your guide to type 2 diabetes

dayton children's

table of contents

dear parent/guardian,

It is our privilege to care for your child and support you throughout their type 2 **diabetes** care journey. We hope the material in this binder will provide helpful information and resources and make you feel more comfortable with caring for your child. We encourage you to read this binder, and use it to store information and as a reference. If you believe your child can understand this information, please share it with them too.

At Dayton Children's, we not only care for your child, but also your family. We understand that you know your child better than anyone else, so it is important that parents and caregivers feel they are part of the care team. It is our goal to always go above and beyond to ensure you have a positive experience. Please let us know if you have any questions or if there is anything we can do to help meet the needs of your child and family.

Throughout the binder you'll notice that certain terms are bolded. These are frequently used words in the binder, and throughout your diabetes care at Dayton Children's. They're defined in the glossary at the end of the binder too.

Thank you for choosing us to care for your child.

Sincerely,

Endocrinology/Diabetes division
Dayton Children's Hospital

communicating with the diabetes team

communicating with the diabetes team

diabetes clinic guidelines

how often does my child need to be seen?

Some patients are admitted when they are first diagnosed with diabetes. After your child is discharged, we will schedule a follow-up visit for one to two weeks after that, and then in one month.

After that, routine appointments will be scheduled every 2-3 months, maybe sooner.

For diabetes clinic appointments to go as smoothly as possible, we need your help.

what do I need to bring with me to appointments?

Please come prepared with:

- Your written blood sugar records from the last two weeks
- All home meters
- List of prescriptions
- Any questions or concerns you have

If you do not bring your meter and blood sugars, we may need to reschedule your appointment. We need this information to make sure we accurately assess your child, and give the right recommendations.

how long will the appointments be?

When coming to clinic, please allow one hour to meet with team members. You will always be seen by the physician. You may also meet with a nurse, dietitian and social worker.

how long before my appointment do I need to arrive?

- Routine clinic: At routine visits, a hemoglobin A1C lab is drawn. This can be drawn in the clinic during your appointment. If you choose to go to lab to have this drawn, then you must arrive in the lab 30-60 minutes before your scheduled appointment. After blood is drawn, go immediately to the diabetes clinic and sign in.
- Fasting lab work (done yearly): Once a year, you must arrive in the lab one hour before your appointment. This will allow enough time for blood work to be drawn, **insulin** given and breakfast eaten. When finished, go straight to the diabetes clinic and sign in.

If you are late for the appointment, we may need to reschedule you at a later date.

other tips:

- Schedule follow-up appointments before leaving the clinic. You can also schedule or reschedule appointments in MyKidsChart.
- When needing school or driving forms:
  - Complete the parent section of the forms
  - Provide a self-addressed stamped envelope
  - Allow about one to two weeks for forms to be completed
  - Forms will be mailed unless a fax number is provided. To fax the form, a release of information (ROI) form must
    be completed and signed prior to the form being faxed. The ROI form is valid for a year.

All school, work and sports physicals need to be done by your primary care physician.

contacting your care team

endocrinology/diabetes main numbers

- Phone: 937-641-3487
  - Monday-Friday, 8:00 am to 4:30 pm
- Fax: 937-641-5878
- After hours: 937-641-3000
  - Ask for the **endocrinologist** on call

dietitians

- Kasey Metz, MS, RDN, LD, CDCES
  - 937-641-5818
  - MetzK@childrensdayton.org
- Danielle Brooks, RDN-AP, LD
  - 937-641-5506
  - BooksD@childrensdayton.org

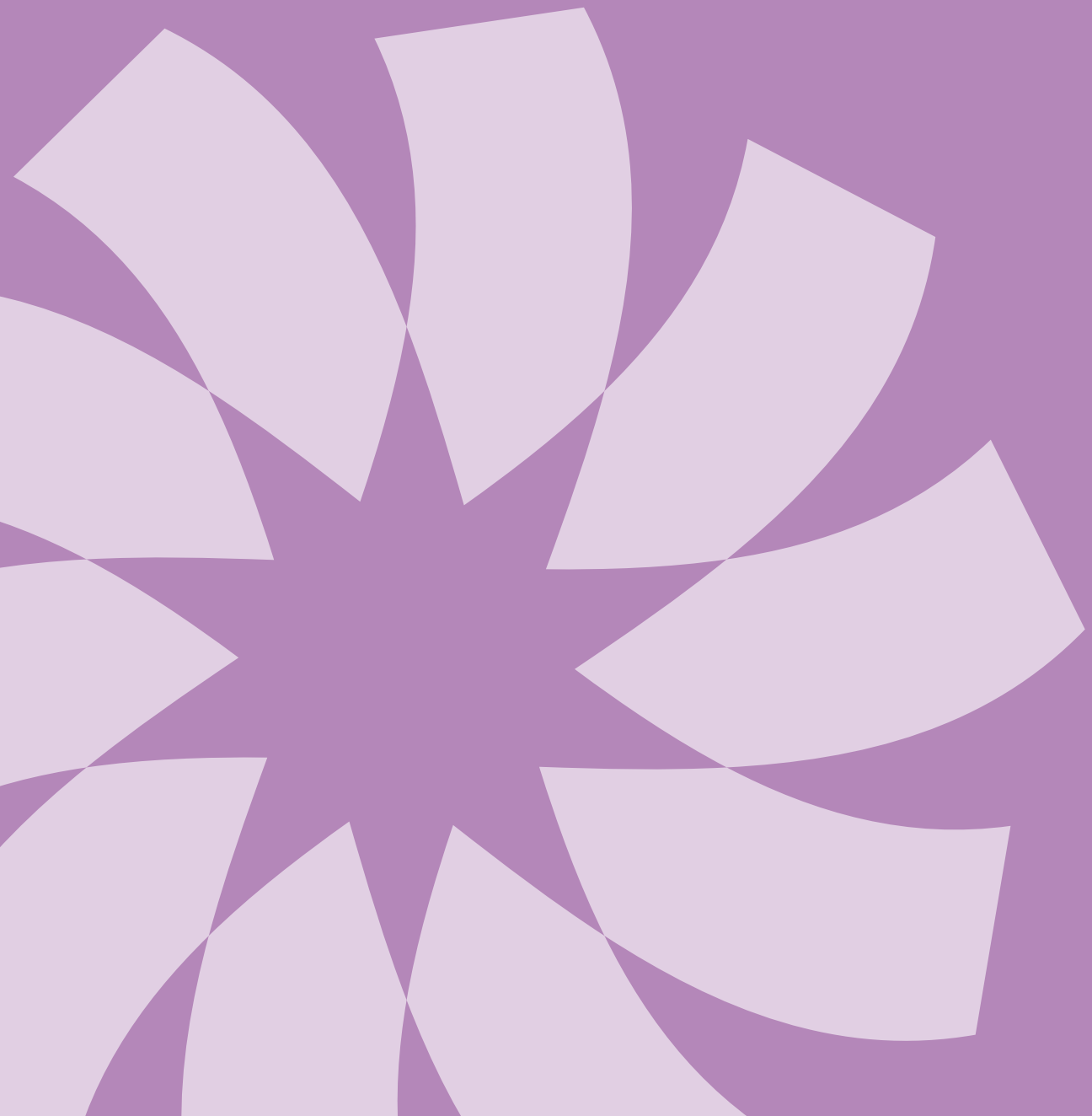
social work

- Phone: 937-641-5300
  - Kathleen Caldwell, MSW, LISW
  - Catricia Payne, MSW, LSW, LCDC-III
  - Shannon Hellman MSSA, LISW-S

diabetes resource center

- childrensdayton.org/diabetesresources

what is diabetes?



what is diabetes?

Diabetes is a serious lifelong illness that affects how the body uses food. The food we eat is broken down into **glucose** (sugar). Glucose is our body's main source of energy. Our body uses glucose in the following ways:

- The food we eat is turned into sugar through digestion.
- The sugar moves into the blood stream.
- When our body senses an increase in the blood sugar, it sends a signal to your **pancreas**. The pancreas is a part of the body that lies behind the stomach.
- The pancreas makes insulin and sends it into the bloodstream.
- Insulin acts as a key to unlock the cell. Insulin allows the sugar to move from the bloodstream into the cells. The cells can then use the sugar as energy.

Just as a car will not run without gasoline, our bodies will not "run" without sugar for fuel. Think of this being similar to a car with plenty of gas (or fuel) but there is not a key to start it. The sugar (the fuel) in our body will not do us any good unless we have insulin (the key) to allow it to go into the cells.

In people with diabetes, this system doesn't work. A person with diabetes has either lost the ability to produce insulin or does not respond to the insulin normally.

1. Due to lack of insulin, sugar builds up in the bloodstream instead of going into the cells of the body.
2. The increased blood sugar causes water and electrolytes to begin to leave cells and enter the bloodstream. This leads to increased urination, dehydration and thirst.

the signs of diabetes and high blood sugar*

- Increased thirst
- Possible weight loss
- Increased urination
- Blurry vision
- Increased hunger
- Decreased energy level
- Frequent infections

**Sometimes people with type 2 diabetes have no symptoms.*

types of diabetes

characteristics	type 1	type 2
Insulin production	Absent; insulin dependent	Normal or abnormal; maybe insulin dependent
Age at onset	Usually in children	Usually in adults but increasing in children
Appearance	Often thin	Often overweight
Symptoms	Symptoms start all of the sudden. Includes greater thirst, urination, hunger, weight loss, decreased energy, have **ketones**	Symptoms start slowly, or may not have symptoms
Treatment	Insulin, meal plan and exercise	Meal plan, exercise, oral agents and/or insulin

what causes type 2 diabetes?

- **Heredity** may play a part in who develops diabetes. Having diabetes in the family does not mean that it will automatically be passed on. But, it does tend to run in families.
- Obesity – Having too much body fat can cause your insulin to not be as effective.
- High risk lifestyle (inactivity) – Not getting enough exercise & eating a high sugar and high fat diet.
- Ethnic origin – Some ethnic groups get diabetes more than others. US minority groups (American Indians, Asians/Pacific Islanders, Hispanics, African Americans) have a higher chance of getting type 2 diabetes than non-Hispanic whites.

how to manage type 2 diabetes

- Diabetes is a chronic condition that can be managed. Diabetes can be managed with a treatment plan that includes taking control of your lifestyle. Lifestyle changes include:
  - Eating a low-sugar and low-fat diet
  - Exercising 30 to 60 min per day
  - Taking medication to control high blood sugars.

Some type 2 patients can go into "remission" with meal planning, exercise and weight management.

goals for diabetes management

1. Blood sugar levels as normal as possible
2. Normal physical growth and development
3. Normal social development
4. The ability to care for your child, or for your child to care for themselves depending on age
5. Freedom from complications, both now and in the future

The management for type 2 diabetes initially involves diet, lifestyle modification and oral medication if A1C is less then 9%. If initial A1C is greater than 9%, or diabetes control worsens despite oral medication, insulin may be added.

A1C

what is A1C?

A1C is a blood test that measures how much a person's blood sugar levels have been in and out of the healthy range during the last 2-3 months. A higher A1C can happen when someone's blood sugars have been higher than their healthy range.

what is the goal for A1C?

In the Standards of Medical Care in Diabetes - 2019, the American Diabetes Association (ADA) recommends:

- Children and teens (under 18 years old): A1C target less than 7.5%
- Non-pregnant adults (18 years old and older): A1C target less than 7%

The ADA also says that A1C targets should be personalized by his/her doctor. Your child's doctor will look at the following before giving a target specific to your child:

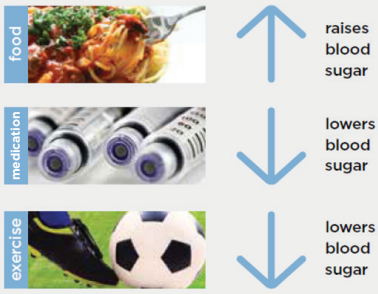
- Age
- Risk for low blood sugar and if he/she can tell when having a low
- How long has he/she had diabetes
- If he/she has complications

recommended treatment of type 2 diabetes

- If A1C is < 9% start metformin at diagnosis.
- If A1C is >9% start metformin and night time insulin (long acting or basal insulin).
- If your child is very sick, with blood sugar >600mg/dl, bring them to the emergency department.
- In the future, your child's doctor may prescribe medicines. See page 13 for details.

A1C (%)	average blood sugar	A1C (%)	average blood sugar	A1C (%)	average blood sugar
5.0	97	8.1	186	11.2	275
5.1	100	8.2	189	11.3	278
5.2	103	8.3	192	11.4	280
5.3	105	8.4	194	11.5	283
5.4	108	8.5	197	11.6	286
5.5	111	8.6	200	11.7	289
5.6	114	8.7	203	11.8	292
5.7	117	8.8	206	11.9	295
5.8	120	8.9	209	12.0	298
5.9	123	9.0	212	12.1	301
6.0	125	9.1	214	12.2	303
6.1	128	9.2	217	12.3	306
6.2	131	9.3	220	12.4	309
6.3	134	9.4	223	12.5	312
6.4	137	9.5	226	12.6	315
6.5	140	9.6	229	12.7	318
6.6	143	9.7	232	12.8	321
6.7	146	9.8	235	12.9	324
6.8	148	9.9	237	13.0	326
6.9	151	10.0	240	13.1	329
7.0	154	10.1	243	13.2	332
7.1	157	10.2	246	13.3	335
7.2	160	10.3	249	13.4	338
7.3	163	10.4	252	13.5	341
7.4	166	10.5	255	13.6	344
7.5	169	10.6	258	13.7	346
7.6	171	10.7	260	13.8	349
7.7	174	10.8	263	13.9	352
7.8	177	10.9	266	14.0	355
7.9	180	11.0	269	Over 14	**Too high to measure**
8.0	183	11.1	272		

You will learn how to balance your child's blood sugar by remembering:



key:

green = goal

yellow = caution/higher than recommended

red = concern/discuss with your diabetes doctor

what causes complications?

The most important factor is high blood sugar over a long period of time. Eventually, high blood sugar may cause damage to the small and large blood vessels. The blood vessels in the eyes and kidneys are the most frequently damaged. Complications can occur after the person has had diabetes usually for at least 10 years. You can delay or lessen how severe the complications are by helping to keep your child's diabetes in good control, and by following the general health care tips in this booklet (page 33).

affected body part/system	complications
Eyes	• Blurred vision/double vision: These are temporary states due to high blood sugars. • Retinopathy: Damage to the small vessels in the eye that can lead to blindness.
Kidneys	• Diabetic nephropathy: This can be caused by high blood sugars and/or high blood pressure. Protein leaks out of the kidney. Damaged kidneys cannot remove wastes from the bloodstream.
Heart	• People with diabetes are more likely to have fat build-up in their arteries. This may cause heart disease, stroke and high blood pressure.
Nervous system	• Neuropathy: Prolonged high blood sugar can damage nerve endings, especially in the feet. This is why foot care is important. • High blood pressure, high cholesterol and high triglycerides can often accompany type 2 diabetes in children. These conditions may require additional medication, diet changes, and possibly an additional specialist.
Complications due to infection	• Uncontrolled blood sugars can lead to yeast infections. • Uncontrolled blood sugars can slow healing, leading to infection.

blood sugar (glucose) testing

blood sugar (glucose) testing

blood sugar testing at home

The most accurate way to monitor diabetes control is by checking your child's blood sugar. Blood sugar is also called blood glucose. This can be done easily at home by using a glucose meter. The diabetes nurse educator will provide a glucose meter for your child and show you how to use it.

Keep the following points in mind for using your meter:

- You should only use a meter that has date, time and memory.
- Make sure the correct date and time are programmed in the meter. This is really important to be able to review the blood sugars in the meter.
- Each meter has a 1-800 number on the back for help. You can call that number 24 hours a day, seven days a week. The meter manual is also helpful if you have problems or forget information.
- It is important to use the proper strip for your glucose meter. Each meter has strips specifically made for that meter. Check the expiration date on each new bottle of strips.
- Your meter will alert you when the batteries need to be replaced. Keep extra meter batteries on hand. The batteries can be bought at local pharmacies.
- Do not expose the meter to extreme heat or cold, such as leaving it in the car in the winter or summer.

how often do I need to do blood tests?

- The diabetes doctor or nurse will instruct you on how many times each day you should check your child's blood sugar. The frequency will depend on how your child's diabetes is being treated (typically 2-3 times per day).
    - Check if your child complains of feeling ill or has symptoms of a low blood sugar.
    - You will need to check more often when your child starts a sport or increases their activity. This will affect their blood sugar.

what to do with blood sugar results?

1. **At first, keep a written record of your results.** These records will help you see patterns and manage them correctly, and understand dose adjustments. The diabetes team can provide you with blood sugar records that you can use.
2. Call in blood sugars to the doctor on a routine basis. After discharge from the hospital, this may be done daily. After the first follow-up appointment, you should call as the doctor directs, and when you suspect a need for medication changes.
3. **Confirm written records with the meter's memory.**

why is blood sugar testing so important?

Testing your child's blood sugar helps you to know:

- If their blood sugar is in the target range
- How their blood sugar is affected by food, exercise and stress
- How well their medication is working

what is my child's target blood sugar?

- Your child's doctor may give you some other guidelines to follow, but in general:
  - Fasting/before eating breakfast, blood sugar should be less than 125 mg/dl on the blood glucose meter, preferably less than 100 mg/dl.
  - Pre-meal (before lunch or dinner) should be less than 200 mg/dl on the blood glucose meter, preferably less than 140 mg/dl.

medications for type 2 diabetes

medications for type 2 diabetes

oral medications

name	directions	action	special instructions
Glyburide (Diabeta)	1-2 times daily before meals	Increases insulin release	May cause low blood sugar
Canagliflozin (Invokana) Dapagliflozin (Farxiga) Empagliflozin (Jardiance) Invokamet (combination of Invokana & Metformin)	Once daily	Helps get rid of glucose through kidneys	Increased risk of urinary tract infection (UTI)
Glucophage (Metformin) or Glucophage extended release	1-2 times daily, to be taken with meals (usually breakfast and dinner) Your child's doctor will give you specific directions for his/her dosing	Helps insulin work more effectively Helps by stopping the liver from making too much sugar	Do not take if not eating, or if having surgery or a test done that contains dye/iodine contrast. - Should not cause low blood sugar. - May cause diarrhea, nausea, vomiting, abdominal bloating and flatulence (gas). Notify your child's doctor if this occurs. - Call your child's doctor immediately if you see the following symptoms: • Extreme tiredness, weakness, or discomfort • Stomach or muscle pain • Fast or slow heart rate • Flushing of the skin • Feeling of being cold • Deep, rapid breathing • Shortness of breath

continued on next page

oral medications (cont.)

name	directions	action	special instructions
Glucovance (combination of Glucophage & a sulfonylurea called Glyburide)	See directions for Glucophage above	See actions for Glucophage above Causes the pancreas to make more insulin	- See special instructions for Glucophage above - May cause low blood sugar (see page 23) - Tell your child's doctor if he/she is allergic to sulfa medications
Precose (Acarbose)	Usually taken 3 times daily, with first bite of each meal **Your child's doctor will give you specific directions for his/her dosing**	Slows **carbohydrate** absorption in the intestines	- Should not cause low blood sugar - If your child does have a low blood sugar, it must be treated with pure glucose (tabs or gel) or milk - May cause abdominal pain, diarrhea & flatulence (gas). Notify your child's doctor if this occurs
Sitagliptin (Januvia) Saxagliptin (Onglyza) Linagliptin (Tradjenta)	Once daily	Slows stomach emptying and increases insulin secretion	Contact doctor if having: - Severe joint pain - Vomiting with severe abdominal (stomach) pain - Shortness of breath - Swelling - Weakness

injectable medications

name	directions	action	special instructions
Liraglutide (Victoza) Dulaglutide (Trulicity) Semaglutide (Ozempic)	Daily or one time per week (see directions on prescription)	Increases insulin release with food, slows stomach emptying, and helps you to feel full	May cause nausea, vomiting, weight loss, and redness at injection site. Contact physician if vomiting and severe abdominal pain. Avoid if you have a family history of thyroid tumor.

insulin and injectables

Insulin is a **hormone** made by the **beta cells** in the pancreas. Insulin allows sugar to go from the bloodstream into the body's cells so it can be used for energy. Insulin lowers blood sugar.

insulin facts

- A person cannot survive without insulin. Insulin is needed in the body 24 hours a day, even if you are not eating.
- People with type 2 diabetes may still produce insulin but are unable to use it well. Some may need insulin to help control blood sugar levels.
- At this time, insulin does not come in a pill. But, this is being researched.

storage of insulin

Unopened vials or insulin pens should be stored in the refrigerator. Do not freeze. Once opened, the vial or insulin pen can be left at room temperature.

what you need to know about your insulin

In the United States, insulin is synthetically made in a laboratory and is most like human insulin.

What you need to know about your child's insulin:

1. Name of each insulin.
2. Types of your insulin(s).
3. Doses: Insulin is measured in units.
4. Always have an extra supply of each insulin available.

insulin types				
Name	**Onset of action**	**Peak action**	**Working time**	**Appearance**
Rapid acting				
Admelog	10-15 minutes	1-2 hours	3-5 hours	Clear
Apidra	10-15 minutes	1 hour	2-4 hours	Clear
Humalog	10-15 minutes	1-2 hours	3-5 hours	Clear
Novolog	10-15 minutes	1-2 hours	3-5 hours	Clear
Faster acting				
Fiasp	5-15 minutes	30-60 minutes	2-5 hours	Clear
Long acting*				
Basaglar/Lantus	1-2 hours	None	Up to 24 hours	Clear
Levemir	1-2 hours	None	Up to 24 hours	Clear
Tresiba	1 hour	None	Up to 42 hours	Clear

*Long acting insulins are also known as basal insulins

basal-bolus insulin regimen basics

Basaglar or Lantus insulins – Long-lasting insulins

These are basal or "background" insulins. These insulins control the blood sugar when you're not eating.

- Basal insulins need to be given daily. For kids school age or older, this will be at bedtime. For younger kids, this may be in the morning.
- Basal insulins are to be given at the same time each day.
- The dose will be determined by your physician and will increase as your child grows.
  - Example: A 2-year-old will have a much smaller dose than a 16-year-old.
- Eating causes blood sugar to rise. Basal insulins are not able to keep the blood sugar at the ideal level due to the sugar from the food. So, a second insulin is needed. We suggest Novolog or Humalog.

Novolog or Humalog insulins – Short-acting insulins (SAI)

These are rapid-acting insulins used at mealtimes and at times when blood sugar is too high.

- Novolog and Humalog insulins are basically the same type insulin. But, they are made by different companies. Your insurance will determine which insulin is preferred for your child. Based on this, the appropriate insulin will be prescribed by your provider.
- Each short-acting insulin meal dose will be based upon the following:
  - Blood sugar just before the meal
  - Amount of carbohydrates (carbs) eaten at the meal. This is called carb dose.
  - Once given, SAI starts lowering the blood sugar in 15 minutes.
    - Short-acting insulin works strongest, or peaks, 1-2 hours after being given. This is the time at which SAI lowers the blood sugar the most. Due to this peak, SAI should not be given for a high blood sugar sooner than 2 hours from the last SAI dose. This would put your child at risk for low blood sugar.
  - The dose for a high blood sugar is known as the **correction dose**.
  - You will be given a target range for your child's blood sugars (example: 80–150).
  - When a blood sugar is above the target range, extra short-acting insulin will need to be given to correct the blood sugar down to the target range.

We recognize that patients could be on different short-acting insulins. So, we will use SAI in all examples and instructions.

Example target range and correction dose for child who is school age or older

For a younger child, the correction scale will be weaker, meaning less insulin will be needed to correct the blood sugar to the target range.

answer

Joe's blood sugar before lunch was 230. Joe will need to take 2 units of Novolog to correct the blood sugar down from 230 to the target range of 80–150.

Joe's target blood sugar range is 80-150	
Correction Scale	
Blood Sugar	Units of Novolog
150–200	1
201–250	2
251–300	3
301–350	4
351–400	5
Above 400	6

Please note: Some patients may be using the correction scale while others may also get a correction for any carbohydrates that are eaten. This will be discussed with you further during your training.

other factors to consider for determining the short-acting insulin dose

If activity is after a meal, you may pre-treat by giving less insulin (round down). If activity is several hours after the meal, you may pre-treat by giving an additional 15 gram carb snack. No additional insulin would be needed with the snack.

What will your child's activity level be after the meal?		
Activity level	Example of activity	Round up or down?
Inactive	Being in school	↑ Round the dose up
Active	Playing outside	↓ Round down, or even pre-treat for activity

insulin syringes or shots

using syringes

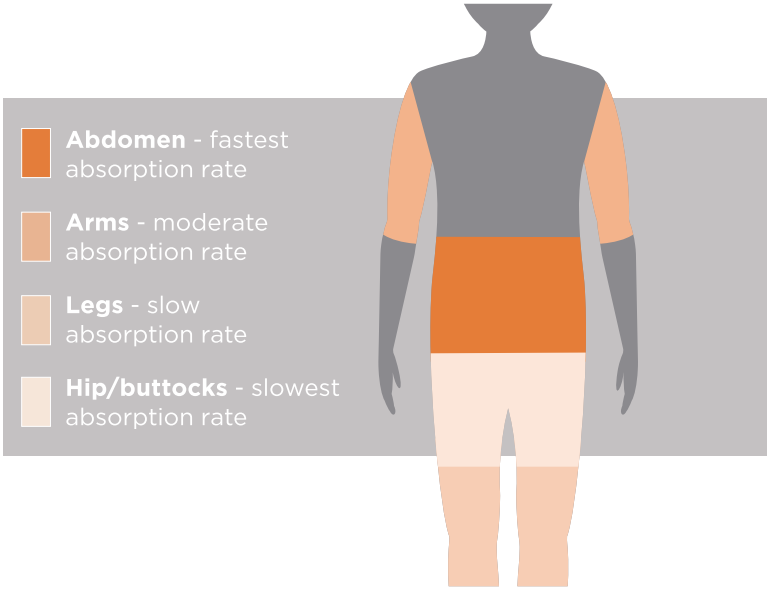
Insulin must be given with insulin syringes. These syringes are made specifically for giving insulin. Using other types of syringes may result in the wrong amount of insulin being given.

- There are three (3) sizes of insulin syringes. The smaller syringes are marked in either one unit or ½ unit amounts.
  - Note: The needle size (gauge) for all the syringes is the same. They just differ in the amount of insulin they hold.
- Insulin syringes that are prescribed have either short or mini needle length. Make sure that the pharmacy provides insulin syringes with the correct needle length.

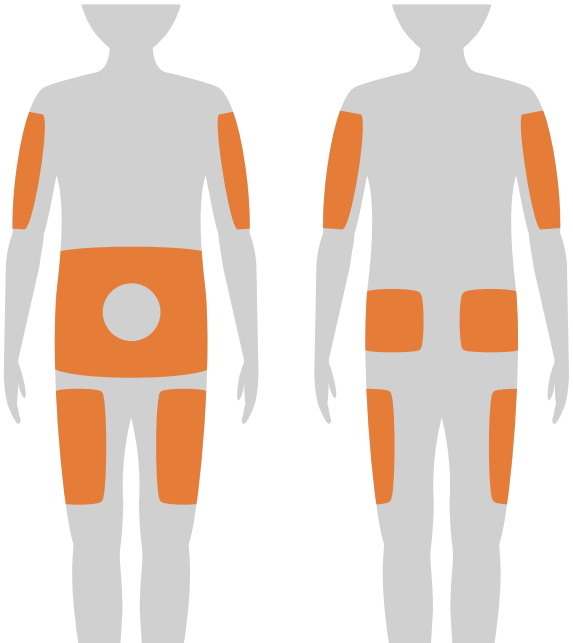
Syringe	can hold up to ...	units they come in...
3/10 cc syringe	30 units	Half or whole units
½ cc syringe	50 units	Whole units
1 cc syringe	100 units	A line is 2 units

rotation of insulin injections

Insulin is injected into the fatty areas just under the skin in areas such as the arms, abdomen, thighs, and buttocks. Injections for these areas of the body are known as **subcutaneous injections**.



- Rotating sites means following a pattern as you move your injections around from site to site. Every person's pattern may be different.
- Insulin enters the blood:
  - Fastest from the abdomen
  - A little slower from the arms
  - Even more slowly from the legs
  - Slowest from the hip/buttocks
  - Note: You may want to use an area at a certain time because of its absorption rate.
- Do not give your injection in the same spot every day! This can cause lumps and hard places under the skin (**hypertrophy**). Hypertrophy or scar tissue prevents insulin from being absorbed correctly. If your child is developing scar tissue locations, please contact your doctor for recommendations.
- We recommend using all sites in one location, keeping injections approximately ½ inch apart. Jumping from site to site makes it difficult to remember where the last injection was given. You may choose to have all your morning injections in the belly, all afternoon in the arm and all bedtime injections in the hip or leg.
- Don't inject too closely to scars, bruises, belly buttons or moles. Stay away from the inner thighs. Rubbing between the legs can make the injection site sore.
- Use the entire site area for injections, such as the top and outer aspect of the leg.



steps to drawing up insulin

1. Wash your hands with soap and water. Then, gather these supplies: syringe, alcohol, swab, insulin and doses.
2. Wipe off the top of the insulin vial with an alcohol swab.
3. Pull the plunger down to pull air into the syringe. You will need the same number of units of air as the number of units of insulin that you are going to withdraw. This is important because if you skip this step, the air pressure in the vial will change enough that it will make it hard to draw insulin out of the vial.
4. Push the needle into the vial.
5. Push the plunger so that the air goes into the vial.
6. Turn the insulin vial over with the needle still inside it (so the syringe is under the vial).
7. Pull plunger down to the number of units needed at that time. You may need to draw extra insulin out, flick air bubbles to the top, and slowly push to the correct dose.

> Always make sure you're preparing the correct insulin. Giving the wrong insulin can greatly affect blood sugars. Call the diabetes team immediately if the wrong type of insulin is given.

steps for insulin injection

1. Gather needed supplies: syringe filled with correct amount of insulin and alcohol swab.
2. Choose an injection site. Remember, insulin is absorbed best from (in order):
   a. Abdomen
   b. Arm
   c. Thigh
   d. Hip

3. Clean skin at site with an alcohol swab. Let alcohol dry.
4. Pinch a large area of skin with one hand.
5. Hold your syringe like a dart or pencil with the opposite hand.
6. Push the needle all the way into the skin, going straight in at a 90-degree angle. Be sure the needle is all the way in.
7. Use a finger to push the plunger all the way down. This will push the insulin into the body. Leave the needle under the skin for three seconds.
8. Pull the needle straight out of your skin. Do not rub the place where the injection was given. Check the area for any redness, bleeding or bruising.
9. Safely dispose of used needles and syringes. See the next section for instructions on how to do this.
10. Some restaurants and airports now have "sharp containers" in their bathrooms for your use.

steps for using insulin pens

1. Check the pen before you use it:
   a. Make sure the dial turns easily.
   b. Make sure there is enough insulin for your dose.
   c. Check insulin pen for any discoloration and cloudiness. If you see either, discard and get a new pen from the refrigerator.
2. Take the cap off the insulin pen.
3. Wipe the seal with an alcohol swab.

continued on next page

steps for using insulin pens (continued)

4. Peel the foil of the pen needle off, and turn clockwise until it does not go any more.
5. Remove the clear cap. Be sure to save it.
6. Remove the green part and throw it away.
7. Prime the pen by dialing the insulin pen with 1-2 units of insulin. Hold the pen up so that the insulin needle is pointed to the ceiling. Press the bottom of the pen until you see insulin come out. As long as you see insulin come out of the pen, the pen is primed. If you do not see insulin come out, prime again and press the pen again.
8. Clean the skin with alcohol. Inject the insulin and press the bottom of the pen all the way until the dial returns to 0. Once this occurs, start your count. For insulin pens it is usually a 6-10 second hold. A good rule of thumb is 8 seconds. Insulin pens are a longer hold because the insulin comes out in a drip fashion.
9. After the injection is complete, remove the pen from the skin.
10. Place the clear cap over the insulin pen and turn counter clockwise until the pen needle comes off. Discard the pen needle in the sharps container or coffee can that is being used as the sharps container.

disposing of sharps at home

Like anything else we throw out, lancets, syringes, and pen needles need to be thrown out properly. If they end up in a place they shouldn't, like a beach or loose in the trash, they could accidentally hurt someone!

steps for disposal

1. After you've checked your blood sugar or given an insulin shot, put your lancet, syringe, or pen needle directly into a strong plastic or metal container with a tight cap or lid. Do not bend, break or put the cap back on your needle. You might hurt yourself!
2. When the container is full, tightly secure the lid and reinforce it with heavy-duty tape before throwing it in the trash. Mark it "Sharps." Be sure not to put it in the recycling bin!

container do's

- The best containers to use are those that:
  - Are made of strong plastic or metal, so needles can't poke through
  - Have a small opening on top with a cap or lid
  - Examples: Bleach bottles, liquid detergent bottles, coffee cans

container don'ts

- Don't use glass containers or lightweight plastic containers.
- Don't use any container that will be returned to a store.
- If you use a container that can be recycled, be sure it doesn't end up in the recycling bin by mistake.

high and low blood sugars

high and low blood sugars

high blood sugar – hyperglycemia

causes of high blood sugar

- Eating or drinking too many carbohydrates
- Missed medication/not enough medication
- Being sick with an infection or increased stress
- Being inactive

early symptoms

- A blood sugar above the target range
- Increased thirst
- Increased urination
- Hunger
- Decreased energy
- Blurred vision
- Headache
- Stomachache

treatment

1. For blood sugars consistently over 200, call in your child's readings to the diabetes team.
2. Having your child be active/exercise can lower his/her blood sugar.
3. Have your child drink an extra two (2) cups of water and follow his/her medication instructions as directed.
4. If blood sugar is over 400 at any scheduled check, notify your doctor so that they can possibly make medication adjustments.*
5. **Do not skip his/her medication dose.** If vomiting or unable to eat, contact the doctor before giving the medication.

***Your child's physician may change this guideline as you become more experienced with your child's care.**

low blood sugar – hypoglycemia

If your child's blood sugar drops below the target range, he/she may have the symptoms of low blood sugar. This is also called **hypoglycemia**. The body and our brain do not work well without the needed sugar. When sugar levels drop, signals are sent out that more sugar is needed.

***If your child is not on any diabetes medication, or is only on Glucophage/Metformin or Precose/Acarbose, it is unlikely that he/she will have a low blood sugar. However, for those children a blood sugar less than 60 is considered a low blood sugar.**

***For children on Glucovance, a blood sugar less than 70 is considered a low blood sugar.**

causes of low blood sugars

- Too much diabetes medication
- If on Glucovance, a missed meal
- Exercise/increase in activity
- Vomiting/diarrhea
- Drinking alcohol

early symptoms include:

- Shakiness
- Hunger
- Paleness
- Sweating
- Irritability
- Mood changes
- Headache
- Nightmares

later, more serious symptoms are:

- Confusion
- Unconsciousness
- Seizure

treatment of low blood sugars

1. If your child is having symptoms of low blood sugar, check the blood as soon as you can. Do not leave a child with a low blood sugar alone!
   - If a meter is not available, treat the symptoms and recheck the blood sugar as soon as possible. This is not ideal as glucose meter should be readily available at all times.
2. Treat with 15 grams of a quick-acting carbohydrates (carbs). In younger children, we may recommend that 8-10 grams of carbs be used.
3. Sources of quick-acting carbs include (15 grams of carbs):
   - ½ cup fruit juice
   - Small pack of fruit snacks (check label for carbs)
   - 3-4 glucose tabs
   - A fun size pack of Skittles® (23 Skittles)
   - 8 Lifesavers®
   - ½ cup regular soft drink
   - 1 tablespoon honey or Karo syrup
   - 1 tube of insta-glucose gel - read label to be sure of dosage
4. Recheck the blood sugar in 15-20 minutes after treatment is given. This is known as the **15-15 rule**: 15 grams treatment with recheck in 15 minutes. If it is still low (see previous page for guidelines), treat again.
5. If the low occurs at a scheduled mealtime, give the quick acting carbs and then allow your child to eat their meal. You do not need to recheck the blood sugar. Do not add the treatment carbs to the total carbs eaten for the meal.

sick days

sick days

how can being sick affect diabetes?

Illness makes blood sugar control more difficult and increases insulin needs. The physical stress of being "sick" causes the blood sugar to go higher. Vomiting and diarrhea can make blood sugar go low.

During a sick day it is important to check blood sugar 3 to 4 times a day, even if you don't typically test that often.

Illness includes any condition in which the body is physically stressed. This includes things like:

- Nausea/vomiting
- Colds
- Flu
- Viruses
- Diarrhea
- Ear infections
- Fever
- Sore throat

should my child continue to get his/her medication?

Glucophage/Metformin, Precose/Acarbose, or Glucovance: If your child is on any of these medications and is unable to eat, he/she should not take the medication. You should check the blood sugar and call the diabetes team for instructions on how to care for your child during the illness.

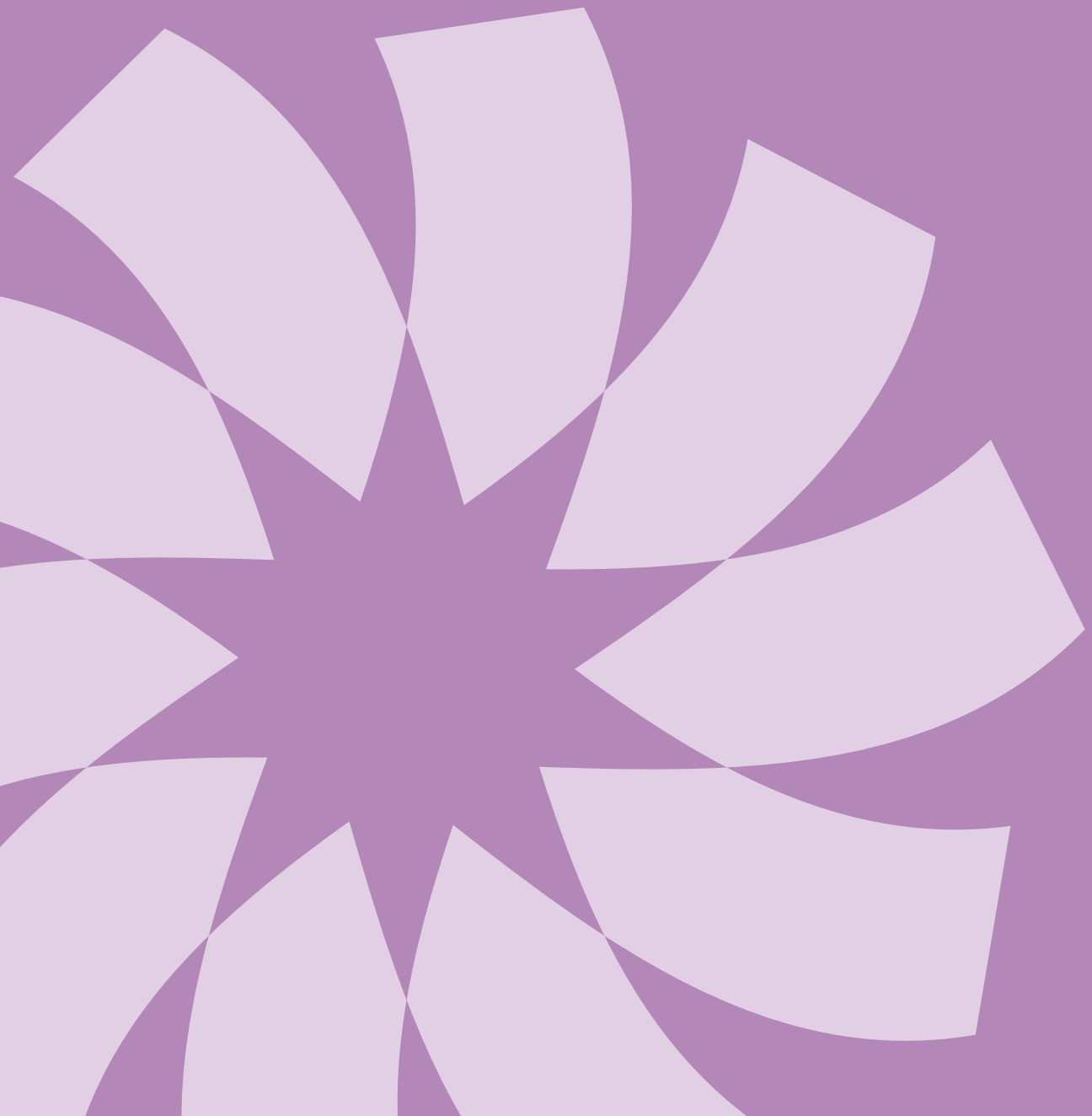
when should I call the doctor?

- When your child is vomiting or unable to eat.
- If your child has a blood sugar over 400 at a scheduled check.

how much should my child drink while sick?

Fluids are also important to avoid becoming dehydrated. Your child should be encouraged to sip fluids as much as possible. Offer at least an ounce (2 tablespoons) of fluid every 20-30 minutes to help prevent dehydration.

diet and meal planning



diet and meal planning

Following a meal plan is very important in controlling your child's diabetes. The doctor or dietitian will give you a meal plan to follow that will tell you what types of foods and how much your child should eat.

counting carbs

What is a carbohydrate?

- A carbohydrate is the part of food that is starch, sugar and fiber. Carbohydrates (carbs) can be simple or complex.
  - A simple carb is the sugar found in fruit, milk and table sugar.
  - A complex carb is the starch found in bread, rice and pasta. Carbs eventually turn into blood sugar after digestion.

Why count carbs?

- Since carbs get broken down into sugar, carbs cause the blood sugar to rise. You will receive a meal plan specific to your child. The meal plan will tell you how many carbs your child should eat at each meal. If he/she eats more carbs than the meal plan calls for, their blood sugar will most likely be too high later. Over time, high blood sugars can lead to complications from diabetes.

Where are carbs found?

- Starches: cereal, grains, breads, crackers, beans, peas, lentils and starchy vegetables like potatoes and corn
- Fruit: fruit, fruit juice, and dried and canned fruit
- Milk: any variety of milk or yogurt
- Vegetables: non-starchy vegetables
- Combination foods: casseroles, pizza, stews, soups, chili and snack items
- Other: sweets, desserts, syrup, jelly, honey and donuts

Foods that do not contain carbs:

- Meat: pork, beef, chicken, turkey, fish, eggs
- Fat: butter, oil, margarine, nuts, bacon, sour cream

what are healthy carbs?

- Whole grain bread products (at least 3-5 grams of fiber per serving) – look for Wonder Whole Grain White® or Aunt Millie's Fiber and Flavor® potato bread if you don't like regular wheat bread
- Whole grain cereal (at least 3-5 grams of fiber per serving) – such as Cheerios®, Shredded Wheat®, Kix®, Alpha-Bits®, Raisin Bran®, Total® or Fiber One®
- Whole grain pasta (at least 3-5 grams of fiber per serving) – such as Barilla Plus®
- Whole grain granola bars (at least 3-5 grams of fiber per serving) – such as Kashi®, Fiber One®, All Bran® or Curves®

what are healthy carbs? (cont.)

- Brown rice
- White milk
- Fresh or frozen fruits, or fruits canned in their own juices (not syrup)
- Non-starchy vegetables
- Starchy vegetables like potatoes or corn (limit to a portion the size of your fist)
- Beans and legumes
- Seeds
- Nuts

what are unhealthy carbs?

- Sugar-sweetened beverages such as regular pop, lemonade, sweet tea, fruit drinks and sports drinks
- White bread products (2 or fewer grams of fiber per serving)
- Sugary cereals (2 or fewer grams of fiber per serving)
- White pasta (2 or fewer grams of fiber per serving)
- White rice
- Canned fruits in light or heavy syrup
- Flavored milks
- Chips
- Cookies
- Cakes, doughnuts and pastries
- Alcohol (if you choose to drink once you're over 21)

fiber

Fiber is a recommended part of a healthy diet. It slows the absorption of foods and gives you the feeling of fullness. Fiber has been shown to reduce LDL or "bad" cholesterol, and improve blood sugar control in patients with type 2 diabetes. Ask your child's dietitian how much fiber your child should eat each day.

The following foods are good sources of dietary fiber:

- Fruits
- Vegetables
- Whole grains
- Nuts
- Beans

Look for foods that contain at least 3-5 grams of fiber per serving.

protein

Eating protein is an important part of any healthy diet. It is the main building block of all tissue in the body. It also contains iron, which carries oxygen through the blood.

Some high protein foods contain a lot of saturated fat and cholesterol, which can raise your LDL or "bad" cholesterol. Below are tips for choosing and preparing lean and healthy sources of protein.

- Select lean protein sources
  - Select lean cuts of red meat with little visible fat marbled through it. Avoid fatty meats such as bacon, sausage, hot dogs and liver.
  - Buy lean, sliced deli meats such as turkey, chicken or ham instead of bologna or salami.
  - Select lean ground meats such as ground turkey breast or ground beef that's at least 93% lean.
  - Choose fish and poultry more often than red meat.
  - Limit whole eggs and egg yolks to 2-3 times per week. Instead of eggs, choose egg whites or egg substitutes such as Egg Beaters®.
  - Choose plant-based protein sources such as soybeans, beans, peas, legumes, nuts, peanut butter and seeds. However, carefully control your child's portions of nuts, peanut butter and seeds because they are high in calories. Also, remember that peanut butter counts as a fat choice, and beans, peas, and legumes count as a starch.
- Prepare meat, fish, and poultry in healthy ways:
  - Remove skin from poultry before cooking.
  - Trim all visible fat from meat before cooking.
  - Stay away from breaded and fried meat, fish, and poultry. Instead choose foods that are baked, broiled, roasted, poached or grilled.
  - Avoid adding high-fat sources to meat such as gravy, ranch dressing and cream sauces. Instead season your meat with herbs, spices, lemon juice, ketchup, barbecue sauce, steak sauce or mustard.
  - Sautee meats in broth, water or non-stick cooking spray instead of oil.

how to read a food label

Reading the nutrition facts label will help you to choose healthy foods and meet your nutrition goals! Here's how.

- **Serving size:** The serving size is a very important piece of information on the food label. It is the portion that all of the nutrition facts are based on. For example, if you ate 1/3 cup of this food instead of the suggested 2/3 cup serving size, you would need to divide all of the nutrients listed on the label in half.

- **Total carbohydrates:** The total carbohydrate is measured in grams (g). This is the number that you will need, along with the serving size, to count the grams of carbs for your meal plan.

- **Added sugars:** Are also measured in grams (g). It's important to check the food label to see how many grams of added sugars the food contains. Added sugars are added as the food is made. Try to pick foods with less added sugar.

Nutrition Facts

Serving Size 1 1/4 cup (39g)

Servings per container about 8

Amount Per Serving	
Calories 140	% Daily Value*
Total Fat 0.5g	10%
Saturated Fat 0g	5%
Trans Fat 0g	
Polyunsaturated Fat 0g	
Monounsaturated Fat 0g	
Cholesterol 0mg	0%
Sodium 250mg	11%
Total Carbohydrate 34g	12%
Dietary Fiber 3g	10%
Total Sugars 11g	
Includes 10g Added Sugars	20%
Protein 3g	
Vitamin A 0%	
Calcium 4%	
Iron 10%	
Vitamin C 0%	

*The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

how big is a serving size?

Sometimes it can be hard to figure out how large your serving sizes should be, especially when you are away from home and don't have measuring cups or nutrition labels. Use these everyday examples to help you portion out the right amount of food every time:

Palm of your hand or a deck of cards = 3 ounces meat
Use for cooked chicken, beef, pork, fish and seafood

Golf ball = 2 tablespoon (30mL)
Use for peanut butter, salad dressing and jams

Baseball, fist or cupped hand = 1 cup
Use for cereal, pasta, rice, fruit and starchy vegetables (generally provides 30 to 45 grams of carbohydrate)

1 handful = 1 ounce nuts/candy
2 handfuls = 1 ounce snacks
Use for nuts, small candies, chips, pretzels and other snack foods

starch group = 15g carbohydrate	
food item	**serving size**
Pancake, waffle	4" across – about the size of a CD
Cooked rice, pasta, corn, potatoes, or peas	1/3 cup – about the size of a computer mouse
Slice of bread	1 slice - about the size of a CD case
Cereal	3/4 cup – about the size of a tennis ball
Roll, bagel, or muffin	1 oz or a piece the size of a hockey puck
Cooked beans	½ cup – size of a baseball

non-starchy vegetable group = 5g carbohydrate	
food item	**serving size**
Raw vegetables	1 cup – the size of a tennis ball
Cooked vegetables	½ cup – size of a baseball
Vegetable juice	½ cup – size of a baseball

fruit group = 15g carbohydrate	
food item	**serving size**
Apple, orange, pear, peach, plum	1 small piece the size of a baseball
Canned fruit, sliced fresh fruit, fruit juice	½ cup – size of a baseball
Dried fruit such as raisins	2 tablespoons – size of ping pong ball

milk group = 12g carbohydrate	
food Item	**serving size**
2%, 1% or skim milk	1 cup – the size of a baseball (8 oz)
Yogurt	2/3 cup – the size of a tennis ball (6 oz)

meat group = 0g carbohydrate	
food Item	**serving size**
Meat, fish, poultry – not breaded or fried	1 ounce–size of four dice, 3 ounces=deck of cards
Peanut butter or nuts	1 tablespoon – ½ the size of a ping-pong ball
Cheese	1 ounce – size of three dice

Adapted from What's in a Serving Size? – developed by NC SNAC March 2003

schedule for meal times

Short-acting insulin meal doses can be given either right before or after the meal. Your doctor will determine the doses.

- Older children (8 years and older) pre-meal: School age or older will need to give the short-acting insulin just prior to the meal.
  - By giving the short-acting insulin just prior to the meal, the blood sugars will not go as high after eating. This results in better blood sugar control.
- Younger children (under 8 years old) post-meal: For younger children, short-acting insulin needs to be given right after the meal.
  - Younger children are given their insulin right after eating due to the child not being able to tell what they are going to eat specifically. If the short-acting insulin was given before and the child does not eat the full carb amount, this will put them at risk of low blood sugars.
  - Once younger children are able to tell what they are going to eat at meals, the short-acting insulin dose should be given before the meals.

Check blood sugar | Count carbs | Determine total short-acting insulin dose

Correction dose + Carb dose = Total short-acting insulin dose

meals and snack guidelines for school

- Meals or snacks should be eaten every 3-4 hours and should be eaten at about the same time each day.
- Follow the meal plan for the correct amount of carbohydrate at each meal or snack to meet your child's blood sugar goals.
- Choose a wide variety of fruits and vegetables, low-fat dairy, lean meats and whole grains in your child's diet, and limit sweets and soda.
- Whole grains include products that have 3-5g of fiber per serving. Look for items such as 100% whole wheat bread, brown rice, wild rice, multi grain or whole wheat pasta, whole grain cereals, and cereal bars (such as Kix®, Fiber-One®, Raisin Bran® and Total®).
- Choose a rainbow of colors for your child's fruits and non-starchy vegetables. Choose foods that are red such as tomatoes, orange such as carrots, yellow such as pineapple, green such as broccoli and blue such as blueberries.
- Choose skim or fat-free milk, low-fat yogurt and 2% or skim milk cheeses.
- Choose lean meats such as grilled, baked or broiled chicken, or turkey without skins, pork and lean beef such as sirloin or roast beef.
- Choose beans and fish a few times each week.

portion sizing

- Food should not be traded with other children.
- If a bread, fruit or milk has not been eaten and is part of the child's meal plan, it should be replaced.
- Portion sizes do make a difference. If a portion is too large, blood sugars will be high.
- Free foods are allowed at any time, but should not be a replacement for a snack or meal. Keep in mind that the free foods still have calories and can contribute to unhealthy weight gain.

exercise and its benefits

Exercise helps control diabetes! Eating right, taking your medications and exercising are the three main things you need to do for good diabetes control.

many benefits of exercise:

- Exercise can make your blood sugar go down. The drop in blood sugar can occur hours after the activity.
- Exercise will help keep your blood pressure and cholesterol down.
- Exercise can help you cope with the stress of daily life.
- Exercise can help you sleep better.
- Exercise helps burn fat, and helps to reach and maintain a healthy body weight.

getting started

Talk to the doctor about what kind of exercise is good for your child and how much he/she should do.

- Choose an exercise that keeps him/her going at a steady pace:
  - Walking/jogging/hiking
  - Biking
  - Swimming
  - Dancing
  - Video games that encourage activity
- Add other types of exercise to build muscle such as lifting small weights, resistance bands, or by doing pilates or yoga.
- Exercise safety:
  - Always warm up before you exercise.
  - Always cool down after you exercise.
  - Don't overdo it.
  - You need to be able to exercise 30 minutes each time you exercise. Work up to it.
  - Remember to drink plenty of water.
  - Contact your diabetes team about any exercise questions.
- It is important for young adults to find physical activities that they enjoy and can continue as adults.

Adolescents may also consider offering services to friends and neighbors that allow them to make money while exercising. Examples include:

- Mowing lawns (with a push mower)
- Shoveling snow
- Raking leaves
- Walking dogs
- Washing and waxing cars

Tips on exercise for parents:

- Be a good role model for your child. Participate in regular physical activity yourself and your child will be more likely to do the same.
- Limit activities such as watching television, being on the computer, and regular video games to less than 2 hours each day.
- Individual and team sports are a great way to increase physical activity.
- Encourage unstructured outdoor play.
- Plan active vacation activities, such as sightseeing/hiking, swimming, or snorkeling.
- Give the gift of fitness. Rollerblades, a new ball, or a basketball hoop are unique gifts for birthdays or other special occasions.
- Organize active outings for the whole family, such as:
    - After-dinner walks or bike rides
    - Ice skating
    - Swimming
    - Canoeing

general health care tips, complications and foot care

general health care tips, complications and foot care

general health care tips

Good hygiene is important for everyone. People with diabetes need to be aware that diabetes control may be affected if good health habits are not maintained.

- **Watch cuts/wounds closely.** Tell your doctor about any cut that is healing too slowly or not at all.
- **Don't get sunburned.** Sunburns are damaging to the skin. They can cause higher blood sugars.
- **Dress warmly for cold weather.** Frostbite could be very damaging.
- **Get plenty of sleep.** Fatigue affects everyone's performance and can affect blood sugars.
- **See the following doctors regularly:**
  - Your endocrinologist.
  - Your pediatrician or family doctor for annual check-ups, including immunizations and acute illness. This doctor will also provide sports physicals.
  - Dentist – Diabetes can increase the risk for gum disease and tooth decay.
  - Ophthalmologist (eye doctor) – Your child should have an eye exam done after initial diabetes diagnoses and then once a year after that. You should tell the eye doctor that your child has been diagnosed with type 2 diabetes. The eye doctor will need to dilate your child's eyes for the examination.
- As your child gets older, you should encourage him/her to not smoke. It can increase risk for complications later.

always carry with you

The following is a suggested list of items you should carry with you:

- Blood glucose testing supplies including meter, test strips, lancets and alcohol wipes.
- Insulin syringe, pen, or Vial(s) of your rapid/short acting insulin.
- Treatment for low BG, including food (juice box, fun-size Skittles, fruit snacks), glucose chew tabs, glucose gel and/or **glucagon** kit.
- A copy of all settings for your pump (basal rates, ratios, sensitivity factor, target blood glucose, etc.). If you have battery failure or a problem with the pump and have to call the doctor after hours, the doctor may not have this information available to them at the time of your call. **It is vital for you to have this available at all times.**
- Medical identification card with contact information for your physician and emergency contacts.

foot care

Because diabetes may affect the blood circulation in our legs and feet, people with diabetes must take especially good care of their feet. Diabetic children usually have good circulation. However, as your child grows into adulthood, this circulation may decrease. Good foot care will become more important.

For foot care to become routine, children need to be taught how to take care of their feet early. Taking a few extra minutes every day to do foot care may prevent serious complications later.

1. **Inspect (look over carefully) your feet every day.** Watch for cracks, blisters, cuts, sores and any signs of infection (redness, discoloration, swelling, pus). Call your doctor if you notice any signs of infection.
2. **Avoid injuries to your feet.** For a person with uncontrolled diabetes, the chances of a blister or cut becoming infected are greater.
3. **Keep your feet covered.** Wear shoes or slippers everywhere, even around the house or while at the pool or beach.
4. **Wear clean cotton socks, which will help absorb moisture.**
   - Diabetic socks are not necessary.
   - Avoid wearing anything tight on the feet or ankles that would slow the blood flow to the feet.
5. **Wash your feet every day in warm (not hot) soapy water and rinse them well.** Dry your feet by patting them with the towel instead of rubbing. At this time, apply lotion to any rough spots so that the skin will not crack.
6. **Keep toenails trimmed straight across.** File down any sharp edges.
7. **Avoid shoes that rub or do not fit well.** These could cause blisters.
8. **Rub corns daily with a pumice stone.** Trimming them or applying commercial corn remedies may cause harm to your feet.
9. **Keep feet warm by wearing socks.** Do not use hot water bottles or heating pads on your feet. Avoid sun burning your feet.

school and other information

school and other information

coordinating with your child's school

- **School nurse.** Before your child returns to school after diagnosis, set up a meeting with the school nurse to talk to them about your child's diabetes.
    - Each school has a plan for students with diabetes. Meeting with the school nurse will allow you to learn about your child's school plan and ask questions before your child returns to school.
- **School forms.** The diabetes team will provide your child's school with forms specific to your child's diabetes care needs.
- **Sports**. Your child can participate in any sport.
    - A statement regarding diabetes care may be requested by the coaches or trainers. The diabetes team can provide that.
    - Sports physical forms will need to be completed by your primary care physician.

topics to discuss:

- Blood sugar checks – If your child needs to have their blood sugar checked while at school, you should inform the school what time it should be checked. You'll also need to provide the school with a meter and testing supplies. You should set up a schedule with the school regarding how often they should send the blood sugar logs home.
- Low blood sugar – If your child is on medication that can cause low blood sugar, you should discuss the symptoms with the school that your child has experienced with the lows (if applicable), and the treatment of low blood sugar.
- Meal plan – Know what time your child will eat at school, and discuss where low blood sugar supplies will be kept.
- Most schools require a care plan for your child's diabetes care while he/she is at school. Make sure you give the school's name and fax number to the diabetes team, and sign a Release of Information so that we can send the care plan to the school.

special occasions

parent's checklist	
Blood sugar testing and insulin	• Where are my child's meter and diabetes supplies kept? • Does my child know the times for testing during the school day? • What should my child do if feeling low or ill?
Food	• Is the staff or student able to count carbs? • Where are the supplies for low blood sugar treatment to be kept?
Exercise	• Will this be a day of normal or unusual activity? • Will food and insulin balance with the scheduled activity? • Will my child need pre-treatment for the activity?
Timing	• At what times will my child eat snacks and lunch? • At what time will physical activity take place? • Will my child be home from school in time for an afternoon snack, or should the afternoon snack be eaten at school?
Emergencies	• Have teachers been educated to recognize signs of low blood sugar? • Can a parent or other knowledgeable person be reached quickly for help? • Does the teacher know what to do until I arrive?

It is possible to take care of your diabetes and still go to birthday parties, sleepovers or slumber parties at your friends' homes, trick-or-treating on Halloween, and enjoy parties at school!

school parties

Have the teacher let you know when there is going to be a party. Then you can find out what treats are planned for the party. If you need help with the carb content of the foods or treats, contact your dietitian or diabetes team member.

slumber parties

Your child doesn't have to miss the fun of a slumber party at the home of a friend. Talk with the friend's parents about
foods that will be served, and about the best time foods will be available during the slumber party. Remember that your child will probably be up later than usual and may be more active. The blood sugar may need to be checked more often on these nights.

If you are having a special occasion and are having difficulty figuring out the carb amounts, contact your dietitian or diabetes team member.

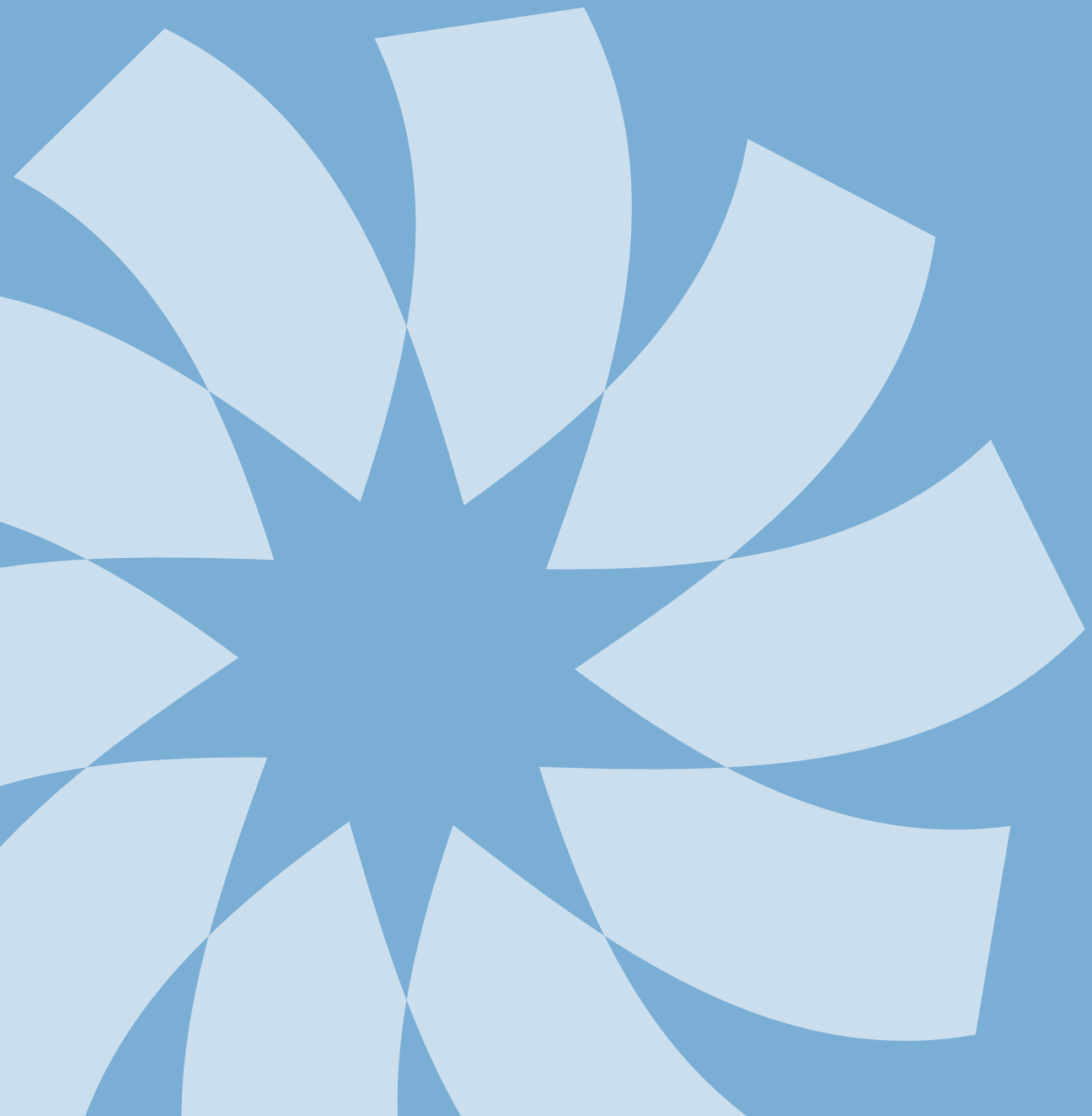
travel tips

Having diabetes should not interfere with vacation or travel plans. It is very important, though, that you plan ahead. By planning ahead for diabetes care, you will minimize or prevent any diabetes related problems. Also, you should discuss your travel plans with your child's diabetes doctor in advance.

what should you do on vacation?

- **Always carry your child's medication with you.** Do not place it in the trunk, glove compartment or dashboard of the car. Always keep it with you in your carry-on luggage.
- **Stay on the meal plan!** Always carry food for meals and snacks with you to decrease the possibility of low blood sugar.
- **Always carry a quick sugar source** with you to treat low blood sugars.
- **Continue blood sugar testing like you do at home.** You may need to do more frequent checking when traveling and when being more active than usual.
- **Be prepared with extra diabetes testing supplies.**
- **Carry a prescription from the doctor for extra medication** in case you lose your child's supply.
- **If traveling by plane, you may need a letter from the diabetes doctor.** Please give the doctor your travel itinerary as early as possible. Check with the airline to see what they require.
- If traveling in different time zones, request medication adjustments from the doctor as early as possible.
    - Know where to go in an emergency situation. You may either call the local diabetes association, (search for their information online) or go to the local hospital emergency room.

resources



resources

community resources

There are many organizations that work with diabetes locally, by state and nationally. Some of these organizations provide information, support groups and education. Other organizations aid in funding research for a cure.

The following organizations or groups are available to support you! For more information and to find the most up-to-date contact information, check their websites or childrensdayton.org.

- **Diabetes Dayton (DD)** – A group of health professionals who offer telephone counseling, support, literature and information expos.
    - *diabetesdayton.org or 937-220-6611*
- **Camp Tiponi** – This is a summer camp for children and teens with type 2 diabetes sponsored by Diabetes Dayton. Call 937-220-6611 for more information.
- **American Diabetes Association** – This is a national organization for health professionals and people with diabetes that is also active on the local and state level. They publish the "Forecast" magazine.
    - *diabetes.org or 937-297-0002*
- **Dayton Children's Hospital** endocrinology department – At Dayton Children's, the diabetes team is available to every family of a child with diabetes. Our team is made up of pediatric endocrinologists, diabetes nurse educators, dietitians, a medical social worker and psychologist.
    - *childrensdayton.org or 937-641-3487*
        - Diabetes resources center: childrensdayton.org/diabetes resources
    - Individual counseling is available through a referral by your primary pediatrician or family doctor.
- **Family Support Group Meetings** – Available at Dayton Children's Hospital. Please call 937-641-5300 for dates, times and location.

online resources and useful apps

Please be aware that the information found on the internet is not always accurate. The information may also be sponsored by pharmaceutical companies. The people who you encounter on the internet may have a different level of education and may not have good diabetes control. Please discuss any questions you have with your child's diabetes team.

additional online resources

To look up food to get nutritional information (carbohydrate content, calories, fat, etc.), both nutritiondata.com and calorieking.com are helpful.

Check out childrensdayton.org for more resources too, including Pinterest boards with snack and meal ideas.

smartphone apps

Don't have an iPhone? Go to your app store on your smartphone and search "diabetes." For Apple products, visit the app store to check out the following apps and more. Some are free, some cost up to $5.

- Carb counting with Lenny the Lion (free app from Medtronic) shows children how many carbs are in various foods by showing serving sizes and pictures. It also offers games on carbs.
- Glucose Buddy and AgaMatrix: Free apps to track and log glucose, insulin, carbs, weight, etc. all in one place. The information can be emailed to you, your family members, or the diabetes doctor.
- Go Meals (free), Carb Master (costs $0.99), and Fast Food Calories (costs $0.99 for Pro version, non-pro version is free): Help you to count carbs in meals.

glossary

glossary

15-15 rule: Give 15 grams of carbohydrates for treatment of a low blood sugar, then recheck blood sugar in 15 minutes.

Beta cells: Cells in the pancreas that make insulin.

Carbohydrates (carbs): Give your body sugar that it can use as fuel. If no carbs are eaten, the body resorts to breaking down fat cells as a back-up source of fuel.

Correction dose: The dose of insulin given when blood sugar is high.

Diabetes: A lifelong illness that affects how the body produces or responds to the hormone insulin.

Endocrinology: The study of the endocrine system. The endocrine system is made up of glands that make hormones. Endocrine hormones help control mood, growth and development, the way our organs work, and reproduction.

Endocrinologist: A doctor who has had extra training in caring for people with endocrine diseases, including diabetes.

Glucagon: A hormone that causes the liver to release a quick burst of sugar.

Glucose: Sugar that you get from the foods that you eat. Your body uses it for energy.

Heredity: How your family's health background impacts your own health.

Hormones: The body's chemical messengers. They carry information and instructions from one set of cells to another.

Hypoglycemia: Another term for low blood sugar.

Hypertrophy: Lumps and hard places under the skin. This can cause insulin to not absorb correctly.

Insulin: Hormone that allows sugar to move from the bloodstream into cells so the cells can use the sugar as energy.

Ketones: A chemical that can appear in the blood and urine when fats are broken down for energy instead of sugar.

Pancreas: An organ that makes insulin and sends it to the bloodstream.

Type 1 diabetes: A chronic condition where the pancreas produces little or no insulin.

Type 2 diabetes: A chronic condition that affects the way the body processes glucose.

Subcutaneous injections: Injections just under the skin in fatty tissue in the arms, abdomen, thighs and buttocks.

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