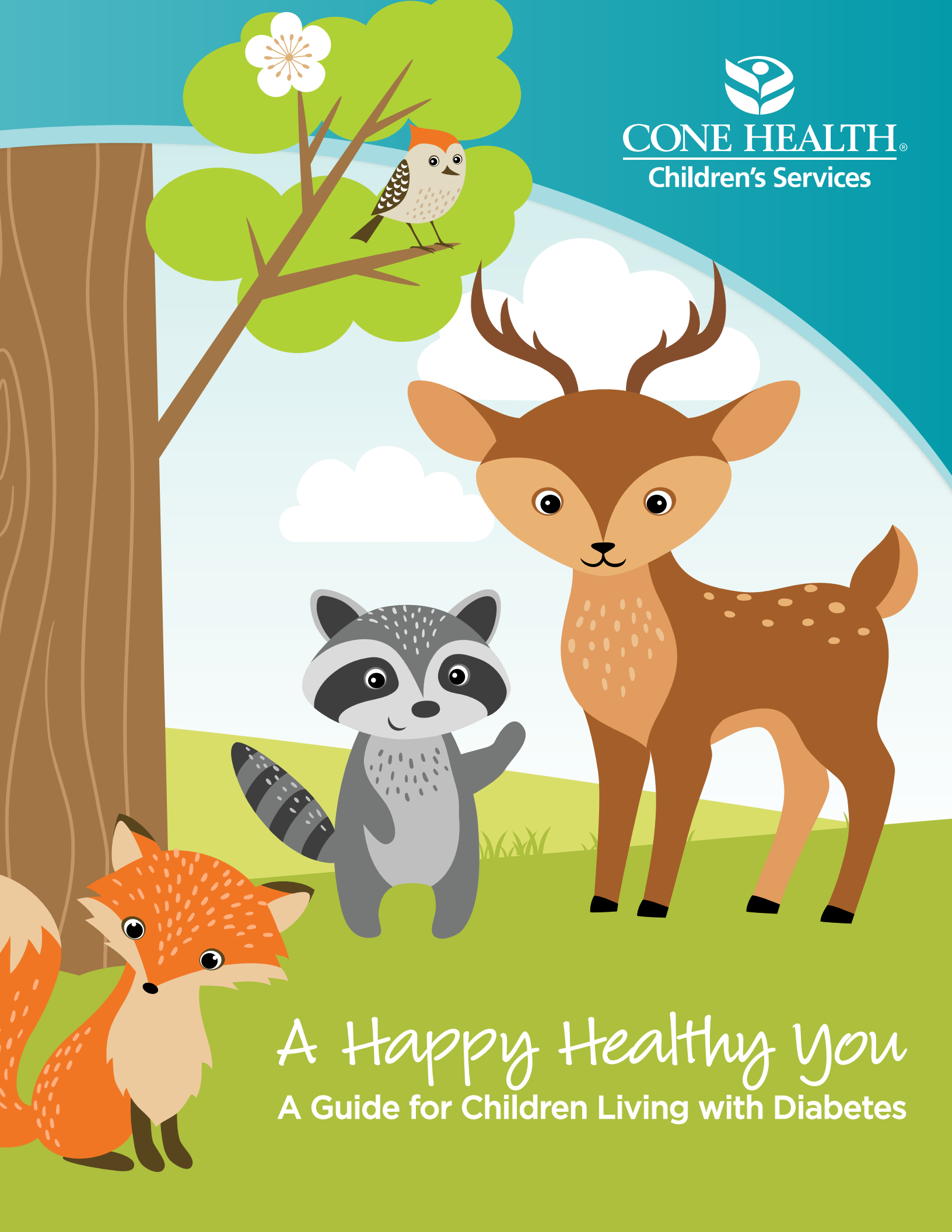




CONE HEALTH[®]
Children's Services



A Happy Healthy You
A Guide for Children Living with Diabetes



Hospital Diabetes Education

We are here for you.

Dear Patient and Family



We want to welcome you and your family to the Cone Health Children's Unit. A diagnosis of diabetes is life-changing and can be overwhelming. We will take every possible measure to ensure excellent diabetes teaching and support. Our goal is to make sure that during your stay in the hospital you learn the essential information to safely manage diabetes at home. Please make sure all parent(s)/guardian(s) are at the hospital during the day (8 a.m. - 5 p.m.) to receive education. Older siblings are welcome if they can attend. How long you stay in the hospital is dependent on everyone completing all the education topics below.

Education will continue after you leave the hospital. You will meet with our diabetes educator and our dietitian. All caregivers are welcome to attend outpatient diabetes classes.

| Topics Discussed (Timeframe: As time permits and readiness of the family) |
|--|
| <input type="checkbox"/> Receive "A Happy Healthy You" book and JDRF care package |
| <input type="checkbox"/> Review first half of "A Happy Healthy You" book |
| <input type="checkbox"/> Diabetes overview (BRIEF) |
| <input type="checkbox"/> Target blood sugar |
| <input type="checkbox"/> How to use a blood sugar meter |
| <input type="checkbox"/> Low blood sugar |
| <input type="checkbox"/> Urgent low blood sugar/glucagon use |
| <input type="checkbox"/> High blood sugar (BRIEF) |
| <input type="checkbox"/> How to check ketones (BRIEF) |
| <input type="checkbox"/> Insulin |
| <input type="checkbox"/> How to give an insulin shot |
| <input type="checkbox"/> Healthy eating |
| <input type="checkbox"/> How to determine insulin doses |
| <input type="checkbox"/> Hospital discharge checklist |

We know this is a challenging time. You are not alone in this journey. We will do our best to make your stay as pleasant as possible. Don't hesitate to ask if you have any questions! We are hopeful that you will have a happy, healthy life!

Thank you,

Cone Health Children's Unit Healthcare Team

Hospital Diabetes Education

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Learn to Speak Diabetes

There are a lot of new words you will hear after being diagnosed with diabetes. Here is a guide of what they each mean:

- **Diabetes:** a chronic disease state that affects how your body can use food for energy
- **Pancreas:** part of the body that makes insulin
- **Insulin:** a hormone released from the pancreas that balances blood sugar and a medication used to treat diabetes
- **Blood Glucose:** another name for blood sugar
- **Carbohydrates:** foods that break down into sugar and give energy to the body and to the brain
- **Fat:** used to store energy
- **Protein:** used to build muscle
- **Macronutrient:** nutrient your body needs in large amounts to work well
- **Type 1 diabetes:** immune system damage of the cells in the pancreas that make insulin (cannot make insulin anymore)
- **Type 2 diabetes:** diabetes due to insulin resistance (insulin cannot work well and may need more insulin or other medication(s) to make your insulin work better)
- **Blood sugar meter or glucometer:** reads the blood sugar level in the blood at a point in time
- **Lancet:** needle that pricks your finger
- **Lancing device:** used to prick your finger
- **Test strip:** a strip that collects blood to use with a blood sugar meter
- **Continuous glucose monitor:** a device worn on the skin for multiple days that reads blood sugar from fluid under the skin (interstitial fluid) every 1-5 minutes
- **Insulin pump:** device that continuously gives insulin to the body. Insulin shots are no longer needed when an insulin pump is used unless the insulin pump stops working.

- **Hemoglobin A1c:** a blood test that shows the average blood sugar over the past 3 months
- **Insulin to carbohydrate ratio:** determines how many grams of carbohydrate will be covered by one unit of insulin
- **Insulin sensitivity factor:** determines how many points (mg/dL) blood sugar will drop with one unit of rapid-acting insulin. This is also called a correction factor.
- **Target blood sugar:** the blood sugar goal or number used as part of the calculation of the correction dose.



What is Diabetes?

- Diabetes is a lifelong, chronic condition
 - **Diabetes is NOT your fault!**
 - You can live a long healthy life with diabetes
 - The more you learn, the more you know, and the better you can take care of yourself, then the healthier you will be
- A diagnosis of diabetes means the pancreas can no longer make enough insulin
- Insulin's job is to bring blood sugar into the cell to use for energy
 - Carbohydrates are broken down to make blood sugar
- Without enough insulin, blood sugar builds up in the blood, and cannot get into the cells of the body, so the blood sugar cannot be used for energy
- Our body looks for other ways to make energy, leading to breakdown of fat and muscle. This also happens when you skip a meal.
- Fat breakdown produces ketones
- Ketones are acid, and too many ketones will make you SICK!
- It is important to take insulin, so the body can use blood sugar for energy.



Most importantly,
NOTHING you or your
family did caused you
to develop diabetes.

What is an ideal blood sugar in someone with diabetes?

- A target blood sugar range is 80-180 mg/dL for a person with diabetes
 - Goals differ depending on the time of the day and your age
 - In general, the target range before eating is 80-130 mg/dL, and less than 180 mg/dL two hours after eating
- If your blood sugar reading is less than 80 mg/dL, you will need sugar to eat or drink
- If your blood sugar is greater than 180 mg/dL you will need rapid-acting insulin (such as Novolog® or Humalog®) to bring the sugar back down
- There are MANY things that affect blood sugar, and it is impossible to stay in the target range 100% of the time
- You will need to check your blood sugar with a blood sugar meter BEFORE you eat, before bedtime, and around 2 a.m.
 - After the first few weeks, and/or you start a continuous glucose monitor, you may not have to check the blood sugar at 2 a.m. anymore



Keys to Accuracy

1. Clean hands
2. Clean meter
3. Make sure your test strips are not damaged or out of date
4. Make sure your meter is set to the correct date and time
5. It is normal for blood sugars to differ slightly from meter to meter and from continuous glucose monitor to meter.

Care of your Meter

- Do not store your meter or test strips in temperatures above 86 degrees Fahrenheit (in a hot car or near a heat source) or below 32 degrees Fahrenheit (in a cold car or freezer)
- Keep your test strip bottle closed, and do not touch the test strips unless you are checking your blood sugar
- Check the expiration date on your test strips. Test strips are usually good for 3 months after breaking the seal.
- Change the batteries in your meter as needed.

Checking Your Blood Sugar

- Place a test strip in the meter
- Load the finger-pricking device (lancing device) with a lancet (needle)
- Clean the fingertip you will prick with rubbing alcohol
- Make sure the alcohol has dried
- Place the finger-pricking device (lancing device) against your finger and prick your finger
- Squeeze out blood from your finger
 - If you are having trouble, hang your hand down and gently shake, or squeeze the finger
 - You must swipe off the first drop of blood and squeeze out a second drop of blood
- Touch the blood to the tip of the test strip
- Your blood sugar result will show on the meter
- Throw away used supplies
 - Test strip and alcohol swab: throw away in trash can
 - Lancet (needle): throw away in a sharps box
 - 1) If you do not have a sharps box you can use a thick plastic jug, such as an old, empty milk carton or laundry detergent jug
 - 2) If you are using the Accu-Chek FastClix lancing device, it is prefilled with 6 lancets within the drum. You change the drum after you use the entire drum (6 lancets).
 - 3) Do NOT reuse lancets!



I keep a logbook!

REALLY?

YES! The more information your doctor has, the better he or she can help you manage your diabetes!



Keeping your logbook will help you:

- See blood sugar patterns throughout the day
- Find problem areas and educational needs
- Talk with your family
- Talk with your doctor

Steps for Checking Your Blood Sugar



A member of your diabetes care team will tell you how often to check your blood sugar. Usually the blood sugar is checked **BEFORE** each meal and at bedtime. Your blood sugar will also be checked at **2 a.m.** while you are in the hospital and for the first few weeks after you go home from the hospital.





Low Blood Sugar (Hypoglycemia)

- Low blood sugar, or hypoglycemia, happens when the blood sugar is less than 80 mg/dL. Low blood sugar is a NORMAL part of life with diabetes.
- Remember, if the blood sugar goes too low, you will need to eat/drink sugar to bring it back up to the goal range of 80-180 mg/dL.

Causes

- Taking too much insulin
- Miscalculating or over-guessing carbs
- Not eating all your food after giving rapid acting insulin (such as Novolog® or Humalog®)
- Physical activity
- Throwing up
- Diarrhea

Symptoms

- Shaky
- Fast heartbeat
- Sweating
- Dizzy
- Anxious
- Hungry
- Blurry vision
- Weakness
- Fatigue
- Headache
- Irritable
- Moody



Everyone feels differently when the blood sugar is low. It is important to learn how your child feels. **It is also important to keep in mind that NOT all children will have symptoms (especially younger ones).**

Low blood sugar can make it hard to think and may make you act differently. **It is important to treat low blood sugar as soon as possible.**



Low Blood Sugar (Hypoglycemia) Management

How to treat low blood sugar:

Follow the Rule of “15-15” or the Rule of “30-15”



Signs of symptoms of low blood sugar

Shaky

Sweaty

Dizzy



Check blood sugar

If your blood sugar is
60 - 80 mg/dL:
eat 15 grams of SIMPLE carbohydrate

If your blood sugar is
LESS than 60 mg/dL:
eat 30 grams of SIMPLE carbohydrate



Recheck blood sugar in 15 minutes

Check with your **MANUAL** blood sugar meter!

- Continue to repeat these steps until your blood sugar is above 80 mg/dL
- Once above 80 mg/dL, you can eat a snack with protein (ex: deli meat, cheese) to make sure your blood sugar stays above 80 mg/dL.
- Do NOT give insulin when eating or drinking SIMPLE carbohydrates used to treat low blood sugar as this will cause your blood sugar to go LOWER!
- It is important to treat with a SIMPLE carbohydrate as it takes your body around 15 minutes to break down SIMPLE carbohydrate to blood sugar.

- If you treat with a **COMPLEX** carbohydrate it will take your body longer than 15 minutes to break down the carbohydrate to blood sugar
 - Complex carbohydrates with fat and protein (chocolate, peanut butter crackers, or Greek yogurt) should not be used to treat low blood sugar. They have too much fat.
 - Chocolate is not necessarily a complex carb, but contains **FAT**, which will take longer to digest. Chocolate takes too long to digest and should not be used to treat low blood sugar.

What is a **SIMPLE** carbohydrate?

15 grams

- 1 tube of glucose gel
- 3-4 glucose tablets
- 1 tablespoon of sugar, honey, or syrup
- 1/2 cup (4 ounces) of juice
- Candy (NOT chocolate)
- 1/2 can of soda (6 ounces, NOT diet or sugar-free)
- 1 pouch of fruit snacks

30 grams

- 2 tubes of glucose gel
- 6-7 glucose tablets
- 2 tablespoons of sugar, honey, or syrup
- 1 cup (8 fluid ounces) of juice
- Candy (NOT chocolate)
- 1 can of soda (12 ounces, NOT diet or sugar-free)
- 2 pouches of fruit snacks



Examples of candy

- One “fun size” bag of skittles (17 Skittles)
 - One 15.6 gram Airheads
 - 3 rolls of Smarties
 - 4 Starbursts
 - 1 “fun size” pack of Nerds
- Make sure your child keeps a **SIMPLE** carbohydrate on him/her/them at all times
 - **Call (336) 272-6161 during business hours (8 a.m. - 5 p.m.) to speak with your diabetes provider if you feel you are having low blood sugars more than 3 times per day.**
 - **Call (336) 272-6161 after hours only if the blood sugar is not above 80 mg/dL even after giving your child two treatments of SIMPLE carbohydrates.**

LET'S PRACTICE

It is 3 p.m. You feel shaky and it is hard for you to concentrate. You check your blood sugar; it is 66 mg/dL. Is the blood sugar low, high, or in range?



What do you do?

- a) Treat low blood sugar with $\frac{1}{2}$ cup of juice and recheck blood sugar in 15 minutes
- b) Treat low blood sugar with 1 cup of juice and recheck blood sugar in 15 minutes
- c) Nothing; this blood sugar is in my target range
- d) Treat low blood sugar with $\frac{1}{2}$ cup of juice, recheck blood sugar in 15 minutes. Give insulin for the juice.

How do you know you have successfully treated a low blood sugar?

- a) When your blood sugar is above 80 mg/dL
- b) When you feel better
- c) When your blood sugar is above 66 mg/dL
- d) In 15 minutes regardless of how high the blood sugar number has increased

Answers: low, a, a



EMERGENCY Low Blood Sugar (Hypoglycemia) Management

- If your child is unconscious or unable to respond to you, this is a **MEDICAL EMERGENCY!**
- Your child may have a seizure
- Instructions
 - Step 1: Check the blood sugar AND if low
 - Step 2: Give glucagon (Baqsimi® OR Gvoke HypoPen®)
 - Step 3: Roll your child on his/her/their side
 - Why is it important to roll your child on his/her/their side?
 - Your child is at an increased risk of choking on the tongue if laying on the back if a seizure occurs
 - Your child is also at increased risk of vomiting from the medicine glucagon (Baqsimi® OR Gvoke HypoPen®); this can increase risk of choking on vomit if lying on the back
 - Step 4: **Call 911**
- If your child wakes up and can swallow, then continue to treat the low blood sugar until blood sugar increases to above 80 mg/dL and your child is feeling normal
 - Once above 80 mg/dL your child should eat a small snack (at least 15 grams of carb with protein). Do not give insulin for the snack.
- General Storage/Handling Guidance for Baqsimi® and Gvoke HypoPen®
 - Every person who takes insulin should keep Baqsimi® or Gvoke HypoPen® with him/her/them at all times
 - Check the expiration date on the Baqsimi® or Gvoke HypoPen® prescription
 - Store your Baqsimi® or Gvoke HypoPen® at room temperature
 - Do NOT store in a place that is too hot (car or direct sunlight) or too cold (refrigerator or freezer)
 - Train ALL caregivers/friends/family members on how to use Baqsimi® or Gvoke HypoPen®

EMERGENCY Low Blood Sugar (Hypoglycemia) Management (continued)



How to Give Baqsimi®

1. Preparing the dose



- Take off the shrink wrap by pulling on the red stripe
- THEN open the lid and take out the device from the tube
 - Do NOT press the plunger until ready to give the dose



2. Giving the dose

- Hold the device in between fingers and thumb
- Insert tip gently into one nostril until finger(s) touch the outside of the nose
- Push plunger all the way in
- Dose is complete when the green line appears

EMERGENCY Low Blood Sugar (Hypoglycemia) Management (continued)

How to Give Gvoke HypoPen®



Administer into upper arm,
stomach, or thigh.

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Xeris Pharmaceuticals, Inc. is not affiliated with this content (or diabetes education book)

If you do not have Baqsimi® or Gvoke HypoPen® on hand, you can use other household items in their place such as cake icing or syrup into the inside of the child's cheek or on his/her/their gums.

- If your child is older than 1 year old, you can also use honey

LET'S PRACTICE

Question 1: It is 5PM you come home from work to see your child is unconscious. You check his/her/their blood sugar; it is 32 mg/dL. Is this an emergency?

- a) Emergency
- b) Not an emergency

Question 2: What do you do?

- a) Give the glucagon (Baqsimi® or Gvoke HypoPen®), roll child to his/her/their side, call 911
- b) Roll child to his/her/their side, give the glucagon (Baqsimi® or Gvoke HypoPen®), call 911
- c) Call 911, give the glucagon (Baqsimi® or Gvoke HypoPen®), roll child to his/her/their side
- d) Roll child to his/her/their side, call 911, give the glucagon (Baqsimi® or Gvoke HypoPen®)

Answers: a, a

High Blood Sugar (Hyperglycemia)

High blood sugar, or hyperglycemia, occurs when the blood sugar is greater than 180 mg/dL. High blood sugar is a NORMAL part of life with having diabetes.

Remember, if blood sugar goes too high, you will need rapid-acting insulin such as Novolog®/Humalog® to bring the blood sugar back into target range of 80-180 mg/dL.



Causes:

- Miscounting or under-guessing carbohydrates
- Not taking enough rapid-acting insulin (Novolog® or Humalog®)
- Skipping or missing dose(s) of rapid-acting insulin (Novolog® or Humalog®)
- Using expired insulin
- Using insulin that has gotten too hot or cold
- Sickness
- Infection
- Injury
- Stress
- Increased insulin needs related to growth, puberty, and/or menstrual cycle

Symptoms:

- Increased thirst
- Peeing often
- New or increased bed-wetting
- Blurry vision
- Sleepy
- Slow healing wounds
- Unexplained weight loss over a short length of time
- Headache
- Fatigue
- Grumpy



High Blood Sugar (Hyperglycemia) Management

- When should I be worried about high blood sugar?
 - If blood sugar is **greater than 300 mg/dL for more than 3 hours**
 - Your child is sick
 - At diagnosis, it is normal for blood sugars to be high until the insulin doses are adjusted to what your child needs.
 - You will talk to the diabetes educator after being discharged from the hospital to help adjust insulin doses.
- How do I manage high blood sugar?
 - Give rapid-acting insulin (Humalog®/Novolog®)
 - o REMEMBER, if the blood sugar is high and your child is not hungry you CAN give ONLY the correction dose.
 - Drink water
 - Consider checking ketones



Step 1

Blood sugar greater than 300 mg/dL for more than 3 hours



Step 2

Give rapid-acting insulin (Humalog®/Novolog®)
Drink water
Consider checking ketones



Step 3

Recheck blood sugar in 3 hours



Step 4

Repeat steps 1 and 2 until blood sugar is back in goal range of 80-180 mg/dL

High Blood Sugar (Hyperglycemia) Management

What are ketones?

- Remember, our bodies cannot use blood sugar for energy when there is not enough insulin to bring the blood sugar into our cells.
- The body will break down fat into ketones to use for energy.
- Ketones are acidic and make you SICK!
- You can see if the body is doing this by checking for ketones in your child's pee

How to check for ketones

- Pee in a clean plastic cup and dip the ketone test strip into the pee or pee directly onto the ketone strip
 - Make sure you do this mid-stream of pee, as first drops of pee are "dirty."
- Check the bottle to see how long you should wait after dipping the ketone strip in pee to compare the ketone strip to the color chart on the ketone strip bottle
- Compare the ketone strip to the ketone color chart on the ketone strip bottle.

When should I check ketones?

- If the blood sugar is 300 mg/dL or higher for longer than 3 hours in a row
- You are sick (check ketones daily when sick even if they are negative)
- You are throwing up even if your blood sugar is less than 300 mg/dL
- Sick day management will be taught at diabetes class after you are discharged from the hospital
- **Call (336) 272-6161 to speak with your diabetes provider if you have moderate or large ketones**

Helpful Hint!

- Ketone strips are usually not covered by insurance
- You can buy ketone strips over the counter at your local pharmacy
- Ketone test strips come in a bottle
- **Ketone test strips expire normally 3 months after you open them. Make sure the ketone strips you are using are not expired!**
- Keep ketone strips at room temperature (do not leave them in your car/fridge/freezer)



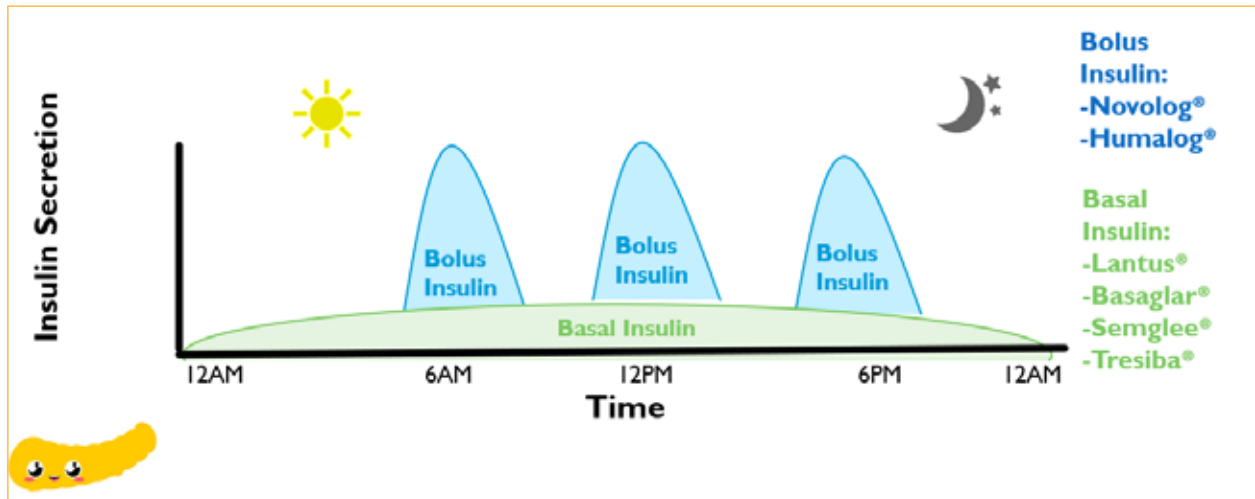
Insulin

- Insulin is made by the pancreas and helps blood sugar get into the cells of the body to use for energy.
 - With diabetes, the pancreas no longer makes enough insulin.
 - Without insulin the blood sugar stays in the blood stream.
 - Your body will break down fat to make ketones to use for energy if insulin cannot bring blood sugar into the cell to be used for energy.
 - o Remember ketones = acid in our body
 - o Acid in our body = SICK!
- Insulin is given as a shot (with an insulin pen) or continuously (with an insulin pump)
- You must know how to give insulin with an insulin pen before starting an insulin pump



Insulin (continued)

- We give insulin shots to copy the way our body's pancreas gives insulin
- The pancreas gives a little bit of insulin all day (long-acting insulin shots replace this) and more insulin when we eat food (ultra-rapid or rapid-acting insulin shots replace this)



| Type of Insulin | Name(s) | Onset | Peak | Duration | Stability (AFTER OPEN) |
|--------------------|------------------------------|-----------|------------|----------------|------------------------|
| Ultra-Rapid Acting | Fiasp®, Lyumjev® | 10-15 min | 1.5 hours | 3 hours | 1 month |
| Rapid Acting | Novolog®, Humalog® | 30 min | 1-2 hour | 3 hours | 1 month |
| Long Acting | Levemir® | 1 hour | 3-14 hours | Up to 24 hours | 1.5 months |
| Long Acting | Semglee®, Lantus®, Basaglar® | 3 hours | No Peak | 24 hours | 1 month |
| Ultra-Long Acting | Tresiba® | 1 hour | No Peak | 42 hours | 2 months |

Insulin (continued)

Helpful Hint!

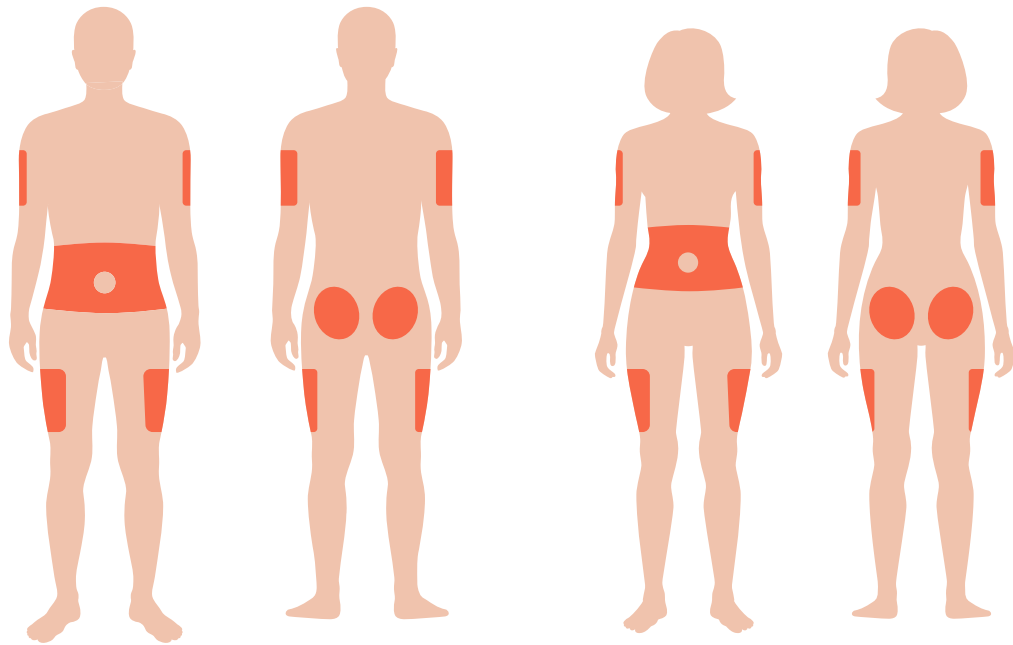
- Storage is VERY important
 - Do not let insulin get too hot (examples: keep in a hot car, sunlight, near oven/heater) or too cold (examples: cold car, freezer, touching walls of or in the back of the fridge)
 - If traveling outside (examples: beach or a sporting event): keep the insulin in a lunch box with an ice pack
- OPENED: insulin is good at room temperature, or it can be refrigerated for about 1-2 months depending on the type of insulin
- NOT OPENED: insulin is good in the fridge until the expiration date
- When injecting cold insulin, such as when one injects insulin quickly after taking out of the fridge some people may feel insulin burns/stings. To reduce burning/stinging:
 - Keep insulin at room temperature (remember it is good after opening for 1-2 months depending on type of insulin)
 - If you keep insulin refrigerated, then take insulin out of refrigerator 30 minutes before using
- Ultra or rapid-acting insulin cannot be mixed with long acting insulin.
 - Ultra or rapid-acting insulin: Fiasp®, Lyumjev®, Novolog®, Humalog®
 - Long-acting insulin: Lantus®, Basaglar®, Semglee®, Tresiba®
- If you are giving ultra or rapid-acting insulin at the same time of long acting insulin, be sure to give the shots in opposite sides of the body



Giving an Insulin Injection

Your nurse will teach you and your caregiver(s) how to give yourself insulin shots correctly, with the right amount of insulin. It is important to change injection sites each time. Insulin can absorb at different rates depending on where you inject insulin and if you exercise. Ideal insulin injection spots will be soft to the touch. Avoid giving shots in firm spots, such as scar tissue or muscle.

Insulin Injection Sites:



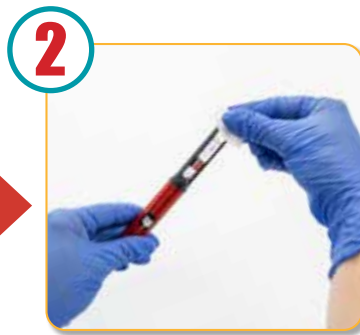
- Stomach
- Outer thighs
- Back of upper arms
- Upper buttocks/lower back



Steps for Giving Insulin with the Insulin Pen



Wash your hands.



Remove the pen cap and wipe the rubber stopper with an alcohol pad.



Remove the protective tab from the needle and screw it onto the pen.



Remove the plastic outer cap and the needle cap.



Dial up 2 units.



Press the button until a drop of insulin appears (air shot), while the needle is still pointing up.



If insulin does not appear, repeat the air shot. If insulin still does not appear, repeat a third time. If insulin still does not appear, change the needle.

Once the air shot is complete, be sure the pen dose is set on "0" (zero). Choose your site and clean the area with alcohol.



Twist the end of the insulin pen to the number of insulin units you plan to inject. Push the needle into the skin. Press the button down, as far as it will go, and hold for 10 seconds. Pull the needle out from the skin.

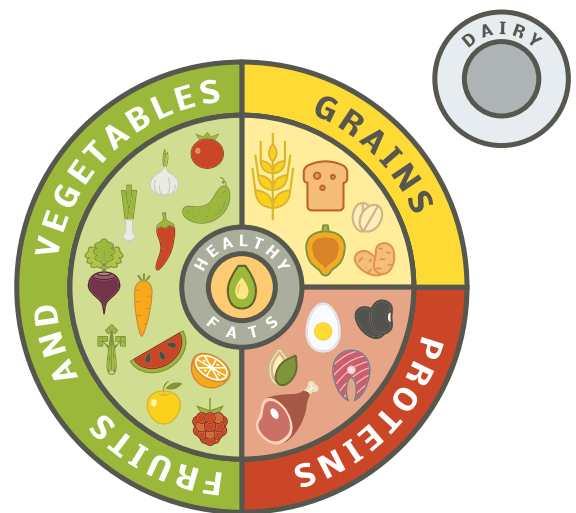


Recap the needle with the OUTER needle cover (NOT the inner needle cover). Twist off the needle.

Put the used needle in a sharps jug or thick plastic bottle (examples: laundry detergent bottle or milk carton)

Healthy Eating

- Healthy eating is an important part of keeping the blood sugar in your target range of 80-180 mg/dL.
- You should not stop eating carbohydrates. Everyone, including people with diabetes, should eat a diet that includes all food groups.
- All food groups should be enjoyed in moderation
- Carbohydrates will change to blood sugar, which will raise your blood sugar. Therefore, your child will need insulin when eating carbohydrates. Some carbohydrates may increase blood sugar quickly, while others may increase blood sugar more slowly.
- It is important to know portion sizes, such as the MyPlate method (see page 28)
- It is ideal to have 2-3 servings of fruits and vegetables daily and to have 3 servings of grains, dairy, and protein foods daily.
 - Keep in mind a serving is not necessarily 1 meal; rather, it is the portion size you eat!
 - Review page 43 to determine how to estimate a serving size (this is based on YOUR CHILD'S hand)
 - If you are using a serving size to estimate carbohydrate counting, this is based on an ADULT hand.



Basic Food Groups

There are three major food groups or macronutrients: carbohydrates, protein, and fat. It is also important for your body to consume micronutrients, which are found in all foods. Eating a variety of different foods is the best way to make sure you grow healthy and strong!

Carbohydrates/grains

- Your body's main source of energy, which should be included with each meal. Simple carbohydrates will raise the blood sugar quickly. Complex carbohydrates will raise blood sugar more slowly.
- Examples:
 - "Typical carbohydrates": pasta, rice, bread, potatoes, sweets (cakes/cookies)
 - "Sneaky carbohydrates": starchy vegetables (corn, beans, peas, potatoes, squash, pumpkin), cereal, milk, yogurt, fruit



Protein

- Helps repair and build muscle. It also helps stabilize your blood sugar.
- Examples include pork, beef, veal, chicken, turkey, fish, eggs, cheese, nuts, peanut butter, soy foods, tofu

Fat

- Helps to absorb vitamins. It also affects your blood sugar slowly and “sticks around” for a longer period of time.
- Unsaturated fats are healthier than saturated fats.
 - Examples of unsaturated fats: margarine, mayonnaise, nuts and seeds, oil (canola, olive), peanut butter/nut spread, salad dressings
 - Examples of saturated fats: butter, bacon and sausage, cream cheese, gravy, sour cream, fried foods, cheese

Helpful Hint!

- Eat a balanced diet including lean protein, healthy fats, and carbohydrates
- Do not skip a meal even if your blood sugar is high
- Try your best to swap out sugary drinks with water or sugar-free/diet drinks

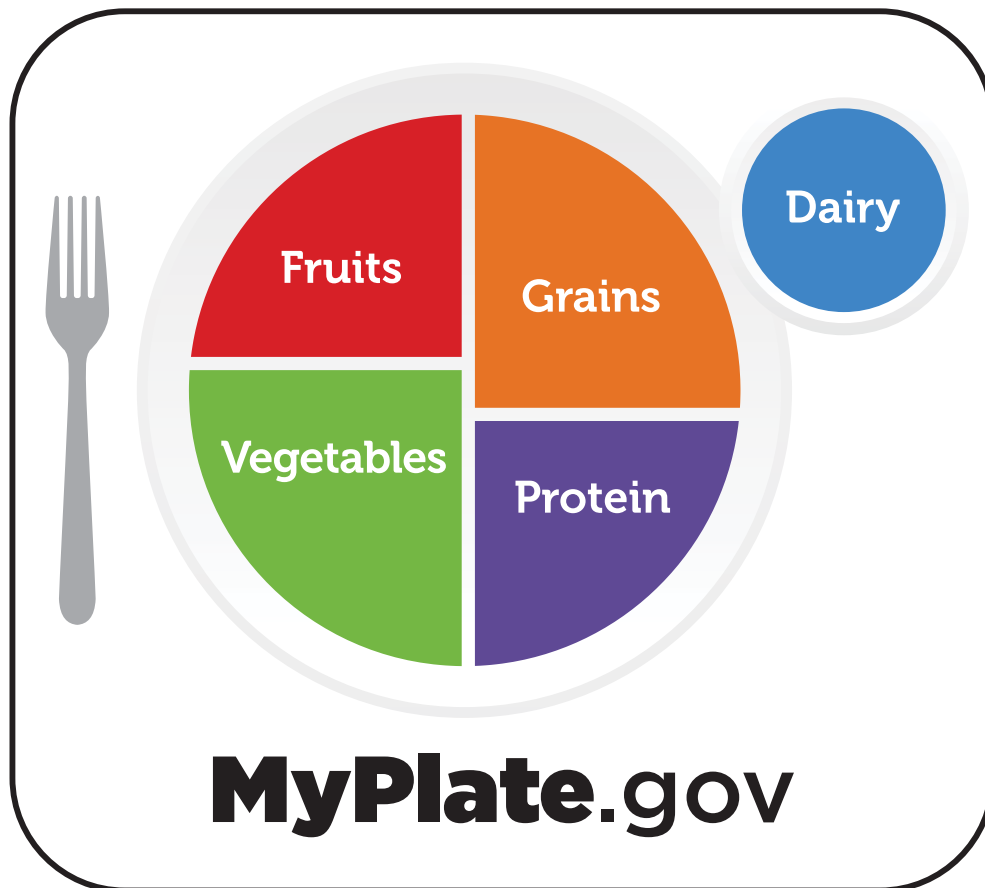
Maintain a healthy weight.



Healthy Eating Plan

Before you eat, think about what goes on your plate, cup, or bowl. Foods like vegetables, fruits, whole grains, low-fat dairy products, and lean protein foods contain the nutrients you need to maintain a heart healthy eating plan.

Keep these recommendations and tips in mind as you build your heart healthy plate each day.



•These amounts are appropriate for individuals who get less than 30 minutes per day of moderate physical activity, beyond normal daily activities. Those who are more physically active may be able to consume more while staying within calorie needs.

Adapted from the USDA Center for Nutrition Policy and Promotion's ChooseMyPlate.gov Web site.



Healthy Eating Plan

Protein

| | Protein (grams) | Fat (grams) |
|------------|-----------------|-------------|
| Lean | 7 | 0-3 |
| Medium-fat | 7 | 4-7 |
| High-fat | 7 | 8+ |

Meat

| Food Item | Lean | Medium-fat | High-fat |
|-----------------------|---|---|---|
| Beef | Ground round, roast, round, sirloin, steak, tenderloin | Corned beef, ground beef, prime rib, short ribs | -- |
| Chicken | Without skin | With skin | -- |
| Fish | Smoked herring or salmon | Any fried product | -- |
| Lamb | Chop, leg, or roast | Ground, rib roast | -- |
| Pork | Canadian bacon, rib or loin chop/roast, ham, tenderloin | Cutlet, shoulder roast | Ground, sausage, spareribs |
| Sandwich meats | Chipped beef, deli thin-sliced meats (turkey, ham) | -- | Bologna, pastrami, hard salami |
| Sausage | -- | Sausage with 4-7 grams of fat per ounce | Bratwurst, chorizo, Italian, knockwurst, Polish, smoked |
| Shellfish | Clams, crab, imitation shellfish, lobster, scallops, shrimp | -- | -- |
| Veal | Loin chop, roast | Cutlet (no breading) | -- |

Meat Substitutes

| Lean | Medium-fat | High-fat |
|---|---|--|
| Beef jerky Cottage cheese Egg Substitute or egg whites Hot dog (if 3 grams of fat or less) Sardines | Feta, mozzarella, reduced-fat cheeses, string cheese Egg Tofu | American, bleu, brie, cheddar, queso, Swiss cheese Beef or Pork Hot dog |

Fat

| Unsaturated (Monounsaturated) | Unsaturated (Polyunsaturated) | Saturated |
|--|---|--|
| Avocado Nut butters (trans fat-free) Nuts (almonds, cashews, peanuts, pecans, pistachios) Oil (canola, olive, peanut) Olives | Margarine Mayonnaise Oil (corn, cottonseed, flaxseed, grape seed, safflower, soybean, sunflower) Salad dressing Seeds (flaxseed (whole), pumpkin, sunflower, sesame) Walnuts | Bacon Butter Cream Cream cheese Lard Oil (coconut, palm, palm kernel) Shortening Sour cream |

Healthy Eating Plan

Carbohydrates

| Bread | Cereals and Grains | Snacks and Sweets |
|---|--|---|
| Bagel Bread (white, whole-grain, pumpernickel, rye) English muffin Hot dog or hamburger bun Pancake Roll Taco shell Tortilla Waffle | Bran, dry, wheat Cereals, cooked oats, oatmeal, puffed, shredded wheat, sugar-coated, unsweetened) Couscous Granola (low fat or regular) Grits Pasta Rice (white, brown, wild) | Chips Crackers Cookies Popcorn Pretzels Rice cakes Cake Brownies Pie Candy |
| Starchy Vegetables | Fruit | Milk |
| Beans Corn Lentils Corn Peas Potatoes Pumpkin Squash Yam | Apple Applesauce Apricots Banana Berries (blackberries, blueberries, raspberries, strawberries) Cantaloupe Cherries Dates Dried fruits Figs Fruit juice Grapefruit Grapes Honeydew Kiwi Mango Nectarine Oranges Papaya Peaches Pears Pineapple Plums Prunes Tangerines | Chocolate milk Evaporated milk Ice cream Milk or buttermilk Soymilk Yogurt |

The 15 Grams Carbohydrate List

Starches

One starch serving has 15 grams of carbohydrates.

Breads

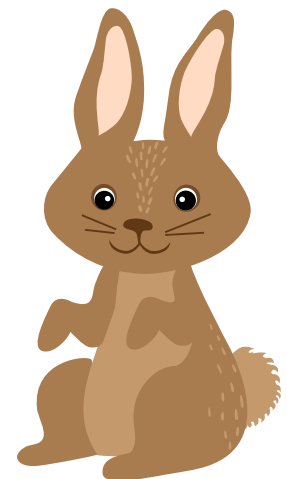
| | |
|--|---|
| Bagel | 1/4 large bagel (1 ounce) |
| Biscuit | 1 biscuit (2.5 inches across) |
| Bread stuffing | 1/3 cup |
| Breads (loaf-type) white, whole-grain, French, Italian, pumpernickel, rye, sourdough, unfrosted raisin or cinnamon | 1 slice (1 ounce) |
| Ciabatta | 1 ounce |
| Cornbread | 1-3/4 inch cube (1.5 ounces) |
| English muffin | 1/2 muffin |
| Hot dog bun or hamburger bun | 1/2 bun (3/4 ounce) |
| Naan | 3-1/4 inch square (1 ounce) |
| Pancake | 1 pancake (4 inches across, 1/4 inch thick) |
| Pita (6 inches across) | 1/2 pita |
| Plain roll | 1 small roll (1 ounce) |
| Taco shell | 2 taco shells (5 inches across) |
| Tortilla, corn | 1 small tortilla (6 inches across) |
| Tortilla, flour | 1 small tortilla (6 inches across) or 1/3 large tortilla (10 inches across) |
| Waffle | 1 waffle (4 inches across) |

Grains (cooked)

| | Serving Size |
|---|--------------|
| Barley | 1/3 cup |
| Bulgar | 1/3 cup |
| Couscous | 1/3 cup |
| Oat | 1/2 cup |
| Pasta, white or whole-wheat | 1/3 cup |
| Polenta | 1/3 cup |
| Quinoa | 1/3 cup |
| Rice, white or brown (all colors and types) | 1/3 cup |
| Tabbouleh (tabouli) | 1/2 cup |
| Wild rice | 1/2 cup |

Cereals

| | Serving Size |
|---|--------------|
| Cooked cereals (oatmeal, cream of wheat, grits) | 1/2 cup |
| Granola cereal | 1/4 cup |
| Muesli | 1/4 cup |
| Puffed cereal | 1.5 cups |
| Shredded wheat, plain | 1/2 cup |
| Sugar coated cereal | 1/2 cup |
| Unsweetened, ready-to-eat cereal (Cheerios) | 3/4 cup |



The 15 Grams Carbohydrate List (continued)

Crackers/Snacks

| | |
|---|--|
| Crackers | 8 crackers |
| Animal crackers | 2-5 pieces (3/4 oz) |
| Cheese or peanut butter sandwich crackers | 3 crackers |
| Chips | 12 chips (1 ounce) |
| Graham crackers | 3 squares (2.5 inches) |
| Granola or snack bar | 1 bar (3/4 ounce) |
| Matzo (all shapes and sizes) | 3/4 ounce |
| Nut and rice crackers | 10 crackers |
| Oyster crackers | 20 crackers |
| Popcorn | 3 cups |
| Pretzels | 3/4 ounce |
| Rice cakes | 2 cakes (4 inches across) |
| Round, butter crackers | 6 crackers |
| Saltine crackers | 6 crackers |
| Whole-wheat, baked crackers | 5 regular (1.5-inch squares) or 10 thins (3/4 ounce) |



Starchy Vegetables (cooked)

| | Serving Size |
|---------------------------------------|--|
| Breadfruit | 1/4 cup |
| Corn | 1/2 cup |
| Corn on the cob | 4 inch to 4.5 inch piece (1/4 large cob) |
| French fries | 1 cup (2 ounces) |
| Hominy | 3/4 cup |
| Marinara, pasta, or spaghetti sauce | 1/2 cup |
| Mixed vegetables with corn or peas | 1 cup |
| Parsnips | 1/2 cup |
| Peas | 1/2 cup |
| Plantain | 1/3 cup |
| Potato - baked with skin | 1/4 large potato (3 ounces) |
| Potato - boiled or mashed | 1/2 cup |
| Pumpkin puree, canned, no sugar added | 3/4 cup |
| Succotash | 1/2 cup |
| Winter squash (acorn, butternut) | 1 cup |
| Yam or sweet potato | 1/2 cup (3.5 ounces) |

Beans (cooked)

| | Serving Size |
|---|--------------|
| Baked beans | 1/3 cup |
| Beans (black, garbanzo, kidney, lima, navy, pinto, white) | 1/2 cup |
| Lentils (any color) | 1/2 cup |
| Peas (black-eyed, split) | 1/2 cup |
| Refried beans | 1/2 cup |

The 15 Grams Carbohydrate List (continued)



Fruit

(includes skin, core, seeds and rind)

| | Serving Size |
|---|---|
| Apple, unpeeled | 1 small (4 ounces) |
| Apple, dried | 4 rings |
| Applesauce, unsweetened | 1/2 cup |
| Apricots, canned | 1/2 cup |
| Apricots, dried | 8 apricot halves |
| Apricots, fresh | 4 apricots (5.5 ounces total) |
| Banana | 1 extra-small banana (4 inches long/4 ounces) |
| Blackberries | 1 cup |
| Blueberries | 3/4 cup |
| Cantaloupe, diced | 1 cup |
| Cherries, canned | 1/2 cup |
| Cherries, fresh | 12 cherries (3.5 ounces) |
| Dates | 3 small (deglet noor) or 1 large (medjool) |
| Dried fruits (blueberries, cherries, cranberries, raisins, mixed) | 2 tablespoons |
| Figs, dried | 3 small figs |
| Figs, fresh | 1.5 large or 3 medium figs (3.5 ounces) |
| Fruit cocktail | 1/2 cup |
| Grapefruit, fresh | 1/2 large grapefruit (5.5 ounces) |
| Grapefruit, sections in can | 3/4 cup |
| Grapes | 17 small grapes (3 ounces) |
| Guava | 2 small (2.5 ounces) |
| Honeydew melon, diced | 1 cup |
| Kiwi, sliced | 1/2 cup |
| Loquat, cubed | 3/4 cup |
| Mandarin oranges, canned | 3/4 cup |
| Mango | 1/2 small mango (5.5 ounces) or 1/2 cup |
| Nectarine | 1 medium (5.5 ounces) |
| Orange | 1 medium (6.5 ounces) |
| Papaya | 1/2 papaya (8 ounces) or 2 cups cubed |
| Peaches, canned | 1/2 cup |
| Peaches, fresh | 1 medium peach (6 ounces) |
| Pears, canned | 1/2 cup |
| Pears, fresh | 1/2 large pear (4 ounces) |
| Pineapple, canned | 1/2 cup |
| Pineapple, fresh, diced | 3/4 cup |
| Plantain (extra ripe) | 1/4 plantain (2.25 ounces) |
| Plums, canned | 1/2 cup |
| Plums, dried (prunes) | 3 prunes |
| Plums, fresh | 2 small plums (5 ounces total) |
| Pomegranate seeds | 1/2 cup |
| Raspberries | 1 cup |
| Strawberries | 1-1/4 cup whole |
| Tangerine | 1 large (6 ounces) |
| Watermelon, diced | 1-1/4 cup |

Fruit juice

| | Serving Size |
|-------------------------|--------------------|
| 100% fruit juice blends | 1/3 cup (3 ounces) |
| Apple juice/cider | 1/2 cup (4 ounces) |
| Grape juice | 1/3 cup (3 ounces) |

The 15 Grams Carbohydrate List (continued)

| Fruit juice | Serving Size |
|-------------------|--------------------|
| Grapefruit juice | 1/2 cup (4 ounces) |
| Orange juice | 1/2 cup (4 ounces) |
| Pineapple juice | 1/2 cup (4 ounces) |
| Pomegranate juice | 1/2 cup (4 ounces) |
| Prune juice | 1/3 cup (3 ounces) |

Sweets, Desserts, Muffins, Pastries, and other Carbohydrates

One serving has 15 grams of carbohydrates.

| Food | Serving Size |
|--------------------------|-------------------------------|
| 100-Calorie pack cookies | 1 pack (1 ounce) |
| Angel food cake | 1 ounce |
| Banana nut bread | 1 ounce |
| Biscotti | 1 ounce |
| Brownie, unfrosted | 1 ounce (1-1/4 inch square) |
| Cake, frosted | 1 ounce |
| Cake, unfrosted | 1 ounce |
| Chocolate chip cookies | 2 cookies - 2-1/4 inch across |
| Cupcake, frosted, small | 1 ounce |
| Donut Hole | 2 holes (1 ounce) |
| Donut, plain or glazed | 1 ounce |
| Flan | 1/4 cup |
| Fruit cobbler | 1 ounce |
| Gingersnap cookies | 3 cookies - 1.5 inch across |
| Jell-O, regular | 1/2 cup |
| Muffin | 1 ounce |
| Pudding, regular | 1/2 cup |
| Pudding, sugar-free | 1 cup |
| Sandwich cookie (Oreo) | 2 cookies |
| Scone | 1 ounce |
| Sugar-free cookie | 1 large or 3 small (1 ounce) |
| Sweet roll/Danish | 1 ounce |
| Vanilla wafer | 5 cookies |

Candy, Spreads, Sweeteners, Syrups, and Toppings

One serving has 15 grams of carbohydrates.

| Food | Serving Size |
|-----------------------------------|---------------------|
| Chocolate, dark or milk | 1 ounce |
| Chocolate "kisses" | 5 pieces |
| Coffee creamer, non-dairy, liquid | 2 tablespoons |
| Fruit snacks, chewy | 1 pack (3/4 ounces) |
| Fruit spreads, 100% fruit | 1.5 tablespoons |
| Hard candy (jolly ranchers) | 3 pieces |
| Honey | 1 tablespoon |
| Jam/jelly, regular | 1 tablespoon |
| Sugar | 1 tablespoon |
| Syrup, chocolate | 1 tablespoon |
| Syrup, light | 2 tablespoons |
| Syrup, regular | 1 tablespoon |



The 15 Grams Carbohydrate List (continued)

Frozen Bars, Frozen Desserts, Frozen Yogurt, and Ice Cream

One serving has 15 grams of carbohydrates.

| Food | Serving Size |
|------------------------------|--------------|
| Frozen pops | 2 pops |
| Frozen Yogurt | 1/2 cup |
| Fruit juice bars, 100% juice | 1 bar |
| Ice cream | 1/2 cup |
| Sherbet/ sorbet | 1/2 cup |



Condiments and Sauces

One serving has 15 grams of carbohydrates.

| Food | Serving Size |
|---------------------------------|---------------|
| Barbecue sauce | 3 tablespoons |
| Cranberry sauce | 1/4 cup |
| Gravy (prepackaged or homemade) | 1 cup |
| Marinade | 2 tablespoons |
| Salad dressing, cream based | 3 tablespoons |
| Sweet and sour sauce | 3 tablespoons |

Plant-Based Proteins

One serving has 15 grams of carbohydrates.

| Food | Serving Size |
|---|----------------------|
| “Chicken” nuggets, soy-based | 4 nuggets (3 ounces) |
| Baked Beans, canned | 1/3 cup |
| Beans (black, garbanzo, kidney, lima, navy, pinto, white), cooker or canned, drained and rinsed | 1/2 cup |
| Edamame, shelled | 1 cup |
| Hummus | 1/3 cup |
| Lentils, any color, cooked or canned, drained and rinsed | 1/2 cup |
| Meatless burgers, soy-based | 6 ounces |
| Meatless burgers, vegetable/starch-based | 5 ounces |
| Mycoprotein (“chicken” tenders or crumbles) | 4 ounces |
| Peas (black-eyed and split), cooked or canned, drained and rinsed | 1/2 cup |
| Refried-beans, canned | 1/2 cup |
| Soy nuts | 1.5 ounces |

The 15 Grams Carbohydrate List (continued)

Combination/Prepared Foods

One serving has 15 grams of carbohydrates.

| Food | Serving Size |
|---|------------------------|
| Bean, lentil, or split pea soup | 2/3 cup (6 ounces) |
| Broth soups (vegetable, beef, chicken noodle) | 1 cup (8 ounces) |
| Casserole-type entrees (tuna noodle, lasagna, spaghetti with meatballs, chili with beans, mac-n-cheese) | 1/2 cup |
| Chowder (made with milk) | 1 cup (8 ounces) |
| Coleslaw | 1/2 cup (4 ounces) |
| Cream soup (made with water) | 1 cup (8 ounces) |
| Macaroni/pasta salad | 1/4 cup (2 ounces) |
| Miso soup | 2 cups (16 ounces) |
| Pizza, frozen | 1/8 of a 12-inch pizza |
| Pocket sandwich (Hot Pocket) | 1/3 sandwich |
| Potato salad | 1/4 cup (2 ounces) |
| Potpie | 2.5 ounces |
| Ramen noodle soup | 1/2 cup (4 ounces) |
| Stews (meat and vegetable) | 1 cup |
| Tomato soup (made with water) | 1 cup (8 ounces) |
| Tuna/chicken salad | 1 cup (8 ounces) |

Fast Food/Restaurants

One serving has 15 grams of carbohydrates.

| Food | Serving Size |
|---|--------------------------------|
| Asian - Eggroll | 2/3 roll (2 ounces) |
| Asian - Fortune cookie | 2 cookies |
| Asian - Hot-and-sour soup | 2 cups |
| Asian - Meat (beef, chicken, shrimp) with vegetables in sauce | 1 cup (6-8 ounces) |
| Asian - Meat and sweet sauce | 1/3 cup (2 ounces) |
| Asian - Noodle dishes (lo Mein) | 1/2 cup |
| Asian - Rice | 1/2 cup |
| Chicken breast, breaded and fried | 7 ounces |
| Chicken drumstick, breaded and fried | 2 drumsticks (5 ounces) |
| Chicken nuggets or tenders | 6 pieces (about 3.5 ounces) |
| Chicken thigh, breaded and fried | 1 thigh (5 ounces) |
| Chicken wing, breaded and fried | 2 wings (4 ounces) |
| Mexican - Burrito with beans and cheese | 2 ounces (1/3 small burrito) |
| Mexican - Hard taco with meat and cheese | 1 small taco (3 ounces) |
| Mexican - Nachos with cheese | 4 chips |
| Mexican - Quesadilla with cheese | 1/2 small order (2 ounces) |
| Mexican - Tostada with beans and cheese | 1/2 small tostada (2.5 ounces) |
| Sides - Onion rings | 2-3 rings (1 ounce) |

The 15 Grams Carbohydrate List (continued)

Fast Food/Restaurants, continued

One serving has 15 grams of carbohydrates.

| Food | Serving Size |
|--|-----------------------------|
| Sandwich - Breakfast burrito with sausage, egg, and cheese | 1/2 small (3 ounces) |
| Sandwich - Crispy chicken with bun | 1/3 sandwich (2 ounces) |
| Sandwich - Egg, cheese, meat on biscuit | 1/2 sandwich |
| Sandwich - Egg, cheese, meat on English muffin | 1/2 sandwich |
| Sandwich - Fish with bun, tartar sauce, cheese | 1/2 sandwich (2.5 ounces) |
| Sandwich - Grilled chicken with bun | 1/3 sandwich (2.5 ounces) |
| Sandwich - Hot dog with bun | 1/2 hot dog (2 ounces) |
| Sandwich - Regular hamburger with bun/condiments | 1/2 sandwich (2 ounces) |
| Sandwich - Sausage biscuit | 1/2 sandwich |
| Sandwich - Submarine sandwich (no cheese or sauce) | 2-inches |
| Sandwich - Wrap with grilled chicken, cheese, spread | 1/2 small wrap (2-3 ounces) |
| Sides - French fries | 1/2 small order (2 ounces) |
| Sides - Hash browns | 1/2 small order (2 ounces) |

The 12 Grams Carbohydrate List

Milk and Milk Substitutes

One milk serving has 12 grams of carbohydrates.

| Milk and yogurt | Serving Size |
|---|--------------------|
| Milk (whole, 2%, 1%, skim/fat-free, lactose-free) | 1 cup (8 ounces) |
| Evaporated milk | 1/2 cup (4 ounces) |
| Yogurt, plain or Greek | 2/3 cup (6 ounces) |

| Other Milk Foods and Substitutes | Serving Size |
|----------------------------------|--------------------|
| Eggnog | 1/3 cup (3 ounces) |
| Rice Milk/Drink | 1 cup (8 ounces) |
| Soy milk | 1 cup (8 ounces) |



The 5 Grams Carbohydrate List

Non-Starchy Vegetables

One non-starchy vegetable serving (1/2 cup cooked or 1 cup raw) has 5 grams of carbohydrate.

Non-Starchy Vegetables

| | |
|--------------------------------------|---|
| Asparagus | Artichoke |
| Bamboo shoots | Baby corn |
| Beans (green, wax) | Bean sprouts (alfalfa, mung, soybean) |
| Broccoli | Beets |
| Brussel sprouts | Broccoli slaw (packaged with no dressing) |
| Carrots | Cabbage |
| Celery | Cauliflower |
| Coleslaw (packaged with no dressing) | Cucumber |
| Fennel | Eggplant |
| Green onion/scallion | Gourds |
| Jicama | Greens (collards, mustard, turnip) |
| Kohlrabi | Kale |
| Mushrooms (all kinds) | Mixed vegetables (no starchy vegetables) |
| Onions | Okra |
| Peppers (all varieties) | Pea pods |
| Rutabaga | Radishes |
| Summer squash (zucchini, yellow) | Sauerkraut |
| Swiss chard | Spinach |
| Tomatoes | Sugar snap peas |
| Turnips | Water chestnuts |



Low Carbohydrate Snack Time!

- Generally, snacks with less than 10 grams of carbohydrate do not require an insulin shot (check with your diabetes doctor).
- Remember to check your blood sugar before eating. If you need to raise your blood sugar, you can eat a snack with carbohydrates.
- The total snack should be less than 10 grams of carbohydrate. Check your nutrition facts label or Calorie King app on phone to determine grams of carbohydrate per serving. Determine how many servings you can and will be eating.
- No sugar added DOES NOT mean sugar-free! And sugar-free DOES NOT mean the snack has less than 10 grams of carbohydrate. Check the label!
- Snacks below may be ordered from hospital menu at any time, unless otherwise stated*

Snacks with 0-2 grams of Carbohydrate

- Eggs (egg salad, boiled eggs, deviled eggs or scrambled eggs)
- Slices of grilled chicken
- Cheese sticks/slices (mozzarella, cheddar, provolone, swiss, American, etc.)
- Deli turkey and deli ham (2 slices)
- Tuna salad or chicken salad
- Dill pickles (2 spears)
- Sugar-Free Jell-O
- Water, diet soda, Crystal Light



Low Carbohydrate Snack Time!

- Portion sizes are based on child's hand
- Estimating carbohydrate counts are based on adult's hand

Snacks with around 5 grams of Carbohydrate

- Lettuce (2 cups) with salad dressing (1 tablespoon)
- Raw vegetables like baby carrots, celery, cucumber slices (1 cup) with Ranch dressing (2 tablespoons)
- Celery (3 medium stalks) with cream cheese (2 tablespoons)
- Deli meat and Cheese roll-ups (3)
- Black olives (10-15 large olives)
- Cottage cheese (1/2 cup). You can add a few berries.
- Beef or turkey jerky, cured without sugar (2 large pieces) (*not available on hospital menu*)
- Sliced avocado (1/2 cup)
- Crackers (5 Wheat Thins or 10-15 cheddar fish-shaped crackers or RITZ Bits)

Snacks with 5-10 grams of Carbohydrate

- 1/4 cup nuts or sunflower seeds (*not available on hospital menu*)
- 3 stalks celery with 2 tablespoons peanut butter

Healthy Snacks at Home!

When eating carbohydrate snacks it is a healthy habit to pair them with protein! Keep in mind you may need rapid-acting insulin to cover for carbohydrates. You will learn more about snacking at diabetes class after you leave the hospital.



How to Read a Nutrition Label

The Nutrition Facts label is an important tool to understand the nutrition of the food item you are eating. There are many valuable components to the Nutrition Facts label, but for diabetes management we will focus on teaching you to count carbohydrates to determine the insulin dose for your child.

There are TWO main parts of the Nutrition Facts label to focus on: 1) serving size and 2) total carbohydrates.

Serving Size

In the example to the right, the serving size is 1 cup.

- The 180 grams next to the 1 cup is how much the food item weighs. It is not important for you to know.
- There are 4 servings total within this container.
 - If you eat the whole container, you will be getting 4 times the calories/total fat/cholesterol/total carbohydrates/protein/etc shown on the label.

Total Carbohydrates

In the example to the right, the number of total carbohydrates is 34 grams per 1 cup (since the serving size is 1 cup).

- If you eat 2 cups (2 of the 1 cups) then this would be 68 grams (34 multiplied by 2 = 68).
- Total carbohydrates include sugar, starches, and fiber.
 - Do not subtract fiber or sugar alcohols.

When you meet with the dietitian after the hospital, the dietitian will further explain other important information on the nutrition label.



| Nutrition Facts | |
|-------------------------------|---------------------|
| 4 servings per container | |
| Serving size | 1 cup (180g) |
| Amount per serving | |
| Calories | 245 |
| % Daily Value* | |
| Total Fat 12g | 14% |
| Saturated Fat 2g | 10% |
| Trans Fat 0g | |
| Cholesterol 8mg | 3% |
| Sodium 210mg | 9% |
| Total Carbohydrate 34g | 12% |
| Dietary Fiber 7g | 25% |
| Total Sugars 5g | |
| Includes 4g Added Sugars | 8% |
| Protein 11g | |
| Vitamin D 4mcg | 20% |
| Calcium 210mg | 16% |
| Iron 4mg | 22% |
| Potassium 380mg | 8% |

*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.

LET'S PRACTICE

You ate **1 and 1/3 cups** of soup. How many carbohydrates did you eat?

2/3 cup of soup has 12 grams of carbohydrate.

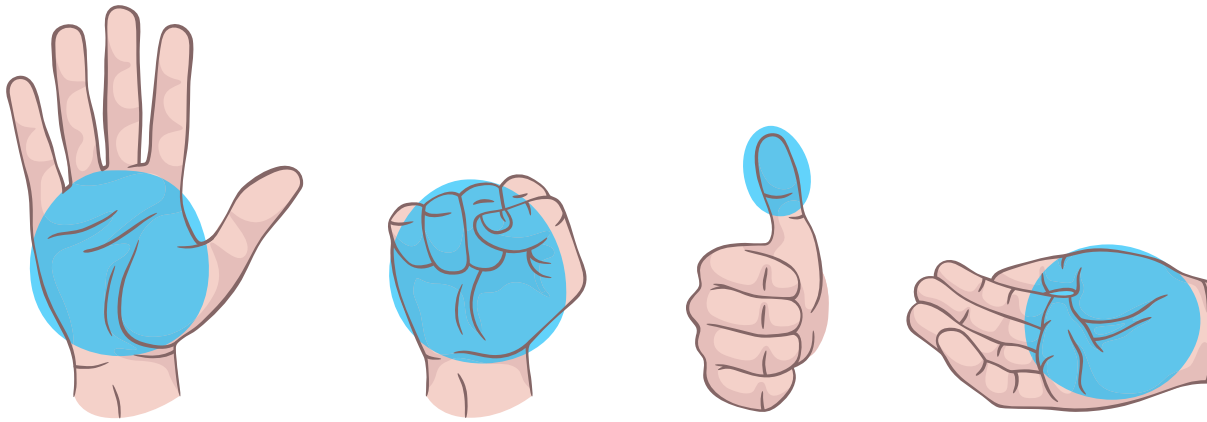
REMEMBER...you ate 1 and 1/3 cups.



Let's add it up!

$$\begin{array}{r} 12 \\ + 12 \\ \hline 24 \text{ grams of} \\ \text{carbohydrates} \end{array}$$

The Secret to Serving Size is in Your Hand



Our hands are our secret tool to measure healthy portions!

| Part of Hand | Measurement | Use to Measure... |
|---------------|--------------|-----------------------------------|
| Palm | 3 ounces | Protein |
| Fist | 1 cup | Carbohydrates |
| Tip of thumb | 1 tablespoon | Fat |
| Thumb nail | 1 teaspoon | Fat |
| A cupped hand | 1/2 cup | Fruit/Vegetables Carbohydrates |

Helpful Phone Apps for Carb Counting and/or Carb Tracking

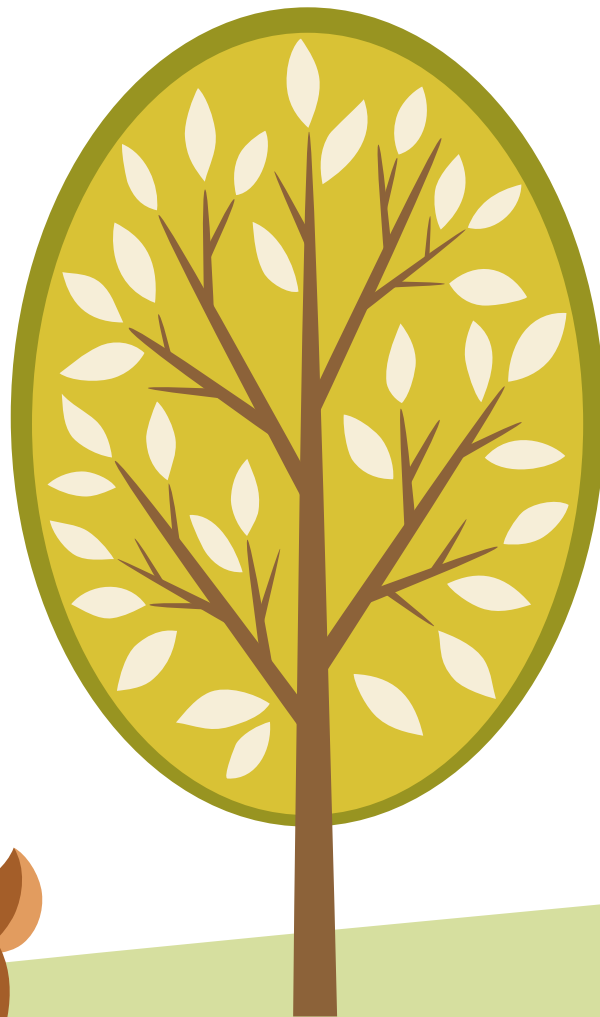
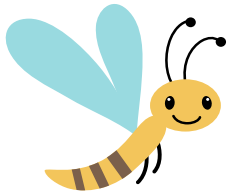
| App Name | Description | Carb Counting Database | Carb Tracking | Blood Glucose Tracking | Cost |
|----------------|--|------------------------|---------------|------------------------|----------|
| Calorie King | Food database of nutrition info; calorie counting, goal-setting | X | | | Free |
| My Fitness Pal | Records food and nutrition info; food and restaurant database; scans barcodes; exercise tracker | X | X | | Free |
| Daily Carb | Food and nutrition info; tracks nutrition intake, blood sugar readings, A1c, blood pressure, heart rate, weight, exercise, medications, and insulin | X | X | X | Free |
| Fooducate | Food and nutrition info; scans food item barcodes; diet, health, and fitness goals | X | | | NOT free |
| Glooko | Syncs blood sugar meter to phone; scans food item barcodes; shares data with care team; provides personalized insights | X | | X | Free |
| MySugr | Tracks blood sugar, medications, meals, carb intake, physical activity; syncs with Accucheck or Contour Next meter | | X | X | Free |
| Glucose Buddy | Ability to enter blood sugar, medications, meals; food database; scans food item barcodes; tracks blood sugar, physical activity, weight, A1c, blood pressure, ketones | X | X | X | NOT free |
| Health2Sync | Enter blood sugar, meals, medications, add food photos; tracks blood pressure, weight, A1c | | X | X | Free |
| DiaConnect | Record blood sugar, meals, insulin, medications; SIMPLE graphs/reports | | X | X | Free |
| Diabetes:M | Tracks blood sugar, meals; nutrition database and scans food item barcodes | X | X | X | Free |
| Fat Secret | Tracks meals; food database; offers recipes | X | | | Free |
| Nutrislice | Shows menu with nutrition facts for food items at school | X | | | Free |

Information as of September 2023

Calculating Insulin Doses

There are two kinds of insulin you will take on a routine basis

- Long acting or ultra-long acting insulin (Lantus®, Semglee®, Basaglar, Tresiba®)
 - Taken ONCE daily (usually in the evening)
 - Your diabetes provider will tell you the right dose
- Ultra-rapid or rapid-acting insulin (Novolog®, Humalog®, Fiasp®, Lyumjev®)
 - Taken for breakfast, lunch, dinner, snacks
 - Determine dose to take based on total carbohydrates in meal and blood sugar before eating meal
 - Also taken if blood sugar is high (greater than 300 mg/dL for longer than 3 hours in a row) to lower your blood sugar reading to the target range of 80-180 mg/dL
 - Doses can be different for the daytime versus nighttime



Calculating Insulin Doses

DIABETES PLAN

Rapid Acting Insulin (Novolog/FiASP (Aspart) and Humalog/Lyumjev (Lispro))

Given for Food/Carbohydrates and High Sugar/Glucose

DAYTIME (breakfast, lunch, dinner)

| | | |
|--|---|---|
| Target Blood Glucose 125 mg/dL | Insulin Sensitivity Factor 25 | Insulin to Carb Ratio 1 unit for 12 grams |
|--|---|---|

| Correction DOSE | | Food DOSE | |
|---|-------------------------------|---|-------------------------------|
| (Glucose - Target)/Insulin Sensitivity Factor | | Number of carbohydrates divided by carb ratio | |
| Glucose (mg/dL) | Units of Rapid Acting Insulin | Number of Carbs | Units of Rapid Acting Insulin |
| Less than 125 | 0 | | |
| 126-150 | 1 | 0-11 | 0 |
| 151-175 | 2 | 12-23 | 1 |
| 175-200 | 3 | 24-35 | 2 |
| 201-225 | 4 | 36-47 | 3 |
| 226-250 | 5 | 48-59 | 4 |
| 251-275 | 6 | 60-71 | 5 |
| 276-300 | 7 | 72-83 | 6 |
| 301-325 | 8 | 84-95 | 7 |
| 326-350 | 9 | 96-107 | 8 |
| 351-375 | 10 | 108-119 | 9 |
| 376-400 | 11 | 120-131 | 10 |
| 401-425 | 12 | 132-143 | 11 |
| 426-450 | 13 | 144-155 | 12 |
| 451-475 | 14 | 156-167 | 13 |
| 476-500 | 15 | 168-179 | 14 |
| 501-525 | 16 | 180-191 | 15 |
| 526-550 | 17 | 192+ | (# carbs divided by 12) |
| 551-575 | 18 | | |
| 576 or more | 19 | | |

Correction Dose + Food Dose = Number of units of rapid acting insulin

| Correction for High Sugar/Glucose | Food/Carbohydrate |
|---|---|
| 1. Measure Blood Glucose BEFORE you eat. (Fingerstick with Glucose Meter or check the reading on your Continuous Glucose Meter). | 1. Count the number of carbohydrates you will be eating. |
| 2. Use the table above or calculate the dose using the formula. | 2. Use the table above or calculate the dose using the formula. |
| 3. Add this dose to the Food/Carbohydrate dose if eating a meal. | 3. Add this dose to the Correction dose if glucose is above target. |
| 4. Correction should not be given sooner than every 3 hours since the last dose of rapid acting insulin. | |

This chart can assist with calculating insulin doses.

Calculating Insulin Doses



BEDTIME

| | | |
|--|---|---|
| Target Blood Glucose 200 mg/dL | Insulin Sensitivity Factor 25 | Insulin to Carb Ratio 1 unit for 12 grams |
|--|---|---|

Wait at least 3 hours after taking dinner dose of insulin **BEFORE** checking bedtime glucose.

| Blood Sugar Less Than 125 mg/dL? | Blood Sugar Between 125 - 199 mg/dL? | Blood Sugar Greater Than 200mg/dL? |
|---|--|--|
| 1. You MUST EAT 15 carbs | 1. Carb snack not needed | 1. Carb snack not needed |
| 2. Additional, Optional Carb Snack? | 2. Optional Carb Snack? | 2. Optional Carb Snack? |
| If you want more carbs, you CAN eat them now! Make sure to subtract MUST EAT carbs from total carbs then look at chart below to determine insulin dose. | You CAN eat this! Make sure to add up total carbs then look at chart below to determine food dose. | You CAN eat this! Make sure to add up total carbs then look at chart below to determine food dose. |
| 3. Correction Dose of Insulin? | 3. Correction Dose of Insulin? NO | 3. Correction Dose of Insulin? YES; please look at correction dose chart to determine correction dose. |

| Glucose (mg/dL) | Units of Rapid Acting Insulin | Units of Carbs | Units of Rapid Acting Insulin |
|-----------------|-------------------------------|----------------|-------------------------------|
| Less than 200 | 0 | 0-11 | 0 |
| 201-225 | 1 | 12-23 | 1 |
| 226-250 | 2 | 24-35 | 2 |
| 251-275 | 3 | 36-47 | 3 |
| 275-300 | 4 | 48-59 | 4 |
| 301-325 | 5 | 60-71 | 5 |
| 326-350 | 6 | 72-83 | 6 |
| 351-375 | 7 | 84-95 | 7 |
| 376-400 | 8 | 96-107 | 8 |
| 401-425 | 9 | 108-119 | 9 |
| 426-450 | 10 | 120-131 | 10 |
| 451-475 | 11 | 132-143 | 11 |
| 476-500 | 12 | 144-155 | 12 |
| 501-525 | 13 | 156-167 | 13 |
| 526-550 | 14 | 168-179 | 14 |
| 551-575 | 15 | 180-191 | 15 |
| 576 or more | 16 | 192+ | (# carbs divided by 12) |

Long Acting Insulin (Glargine (Basaglar/Lantus/Semglee)/Levemir/Tresiba)

Remember long acting insulin must be given EVERY DAY, and NEVER skip this dose

Give 10 units at bedtime

This chart can assist with calculating insulin doses.

Hospital Discharge Checklist

Documentation completed

- HIPAA release forms: needed for the office to legally communicate healthcare information about your child to the school
- Medication administration forms: needed for your child's school to legally be able to give medication
- MyChart forms: needed for your child to use MyChart as a minor

School care plan completed

- Diabetes provider will enter the diabetes care plan instructions for the diabetes caregiver and/or nurse to follow to keep your child safe at school

MyChart account created

- You will share the following information with the diabetes educator after leaving the hospital
 - Blood sugar readings
 - Long-acting insulin dose
 - How much rapid-acting insulin (Novolog®, Humalog®) your child takes at each meal (example: 2-3 units for breakfast, 5 units for lunch, 3-4 units for dinner)
 - Any diabetes management questions
 - You will share this information with diabetes educator 1 to 3 times a week until your first diabetes provider appointment

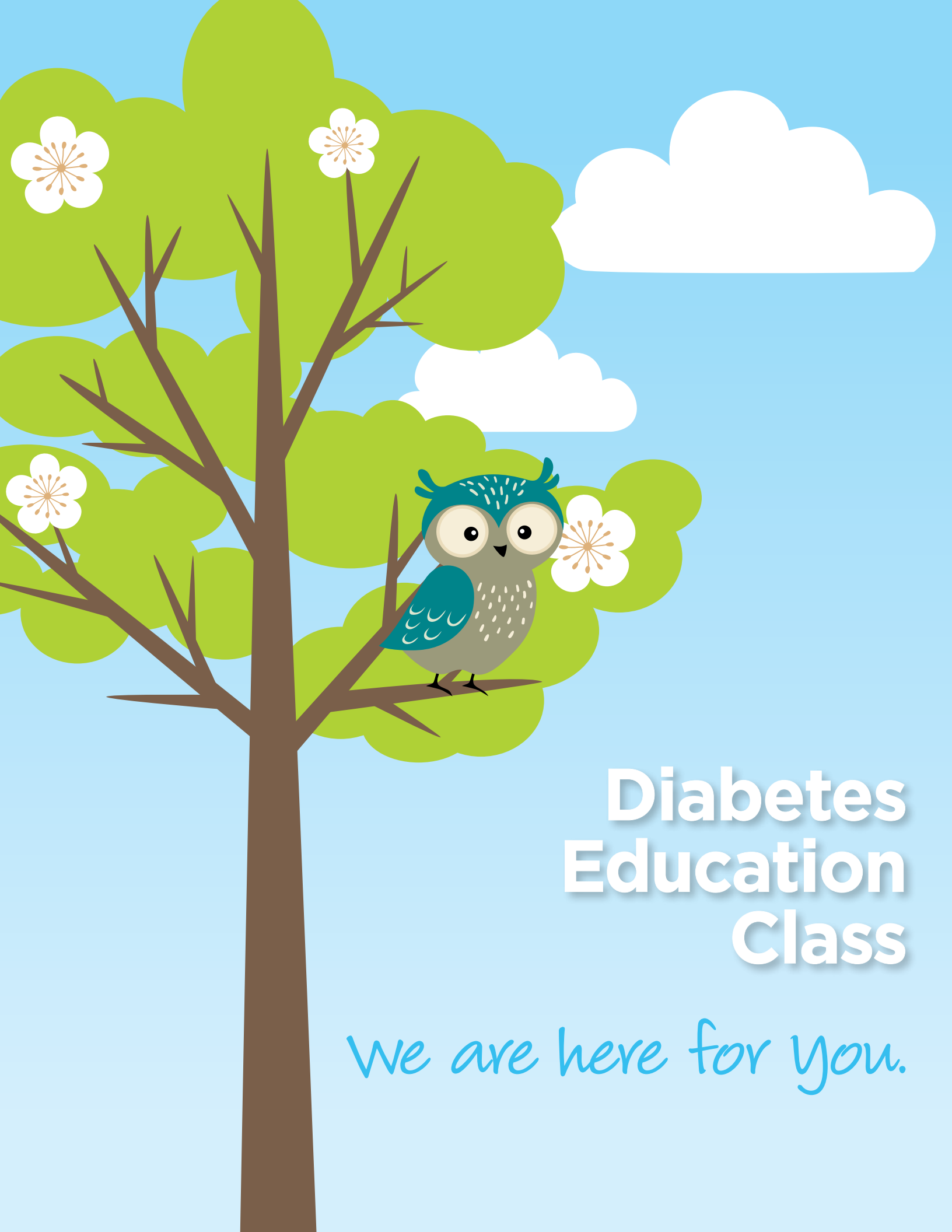
Follow-up appointments scheduled

- One-hour appointment with diabetes provider (Dr. Jennifer Badik, Spenser Beasley, NP, Dr. Ashley Jessup, Dr. Colette Meehan) scheduled within 1 month
- Diabetes education classes with diabetes educator/clinical pharmacist (Mary Taylor, PharmD, BCACP, CDCES, CPP) scheduled within 1-4 weeks
- One-hour appointment with dietitian (Grace Garrett, MS, RDN, LDN) within 1 month

Diabetes medications and supplies prescriptions provided to patient

- During the week: get from transitions of care pharmacy
- On the weekend: get from the local pharmacy

Family knows to contact on-call diabetes provider at (336) 272-6161 if there are any urgent problems to address



Diabetes Education Class

We are here for you.

Dear Patient and Family

We want to welcome you and your family to Cone Health Medical Group (CHMG) Pediatric Specialists. Our team is committed to giving the best care for diabetes management. We consider you family, which means we are here for you through the good and bad times that come with diabetes management. To master diabetes management, it is necessary for you to attend a diabetes education class at least once, meet with our dietitian at least once, and see your pediatric endocrinology provider every 3 months.



We know it is hard to accept these new habits. We are here to help give guidance and as many tips and tricks that we have up our sleeves! If you have any questions, please contact us!

Thank you,
Pediatric Specialists Healthcare Team

| Topics Discussed Timeframe: One or more two-hour education class(es) (dependent on readiness of family) |
|--|
| <input type="checkbox"/> Review second half of “A Healthy, Happy You” book |
| <input type="checkbox"/> Diabetes Overview |
| <input type="checkbox"/> Diagnosis |
| <input type="checkbox"/> Monitoring |
| <input type="checkbox"/> Mental Health |
| <input type="checkbox"/> Insulin (REVIEW) |
| <input type="checkbox"/> Food (REVIEW) |
| <input type="checkbox"/> Insulin Dosing (REVIEW) |
| <input type="checkbox"/> Snacking |
| <input type="checkbox"/> Other Diabetes Medications |
| <input type="checkbox"/> Low Blood sugar Management (REVIEW) |
| <input type="checkbox"/> High Blood sugar Management (REVIEW) |
| <input type="checkbox"/> Sick Day Management |
| <input type="checkbox"/> Physical Activity Management |
| <input type="checkbox"/> School |
| <input type="checkbox"/> Diabetes Technology |

Diabetes Education Class

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Meet the Providers



Jennifer Badik, MD
Pediatric Endocrinology
Physician



Spenser Beasley, FNP-C
Pediatric Endocrinology
Nurse Practitioner



Grace Garrett, MS, RDN, LDN
Registered Dietitian



Ashley Jessup, MD
Pediatric Endocrinology
Physician



Colette Meehan, MD
Pediatric Endocrinology
Physician



**Mary Taylor, PharmD, BCACP,
CDCES, CPP**
Clinical Pharmacist
Practitioner and Diabetes
Educator



Diabetes Overview



Type 1 diabetes:

- 5-10% of all diabetes
- Cause:
 - Autoimmune condition, which means the immune system attacks the healthy cells in the pancreas that make insulin
 - The body is no longer able to make enough insulin
- Treatment: insulin

Type 2 diabetes:

- 90-95% of all diabetes
- Cause:
 - Insulin resistance
 - Body cannot keep up with the amount of insulin the body needs to keep the blood sugar in the target range
- Treatment: help the body to make and use insulin by changing the diet, increasing exercise, and/or starting medicine



Diabetes Overview

Diabetes is a problem with your pancreas (organ highlighted in red)

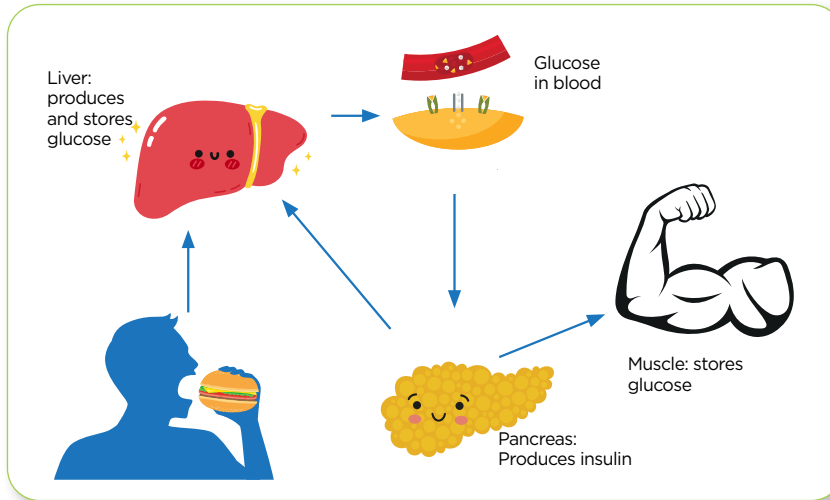


Diabetes Overview



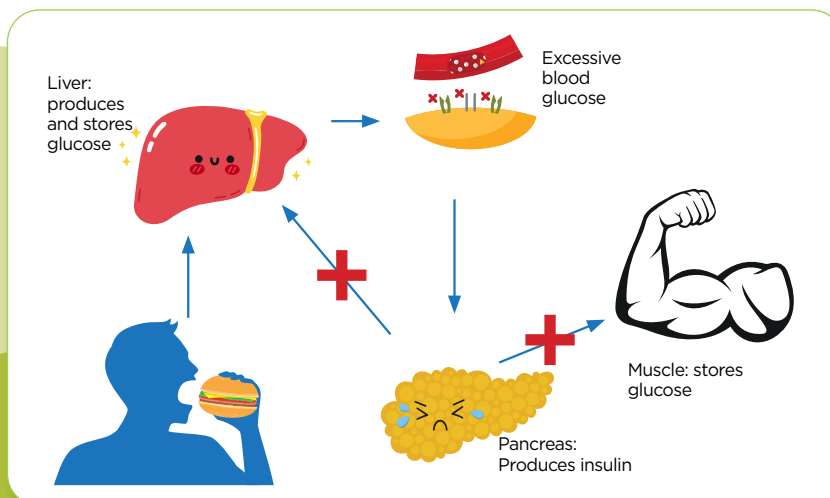
How Our Body Digests Carbohydrates Without Diabetes

- For example, when we eat a hamburger (hamburger bun = carbohydrate)
- Liver changes carbohydrate into glucose (medical term for blood sugar)
- Blood sugar goes into the blood
- Insulin meets blood sugar in the blood
- Insulin and blood sugar go to cell
- Insulin opens the door of the cell and blood sugar walks in
- Blood sugar is used for energy



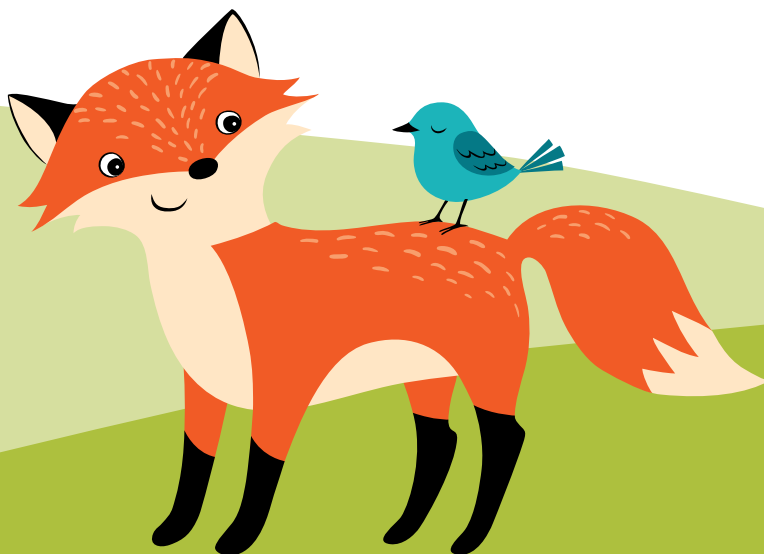
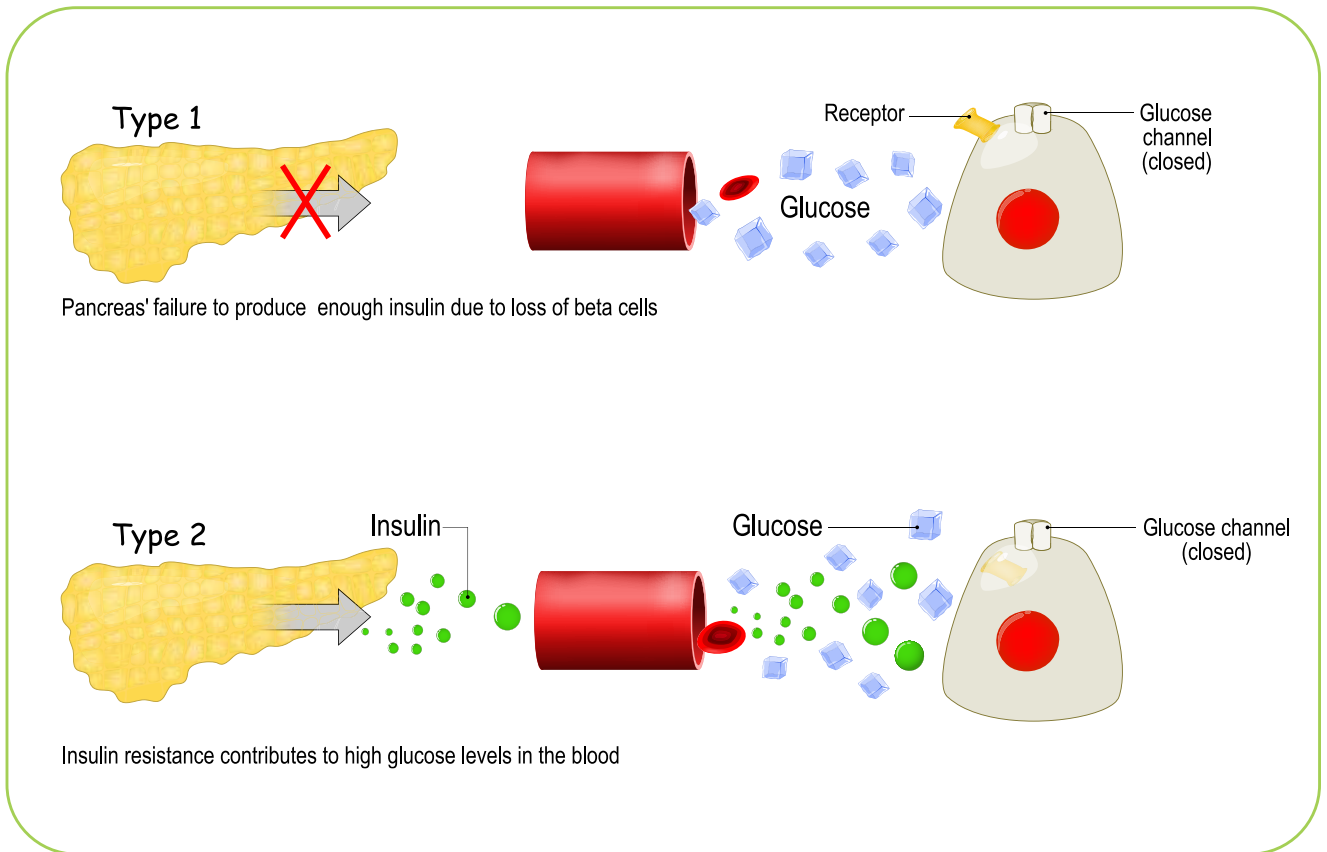
How Our Body Digests Carbohydrates With Diabetes

- The hamburger is eaten (carbohydrate = hamburger bun)
- Liver changes carbohydrate into glucose (medical term for blood sugar)
- Blood sugar goes into the blood
- Insulin does NOT meet up with blood sugar
- Blood sugar builds up in body
- Brain yells at body to find a different way to make energy
- Body breaks down fat to make ketones
- Buildup of ketones in the body causes diabetic ketoacidosis (= makes you sick!)



Diabetes Overview

Diabetes



Diagnosis

Hemoglobin A1c = average of blood sugars over the last 3 months

| | Healthy | Prediabetes | Diabetes |
|--------------------|---------|-------------|------------------------------|
| Hemoglobin A1c (%) | 4 - 5.6 | 5.7 - 6.4 | Greater than or equal to 6.5 |

| A1c (%) | Average Blood Sugar (mg/dL) |
|---------|-----------------------------|
| 12 | 298 |
| 11 | 269 |
| 10 | 240 |
| 9 | 212 |
| 8 | 183 |
| 7 | 154 |
| 6 | 126 |
| 5 | 97 |

Target blood sugar

- Goal: 80-180 mg/dL
- Morning (BEFORE eating): 80-130 mg/dL
- After meals (2 hours): less than 180 mg/dL

Helpful Hints:

- Remember, blood sugars are NOT good or bad! They are numbers to use as tools to change your insulin doses. Try to refer to blood sugar as being in range or out of range.
- You will see your endocrinology provider every 3 months to check your A1c and blood sugars as you grow.



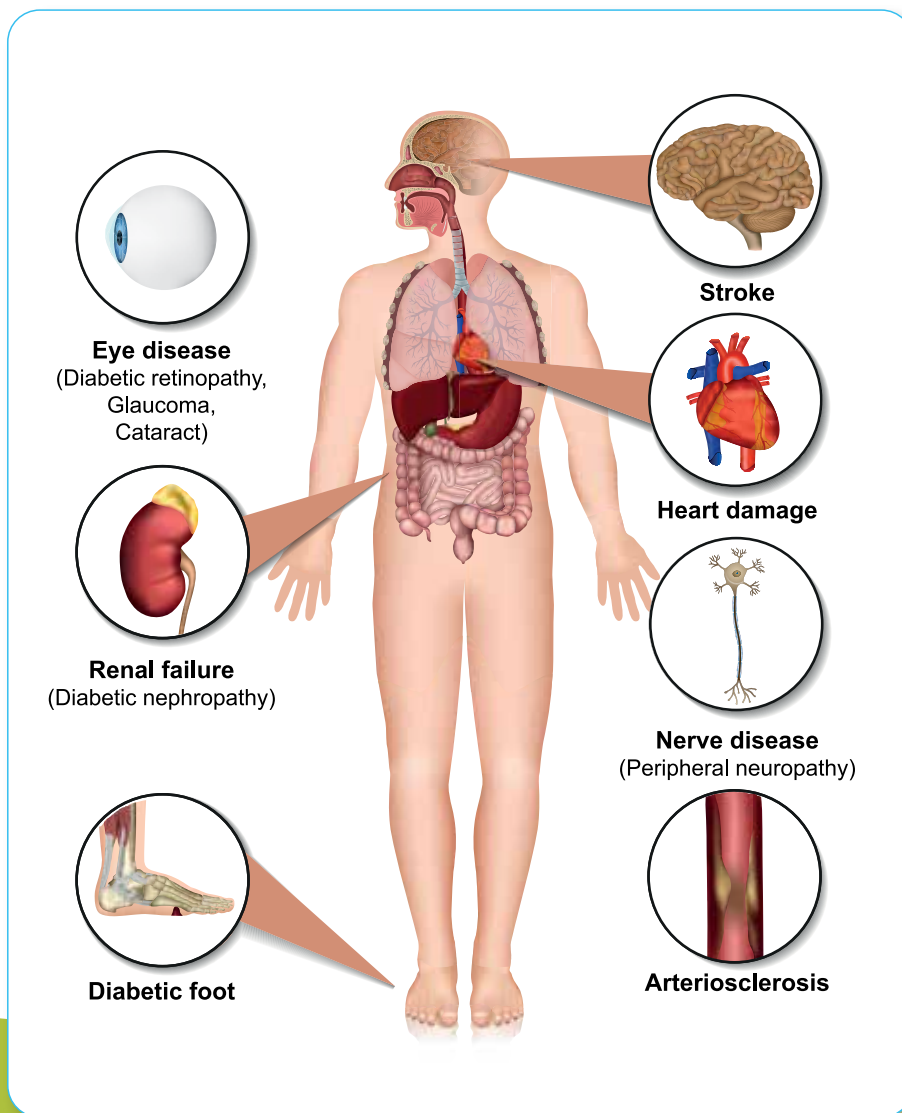
Monitoring

Diabetes can lead to problems with BIG blood vessels and SMALL blood vessels if your A1c stays above your goal.

- BIG blood vessel issues: heart attacks, strokes
- SMALL blood vessel issues: blindness, kidney disease, nerve disease, foot infections or amputations, erectile dysfunction



Diabetes Complications



Mental Health Resources



| Information Type/Audience | Website | Description |
|---------------------------|--|--|
| Caregiver | http://diabetesdad.org/ | Fathers who are T1DM caregivers |
| | http://www.d-mom.com/ | Leighann Calentin's personal blog (perspective of mom of a child with diabetes) |
| | https://forum.jdrf.org/t/safesittings-com/15414 or safesittings.org | Diabetes babysitting service for families looking for a sitter who knows T1DM |
| General Info | https://asweetlife.org/ | Online magazine/resources |
| | https://beyondtype1.org/ | Online magazine/resources/programs |
| | https://childrenwithdiabetes.com/ | Online magazine/resources/conferences |
| | https://www.diabetesdaily.com/ | Online magazine/resources/community forum |
| | https://www.diabetesnet.com/ | Online magazine/resources/conferences |
| | https://www.diabetesselfmanagement.com/ | Online magazines/resources |
| | https://diatribe.org/ | Online magazine |
| | https://insulinnation.com/ | Online articles/news about T1DM care/research |
| | https://integrateddiabetes.com/ | Diabetes services/resources/shop |
| | https://www.jdrf.org/community/typeonenation/ | Community forum |
| | https://t1dexchange.org/welcome-glu-users/ | Community forum |
| | https://integrateddiabetes.com/updated-insulin-pump-comparisons-and-reviews/ | Insulin pump comparisons |
| | https://www.typeonerun.org/ | Global network for type 1 DM runners |
| | https://www.type1university.com/ | Higher learning for insulin users |
| Support | https://www.thedfc.org/ | Year-round programs: family retreats, summer camps, teen programs, high adventure expeditions, events for adults, virtual hangouts |
| | https://m.facebook.com/groups/triadt1dtalk/ | Parents of T1DM and T1DM who live in Piedmont Triad Area in NC |
| | https://www.facebook.com/groups/210509455804121/ | Type 1 Diabetes Support Group (The One and Only Original) |
| Podcasts | https://www.juiceboxpodcast.com/juicebox-podcast | T1DM podcast |
| | https://www.foodinsession.com/ | Food podcast |
| | https://www.stitcher.com/show/real-life-diabetes | DM podcast |
| Food | https://www.diabeticfoodie.com/ | Food blog |
| | https://www.foodinsession.com/ | Food |

Mental Health Resources

| Information Type/Audience | Website | Description |
|---|---|---|
| Blogs | http://diabetesaliciousness.blogspot.com/ | Kelly Kunik's personal diabetes blog |
| | https://diabetesstories.com/ | Riva Greenberg's personal diabetes blog |
| | https://diabetesstrong.com/ | Christel Oerum's diabetes magazine |
| | https://integrateddiabetes.com/blog/ | Gary Scheiner and care team's blog |
| | https://www.healthline.com/diabetesmine | Amy Tenderich's diabetes blog |
| | https://sixuntilme.com/ | Kerri Sparling's personal diabetes blog |
| | https://scottsdiaabetes.com/ | Scott Johnson's personal diabetes blog |
| | http://thegirlsguidetodiabetes.com/ | Sysy Morales' personal diabetes blog |
| Lawyer (Kriss Halpern) Women with DM | http://diabetesattorney.net/ | Attorney who specializes in diabetes-related cases |
| Diabetes | https://diabetessisters.org/ | Online blogs/forums for women |
| | http://diabeticmommy.com/ | For expectant and recent moms |
| Camps | https://www.thedfc.org/ | Location: King, NC (YMCA Camp Hanes) Ages: Rising 3rd graders - rising 11th graders Dates: Annually in June |
| | https://Pediatrics.ecu.edu/camp-needles-in-the-pines/ | Location: Blounts Creek, NC (Camp Needles in the Pines) Ages: 8 to 14 years old Dates: to be determined |
| | https://campkudos.com/who-we-are | Location: Pleasant Knoll Middle School in Fort Mill, SC (Camp Kudos; day camp) Ages: 4 yrs old - 8th graders Dates: to be determined |

Mental Health Books

| Book Title | Author |
|---|-------------------------------|
| The Complete Diabetes Organizer: Your Guide to a Less Stressful and More Manageable Diabetes Life | Susan Weiner and Leslie Josel |
| Diabetes Burnout: What to Do When You Can't Take It Anymore | William Polonsky |

Caregiver Diabetes Books

| Book Title | Author |
|--|-----------------------|
| Diabetes—How to Help: Your Complete Guide to Caring for a Loved One with Diabetes | Gary Scheiner |
| Guide to Raising a Child with Diabetes | Jean Betschart Roemer |
| Parenting Children with Diabetes: A Guide to Knowing and Managing the Issues | Eliot Lebow |
| Raising Teens with Diabetes: A Survival Guide for Parents | Moira McCarthy |
| The Ten Keys to Helping Your Child Grow Up with Diabetes | Tim Wysocki |
| Type 1 Diabetes Caregiver Confidence: A Guide for Caregivers of Children Living with Type 1 Diabetes | Samantha Markovitz |
| When Diabetes Hits Home: The Whole Family's Guide to Emotional Health | Wendy Rapaport |



General Diabetes Books

| Book Title | Author |
|--|---------------------------------------|
| Bright Spots & Landmines: The Diabetes Guide I Wish Someone Had Handed Me | Adam Brown |
| The Discovery of Insulin | Michael Bliss |
| A First Book for Knowing Diabetes | Peter Chase and David Maahs |
| Insulin Pump Therapy Demystified: An Essential Guide for Everyone Pumping Insulin | Gabrielle Kaplan-Mayer |
| The Joslin Guide to Diabetes: A Program for Managing Your Treatment | Richard Beaser and Amy Campbell |
| Practical CGM: A Guide to Improving Outcomes Through Continuous Glucose monitoring. | Gary Scheiner |
| Pumping Insulin | John Walsh and Ruth Roberts |
| The Savy Diabetic: A Survival Guide | Joanne Milo |
| Blood sugar Surfing: How to Manage Type 1 Diabetes in a Modern World | Stephen Ponder and Kevin McMahon |
| Training Your Diabetic Alert Dog | Rita Martinez and Susan M Barns |
| Knowing Insulin Pumps, Continuous Glucose Monitors, and the Artificial Pancreas | Peter Chase and Laurel Messer |
| A Women's Guide to Diabetes: A Path to Wellness | Brandy Barnes and Natalie Strand |
| Women and Diabetes: Staying Healthy in Body, Mind, and Spirit | Laurinda Poirier and Katharine Coburn |
| Your Diabetes Science Experiment: Live Your Life with Diabetes Instead of Letting Diabetes Live Your Life! | Ginger Viera |
| Think Like a Pancreas | Gary Scheiner |

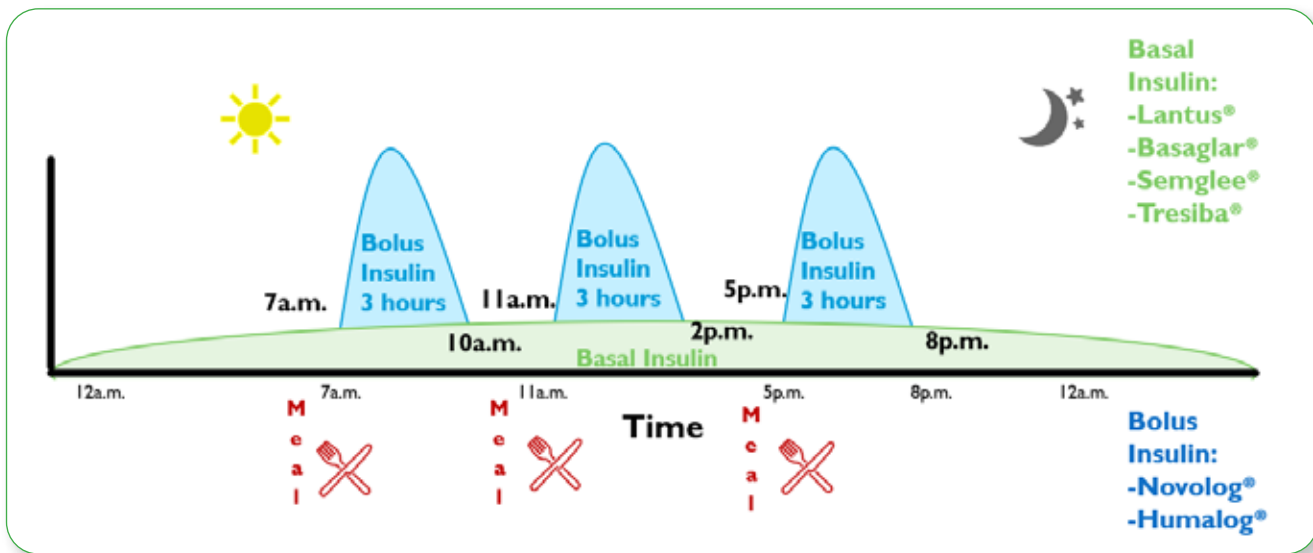
Nutrition and Fitness Books

| Book Title | Author |
|---|---------------------|
| The Athlete's Guide to Diabetes | Sheri Colberg |
| CalorieKing: Calorie, Fat, and Carbohydrate Counter | Allan Burushek |
| Diabetes Meal Planning Made Easy | Hope Warshaw |
| Eating Mindfully: How to End Mindless Eating and Enjoy a Balanced Relationship with Food | Susan Albers |
| Guide to Healthy Restaurant Eating | Hope Warshaw |
| The Low GI Handbook: The New Glucose Revolution Guide to the Long Term Health Benefits of Low GI Eating | Jennie Brand-Miller |
| The Ultimate Guide to Accurate Carb Counting | Gary Scheiner |



Snacking

- It is important to consider TIMING in between bolus insulin doses
- Bolus insulin (Novolog®, Humalog®) works in your body for about 3 hours
- When you take bolus insulin (Novolog®, Humalog®) you are giving insulin to cover carbohydrates (food dose) and blood sugar (correction dose). It is important to understand:
 1. Food dose:
 - a. Take every time you eat carbohydrates regardless of the last time you had bolus insulin (Novolog®, Humalog®)
 2. Correction dose:
 - a. Take if your blood sugar BEFORE eating is above your target blood sugar
 - b. You MUST separate the bolus insulin (Novolog®, Humalog®) dose by 3 hours.
 - If you do not separate the correction bolus insulin (Novolog®, Humalog®) dose by 3 hours you are at risk of having a low blood sugar



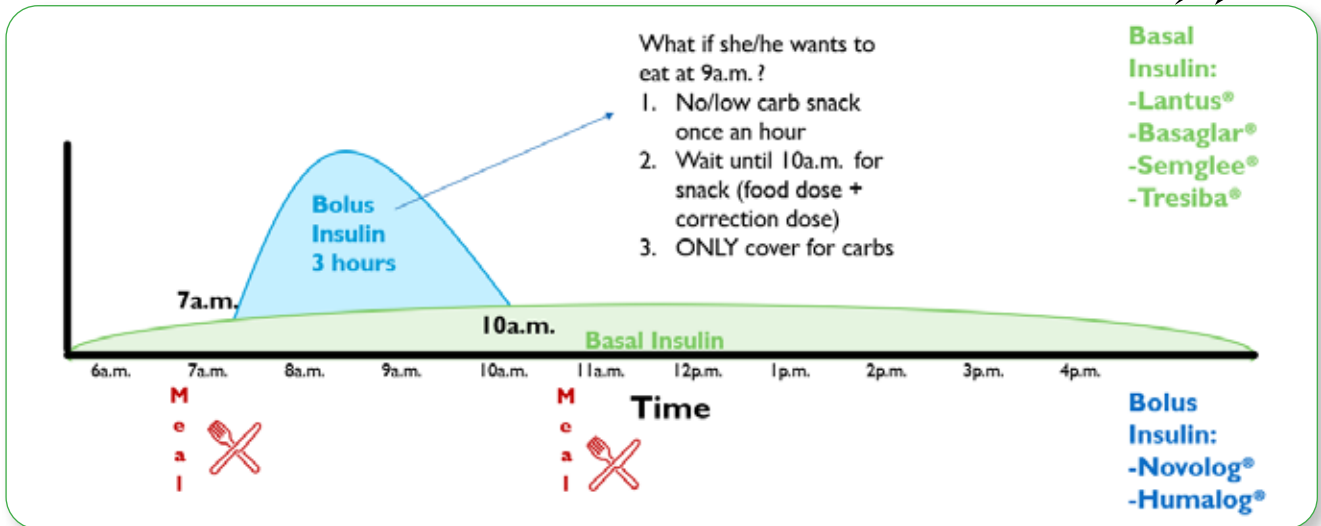
- Refer to the diagram above. As an example, pretend that you eat breakfast at 7 a.m., lunch at 11.a.m., and dinner at 5 p.m.
- The bolus insulin (Novolog®, Humalog®) would be active in your body between 7 - 10 a.m., 11 a.m. - 2 p.m., and 5 - 8 p.m.



Snacking

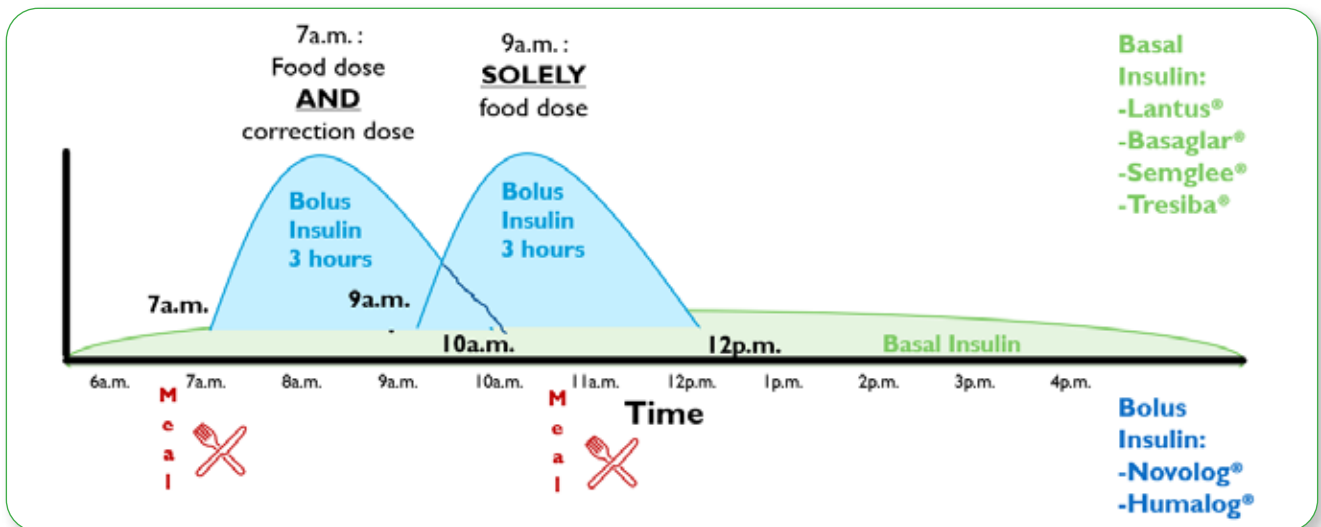


What would you do if you wanted to snack at 9 a.m. after you ate breakfast at 7 a.m.?



There are multiple ways to snack when you take insulin:

1. Eat carb-free snacks in between meals (what you have learned in the hospital)
2. Schedule eating every 3 hours (will give bolus insulin (Novolog®, Humalog®) dose based on food dose + correction dose)
3. Eat carbohydrates in between meals (if within 3 hours of last bolus insulin (Novolog®, Humalog®) dose) by administering the food dose ONLY

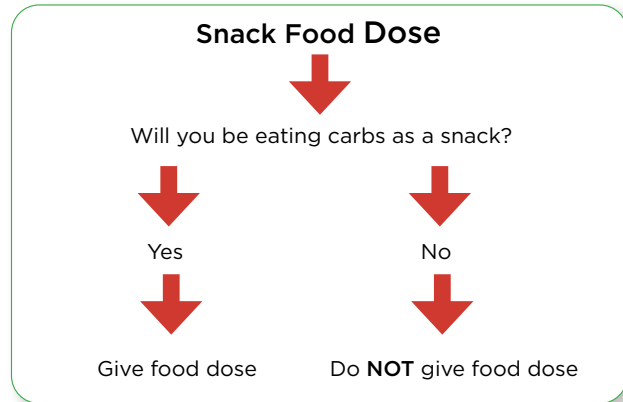
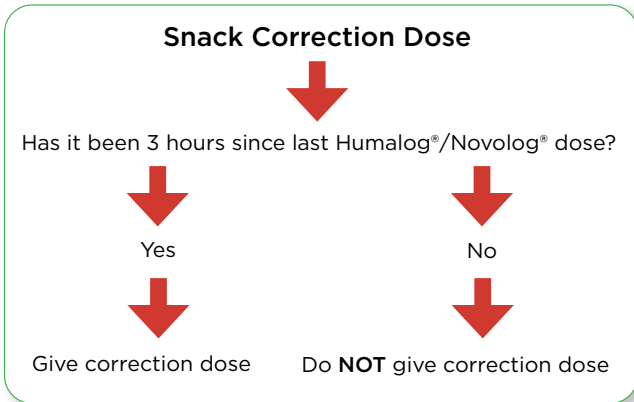


Let's review the diagram above to explain how to safely give only the food dose (Novolog®, Humalog®) for a snack.

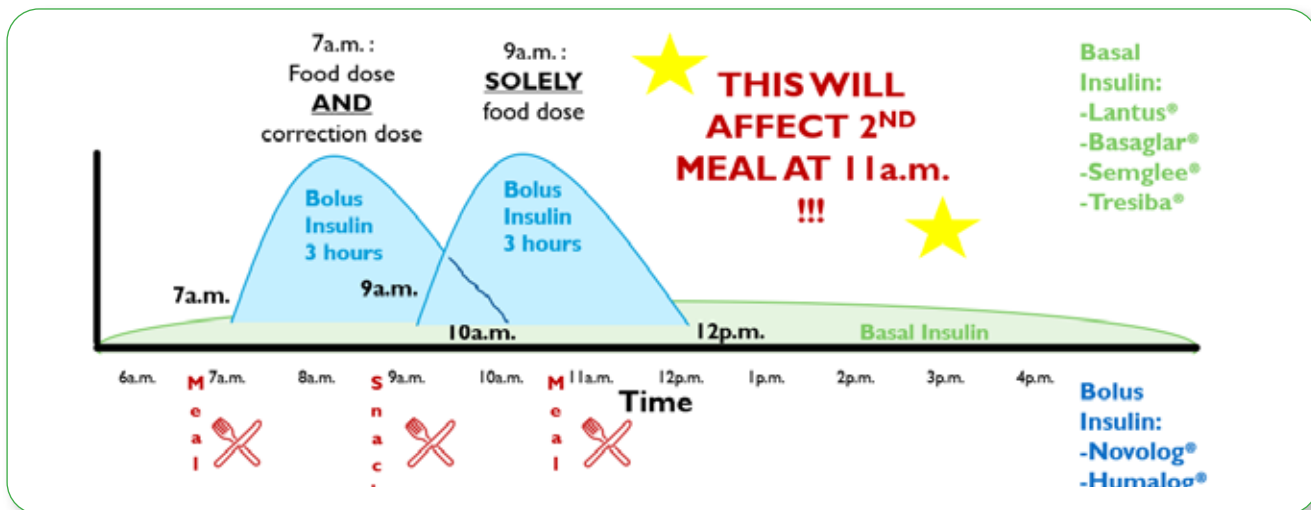
- Example: You gave bolus insulin (Novolog®, Humalog®) at 7 a.m. but want a snack at 9 a.m.

Snacking

- You calculated the total bolus insulin (Novolog®, Humalog®) dose by adding the food dose (based on carbohydrates) and the correction dose (based on blood sugar BEFORE eating) at 7 a.m.
- The bolus insulin (Novolog®, Humalog®) dose given at 7 a.m. will be active in your body until 10 a.m.
- If you want to eat at 9 a.m., follow the diagrams to determine if it is appropriate to give the correction dose with your food dose.



- If you have to give the food dose AND the correction dose, make sure to add them together to find your total dose of bolus insulin (Novolog®, Humalog®)



This will affect your 2nd meal at 11 a.m. if you plan to eat lunch at that time:

Option 1: Push back lunch until 12 p.m. so you can give the correction dose and food dose together

- Pro: Blood sugar will lower to target range of 80-180 mg/dL faster
- Con: Inconvenient

Option 2: Eat lunch at 11 a.m. as planned, but you can only give the food dose (NOT correction dose)

- Pro: Convenient
- Con: Blood sugar will run higher this day

Other Type 2 Diabetes Medications

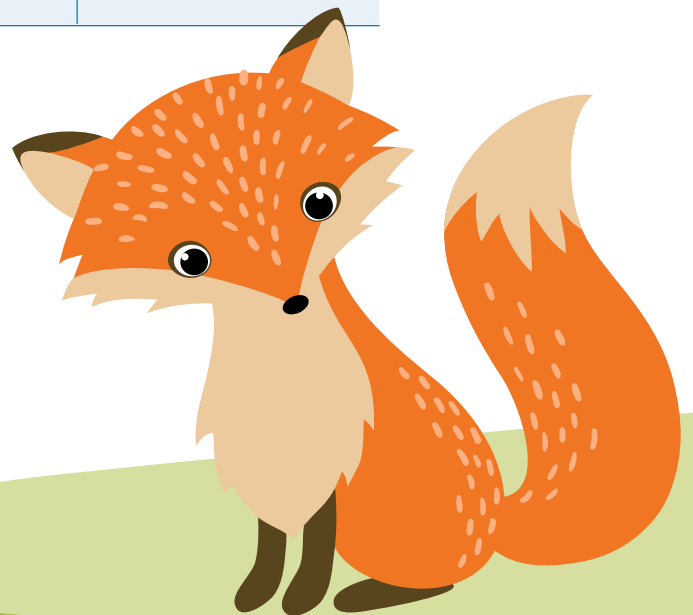


Oral Medicine
Metformin



Injections
Bydureon Bcise®,
Ozempic®, Trulicity®,
Victoza®

| Medication Name | Administration | Stability |
|-----------------|----------------|-----------|
| Bydureon Bcise® | Weekly | 1 month |
| Ozempic® | Weekly | 2 months |
| Trulicity® | Weekly | 2 weeks |
| Victoza® | Daily | 1 month |



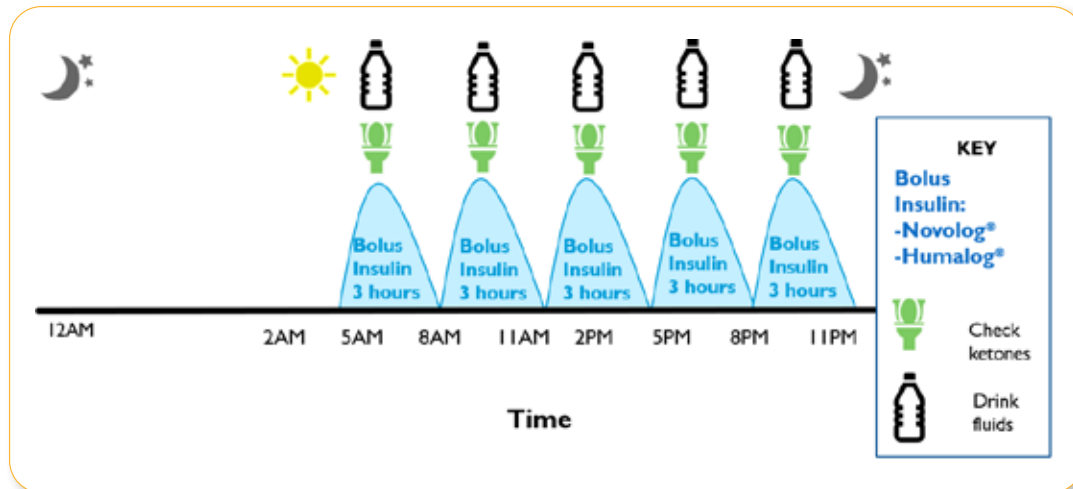
Sick Days

Cold, Virus, Flu, COVID

- ↑ Blood sugars
- Body may make ketones

Diarrhea, Throwing up

- ↓ Blood sugars
- Body may make ketones



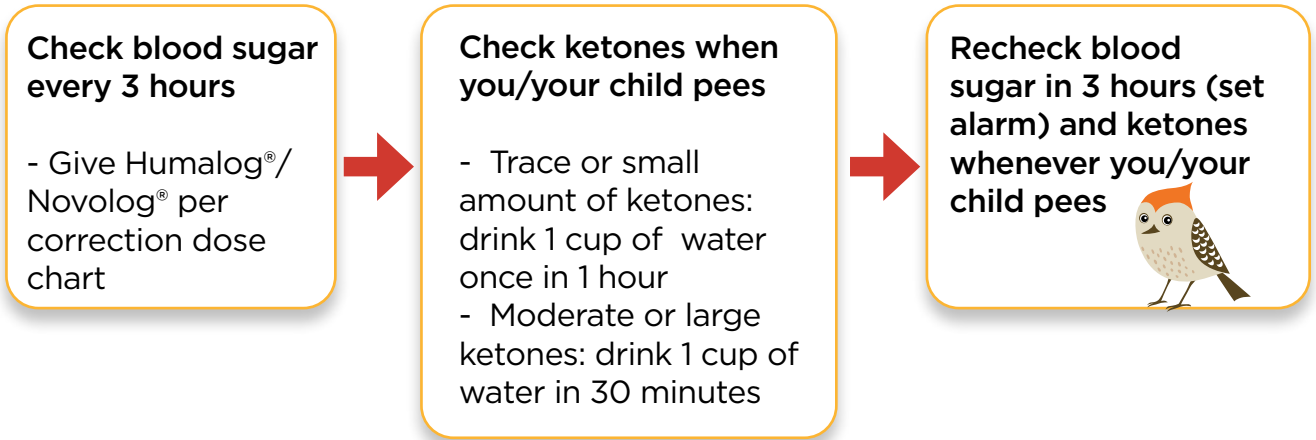
Key Rules:

- Check blood sugar every 3 hours
- Take insulin based on your provider's directions
- Check ketones daily (even if negative)
- Be aware that liquid medicine may have carbohydrates (make sure to buy sugar-free)
- Stay hydrated
- If unable to handle regular food, eat carbohydrates from soft foods and/or liquids
 - Blood sugar less than 150 mg/dL:
 - a. Fluids: regular soda, Gatorade, Powerade, juice, regular popsicles, soup/broth
 - b. Foods: regular Jell-O, cooked cereal, plain yogurt, mashed potatoes, 1/2 cup of ice cream or sherbet, toast/saltines, 1/2 banana
 - Blood sugar greater than 150 mg/dL
 - a. Fluids: diet soda, Gatorade Zero, water, unsweetened tea
 - b. Foods: sugar-free Jell-O, sugar-free popsicles, plain yogurt, mashed potatoes, toast/saltines, 1/2 banana
- You may have to check blood sugar or ketones overnight if ketones are positive at bedtime

Sick Days

Sick days with HIGH blood sugar

- Remember, these days would likely be if your child is sick with a cold, virus, flu, or COVID-19



When do you stop?

- Ketones must be NEGATIVE!
- Blood sugar has lowered to the target blood sugar range 80-180 mg/dL

What if blood sugar doesn't go lower than 300 mg/dL and ketones are not decreasing?

- Call **(336) 272-6161** to talk about an increase in insulin doses with your endocrinology provider

What if my child cannot keep down fluids?

- Go to the closest emergency department that offers care to children

Example:

- Breakfast (7 a.m.). Blood sugar is 402 mg/dL. Your child doesn't have much appetite but still eats 25 grams of carbs. Based on this, your child needs 5 units for correction dose and 2 units for food dose. Total dose of Humalog®/Novolog® is 7 units. Ketones are negative. Make sure your child stays hydrated.
- Lunch (10 a.m.). Current blood sugar is 489 mg/dL. Your child isn't hungry. Based on this, your child needs 7 units for correction dose and 0 units for food dose. Total dose of Novolog®/Humalog® is 7 units. Ketones are moderate. In addition to encouraging your child to staying hydrated, focus on drinking 8 ounces of water within the next 30 minutes.

What do you do next?

- ANSWER: Set an alarm for 3 hours (1 p.m.) to recheck blood sugar, decide if correction dose is needed, and recheck urine ketones (if ketones are positive, make sure to drink extra water depending on level of ketones)

Sick Days



Sick days with LOW blood sugar

- Remember, these days are likely if your child has a stomach bug or food poisoning (diarrhea/throwing up)

Check blood sugar every 3 hours

- Blood sugar may be in 100-200 mg/dL range.
- ONLY give Novolog[®]/Humalog[®] if blood sugar is high enough based on correction dose chart



Check ketones when you/your child pees

- If blood sugar is too low to give Humalog[®]/Novolog[®] based on your chart but you/your child has ketones then you must drink 1 cup of SUGARY drink, then in 30 minutes give Humalog[®]/Novolog[®] based on your chart



Recheck blood sugar in 3 hours (set alarm) and ketones whenever you/your child pees

When do you stop?

- Ketones must be NEGATIVE!
- Blood sugar has lowered to target blood sugar range 80-180 mg/dL

What if blood sugar cannot stay above 80 and ketones are not decreasing?

- Call (336) 272-6161 to talk about a decrease in insulin doses with your endocrinology provider

What if my child cannot keep down fluids?

- Go to closest emergency department that offers care to children

Example:

- Lunch (11AM). Blood sugar is 102 mg/dL. Your child doesn't feel hungry and has been throwing up. Your child is able to keep fluids down. Ketones are small.

What do you do next?

- ANSWER: Give 1 cup of sugar drink (ex: regular soda/Gatorade/juice), then recheck blood sugar in 30 minutes. Give Humalog[®]/Novolog[®] dose based on that blood sugar reading. Focus on staying hydrated.



Exercise

How does exercise affect blood sugar?

The effect exercise has on the blood sugar will be dependent on the intensity, duration, and emotions associated with the exercise. Although most of the blood sugar in our body is kept in the liver, it is important to know there is blood sugar also stored in our muscle cells. There are two situations that may occur with exercise.

Situation 1:

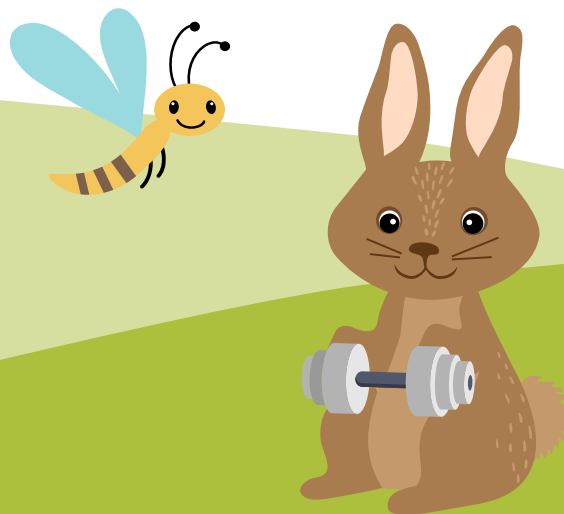
- If exercise is associated with excitement/anger/stress/fear/distress, then adrenaline may be released.
- Adrenaline will signal to the liver to release more blood sugar into the blood stream in case the body needs it for energy. Therefore, the blood sugar INCREASES.
- Exercise makes our muscles more sensitive to insulin, and adrenaline will stop being created after exercise is complete, so eventually (sometimes 12-18 hours later) blood sugar will DECREASE. You may even experience a low blood sugar!

Situation 2:

- Adrenaline is NOT released and blood sugar will DECREASE.

Key Tips for Exercise

- Blood sugar should be 150-200 mg/dL before exercise
- You should NOT exercise if there are moderate or large ketones in pee
- If you are doing UNPLANNED exercise: eat/drink a carbohydrate snack without giving insulin for food dose (discuss how much carbohydrate to eat with your diabetes provider)
- If you are doing PLANNED exercise AFTER a meal: decrease insulin dose (discuss how much to decrease with your diabetes provider)





Exercise

Exercise snacks

- 1 small banana
- 2-4 Belvita cookies
- 1 snack-size bag of pretzels
- 1 Chewy granola bar
- 1 fig bar
- 1 Nutragrain bar
- 1.5 tablespoons of Gatorade powder mixed with water
- 1 peanut butter & jelly sandwich on white bread
- 1 peanut butter and raisin sandwich
- 1 peanut butter and banana sandwich



School

School Basics

- One person must be trained to manage diabetes within school building
 - A school nurse may be at your child's school; however, most of the time a nurse is split between multiple schools, so the nurse trains a non-medical school staff member, such as a receptionist or teacher, to give diabetes care
- School care plan
 - Endocrinology provider will give you a school care plan that describes how to care for diabetes at school
 - If insulin doses are changed, a new school care plan is sent to the school
 - Goals:
 - 1) How to teach key staff who will be involved in student's diabetes care
 - 2) How diabetes care will be provided at school with the goal of keeping blood sugar in the target range
 - 3) How to care for blood sugar levels outside the target range
- What should your child bring to school?
 - Blood sugar meter
 - Test strips
 - Lancets
 - Lancing device
 - Alcohol swabs
 - Diabetes medications
 - Favorite food/drink to treat low blood sugar
 - Ketone strips

School 504 plan

- A legal document that is initiated by PARENT/GUARDIAN by asking the principal to setup 504 plan
 - Protected by Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act laws that prevent discrimination against patients with diabetes
- Can take up to 90 days to put in place
- More detailed than school care plan
- Should cover daily situations, emergency response, extracurricular activities, before and after school care
 - Examples: testing, late arrivals, sick days, make-up work, PE class, recess





School

- NOT the same as an IEP plan
 - 504 plans: modifies learning environment
 - IEP plans: modifies curriculum to assist with learning
- Schools MUST
 - Train staff to check blood sugar
 - Train staff to give medication
 - Train staff to give diabetes care at all school-sponsored events
 - Allow independent students to self-manage diabetes
- Schools should NOT
 - Make family members go to the school to care for student's diabetes
 - Move students to a different school for diabetes care
 - Stop students with diabetes from taking part in school-related activities such as field trips
- What to consider when adding in a 504 plan:
 - Extra time for testing (especially SAT and ACT)
 - Ability to keep cellphone nearby during testing (especially SAT and ACT)
 - Student's level of self-care such as being able to keep diabetes medications and supplies with student
 - Snacks
 - Water and bathroom access
 - Field trips
 - Recess
 - Extracurricular activities
 - Before and after school care
 - Communication of urgent issues
 - ✓ Student refusing to take insulin
 - ✓ If parent would like to be informed if blood sugar is higher or lower than a specific number
 - ✓ Any injury
 - ✓ Insulin pump issues
 - Emergency care
 - Student's healthcare provider
 - The JDRF has a sample 504 plan on their website, <https://www.jdrf.org/>

Medical ID

It is important to wear a medical ID bracelet or necklace to inform Emergency Medical Services (EMS) that you have diabetes

Yellow Dot Program (Guilford County)

Yellow dots let first responders know individual medical information in an emergency.

- Yellow dot sticker is placed in the back left window of the car and on the front door of the patient's home
- First responders are trained to look for the yellow dot to find medical information

How to apply:

- Residents fill out an emergency information sheet with emergency medical information and photos of themselves
- A copy of these forms are placed in the glove box of their vehicle and in their home refrigerator

This is a **FREE** service and does not require any application process. Those who would like the Yellow Dot Packages should call Sergeant Almonor at Guilford County Sheriff's Office by calling **(336) 641-5313** or email aalmono@guilfordcountync.gov.

To access an electronic copy of this book, simply open the camera app on your smart phone, scan the QR code and click on the website that displays in the window.



Diabetes Technology

Continuous glucose monitors

- Device you wear on the skin for 7-180 days that monitors sugar readings



Freestyle Libre 3



Dexcom G6



Dexcom G7



| Comparisons | Eversense E3 | Freestyle Libre (FSL) 2/3 | Dexcom G6/G7 | Guardian |
|--------------------------------|---|-------------------------------------|--|---------------------------|
| FDA Age Approval | > 18 years old | > 4 years old | > 2 years old | > 14 years old |
| Requires smartphone | Yes | FSL 2.0 - no FSL 3.0 - yes | G6 - no G7 - no | Yes |
| Fingerstick Calibration Needed | Yes (2x/day for 3 weeks then 1x/day) | No | No | Yes (2-3x/day) |
| Monitors Blood sugar | Every 5 minutes | Every 1 minute | Every 5 minutes | Every 5 minutes |
| Sensor Duration | 180 days | 14 days | 10 days | 7 days |
| Smartphone App | Yes | Yes | Yes | Yes |
| Follow Capability | Yes (iPhone only) | Yes | Yes | Yes |
| Low/High Blood sugar Alarms | Yes | Yes | Yes | Yes |
| Insulin Pump Pairing | No | No | Yes (Tandem, Omnipod, Beta Bionics) | Yes (Medtronic) |
| Cost (no insurance) | \$300/90 days | \$75/30 days | G6: \$1300/30 days G7: \$200/30 days | \$1300/30 days |
| Notes | - Implantable sensor - Requires a procedure to insert sensor | - Must scan FSL 2.0 sensor 3-4x/day | - Dexcom G6 is compatible with specific insulin pumps while Dexcom G7 is not | - Must charge transmitter |

Up to date as of July 2023

Diabetes Technology

Insulin pumps

- Device you wear on the skin for 2-3 days that gives insulin
- Replaces insulin shots
- All insulin pump manufacturers offer a hybrid closed loop insulin pump
 - Hybrid closed loop pump: insulin pump that communicates with continuous glucose monitor to change insulin doses based on continuous glucose monitor sugar reading.



Omnipod Dash/5



T:Slim X2 with Control IQ Technology



Bionic Pancreas

| Comparisons | Insulet | Tandem | Medtronic | Beta Bionics |
|--|--|--|--|---|
| Specific Pump and FDA Age Approval | Omnipod Dash: all ages Omnipod 5: 2 years and older | T:Slim X2 with Control IQ Technology: 6 years and older Mobi: 6 years and older | MiniMed 770G: 2 years and older MiniMed 780G: 7 years and older | Bionic Pancreas: 6 years and older |
| Tubing | No | Yes | Yes | Yes |
| Continuous Glucose Monitor | Yes - Omnipod 5 ONLY | Dexcom G6 | Guardian | Dexcom G6 |
| Hybrid Closed Loop Pump | Yes - Omnipod 5 ONLY | Yes | Yes | Yes |
| Stops giving you insulin if you have a low blood sugar | Yes - Omnipod 5 ONLY | Yes | Yes | Yes |
| Requires Cellphone | Yes - Omnipod 5 ONLY | No | No | No |
| Requires Charging | Yes | Yes | No | Yes |
| Warranty | No (pharmacy) | Yes - 4 years | Yes - 4 years | to be determined |

Up to date as of July 2023

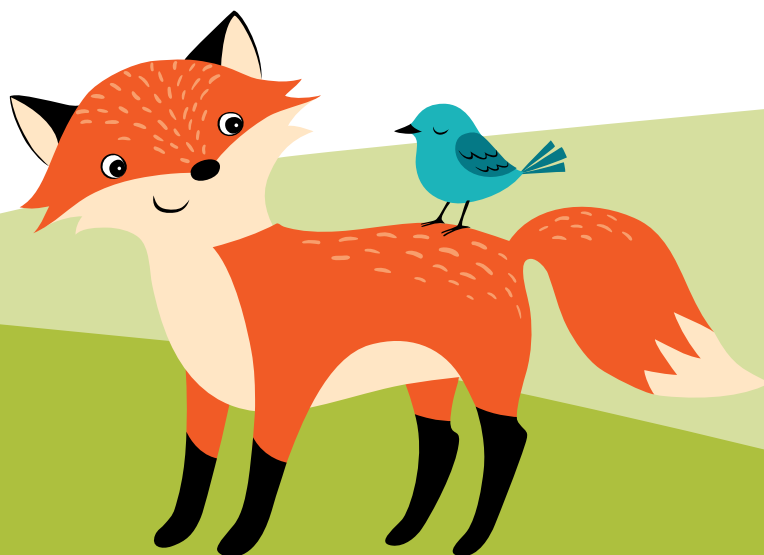
Diabetes Technology

Smart insulin pen (InPen)

- Insulin pen that communicates with app on smart phone
- Ability to determine insulin doses (even during snacking)
- Keeps a record of insulin doses
- \$35 copay for InPen pen once yearly

Miscellaneous technology

- I-port Advance Injection Port
- Insulin port you wear on the skin for 3 days
- Inject insulin pen via port (avoid shots)
- \$30 copay for 1 month supply (not covered by insurance)





CONE HEALTH[®]
Children's Services

conehealth.com/children

Sept. 2023