
 - Treated with healthy eating, activity, medications and/or insulin

NOTES:

What type of diabetes do I have?

You have type 1 diabetes. Eating the wrong kinds of foods or being inactive does not cause type 1 diabetes. We do not know why people develop type 1 diabetes.

Some theories are:

Genetic:

- An inherited or genetic factor may cause type 1 diabetes

Autoimmunity:

- A viral infection may trigger the body to attack itself including the pancreas, which is the organ that stores the insulin in your body.

What is happening when I have type 1 diabetes?

Symptoms can come on very quickly and these can include:

- Increased thirst
- Extreme hunger
- Irritability and other mood changes
- Blurred vision
- Frequent urination
- Unplanned weight loss
- Fatigue

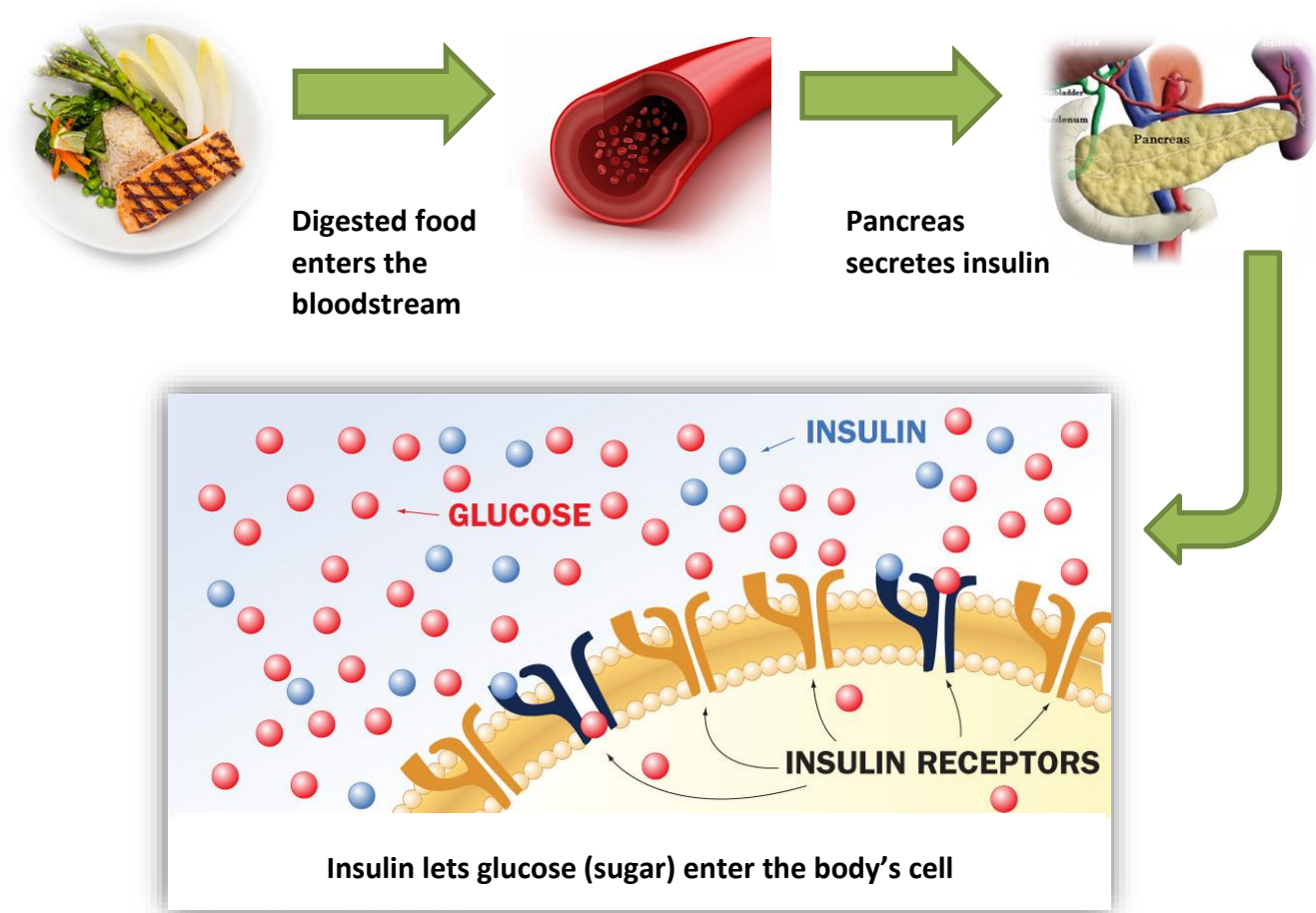
All of these symptoms are related to high blood sugar levels and is called hyperglycemia.

NOTES:

Why are my blood sugar levels going too high?

When you eat, your body breaks down certain foods into glucose. The glucose enters your blood and is carried to the cells in your body. The glucose enters the cells by a hormone called insulin produced in the pancreas.

Glucose is used for energy or is stored for later use.



When you have type 1 diabetes, your body does not make insulin and therefore, the glucose cannot enter the cells. When the glucose cannot enter the cells in the body, it begins to build up in the blood.

NOTES:

How do I manage type 1 diabetes?

Five components to manage type 1 diabetes are:

1. Take insulin every day
2. Test blood sugar regularly
3. Eat a healthy diet
4. Keep active
5. Know what to do in special situations – low blood sugar and high blood sugar

Taking Insulin Injections

Why do I need insulin?

When you have type 1 diabetes, your body no longer produces insulin. You need to replace this insulin by taking insulin injections. Most people with type 1 diabetes require four injections per day.

If you do not take insulin, glucose builds up in the blood, which can cause many health issues.

The build-up of extra glucose in the blood stream causes your kidneys to work hard to get rid of it, and as a result, you urinate more. Because you are losing extra water from your body, you can become very thirsty and drink more fluids.

Since glucose is not available in your cells for energy, you may feel very tired and fatigued.

NOTES:

What should I know about insulin?

Insulins used today are made to act similarly to the natural hormone insulin found in the body. Insulin lowers your child's blood sugar. It can only be given by injections under the skin. Your child needs injections of insulin to help his or her body use the sugar in food for energy. The amount and type of insulin your child requires depends on his or her diet, activity and other needs.

The Pediatric Endocrinologist will monitor your child's blood sugar levels and tell you the correct doses of insulin until the blood sugar level is stable. Eventually you will learn to adjust the insulin yourself.

What insulin will be needed?

Your child will require two types of insulin:

- Long-acting or Intermediate insulin
- Rapid or meal-time insulin



What is long-acting or intermediate (basal) insulin?

Basal insulin, also known as background insulin, keeps blood sugar levels stable during times of fasting and in-between meals. Intermediate or long acting insulin is your basal insulin.

What is rapid or meal-time insulin (bolus) insulin?

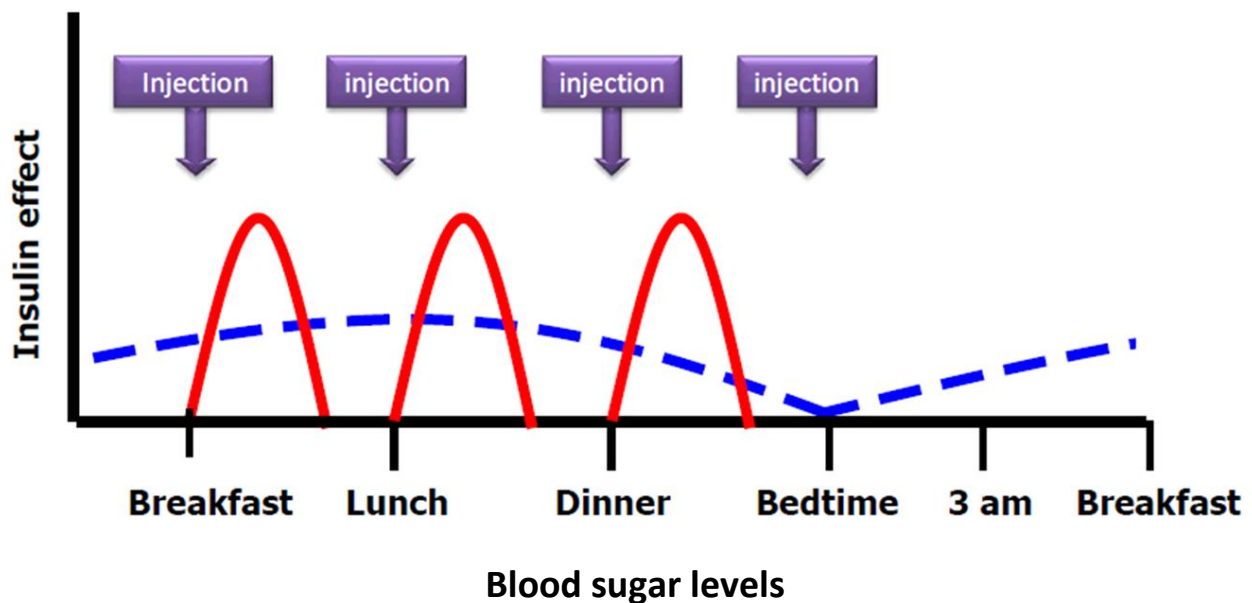
Bolus insulin, also known as rapid insulin, keeps blood sugar levels in control after a meal. Rapid insulin needs to act quickly to match blood sugar levels rising after meals.

Types of Insulin

Type	Appearance	Begins to work	Works the hardest	How long it lasts
Rapid-Acting Name _____	Clear	4-20 minutes	0.5-2 hours	3-5 hours
Intermediate-Acting Name _____	Cloudy	60-180 minutes	5-8 hours	Up to 18 hours
Long-Acting Name _____	Clear	90 minutes	Continuous	16-42 hours

The following graph identifies the effect of both rapid-acting and long-acting insulin on blood sugar levels. You will notice that it takes the action of both insulins to manage blood sugar levels.

The insulin effect of the rapid-acting insulin is on the mealtime blood sugar levels (**in red**) and these injections happen prior to meals (**in purple**). The long-acting insulin (**in blue**) acts in the background keeping blood sugars relatively stable in between meals and overnight (or when fasting).



You will learn more information about your specific insulin and how to inject insulin using an insulin pen.

How do I use an insulin pen?

Insulin is given with an insulin pen or an insulin pump. When your child is first diagnosed, you will be taught how to give insulin with an insulin pen.

An insulin pump may be an option in the future.

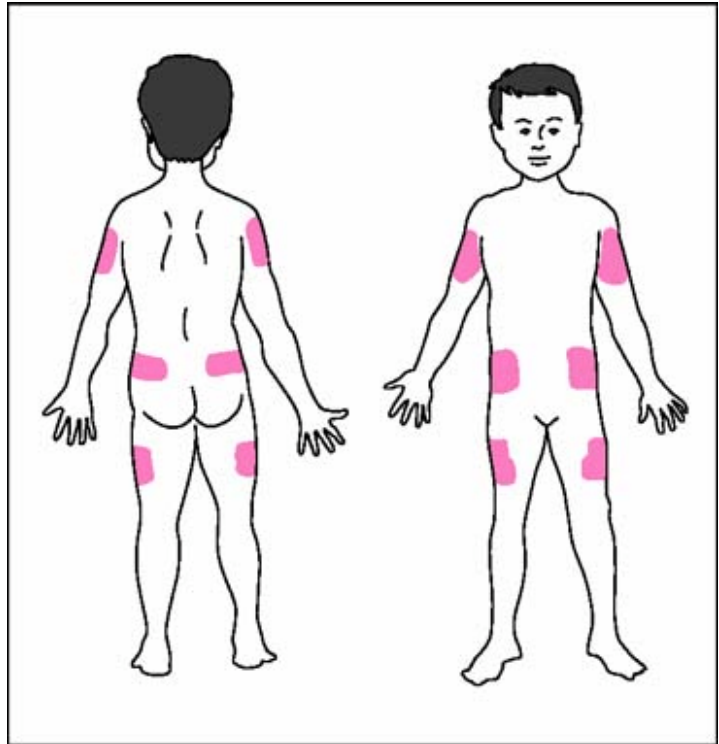
Supplies you will need include:

- Insulin pen (prefilled or reusable pen with insulin cartridges)
- Pen needles
- Sharps container

Keep insulin and insulin pens out of the reach of children.

Insulin injection sites:

- Abdomen
(except the 2-inch circle around your belly button)
- Thighs (top or outer part)
- Upper arms



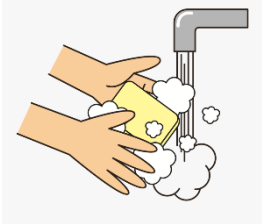
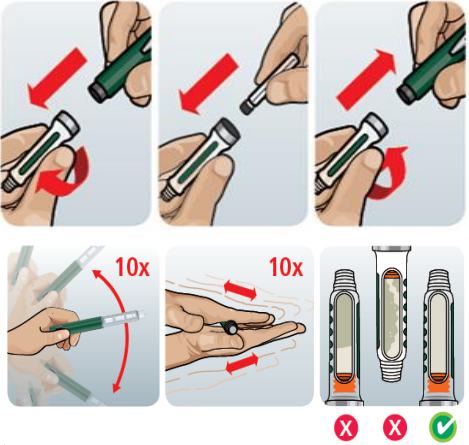
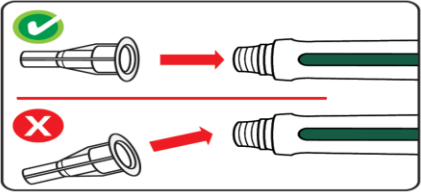
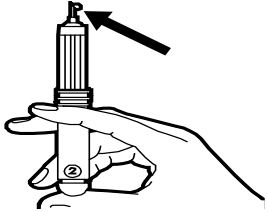
Why does the site of where I give my child their insulin need to change?

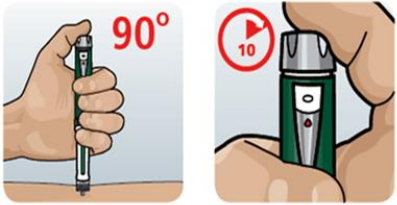
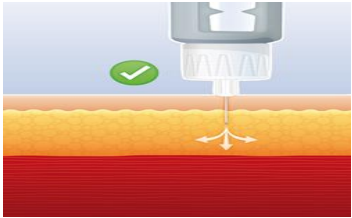
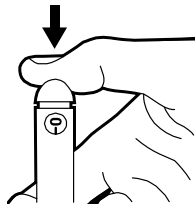

Rotating injection sites is important to make sure insulin works well.

Do not inject your child's insulin in the same spot each day. A hard lump will form under the skin. This can affect the absorption of insulin and your blood sugar.

NOTES:

How do I give an insulin injection?

<p>1. Wash your hands.</p> <p>Check that you are using the right type of insulin.</p> <p>Check the expiry date on the cartridge.</p>	
<p>2. <input type="checkbox"/> You will be using a prefilled pen called _____.</p> <p><input type="checkbox"/> Load the insulin cartridge _____ into the pen as needed.</p> <p>Check your manual to see how to load the cartridge.</p> <p><input type="checkbox"/> Insulin that is cloudy needs to be mixed before using. Invert the pen 10 times and roll the pen 10 times.</p>	
<p>3. Apply needle tip to insulin pen. Attach straight onto pen and not on an angle. Remove outer cap and put aside. Remove inner cap and throw in sharps container. Twist needle until firmly attached.</p>	
<p>4. Turn the dial to "2". Point the needle upwards and push the dose button to squirt out the two units. If a stream of insulin does not appear, repeat until some insulin does appear.</p>	
<p>5. Make sure the number in the window returns to "0" (zero). Then turn dose button to your amount of _____ units of insulin.</p>	

<p>6. Choose an injection site. Rotate the injection site with every dose of insulin given.</p> <p>Avoid 5 cm (2 inches) around the navel or areas where skin is tight.</p> <p>Keep injection sites at least 3 cm (1.5 inches) apart.</p>	
<p>7. Place the pen in the palm of your hand with your thumb or index finger on the dose button. Do not push the button until the needle is inserted into your skin.</p> <p>Have the insulin pen window facing you.</p>	
<p>8. Insert the needle straight into the skin. You are aiming for the layer of fat below the skin, but above the muscle.</p> <p>You do not need to pinch up any skin if using a 4mm needle.</p>	
<p>9. Using your thumb or index finger, push the dose button all the way down to inject the insulin.</p> <p>Once the dial reaches zero (0), count to 10 and then gently remove the insulin pen/needle from your skin.</p>	
<p>10. Carefully place large outer cap over used needle tip. Twist cap and needle tip off and discard in sharps container. Use needle for one use only.</p> <p>When the sharps container is full, take it to your pharmacy to be replaced. Do not put your sharps (pen tips, lancets) in the garbage. Speak to your community pharmacist to obtain a sharps container for disposal.</p>	

Tips for insulin and pen care

- Keep the pen you are currently using at room temperature
- Store insulin away from heat and strong light
- Never allow your insulin to be exposed to temperatures above 30°C or below 0°C
- Store unopened pens of insulin in the refrigerator in a safe place
- Store opened pens of insulin that you are using at room temperature, and then discard. Check with your healthcare provider how long your insulin pen can remain at room temperature. Discard the insulin pen after this date.
- Store used pen needles in a special sharps container obtained from the pharmacy. When full, return to the pharmacy for disposal. Never throw them in the garbage, blue box or flush down a toilet. They are considered biohazardous waste and they may cause injury to others and contribute to environmental problems.



Your prescribed pen will come with a product monograph, which will provide details about the insulin and pen use. Please keep and review steps as needed.

NOTES:

How do I check my child's blood sugar level?

Your child's blood sugar level will change with eating, activity and insulin. Stress and illness can also affect blood sugar levels.

Checking the blood sugar level will tell you if your child's meal plan, activity and insulin are working well. Blood sugar monitoring is one of the most important parts of your child's care.

From time to time, your educator may suggest a specific schedule of blood sugar testing to better understand your child's blood sugar patterns.



The best times to check your child's blood sugar are:

- before breakfast
- before lunch
- before dinner
- before bedtime snack
- at midnight and at 3 am
 - at diagnosis until further instructions from your Pediatric Diabetes Team
 - overnight blood sugar checks may also be required after significant insulin dose changes

Check your child's blood sugar more often if:

More active than usual	Activity can cause the blood sugar to go lower
Under stress	Stress can cause the blood sugar to go higher
Sick	Illness can cause the blood sugar to go higher or lower
Symptoms of high blood sugar	See Hyperglycemia
Symptoms of low blood sugar	See Hypoglycemia

Using the home glucose meter

The team will show you how to take a tiny drop of your child's blood from a finger and check the blood sugar level with a glucose meter.

Over time and with practice, doing blood sugar testing will become more comfortable to do and your child may assume this task with supervision.



If you have questions about your glucose meter, check the instructions, websites or talk to your pharmacist.

Steps for checking blood sugar with a glucometer

1. Wash your hands and your child's hands.
2. Inset the test strip into the meter.
3. Massage or warm the child's chosen finger.
4. Prick the skin at the side of the fingertip with a lancing device (finger poker) and place drop of blood on test strip.
5. The glucose meter will show you the result.
6. Write down the result in your logbook.
7. Discard lancet and strip in a sharp's container.

What is high blood sugar (hyperglycemia)?

Hyperglycemia is when your blood sugar is above your target range.

Illness, infection, stress, certain medications or not enough insulin can cause hyperglycemia.

You may feel:	You may have:
<ul style="list-style-type: none">• Hungry• Extreme thirst• Fatigue• Weak	<ul style="list-style-type: none">• Frequent urination• Blurred vision

If your child has symptoms, check his/her blood sugar level, and make sure to check it before every meal for the next 2 days.

Some people who have hyperglycemia have no symptoms at all.

You may only know your child’s hyperglycemia from testing his/her blood sugar. The occasional high reading is not a concern.

When our child’s blood sugar level is above your target range for more than week, even if they are not sick, contact your doctor or diabetes health care team to work on ways to lower his/her blood sugar.

NOTES:

What is low blood sugar (hypoglycemia)?

Low blood sugar (hypoglycemia) is when the blood sugar is **below 4.0 mmol/L**.

Most children with diabetes experience a low blood sugar level at some time. It is important to treat **mild/moderate hypoglycemia** quickly to stop it from becoming severe.

Severe hypoglycemia is a medical emergency in which your child shows signs of loss of consciousness or seizures/convulsions.

What causes a low blood sugar level?

- Missing meals or snacks or going too long without eating
- Eating less carbohydrate than usual
- Taking more insulin than needed
- Extra activity or unplanned exercise
- Drinking alcohol

What are the signs and symptoms of a low blood sugar level?

Mild Hypoglycemia	Moderate Hypoglycemia
<ul style="list-style-type: none">• Shakiness	<ul style="list-style-type: none">• Lack of energy
<ul style="list-style-type: none">• Nervousness	<ul style="list-style-type: none">• Lack of concentration
<ul style="list-style-type: none">• Pounding heart	<ul style="list-style-type: none">• Confusion
<ul style="list-style-type: none">• Cold, clammy sweatiness	<ul style="list-style-type: none">• Mood changes/irritability
<ul style="list-style-type: none">• Hunger	<ul style="list-style-type: none">• Blurred vision
<ul style="list-style-type: none">• Paleness	<ul style="list-style-type: none">• Poor sleep/ restlessness/nightmares

How do I know when my child is having a low blood sugar level?

Your child will likely show the following signs & symptoms:

- Temper tantrums
- General irritability
- Paleness
- Lack of interest in playing



For some young children, a low blood sugar level may be difficult to detect.

Parents/caregivers must assist younger children or any child who is confused or unable to treat themselves. Not all hypoglycemia symptoms will happen. Your child may have other or no symptoms.

Older children can usually recognize when they are having a low blood sugar level and treat themselves.

If your child is experiencing any of these symptoms, **test blood sugar immediately.**

If the result is less than 4.0 mmol/L, treatment is needed right away.

If left untreated, symptoms could become severe.



What are the treatments for low blood sugar levels?

How to treat your child's low blood sugar level depends on how low the blood sugar is and the signs/symptoms your child is experiencing.

Types of Hypoglycemia	Treatment
Mild to moderate low blood sugars	<ul style="list-style-type: none">• Fast-acting sugar then a carbohydrate and protein snack• Mini-Dose Glucagon
Severe low blood sugars	<ul style="list-style-type: none">• Glucagon

Medical Emergency

If your child has passed out or is unable to swallow because of a very low blood glucose level (severe hypoglycemia), give full dose glucagon (not mini-dose glucagon) and call 911.

Refer to handout: "Glucagon"

Treating Mild/Moderate low blood sugar levels

- **Fast-acting sugar then a carbohydrate and protein snack**

1. Stop any activity and give fast acting sugar according to the child’s weight:

Weight	Less than 33 lbs (15 kg)	33 to 66 lbs (15 to 30 kg)	More than 66 lbs (30 kg)
Amount of fast acting sugar needed	5 grams	10 grams	15 grams
Examples	<ul style="list-style-type: none"> • 50 mL (¼ cup) juice or regular pop • 1 Dex4® tablet • 1 teaspoon sugar or honey 	<ul style="list-style-type: none"> • 100 mL (½ cup) juice or regular pop • 2-3 Dex4® tablets • 2 teaspoon sugar or honey 	<ul style="list-style-type: none"> • 150 mL (⅔ cup) juice or regular pop • 4 Dex4® tablets • 1 tablespoon sugar or honey

2. Sit down and rest for 15-20 minutes. Recheck your child’s blood sugar level. If blood sugar level is still less than 4.0 mmol/L, repeat step 1.

3. If blood sugar level is over 4.0 mmo/L and your next meal or snack is within an hour, have your regularly scheduled meal or snack with normal insulin dose.

If next meal or snack is more than an hour away, have a snack with a serving of carbohydrate and protein such as:

- 6 to 7 crackers with cheese
- 1 slice of bread with 1 tablespoon peanut butter, meat or cheese
- 100 gram yogurt cup with berries
- Granola bar



Important Reminders:

- Always make sure your child is carrying fast acting sugar, keep supplies at school, in their backpack, in the car, etc.
- Do not ignore mild symptoms or delay treatment.
- Teach family, friends and teachers how to recognize and treat low blood sugar levels. Teach children to ask for and accept help if experiencing symptoms.
- If low blood sugar levels happen often, contact your diabetes health team.
- Make sure your child is wearing diabetes identification (such as MedicAlert®).
- If your child is using a CGM, a finger poke should be done to confirm low blood sugar, and to confirm blood sugar is above 4.0 mmol/L after treating a low blood sugar level.



Treatment of Severe Low Blood Sugar in Children:

Use of Glucagon

Glucagon is used when your child is having a **severe low blood sugar**.

Your child may be:

- Unconscious
- Having a seizure

Turn your child on their side immediately if he/she is unconscious or having a seizure.

What is glucagon?

Glucagon is a hormone made by the pancreas. It is used to treat severe low blood sugar. It raises the blood sugar level by sending a signal to the liver to release stored glucose.

You can get glucagon from your pharmacy. Glucagon is now available as injectable or for nasal administration. Your pharmacy may need to order these products, which can take a few days, so plan ahead. You should always have glucagon available to treat severe hypoglycemia.

Injectable glucagon is manufactured by Eli Lilly and by NovoNordisk. It should be stored at a controlled room temperature of 20-25°C (68-77°F).

Glucagon powder (Eli Lilly) can be given into the nose for people 4 years of age and above. It can be stored up to 30°C (86°F).

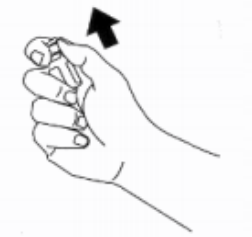
How do I give injectable glucagon?

Injectable glucagon is given as an insulin injection, except that the needle is longer.

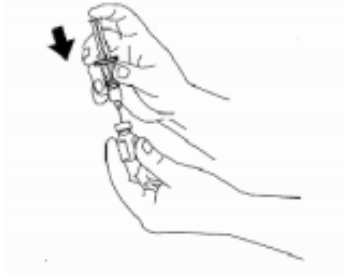
Injectable glucagon comes as a kit, which includes:

- A small bottle that has 1 milligram (mg) of glucagon. The glucagon is a dry powder.
- A syringe that is filled with 1 mL of sterile liquid.

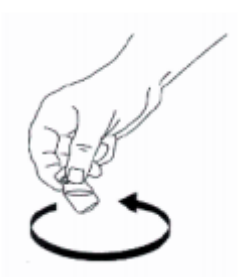
Follow the steps below:



1. Remove the cap from the bottle.

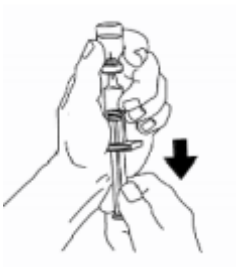


2. Inject the liquid from the syringe into the dry powder bottle.



3. Roll the bottle gently to dissolve the powder. Do not shake the bottle.

Use the glucagon solution as soon as it is mixed.



4. Draw the fluid back into the syringe.

How much injectable glucagon should I give my child?

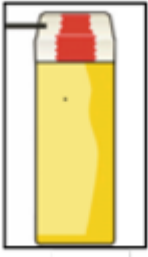
Use this chart to find your child's age and dose of glucagon:

Age	Dose of glucagon
Under 2 years of age	Your doctor will tell you how much to give. Write this down here: _____
2 to 5 years of age	½ bottle (0.5 ml or ½ mg)
6 years of age or older	1 bottle (1 ml or 1 mg)

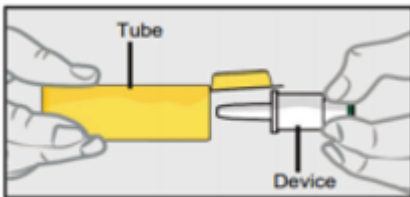
- Inject the glucagon the same way that you would give an insulin injection (hip, thigh, arm, but NOT the abdomen)
- Your child may take 10 to 20 minutes to respond fully. Stay with your child at all times. Call 911 for an ambulance.
- Once your child is alert, give juice or other fast-acting sugar.
- After the fast-acting sugar, give your child some longer-acting carbohydrate.

Longer-acting carbohydrate helps to keep the blood sugar level from dropping too low again.
- If your child is not alert and still unable to swallow after 15 minutes, give another dose of glucagon.

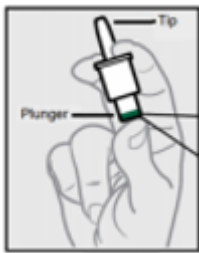
How do I mix and give glucagon nasal powder?



1. Remove the shrink-wrap by pulling on the red stripe.



2. Open the lid and remove the device from the tube.



3. Hold the device between fingers and thumb (do not push yet!)



4. Insert the tip into the nose until your fingers touch the outside of the nose.



5. Push the plunger firmly until the green line is no longer showing.

Dose:

**Glucagon Nasal Powder 3 mg:
For children 4 years of age and above – 1 dose**

Are there any side effects with using glucagon?

Your child may have an upset stomach or vomit after getting glucagon. This can last up to 24 hours.

Glucagon has an expiry date

Check the expiry date on your supply of glucagon. Make sure your current glucagon supply's date has not expired. Also, ensure that you have glucagon on hand in case you need it and keep this handout with your glucagon kit.



NOTES:

Adapted with permission from:
BC Children's Hospital "Glucagon For Severe Low Blood Sugar (Hypoglycemia)"

Healthy Eating

Should my child eat differently now that he/she has diabetes?

- Children with diabetes have the same nutrition needs as those without diabetes. They require the same amounts and variety of foods for good health and growth.
- Your child can eat the same healthy foods as the rest of your family. They do not need special or sugar-free foods.



- **Balanced eating with Type 1 Diabetes is:**
Matching your child's insulin doses to their food instead of changing the foods they eat.

The main goals of feeding a child with type 1 diabetes are to:

1. Promote normal growth and development
2. Balance blood sugar levels
3. Satisfy appetite



It is NOT recommended to restrict foods to control blood sugars as this can affect your child's overall nutrition and growth.

How do the nutrients in food affect my child's blood sugar?

There are three main nutrients in foods:

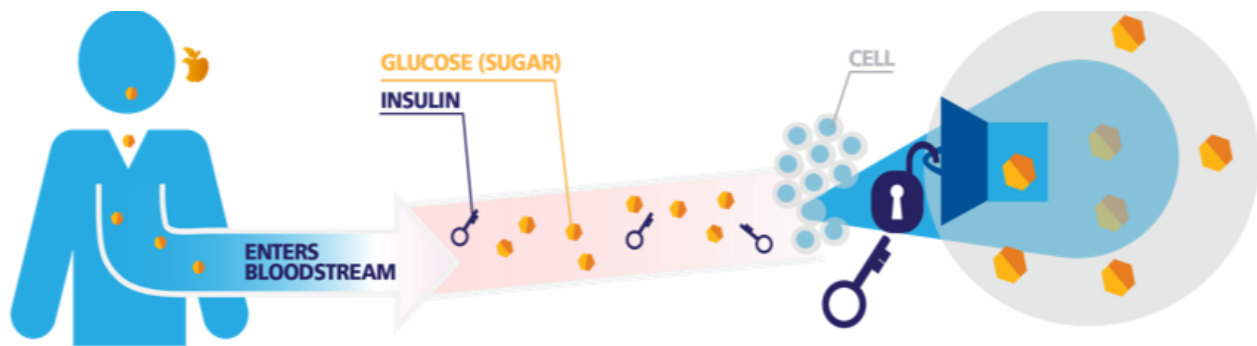
Carbohydrate, Protein, and Fat

- They are all important to keep your child healthy
- They affect blood sugar in different ways

1) Carbohydrate:

- Needed for energy and growth
- Comes in 3 forms: starch, sugar, and fibre
- Starch and sugar increase blood sugar, but fibre does not

How carbohydrates and insulin impact your body



Carbohydrate gives your body's cells the energy they need.

Carbohydrates are broken down into sugar (glucose), which enters your bloodstream and travels to different cells in your body.

Insulin helps move sugar out of your blood and into your cells so your blood sugar goes down.

- **Food sources are:**
 - grains and starchy foods
 - fruits and some vegetables
 - milk and alternatives
 - sweet foods and snacks (see note below)

How do foods with fibre affect blood sugar?

- Fibre can help control blood sugar by slowing the absorption of carbohydrate.
- **Food sources are:**
 - fruits and vegetables
 - beans and lentils
 - whole grains
 - nuts and seeds

Carbohydrate should be:

- Included at all meals
- Eaten at consistent times throughout the day
- Eaten in consistent amounts when your child is newly diagnosed to help keep blood sugars more stable



Later on, your medical team will show you how your child can be more flexible with the amount of carbohydrate eaten.

2) Protein:

- Needed for growth and repair of body tissues
- Does not affect blood sugar unless it is eaten in larger amounts
- Similar to fibre, it can help control blood sugar by slowing the absorption of carbohydrate
- Should be included at all meals
- **Food sources are:**
 - meat, fish, and poultry
 - eggs
 - dairy products
 - beans and lentils
 - nuts and nut butters and seeds

3) Fat:

- Concentrated source of energy
- Does not break down into sugar in the blood
- In small amounts, does not affect blood sugar levels
- In larger amounts, fat slows down digestion and this can cause blood sugar to rise slower than it normally would
- After a high-fat meal, blood sugar may be high up to 12 hours after the meal
- **Food sources are:**
 - butter and margarine
 - oil
 - nuts and seeds
 - fast foods and processed foods

Frequently Asked Questions:



If my child's blood sugar level is high, should my child still eat carbohydrates?

- Yes! Carbohydrates should be eaten at scheduled times in order to work with the insulin that has been given
- Do NOT restrict carbohydrates if blood sugar levels are above target

How often can my child have sweets, treats and 'sometimes' foods?

- 'Sometimes' or treat foods are low in vitamins and minerals that the body needs and are high in fat, sugar, and calories. These include foods such as: chips, candy, sweets, sugary drinks (including juice), pizza, hot dogs, burgers, doughnuts, cookies, muffins, cakes, pies, ice cream and popsicles.
- Your child can still have 'sometimes' or treat foods however these foods should not be eaten every day. This is recommended for children with or without diabetes. These foods can be eaten as part of a meal or for snack 1 to 2 times per week.

Can my child have snacks?

The amount of carbohydrate your child needs between meals will vary, based on their age, hunger, and activity level.

- Low carbohydrate or carbohydrate-free foods are great snack choices for all ages, anytime

Examples are:

- Vegetables
 - Meat
 - Cheese
 - Nuts and seeds (in moderation)
- Active children may need to eat carbohydrate-rich snacks between meals



- Eat 3 meals each day at about the same time
- Include carbohydrate and protein with each meal
- Include foods that are a good source of fibre
- Include vegetables in at least 2 meals
- If a meal or snack is delayed or missed, blood sugar levels may go too low leading to hypoglycemia

Adapted with permission from:
McMaster Children's Hospital "What to eat with Type 1 Diabetes
Sick Kids Hospital "From Hospital to Home. A guide for families and children newly diagnosed with diabetes"

Carbohydrate Counting and Meal Planning

This section is a beginner's guide to carbohydrate counting and meal planning. It will help you and your child learn which foods have carbohydrates in them and how much.

What is the relationship between carbohydrate and insulin?

- Carbohydrate and insulin work together to help keep blood sugars in balance
- Keeping blood sugars in balance means preventing blood sugars that are too high or too low

Carbohydrate raises blood sugar and provides energy



Insulin lowers blood sugar by moving sugar from the blood to the body cells for energy

Why is carbohydrate counting important?

- Counting the amount of carbohydrate in your meals and snacks allows you and your medical team to determine how much insulin your child needs



Eating consistent amounts of carbohydrates at scheduled times can help to keep blood sugar levels in the target range

Meal Planning

The best way to help your child eat healthy with T1 diabetes is to create a meal plan with your dietitian.

Your dietitian will work with you to set up an individual meal plan with carbohydrate targets based on nutritional needs, likes, dislikes, and appetite.



Timing of meals and snacks will be considered based on school and activity times and the family’s schedule.

Things to know about the meal plan:

- It is NOT a diet
- Outlines meal and snack times to eat carbohydrates
- Helps to meet protein, fat, and energy needs
- It will change as your child grows

Goals of the meal plan:

1. To satisfy your child’s appetite
2. To promote normal growth and development
3. To balance carbohydrates with insulin
4. To be easy to follow so your family can fit it into their daily life

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