



Pediatric Diabetes Education Workbook



Caring for Children with Diabetes

A local guide for patients & families



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Let's work together as a team.

Let's learn how to care for your child with diabetes. Being told about diabetes is a family event. It means the child and the family need to work TOGETHER with the healthcare team to be successful. Diabetes does not define the child. He or she just happens to have diabetes. He/she is expected to have a wonderful, productive long life, just like everyone else.

We in the Pediatric Department serve as coaches to the Family Team with diabetes. We call the plays, and the Team runs the plays. Our goal is to keep your child healthy. We change treatments based on what you tell us. Taking care of diabetes happens in your home, not our office. Please keep your coaches involved and we will work on this together.

Let's get the team involved!

Coaches:

Pediatric Endocrinologists: These are doctors with many years of extra training in caring for children and diabetes. They make decisions about monitoring, medications, insulin and manage your diabetes care.

Registered Nurses, LPNs, Corpsman, and Medical Assistants: These caregivers are trained to make sure you and your child have the skills to manage diabetes. They will take care of your child and report information to the doctor.

Registered Dietitians: These coaches have special nutrition training. They will teach you about carbohydrates and eating healthy foods. They are ready to answer your questions.

Certified Diabetes Educators (CDE): These are nurses, dietitians, and other healthcare professionals with special training in diabetes education and skills.

Behavioral Health Counselors: These are doctors or professionals trained to listen to your concerns and find healthy ways for the entire family to cope.

My Coaches

Doctors: _____

Nursing staff: _____

Dietitian _____

CDE: _____

Counselor: _____

Team members:

Child, Parents & Caregivers, Brothers & Sisters, Friends, Family, Babysitters, Teachers, School Nurses, etc.....





What is Diabetes?

Diabetes is a disease that affects how your body uses food for fuel.

When you eat food, it goes down your food pipe to your stomach. Carbohydrate is food that turns into sugar in the body. The stomach works like a washing machine. It flips and flops the food over until it breaks down into liquid. In that liquid is sugar. It's what the cells inside your body use for food. Next, sugar goes into the blood and then travels to all the cells of the body. The cells have doors for the sugar to go through, but the cell keeps that door locked. The only way for sugar to get in is if there is a key to open that door---and that key is called INSULIN. Insulin is a hormone, or a messenger, that comes from certain cells in an organ called the pancreas. The pancreas is found behind your stomach. Everyone needs sugar to get to the cells for the body to have energy.

In **Type 1 Diabetes**, the body destroys the cells that make the insulin. This is called an auto-immune disease, because the body cells attack a part of itself. There is no cure for diabetes. We treat it with insulin, diet and exercise. We are still learning why this happens. We know it wasn't anyone's fault and we can not prevent it.

In **Type 2 Diabetes**, there are two causes. The first cause is called insulin resistance. It happens when the cell doesn't want to open up to sugar. It now takes several keys before the lock opens. The second cause is the pancreas does not make as much insulin as it used to. Some reasons people get Type 2 diabetes are: family history, extra body weight and little activity. Some ethnic groups are more likely to get Type 2. This type of diabetes can be treated with: weight loss, change of diet, exercise, pills, and insulin.

What type of diabetes do you have? _____

Words to know.....

Carbohydrate

Insulin

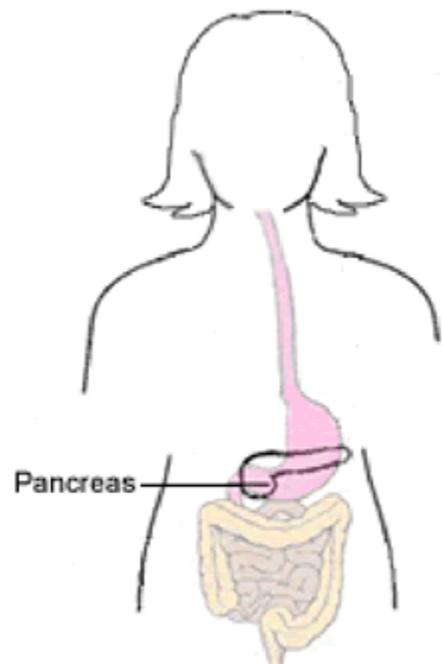
Pancreas

Cells

Glucose

Ketones

Endocrine





What are the symptoms of diabetes?

If your body does not have enough insulin, then the sugar builds up in the blood. This is what “high blood sugar” means. When it builds up, the kidneys try to get rid of it. This will make a person thirsty, go to pee a lot, and lose weight. Weight loss happens from losing the extra water and some fat and muscle. When the cells do not know there is sugar around, they send messages to use fat and muscle for energy instead.

Common Symptoms of Diabetes:

- Thirst
- Frequent urination
- Weight loss
- Blurry vision
- Dry skin
- Slower healing
- Stomach ache
- Head ache
- Feeling tired

For Your Information: The doctor will ask for lab work (blood and urine) to test for diabetes. These are positive results:

- ◇ Blood Glucose (also called a blood sugar test) greater than 125mg/dL before eating, more than 200 after eating
- ◇ Hemoglobin A1c over 6.4%
- ◇ Urine or blood ketones and urine sugar
- ◇ Autoantibodies

What are your results?



What are my goals?

We want to make sure you live a long, healthy life with diabetes. When high blood sugar is not taken care of, complications may happen. It can take months or years for long-term problems to start. We set goals to make sure you are safe from high or low blood sugar and longer term problems with the: eyes, heart, kidneys, or feet.

LAB TESTS:

A1C blood test: Done every 3 months. This tells us how well blood sugar is controlled during a 3 month period. In the blood stream, sugar sticks to the red blood cell, and this number tells us how much is sticking over time. Remember the higher the A1C, the higher the chance for complications later on.

Goal: <7% for adults 19 years and older; <7.5% for children under 19 years old.

My current A1c result: _____

My next A1c is due: _____

Other Lab tests: Your doctor will decide which lab tests are needed and how often. They are important tests to check on the kidneys, other parts of the body, and for other autoimmune diseases.

SELF TESTS:

Self Blood Glucose Monitoring: You will be given a glucose meter to use at home. It helps you and your healthcare team know how you are doing any time of the day or night. If you keep your blood glucose in these ranges more than 50% of the time, then we know your A1c will be at goal.

American Diabetes Association Blood Glucose (BG) Goals For All Pediatric Age Groups:
Ranges Before meals: 90-130mg/dL
Ranges at Bedtime/Overnight: 90-150mg/dL



Personal goals will be set with your healthcare team.

Range Before Meals: _____

Range at Bedtime/Overnight: _____

Check BG: ___pre-meals ___2 hours post meal ___bedtime ___2:00am

Ask about when to add a snack to prevent low blood sugar: _____

Ask about bedtime goals and snacks: _____

Check more often when sick, having low or high results, or making changes to the insulin doses.

Self Urine or Blood Ketone Testing: Some blood meters can test for ketones. Some people just use urine dipsticks to check for ketones. **Goal: Negative.** Go to the Ketones page for more information.



Medications & Insulin

Type 1 Diabetes and Insulin: People with this type of diabetes have to take insulin every day. At first, he/she may not need very much to keep the blood sugars in normal range. After a while, we may need to adjust the doses. Insulin needs change as the child grows, too. Tell the healthcare team your blood sugar results and get the best possible care.

Type 2 Diabetes and Medications: Some pills help your body make more insulin or make your cells more sensitive to it. Pills are not made of insulin. You and your doctor will decide if pills can help. Ask us for more information on any medication your are given. If a person with Type 2 Diabetes needs to use insulin to keep his/her blood sugar in a normal range, then we will decide on the type and doses. The plan may be different than the Type 1 Diabetes and Insulin plan. Just because you have to use insulin to manage your blood sugars, doesn't mean your diabetes is any worse. It just means your body needs some extra insulin to help out.

Insulin Chart

Type	Color	Onset	Peak	End
Rapid-Acting Bolus NOVOLOG HUMALOG	Clear	15 minutes	1-2 hours	3-5 hours
Short-Acting Regular	Clear	30min-1hour	2-5 hrs	6-16 hrs
Intermediate-Acting NPH	Cloudy	2-4 hours	4-12hrs	12-24hrs
Long-Acting BASAL GLARGINE (LANTUS) DETEMIR (LEVEMIR)	Clear	1-3 hours	Designed to be flat but may vary at 6-10 hrs	Basal insulin lasts for up to 24 hours.



Insulin (continued)

Basal – Bolus insulin therapy means the insulin is given as close as possible to the way the body would if it did not have diabetes.

- This method involves giving a long-lasting insulin one or two times daily and a fast-acting insulin at meal times. This type of insulin therapy allows the person to eat when they are hungry.
- It is important to learn how to carbohydrate count and then use some basic math skills.
- **BASAL Insulin:** The main job of **the long lasting insulin** is to prevent the release of sugar from the liver. It stays fairly level in the background most of the day and night. We have on formulary 2 types of basal insulins—**Glargine** (LANTUS) and **Detemir** (LEVEMIR). Do not mix them with other insulins.
- **BOLUS Insulin: Rapid acting insulin** starts working in 5-15 minutes with the peak at 1-2 hours and lasts about 3-4 hours. The job of this insulin is to cover the carbohydrates in a meal and/or provide correction to bring blood sugar into range. We mostly use **Novolog** at WRNMMC.
- **Taking Insulin:** Insulin is given in the fat. Change or “rotate” places around your body each time.
- **Storage:** Unopened vials or pens are to be stored in refrigerator. Once opened, the vial or pen may be stored at room temperature for up to 28 days (Lantus, Novolog) or 42 days (Levemir). Do not let insulin get hot or freeze.

INSULIN TO CARBOHYDRATE RATIO

This ratio tells you how many grams of carbohydrates 1 (one) unit of Novolog or Humalog will cover. Count how many carbohydrates you are eating, and then you will divide that number by your Insulin to Carb Ratio.

Example Only: Turkey sandwich, a small apple, and a cup of milk for lunch. This has 60 grams of carbs. The example Insulin to Carb Ratio is 1 unit to 15 grams.

Answer: $60 \div 15 = 4$ units of fast acting insulin for the food.

SENSITIVITY and CORRECTION FACTOR

If a blood glucose is above the target (where you want it to be), you will need to take extra insulin to correct your blood glucose. This is how many points your blood glucose will go down if you take 1 (one) unit of a rapid acting insulin such as Novolog or Humalog. You also need to know your target blood sugar.

Example Only: The blood sugar is 250mg/dL. The example target blood sugar is 150. The insulin sensitivity factor is 50 points. How much insulin is needed to correct this blood sugar?

Answer: 250 (the blood sugar) – 150 (the blood sugar you want to be) = 100 .

$100 \div 50$ (the insulin sensitivity factor) = 2 units to correct the blood sugar.

Example Total Bolus Dose: Combine the Insulin to Carb Ratio result (4 units) with the Insulin Sensitivity Factor (2 units). 4 units + 2 units = 6 units of Novolog fast acting insulin with the meal.



Insulin (continued)

Other Insulin Dosing Tips:

1. Even if you decide to SKIP a meal or eat a meal with no carbs, you must still test your blood sugar and give a correction if it is above your target.
2. For older children, try to give the fast acting insulin 10-15 minutes before the meal. Younger or less predictable eaters may take the fast acting insulin right after they eat.
3. Ask if you should cover the carbs in a snack. If eating a snack over 15 grams, then you will usually cover it. DO NOT give the correction if it has been 2 hours or less since your last insulin shot.
4. Be cautious about giving corrections at bedtime. Ask about giving only half the calculated amount or adding a snack.
5. If you are LOW at a meal, fix the low first. Always make sure your blood sugar has come up before you give an injection of insulin.
6. Demonstrate how to inject and add a dose before you leave your appointment or hospitalization. Visit the online lessons for insulin pen and vial use. Read the *Understanding Diabetes* book from the Children's Diabetes Foundation.

My questions to ask the healthcare team: _____

Skill Checks:

Practice Insulin Dosing Example: Jill is 17 years old and in the 11th grade. She woke up before school and checked her blood glucose. Her BG this morning is 160mg/dL. She is going to eat 45 grams of carbs for breakfast at 09:00am.

Insulin to Carb Ratio: 1 unit per 10 grams carb

Correction (or Sensitivity) Factor: 1 unit for every 60mg/dL to a target of 100.

How much Novolog should Jill have with breakfast? _____

What time should Jill give the Novolog? _____

Practice Insulin Dosing Example: Ross is 4 years old and attends pre-school. His mom checked his BG this morning at 07:30am and it was 120mg/dL. She is making him a meal with 60 grams of carb at 08:00am but he is distracted by the new cartoon on TV.

Insulin to Carb Ratio: 1 unit per 30 grams carb

Correction Factor: 1 unit for every 80mg/dL to a target of 120.

How much Novolog should Ross be given with breakfast? _____

What time should Ross's Mom give the Novolog? _____



Today's date: _____

My Insulin Plan

Basal Insulin (longer acting)

Type: _____ Dose: _____ Time: _____

Bolus Insulin (faster acting)

Step One: Correction Factor (or Sensitivity Factor)

____ unit for every ____ mg/dL over blood glucose target of ____ mg/dL.

Do the math:

____ blood glucose - ____ target blood glucose = ____ divided by ____ correction factor = ____ units

Step Two: Insulin to Carb Ratio

____ unit for every ____ grams of carb

Do the math:

Total grams of carb ____ divided by ____ grams in ratio = ____ units

Step Three: Total Bolus Dose

Correction Factor units + Insulin to Carb units = _____ total dose.

The doctors will change the basal dose and bolus ratios as needed.

Record keeping is very important for these decisions.

Key:

- minus or subtract symbol

+ plus or addition symbol

= equals symbol



Insulin (continued)

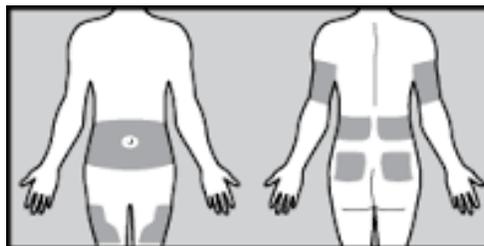
Insulin Injection Tips

1. Store opened vials or pens of insulin at room temperature—these shots are more comfortable!
2. Let the alcohol dry on your skin first before you inject. At home, use soap and water instead.
3. Go at least an inch away from the previous site used. Secure the skin or pinch up.
4. Insert the needle at a 90 degree angle—if you are very thin, use a 45 degree angle. Pierce quickly.
5. Inject insulin. Count to 5 with a syringe and 10 with a pen. Release the pinch and withdraw the needle.
6. Blot but do not rub the injection site.
7. Sometimes you will get a drop of blood at the site, or even a bruise. If this happens a lot, ask your diabetes educator for help.
8. Put used needles and lancets in a hard plastic container.

REMEMBER INSULIN AND FAT LOVE EACH OTHER. If the shot is given in the same place over and over, it will cause lumpy fat. The lumpy fat does not absorb insulin as well as healthy fat. Avoid lumps by changing sites each time.

Skill check:

1. Show us how to give an injection.
2. How will you remember where you gave the last one?





Low Blood Glucose (Hypoglycemia)

Hypoglycemia, or low blood sugar is an **emergency** that must be treated right away. Some causes are: too much medicine/insulin, not enough carbohydrate, increase activity, injecting wrong, or a hot shower after an injection. **A blood glucose reading of 70mg/dL or less is considered low blood sugar and should be treated with 15 grams of a fast acting carbohydrate.** When possible, check the blood glucose (BG) first. If you can not check, always assume they are symptoms of low BG.

SYMPTOMS

Mild: Shakiness, Sweating, Fast heart rate, Dizzy, Yawning, Grouchy, Hungry

Moderate: Confusion, Slurred speech, Poor Coordination, Not Able to Cooperate.

Severe: Loss of consciousness, Seizure, Convulsions

TREATMENTS

Give: 15 grams fast carbohydrate (follow guidelines for treating lows by age)

Recheck: Do another BG check in 15 minutes. If still less than 70mg/dL, then repeat treatment.

Next: Have a meal or snack with carbohydrate & protein. Keep track of low BG patterns and report.*

Give: 15 grams fast carbohydrate (follow guidelines for treating lows by age)

Recheck: Do another BG check in 15 minutes. If still less than 70mg/dL, repeat treatment.

If unable to keep drinking or eating, give glucagon.

Next: Have a meal or snack with carbohydrate & protein. Tell your healthcare team.

Give: Glucagon injection (follow directions on kit for mixing).

Notify: Call 911. Call your healthcare team.

Next: When there is no risk of choking, give food with carbohydrates.

* Driving: check your BG before driving. Do not drive if it is below 100mg/dL. Have a snack and plan on more snacks and hourly checks. Wear medical alert jewelry.



NDAP.org image



Low BG Treatment Choices & Glucagon

Examples of 15 gram **Fast Carbohydrates** (they turn in to sugar faster in the body):

3-4 Glucose tablets	1 small tube of cake gel icing or Glucose gel
Half-cup juice	Half-cup regular soda pop
1 cup of milk	1 tablespoon of sugar, regular jam, jelly, honey, or syrup



Tips:

- * For children too young to chew, get juice boxes or cake icing.
- * Keep something sweet at the bedside so there is no fumbling for the kitchen if lows happen at night.
- * Keep sweet choices in the car, backpack, at grandparents home, school, and _____.
- * Some kids might go low on purpose to get a sweet treat. Or, sometimes sweet treats disappear when friends or family want it. Try not to treat with goodies they love. Keep fast carbs separate.
- * If the person is not able to swallow, do not put anything in his/her mouth. Use glucagon instead.
- * Do not drive until BG is over 100mg/dL and re-check every hour while driving.

GLUCAGON: Visit www.lillyglucagon.com for an online lesson. Tell other caregivers and friends, too. Injecting glucagon when a person has a low blood glucose and is unable to swallow is an emergency. Glucagon tells the body to dump out any stored sugar into the blood stream.

Steps (Important: also follow the instructions on the kit):

1. If person is found unconscious, seizing, or unable to swallow, open the orange/red kit.
2. Remove the safety cap from the vial. Remove the cover from the syringe.
3. Insert the syringe and push the fluid into the vial of powder.
4. Swirl to mix the fluid and powder.
5. Tilt the syringe upside down with the vial. Pull back all the fluid.
6. Give the injection any place you usually give insulin. DOSE: Give the full amount in the syringe except for children under 44lbs (20kg) give half the syringe or 0.5mg.
7. Expect vomiting. Place the person in the recovery position on his/her side to prevent choking. Call 911. Notify your healthcare team.
8. When able to swallow, eat lots of food and drinks with sugar to refill the storage in the body. Keep checking BG until stable.

DEMONSTRATE: Show us you know how to use the kit before you ever need to. Make sure everyone knows where the kits are kept. Carry in your backpack or keep at school, too.





High Blood Glucose (Hyperglycemia)

High blood glucose (BG) is not always an emergency. We know that blood sugars go up normally after we eat. Sometimes it will go higher than we expect. Taking care of high BG will keep you out of the hospital. Do you know what else might make the blood sugar go up through the day?

Some **Causes** of High BG:

- Under-counting carbohydrates (too much food)
- Less activity than normal
- Not enough insulin or medicine (missed doses or kinked pump tubing)
- Stress
- Illness (the immune system)

Some **Symptoms** of High BG:

- Thirst
- Frequent urination
- Stomach aches
- Blurry vision
- Feeling tired
- Ketones with a very high BG can cause “fruity breath”, nausea, stomach pain, and confusion



Google Images

What should you do about a high?

First, recheck the BG results. If also having a sick day, then see the Sick Day page. Other highs are usually just written down in your log book and reported to the healthcare team. If the BG is over 300mg/dL twice, then check ketones. If ketones are positive, follow the plan on the Ketone page. There are also special rules for high BG before sports or exercise.

Next, have lots of non-sugary drinks. Try to drink at least 1 cup (1/2 cup for small children) per hour when awake. Take a light walk. Don't exercise too hard when you have a BG over 300mg/dL.

Don't forget your medicine. If you take insulin, remember to use your correction factor with your carbohydrate coverage dose to bring down the BG. If you use an insulin pump, keep checking your BG every 30-60 minutes to make sure it is working correctly. Follow your insulin pumping rules for high BG.

Finally, keep track of your high BG patterns. Write them down and send them to your healthcare team. Don't wait for your next appointment to tell the team about the patterns. You are not to blame when changes to insulin doses are made. We want to make sure you stay healthy and are glad to hear from you.



What are Ketones?

Ketones are made when the body uses fat for fuel. The body wants to use sugar. Sometimes there is a lot of sugar in the blood but the cells don't get the message to use it. The body knows when the cells aren't getting enough sugar, so it burns fat for energy. Ketones are the leftovers from the fat burn.

Too many ketones make the blood acidic. Too much acid can make a person very sick, cause DKA (Diabetic Ketoacidosis), or even death. Remember, ketones happen when the body uses fat for fuel—and it only does this if there is not enough insulin. If you have Type 1 diabetes, YOU MUST TAKE YOUR INSULIN or you will start making ketones.

We can do self-tests for ketones at home with blood or urine. *Check for ketones when sick and whenever the BG is >300 mg/dL two or more times in a row.*

Testing for Ketones in the Blood: The Precision Xtra meter has a special strip for a finger stick blood ketone check. Ask your doctor if you need this kind of meter. Ask your diabetes educator to teach you. Blood Ketone results from the Xtra meter:



Normal = Less than 0.6 mmol/L (maybe repeat it) Moderate = 0.6-1.0 mmol/L **High** = 1.0 or greater

Testing for Ketones in the Urine (not with a meter):

1. Pee in a cup (and dip the strip) or directly on the strip. Wait 15 seconds (check the bottle for the time for that brand).
2. Hold the strip up to the side of the bottle—you are looking to see if there is a change to the color purple on the strip.
3. If you see purple—you have ketones. The darker the color, the more ketones you have, and the more at risk you are.

Treatment:

- If you have ketones, start drinking water. Have at least a couple glasses of water.
- Take your correction insulin doses.
- Contact us if after an hour or so, the color is not getting lighter or is getting worse on repeat tests. Call if 1.0 or higher on the meter or dark purple if using the bottle.
- If you have ketones, it is really important you do not become dehydrated—so drink LOTS of water. If you can not drink or begin vomiting, you must call us RIGHT AWAY.
- REST. NEVER EXERCISE IF YOU HAVE KETONES!





Carbohydrate Counting

Carbohydrate counting is a useful skill to help keep the blood glucose (BG) at goal. The meal time insulin dose will be based on the amount of carbs per meal. There is no longer a “diabetes diet” or a “forbidden foods” list. Instead, we like to show people how to eat the foods they like in the right portions.

3 types of food: Carbohydrate, Proteins, and Fats.

Carbohydrate (Carbs) will turn into sugar in the body. Carbs will make the blood glucose go up. Fast acting insulin is given to cover the carbs at a meal or large snack. Fiber is a part of carbs that may help slow down the rise of the blood glucose. Proteins and fats are also important to make sure the body has the energy and nutrients it needs. Every meal should have something from all the food types.

Step One: Meet with the Registered Dietitian and determine a meal plan. Ask about a carbohydrate range for each meal or snack.

Step Two: Learn to label read and measure portion sizes of carbs. You do not have to measure and count protein or fat.

Step Three: At first, avoid juice, other sweetened drinks and high sugar treats unless you are having a low.

Step Four: Keep a food diary. Help us learn how your body responds to the insulin and the food.

Carbohydrate (Carb) Examples to Count:

- Starchy Veggies: peas, corn, rice, potatoes, yams, some beans (like kidney beans), lentils, chick peas. (Some Non-Starchy Veggies: depends on the portion. Count some if over 1/2 cup cooked or 1 cup raw)
- Grains: bread, crackers, graham crackers, wafers, cereal, popcorn, bagels, pretzels, granola, tortillas, flour (dough), pasta
- Fruits: bananas, apples, grapes, strawberries, melon, oranges, raisins, berries, kiwi, mango, pears, plums, etc.
- Dairy: milk, ice cream, pudding, yogurt, cream soups, cream dressings & sauces
- Treats: desserts, candy, cookies, pies, cakes, muffins, rolls, donuts, syrups, sugar, honey, jam, chips, sherbet
- Sweet drinks: regular soda pop, juice, milk shakes, specialty coffees, sweet tea, smoothies





Carbohydrate Counting (continued)

Sample label for macaroni & cheese

Nutrition Facts	
Serving Size 1 cup (228g)	
Servings Per Container 2	
Amount Per Serving	
Calories 250	Calories from Fat 110
% Daily Value*	
Total Fat 12g	18%
Saturated Fat 3g	15%
Trans Fat 3g	
Cholesterol 30mg	10%
Sodium 470mg	20%
Total Carbohydrate 31g	10%
Dietary Fiber 0g	0%
Sugars 5g	
Protein 5g	
Vitamin A	4%
Vitamin C	2%
Calcium	20%
Iron	4%
* Percent Daily Values are based on a 2,000 calorie diet. Your Daily Values may be higher or lower depending on your calorie needs.	
	Calories: 2,000 2,500
Total Fat	Less than 65g 80g
Sat Fat	Less than 20g 25g
Cholesterol	Less than 300mg 300mg
Sodium	Less than 2,400mg 2,400mg
Total Carbohydrate	300g 375g
Dietary Fiber	25g 30g

Using a Food Label:

1. Look for the “serving size”
2. Read the “total carbohydrates” in grams
3. Decide how many servings you will have
4. Add up your carbs for each serving
5. You are carb counting!

Resources for carb counting:

Food Labels

Calorie/Carb Counting Books

Smart Phone Applications

Websites for Recipes & Restaurants

Ask the Dietitian for the most current apps and websites.

This Food Label Example: Eating 2 servings (2 cups) = 62 grams of carb



Nutrition Examples

Tip: Brands may vary. Check your labels and websites.

Breakfast examples:

1 cup O-shaped cereal = 15 grams
1 cup milk = 12 grams
1 string cheese
Total Carb: 27 grams

2 eggs & 1 /4 cup shredded cheese
1 tortilla (6 inch) = 25 grams
1/2 large banana = 15 grams
Total Carb: 40 grams

Lunch example:

Chicken sandwich (cheese/mayo) = 30 grams
1/2 cup grapes = 20 grams
Salad with vinaigrette & almonds
Total Carb: 50 grams

Dinner example:

Baked fish fillet (no batter or breading) 1/2 cup broccoli
1 Roll = 15 grams 1 tbsp butter
1 medium baked potato = 42 grams 1/2 cup ice cream=16 gms
Total Carb: 73 grams

Snack ideas with a protein & fat & 15 grams of carb:

1/4cup tuna with 5-6 whole grain crackers 6 tbsp. hummus and celery
1/2-1 cup dry cereal with nuts String cheese and 1 cup of milk
1 piece of bread or toast with a tbsp. nut butter (or seasoned olive oil for dipping)
1/2 cup fruit with cottage cheese

Snack ideas with no carbs to count:

—Any non-starchy raw vegetable: 1/2 cup carrots, cucumber, salad, celery, tomatoes, peppers, green beans, broccoli
—1/4 cup nuts, low-fat cheese, string cheese, cottage cheese, olive oils (for dipping)
—Sugar free gelatin, homemade diet popsicles

Snacks with about 15 grams of carb each:

1 piece fresh fruit (tennis ball size)	3 cups plain popcorn
1/2cup fruit sorbet	3 graham crackers
1 cup milk	1 small yogurt
8 small pretzels	1oz chocolate
1/4cup apple sauce	1 cup berries
2tbsp raisins	6 vanilla wafers
6 saltines	11 nacho chips





Nutrition (continued)

Well-rounded meals are important ,too. The CHILD-1 diet is the first stage of the Cardiovascular Health Integrated Lifestyle Diet. It is recommended for children with certain health conditions (Type 1 Diabetes). The diet can be a good idea for all kids, since it promotes healthy eating and a healthy weight. The diet was designed for kids.

Please see: <http://www.nccpeds.com/HealthyHabits/Nutrition%20resources/CHILD1%20Diet%20Pediatrics.pdf>

Skill Check

1. Example: 1 cup spaghetti, 1 slice bread, 1 tsp butter, 2 grilled chicken strips, 1 cup milk

How many carbs are in this example? _____grams

2. Example: 1 small fruit, 1/2 cup salad with olive oil, 2/3 cup rice, 2 pieces of baked fish

How many carbs are in this example? _____grams

Give it a try. What do you like to eat for lunch? How many grams of carb are in this meal?

_____	_____
_____	_____
_____	_____

Ask the dietitian to look at this page or help you if you get stuck.





Activity

Exercise makes insulin work better. It will LOWER the blood sugar.

Tips:

1. Check your blood sugar before, during and after the exercise.
2. Make sure you always have some kind of snack available during exercise.
3. Make sure your coach or PE teacher knows about diabetes. Always wear medical alert jewelry so other people will help take care of a low blood sugar reaction. Give your coach a copy of the hypoglycemia and glucagon instructions.
4. Add 15 grams of carbohydrate for every 30 minutes of exercise. Experience is the best teacher. You might need a snack with protein and/or fat in it as well if the activity will be going on for awhile, like a soccer or basketball game.
5. Check for ketones if the blood sugar is $>300\text{mg/dL}$ before exercise. THIS IS VERY IMPORTANT—if ketones are present and your child exercises they WILL GET VERY SICK. They should rest and drink water instead until the ketones are gone.
6. If your child exercised a lot during the day-- check his/her blood sugar in the middle of the night since some kids will go low many hours after exercise. Ask your healthcare team about adjusting basal rates (on pumps) or decreasing the amount of insulin on sporty days.
7. Be proud of being active every day! Don't let diabetes stop you from playing, joining teams or clubs, hiking, going to PE class, or any other healthy activity you enjoy.

Write down activity questions to ask your healthcare team. _____

Fun Facts: Professional sport stars and Olympic athletes compete with diabetes. Google your favorite sport and diabetes. You may be surprised at their amazing accomplishments.





Sick Days

Sickness, even just a cold, will make the blood sugar go UP. If the blood sugar gets high and there is not enough insulin, the body will use fat for fuel. This makes KETONES. Too many ketones are very dangerous.

Ways to prepare:

1. Read *Understanding Diabetes* "Pink Panther" Book for more age specific details and sick day planning.
2. Plan ahead for sick days. Make a sick day tool kit.
3. Keep sick day foods at home separate. Examples of 15 grams carb choices: 1/2 cup Gatorade, 1/4 cup Jello, 1/2 cup juice, 1/2 cup ice cream, 1 cup chicken noodle soup, 6 crackers, 1 slice toast

To keep your child safe:

1. ALWAYS GIVE THE INSULIN! NEVER WITHHOLD THE LANTUS OR LEVEMIR.
2. TEST BLOOD SUGAR EVERY 2 to 4 HOURS.
3. DRINK AT LEAST 1 CUP OF WATER PER HOUR (1/2 CUP FOR SMALLER CHILDREN). IF SHE/HE GETS TIRED OF WATER, YOU MAY GIVE OTHER DRINKS THAT ARE SUGAR-FREE/CAFFEINE FREE.
4. TEST FOR KETONES DAILY AND EVERYTIME THE BLOOD SUGAR IS > 300.
5. FOLLOW THE MEAL PLAN AS MUCH AS POSSIBLE.
6. CALL US IF:
 - a. If your child is vomiting and can keep nothing down— CALL US and make plans to go to the NEAREST emergency room.
 - b. You need help with insulin doses.
 - c. Your child has moderate/large ketones (purple color on bottle OR 1.0 or more on the Xtra meter)
 - d. Your child looks very ill.
 - e. You are not sure what to do.

Reach the On-call Pediatric Endocrine Doctor at 202-713-3321

Prevention

Immunizations are very important for children with diabetes. Ask about these...

1. Yearly Influenza Immunization. New every Fall. Use the shot, not the nasal spray.
2. Pneumonia Vaccine with initial diagnosis if over age 2.
3. Look at this website for more details. www.cdc.gov/vaccines/hcp/vis/index.html





Coping & Concerns

We know being told about a life with diabetes is overwhelming sometimes. We hope to provide you with the support you need to cope with the challenges. Self-management of diabetes is 90+% the patient and family responsibility, though. Setting goals and earning rewards is a great way to be successful at any age. Let us know how we can help you achieve your diabetes goals.

Help with Coping:

- Reach out to your healthcare team. Email and call when you need extra support. Schedule appointments at least every 3 months.
- Find a local support group, blog, or email group.
- Read and learn from the experts. Check out the resources listed on the Support & Resources page.
- Set goals for managing tasks. Have a reward for achieving them. Don't focus on "good or bad numbers". Focus on doing the best you can and learning from experience.
- Keep doing the things you love to do. Diabetes is a disease, but it does not have to be an illness. You can be very well, have a fabulous life, and have diabetes.
- Keep the school plan updated with the school nurse, teachers, and coaches.
- Age specific responsibilities will change as the child grows. Sometimes he/she will take on more of the tasks and then, without warning, will want parents to be more involved again. Find the balance you need.

Behavioral Management Parenting Tips to Consider:

- *Watch* the type of reaction that you make (as a parent) to seeing a number. Kids have an amazing sense of picking up if you think the number is "good" or "bad". A number is a number is a number. What can you do to improve that number?
- *Compliment* the child on taking an initiative for wanting to do more in his/her diabetes care.
- If it is a teen or tween you're parenting, then *don't be accusatory* of why their blood sugar is high. Take a deep breath, find out what happened, what could be done differently, correct it, and move on. Maintaining your happy relationship with your child is far more important than being right. Work together.
- Allow the teen or tween to pick out one day of the week where they don't have to do diabetes care. On that day, say Sunday, the parent would do the testing, carb counting, etc. Many times this is effective because it gives them a day to "recuperate" from having to do diabetes management all week. It gives them time to be a regular kid. It also reminds you about their daily struggle.
- For the newly diagnosed, try to keep up the same traditions. Just because the child has diabetes doesn't mean that they can't have grandma's special cookies or go trick or treating. You can find carb counts on practically anything these days. Plus it's all about moderation.

Goal Setting as a Family:

1. Write down a small goal to achieve.
2. What might get in the way?
3. Who do you need to support you?
4. When will you achieve the goal?
5. What is the first step? Next steps?
6. Give updates. Reward and pick another.



School

Plan for school:

- Ask the school nurse about specific forms the doctor needs to sign.
- Read the *Understanding Diabetes* “Pink Panther” chapters on school aged children and preparing for school.
- Go to the websites on the Resources page to learn about student rights and laws.
- Talk to the school nurse, teachers, bus driver, and coaches. Define who is responsible for each task.
- Decide how much you want to share with classmates.
- Order medical alert jewelry.
- Find out what supplies to keep at school.

Example list:

- Glucose meter (to leave at school), test strips, lancet device, lancets
- Insulin vial or pens
- Syringes or pen needles
- Glucagon kit (copy the hypoglycemia pages from this workbook)
- Glucose tablets, juice, snacks
- Extra batteries for the meter
- Ketone test strips
- Alcohol pads



Adult Transition & College Prep

- Young adults should start preparing for more independent diabetes care 3-6 months before leaving home. Go to the Resources page for website links to checklists.
- Contact Tricare to arrange for medical care near campus.
- Learn what ADA (Americans with Disabilities Act) and 504 laws apply on your campus.
- Reach out to the dietitian with the campus dining services.
- Plan on refills, supplies, and teaching friends or roommates how to help.
- Ask us about special concerns with the use of alcohol. Drinking alcohol can cause hypoglycemia and make it difficult to manage life with diabetes.



Contact Us

Pediatric Subspecialty Clinic, Pediatric Endocrinology
4th Floor America Building 19
Walter Reed National Military Medical Center
8901 Wisconsin Avenue, Bethesda, MD 20889

WRB Appointments: 1-866-628-9633 or 1-855-227-6331
WRB Fax: 301-319-2420
WRB Front desk: 301-295-4959

Appointments also available at Fort Belvoir, VA (River Building, 1st Floor)
Ft Belvoir Pediatrics: 571-231-1014/1015
Ft Belvoir Pediatric Subspecialty Appointments: 571-231-1066

[Pediatric Endocrinology Doctor On-call Line: 202-713-3321](tel:202-713-3321)

Certified Diabetes Educator: 301-295-5068
Pediatric Behavioral Health: 301-319-4095
Pediatric Social Work Services: 301- 319-2595

Register at [RelayHealth.com](https://www.relayhealth.com) for secured messaging options.





Support & Resources

Books:

Chase, Peter MD & Maahs, David, MD. [A First Book For Understanding Diabetes.](#)

Chase, Peter MD & Maahs, David, MD. [Understanding Diabetes.](#)

Important Websites:

American Diabetes Association at Diabetes.org

Diabetes.org/living-with-diabetes/parents-and-kids/diabetes-care-at-school/

ChildrenWithDiabetes.com

Childrensdiabetesfdn.org

Juvenile Diabetes Research Foundation at JDRF.org

National Institutes of Diabetes, Digestive, and Kidney Diseases at NIDDK.nih.gov

Helpful Websites, Downloads or Smart Phone Applications:

Diasend.com (allow us to view the downloads by entering WRB clinic ID: 82-25947)

Abbottdiabetescare.com/products/patient/data-management/copilot-health-mgmt-system.html.

CalorieKing.com

Childrenwithdiabetes.com/d_06_700.htm (for medical alert product listing)

MySugr.com

GoMeals.com

MyFreeStyleSupport.com

CollegeDiabetesNetwork.org

Recipes.sparkpeople.com/recipe-calculator.asp

Diabetescamps.org/camp-finder

[Facebook.com/groups/combatkids](https://www.facebook.com/groups/combatkids) (local independent support group)

BeSmartWithSharps.com





DISCHARGE INSTRUCTIONS

Patient Name: _____

DOB: _____

1. Insulin Dose:

Lantus insulin: Give _____ units at this time _____ am/pm.

Novolog Insulin to Carb Ratio: _____ unit per _____ grams carb at each meal.

Novolog Insulin Sensitivity Factor: _____ unit per _____ mg/dL to correct to _____ mg/dL
add this with meals and at bedtime. Be careful of correction dosing less than 3 hours apart.

____ Give only half the correction before bedtime.

Other insulin orders: _____

2. Check blood sugar **before** each meal and at **bedtime** and write them down.

3. Additional checks needed: _____ 2 hours after meals _____ at 2:00am

4. My Blood Glucose goals: _____ before meals _____ before bedtime

5. Regular meal plan with carb counting.

Give a snack if blood glucose is less than _____ at bedtime. Give carbs as needed.

6. Give 15 grams of a fast-acting carb if blood sugar less than 70. Test after 15 minutes to make sure the BG is above 70mg/dL and repeat as needed.

7. Contact us **daily** after leaving the hospital. More if your child is having lows. The frequency of calls or emails will decrease over time.

8. Remember to check for ketones if blood sugar is >300 two times in a row or your child is sick.

9. Return to school plan: _____

10. Follow up appointments: _____

BRING METER, LOGBOOK, DOWNLOADS, REFILL LIST & QUESTIONS to every appointment.

Staff Signature: _____

Date: _____

Parent/Patient Signature: _____

Pediatric Endocrinology Doctor On-call Line: 202-713-3321

Certified Diabetes Educator: 301-295-5068

Join RelayHealth.com for secure e-mail messaging



Notes



Appendix

Inpatient Form: Pediatric Pathway to Wellness

WRB Education Outlines

Insulin and BG Log

Food Diary Cover Sheet

Food Diary

Fun Pages

PEDIATRIC PATHWAY TO WELLNESS



New Onset Diabetes

Plan of care for:

When someone is in the hospital, it is important for the patient and the family to know what to expect and when things will happen. While everyone is unique, there are some aspects of care that we can predict. This Pediatric Pathway describes the usual course of care for the above condition or surgery.



A "Ticket to Home" for Patients and Families

DAY ONE: Admission to the Pediatric Ward

In some cases you may have spent some time in the Pediatric ICU. These events below typically begin once you've arrive to 3 West Inpatient Unit.

After arrival to the unit, you can expect:

Your child's height, weight and vital signs (blood pressure, temperature, heart rate and breathing rate) will be obtained every 4-8 hours.

The Nurse will ask a few health history questions (such as allergies, medicines your child is taking, any past health problems), if you are just arriving to the hospital.

It is likely your child has an IV line and has had blood work done. If this is not the case, we will do this once your child arrives. Your child will probably need IV fluids to help correct electrolytes and to help with hydration.

Between Day 1 and 2 on 3 West, you will have some extensive education / training done in order to prepare you for life at home. Either the Endocrinologist or Diabetic Educator will spend some time to go over the disease process and the required lifestyle changes. We strive to get you home supplies as soon as possible (typically on Day 2). We will begin using your supplies and teaching your child (if age appropriate) and primary care givers on how to use them.

Your child will receive a regular diet three times per day with mid-afternoon and bedtime snacks. Allow your child to eat until their appetite is satisfied. Foods with a high sugar concentration like sugary drinks and sweet deserts should be avoided. 3 West staff members will contact dietary and request an age appropriate up to date menu and give you instructions on how to order your child's meals.

Your child's carbohydrates need to be calculated with each meal. The staff will work with you on how to calculate the carbohydrates **prior** to ordering the meals. We will also need to get a finger stick before each meal, before bedtime and at around 2 am. We will then calculate the amount of insulin needed to cover the carbohydrates and the required correction factor. When your tray arrives, we will administer the insulin.

Continued on next page

Notes and Questions:

Day 1 Insulin:

Before ordering dinner, call your nurse so that you can calculate carbohydrates together.

Your child's blood glucose will be checked before his/her meal. If available we will use your home equipment. Immediately record those numbers in your log.

Calculate the correction factor for both carbohydrate intake and blood glucose.

Draw up and give the insulin injection right before the meal (with nursing supervision). If your child is not very hungry or is tired, you can give the shot after they eat.

Day 1: Before Bed

Your child's blood glucose should be checked.

Your child's long lasting insulin should be given (sometimes the long lasting insulin is given in the morning).

Have your child eat a bedtime snack.

Day 1 (Overnight): 0200

Your child's blood sugar will be checked to assess effectiveness of the long lasting insulin.

Day 2: Morning

Your child's blood glucose should be checked before his/her meal. Carbohydrate counting should be done. Enter the result in your log book.

Calculate the correction factor for both carbohydrate intake and blood glucose level.

Draw up and give the insulin injection right before the meal (with nursing supervision). If your child is not very hungry or is tired, you can give the shot after they eat.

DISCHARGE CRITERIA:

Caregiver and/or child:

- is able to check blood glucose level

- has a basic carbohydrate counting skills

- is able to correctly calculate mealtime insulin dosage based on carb count & blood glucose level

- is able to demonstrate correct insulin injection technique

Caregiver and/or child can verbalize the signs and symptoms of **hypoglycemia** and **hyperglycemia** and when to call the doctor

Caregiver's and/or child's questions about your child's care at home have been answered





WRB Pediatric Diabetes Education Outlines & Handouts

CHECK MARK WHEN YOU UNDERSTAND THESE TOPICS

Introduction:

- Introduce *Understanding Diabetes* Book and WRB Workbook
- Define Types of Diabetes & DKA
- Answer diagnosis questions
- BG testing and goals
- Ketone testing
- Hyperglycemia
- Insulin administration (names, action, timing, storage, demo skill)
- Sharps disposal
- Hypoglycemia (symptoms, treatment, prevention)
- Glucagon
- Diabetes food plan and basic carb counting
- Daily carb and insulin coverage
- Insulin correction factor (sensitivity factor)
- Basal/Bolus plan
- When/How to call the doctor
- Activity
- Sick days
- School plan
- Driving rules (if applicable)
- Coping
- Community support
- Contact information
- Follow up plan (daily contact for first week, then 1 week with educator, 1 month with MD)

Follow up visit(s) (newly diagnosed within 1-2 weeks):

- Living with diabetes questions
- Feelings and coping
- Skills re-checks (meter, insulin, ketones, glucagon)
- A1c
- Hypo & Hyperglycemia causes and treatments
- Understanding glucose patterns
- Carb counting demo
- Meal and snack plan
- Special occasions
- Sick days
- Activity
- Medical alert
- Community support
- Age specific responsibilities & challenges
- Preventing complications
- Technology topics
- Ongoing support plan

Future Topics for Follow up visit(s):

- | | | |
|--|--|---|
| <input type="checkbox"/> Overview of diabetes topics (above) | <input type="checkbox"/> Stress & coping | <input type="checkbox"/> Apps or online resources |
| <input type="checkbox"/> Pattern management | <input type="checkbox"/> Formal basal or bolus checks | <input type="checkbox"/> Community support |
| <input type="checkbox"/> Nutrition | <input type="checkbox"/> Safety skills check | <input type="checkbox"/> Preventing complications |
| <input type="checkbox"/> Advanced carbohydrate counting | <input type="checkbox"/> Update meter or technology | <input type="checkbox"/> Travel |
| <input type="checkbox"/> Lifestyle | <input type="checkbox"/> Diabetes Technology Class (CGM & Pumps) | <input type="checkbox"/> Driving |
| <input type="checkbox"/> Behavior change goals | <input type="checkbox"/> Age-specific milestones | <input type="checkbox"/> Pre-pregnancy planning |
| | <input type="checkbox"/> College prep | |

Lantus/Novolog Flow Sheet

FAX:301-293-5008 (Attn Dr. _____)

NAME: _____

Glargine dose- _____

Insulin:Carb- _____

Insulin sensitivity- _____

Date	Time	Meal	Insulin	Carbs	Dinner	Bedtime
		Breakfast				
		Lunch				
		Dinner				
		Bedtime				
		Breakfast				
		Lunch				
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		Breakfast				
		Lunch				
		Dinner				
		Bedtime				

WRB Pediatric Diabetes Education Diary Name: _____ DOB: _____ 	DATE: _____	Pre-meal BG: _____	Post-breakfast BG: _____	Pre-meal BG: _____	Post-lunch BG: _____	Pre-meal BG: _____	Post-supper BG: _____	Snack or Bedtime BG: _____	2:00am BG: _____
	_____	_____	_____	_____	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____	_____	_____	_____	_____
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	_____	_____	_____	_____	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____	_____	_____	_____	_____

	Breakfast Time:	Lunch Time:	Supper Time:	Snack Time:	Activity
Monday Food portions and Carb gms Insulin Bolus +Correction=					
Tuesday					
Wednesday					
Thursday					
Friday					
Saturday					
Sunday					

FUN PAGES

Fill in the letters to find the clues. Fill in the clues and solve the mystery creature.

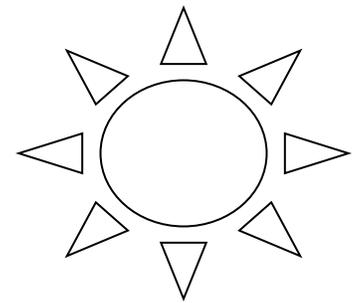
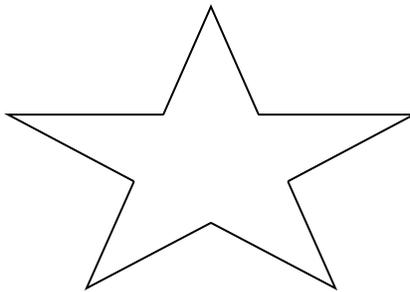
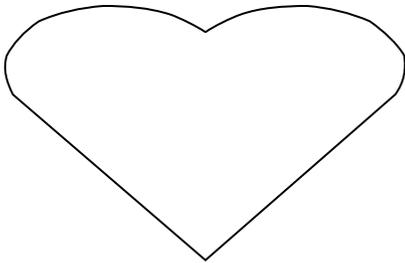
Lives in the _ c _ _ _ _

Has brightly colored _ _ a _ _ _ _

Some of these like to eat _ l _ _ _ _ _

They quickly hide in the _ _ _ r _ _ _

The mystery creature is a: _____



Draw a line to match the word with the fun fact.

Finding Nemo was about a

A group of fish is a

Sharks have a strong sense of

Swordfish like to hunt at

Marlins are fastest at

....smell

....night

....swimming

....school

....clown fish

