ACH DIABETES TEAM

• PHYSICIANS:
  – DR. JON ODEN-SECTION CHIEF
  – DR. PAUL FRINDIK
  – DR. Y. ANNIE WANG
  – DR. ABHA CHOU DHARY
• ADVANCED PRACTICE NURSES:
  – HEATHER CANTRELL, APRN, MNSC, CPNP-AC, CDE
  – LINDLEY ABRAMS, APRN, MNSC, CPNP-PC
• CERTIFIED DIABETES EDUCATORS/DIABETES SPECIALTY NURSES:
  – KAREN HEFNER, RN, CDE
  – JENNIFER SELLERS, RN, CDE
  – DANA THOMAS, RN
• DIETICIAN:
  – MEG GREEN, MS, RD, CSP, LD
• RESEARCH NURSE:
  – KATHY EDWARDS, RN, CCRP
• SOCIAL WORK:
  – ERIN HOGUE, LCSW
  – ALEXIS YOUNG, LCSW

ACH DIABETES TEAM CONTACT INFORMATION

• Important phone numbers:

• DIABETES OFFICE PHONE: 501-364-1430 OR 1-800-495-1048

• DIABETES OFFICE FAX: 501-364-6299

• AFTER-HOURS NURSE EMERGENCY: 501-364-1100

• DIABETES NURSE E-MAIL: DIABETESNURSE@ARCHILDRENS.ORG

• ONLINE BLOOD SUGAR LOG BOOK (THIS IS NOT A FREE SERVICE AND IS NOT MANDATORY):
  WWW.MYCARECONNECT.COM

• Use these contacts to send us blood sugar logs. However, we only take blood sugars by phone on Tuesdays from 8:30-12 and Fridays 1-4. Please do not call after hours to report blood sugars or to request prescriptions.
WHAT IS DIABETES?

TYPE 1 DIABETES:

• Caused by immune attack of cells that make insulin.
• Process is caused by exposure to an antigen (i.e. Virus) in the environment in patients who have an underlying inherited risk.
• Symptoms appear when cells that make insulin in the pancreas (i.e. Beta cells) have lost their ability to make insulin.
• Most often diagnosed in adolescence or childhood.
• Insulin is the only treatment option.
• This is a lifelong condition.

TYPE 2 DIABETES:

• Caused by resistance to insulin.
• Symptoms appear when the insulin producing cells can no longer keep up and not enough insulin is produced.
• Most often there is a strong family history and patients are overweight.
• Most common type of diabetes diagnosed in the adult population.
• If blood sugars are high enough, insulin is the first-line of treatment.
• If lifestyle changes are made, the patient might be able to be treated with pills alone or in combination with insulin.

INSULIN

• What is Insulin?
  • Insulin is a hormone needed to convert the sugars and starches we eat into energy.
  • In a healthy pancreas, insulin is made 24 hours a day for basic needs. When you eat, more insulin is made. The insulin we have prescribed for your child tries to imitate what a healthy pancreas does. People with type 1 diabetes will always require insulin.
  • Without insulin, our body’s cells cannot take in sugar so it stays in the blood. This causes high blood sugars.
• Due to the high blood sugar, the most common symptoms of diabetes are:
  • Frequent urination
  • Increased thirst
  • Increased hunger
  • Weight loss

**INSULIN**

• You are Currently Using Two Types of Insulin:
  – Lantus or Levemir is your long acting insulin.
  – Novolog/Humalog/Apidra are rapid acting insulins given with meals.
  – You may give long acting and rapid acting insulin at the same time as long as they are given in different sites.

**LONG ACTING INSULIN**

• Should be given as close to the same time every day as possible.
• See next slide for instructions in case of missing a dose.

**IF YOU FORGET YOUR LANTUS DOSE, DO AS FOLLOWS**

• If less than 6 hours, give entire dose as directed.
• 6-14 hours give ½ the dose immediately, ½ at the usual time, then whole dose at usual time the next day.
• If over 14 hours, do corrections with rapid acting insulin every 3 hours and give lantus early (@dinner for someone who usually doses at bedtime), then back to normal schedule the next day.
• Check for ketones every 3-4 hours.

**RAPID ACTING INSULIN**

• Your rapid acting insulin is either Novolog, Humalog or Apidra. They work the same, just different brands.
• Dose varies based on number of carbs eaten and pre-meal blood sugar.
• This insulin is given immediately before meals for people over the age of 9.

• For people under 9, it can be given after the meal, but should not be any longer than 30 minutes after the first bite of food.

• THE GOAL IS FOR ALL PATIENTS TO TAKE INSULIN BEFORE MEALS.

HYPOGLYCEMIA <70 (LOW BLOOD SUGAR) SYMPTOMS

• Headache (can also be symptom of high)
• Sweating
• Shakiness/tremors
• Irritability/personality changes
• Weakness
• Confusion
• Rapid heart rate
• Can lead to unconsciousness or seizure

HYPOGLYCEMIA CAUSES

• More exercise than usual.
• Too much insulin either by miscalculating carbs or misdialing pen (always best to have two people verify dose)
• Taking meal insulin and then not eating.
• Honeymoon phase.

“HONEYMOON PHASE”

• Some people with type 1 diabetes experience a brief remission called the “honeymoon period.”
• During this time their pancreas may still secrete some insulin resulting in lower insulin requirements and low blood sugars.
• The amount of insulin your child requires during this time might be very low.
• Over time, this secretion stops and as this happens, the person will require more insulin from injections.
• The honeymoon period can last weeks, months, or even up to a year or more.

HYPOGLYCEMIA TREATMENT

• <70

• RULE OF 15

  – Give 15 grams of fast acting carb.
  – Wait 15 minutes, recheck blood sugar.
  – If still below 70, repeat cycle until above 70.
  – Once above 70, eat meal as usual and dose for carbs in the meal, not what was used to bring up the blood sugar. Do not give correction if blood sugar goes above target.
  – If not mealtime, have 15 gram carb snack that contains protein.

15 GRAM FAST ACTING CARBS

• 4 oz. Juice or regular soda
• 3 glucose tablets
• 2 rolls of smarties
• 1 tube glucose gel
• 1 small tube cake icing gel
• 1 tbsp corn syrup, honey or jelly
• 3 tsp or 3 packets of sugar

WHAT NOT TO USE

• DO NOT USE:

  • Any hard candy, skittles, or jelly beans (these could pose a choking hazard).
  • Milk, peanut butter, or chocolate (these don’t work fast enough).

GLUCAGON

  – What is Glucagon and When Do I Use it?

  – Glucagon is an injected medicine that works by telling the body to release sugar into the blood stream to bring the blood sugar level back up.
— Glucagon is used when the patient is unconscious, having a seizure or cannot verbally respond.

**GLUCAGON-HOW TO USE**

— Remove seal and clean top of bottle with alcohol.
— Remove needle cover from syringe and insert needle into bottle, injecting all contents into bottle. Remove needle.
— Gently swish bottle until the powder dissolves. The liquid should be clear.
— Using the same syringe, draw prescribed dose into syringe. For children 44 lbs and up, use 1 mg. For children under 44 lbs, use 0.5 mg.
— Clean injection site (arm, thigh, buttocks) with alcohol.
— Inject dose at a constant speed and remove needle holding slight pressure at the injection site after needle is removed.

**GLUCAGON**

• Points to Remember:
  — Be sure to turn the patient on their side. The rapid increase in blood sugar can cause nausea and vomiting.
  — Feed them a small snack as soon as they are awake.
  — Glucagon cannot be overdosed. Keep this in mind in case you accidentally give the full dose with the intent of giving the half dose.
  — Contact the diabetes team if you have to give glucagon.

**EXERCISE**

Exercise uses blood sugar and helps blood sugar enter the cells to be used as energy. You may need an extra snack with exercise unless it is something you do daily and is already figured into your meal plan. Intense exercise can lower your blood sugar for up to 24 hours after exercise is done. Please note: if your blood sugar is over 240, always check for ketones before exercising. If you have ketones, do not exercise until your ketones clear and your blood sugar is under better control.
<table>
<thead>
<tr>
<th>TYPE OF EXERCISE</th>
<th>BLOOD SUGAR</th>
<th>SNACK NEEDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low to moderate intensity—short duration of 30 min or less. (Ex: walking, bike ride, outside play)</td>
<td>Less than 100 100 or above</td>
<td>15 gm carb with protein. An extra snack is not necessary</td>
</tr>
<tr>
<td>Moderate intensity-duration of around 1 hour. (Ex: tennis, swimming, jogging, dancing)</td>
<td>Less than 100 100-180 180-240</td>
<td>30 gm carb with protein, plus 15 gm carb for each hour. 15 gm carb with protein No extra snack</td>
</tr>
</tbody>
</table>
HYPERGLYCEMIA (HIGH BLOOD SUGAR)

**CAUSES**

- Miscalculating carbs or misdialing pen
- Less exercise/activity than usual
- Illness
- Stress (good or bad)
- Failure to rotate injection sites
- Using insulin that has been opened more than 30 days, past package expiration date, or that has been exposed to extreme heat or cold

**What to do:**

- A high blood sugar is not an emergency! Write down all blood sugar levels and report them weekly.
- Check urine for ketones if blood sugar is over 240.
- If there are no ketones present, drink sugar free fluids and continue diabetes care as usual.
- Increased activity helps reduce blood sugars. Do not increase activity if there are ketones present or if blood sugar is over 400.

**KETONES**

**What are Ketones?**

- Ketones are acids that are produced when the body burns fat for energy.
- They are produced when there is not enough insulin to help your body use sugar for energy.
- Without enough insulin, glucose builds up in the blood. Since the body is unable to use glucose for energy, it breaks down fat instead.
- When this occurs, ketones form in the blood and spill into the urine. These ketones can make you very sick.
KETONES

• When to Check:
  – Check urine for ketones every 2-3 hours when sick with any kind of illness, regardless of blood sugar.
  – Anytime patient is nauseated or vomiting.
  – Anytime blood sugar is over 240.
  – Sweet or fruity smell to breath or around them.
  – Hard time catching breath.

SICK DAYS

• What You Need to Know:
  – Do not skip insulin, even if vomiting or not eating.
  – If blood sugar is below 70, treat with carb containing beverage. Once above 70, see recommended fluid guidelines.
  – Check urine for ketones while ill, even if blood sugar is normal or low.
  – Fluids and insulin are needed to clear ketones.
  – If child is sick looking and unable to drink or hold fluids, take him/her to the nearest emergency room.
  – If moderate to large ketones persist longer than 6 hours, go to the nearest emergency room.

FLUID GUIDELINES FOR SICK DAYS

• Drink “Age in Years” Ounces Every Hour.
  – If blood sugar is more than 180, drink sugar free fluids (water, diet soda, sugar free water flavoring).
  – If blood sugar is 100-180, drink ½ water and ½ sugary fluids.
  – If blood sugar is less than 100, drink sugary fluids (juice, regular soda, sports drink).

SICK DAYS
IF KETONES MODERATE TO LARGE

• Drink fluids according to fluid guidelines.
• Check blood sugar every 2-3 hours and give correction based on your correction dose.

• If ketones are large, do correction and add extra insulin: give 2 units extra if pt is under 10 years old, give 4 extra units if pt is 10 years or older.

**Foods to eat and drink when sick**

• **REMEMBER THAT INSULIN IS STILL NEEDED WHEN ILLNESSES OCCUR, THEREFORE SOME CARBOHYDRATES WILL NEED TO BE TAKEN IN. THESE FOODS CAN BE EASIER ON A “SICK” STOMACH AND WILL HELP PREVENT A LOW BLOOD SUGAR. TRY TO EAT OR DRINK 15 GRAMS OF CARBOHYDRATE PER HOUR. THE FOLLOWING FOODS EACH CONTAIN 15 GRAMS OF CARBOHYDRATE.**

  – ½ CUP (4 OUNCES) FRUIT JUICE
  – ½ CUP (4 OUNCES) REGULAR COLA
  – ½ CUP (4 OUNCES) REGULAR FLAVORED GELATIN
  – ½ CUP (4 OUNCES) HOT CEREAL
  – ¼ CUP (2 OUNCES) PUDDING
  – ½ CUP (4 OUNCES) MACARONI, NOODLES, RICE, MASHED POTATOES
  – ½ TWIN POPSICLE
  – ¼ CUP SHERBET
  – 1 CUP SOUP

**DIABETIC KETOACIDOSIS (DKA)**

• An emergency condition in which extremely high blood glucose levels, along with a severe lack of insulin, result in the breakdown of body fat for energy and an accumulation of ketones in the blood and urine.

• Signs of DKA are nausea and vomiting, stomach pain, fruity breath odor and rapid breathing.

• Untreated DKA can lead to coma and death.

• Monitoring and treating ketones early can prevent the development of DKA.
Nutrition Education

Meg Green, MS, RD, CSP, LD

- Free foods have less than 5 gm carbohydrate and less than 20 calories per serving. These foods have little effect on blood sugars.

- Nutrition information for fast foods can be found at the counter of most fast food chains, on the restaurants website, or in booklets include carb content of the menu items.

- Exercise uses blood sugar and helps blood sugar enter the cells to be used as energy. You may need an extra snack with exercise, and intense exercise can lower your blood sugar for 24 hours after the exercising was done.

- Sticking to a regular eating schedule can help regulate blood sugars if your carbohydrate intake is consistent. Do NOT skip meals.

- Take care of your diabetes while traveling. Check blood glucose (sugar) more often than usual, because changing your schedule can affect levels, and pack plenty of water and snacks (carb free and carb included). If flying, make sure and have a travel letter from the Doctor.

- During the Holidays, make sure and stay active, watch portions, do NOT over-indulge in sweets, and make the holiday time about family and friends and NOT food.

- When cooking a meal at home, follow the Choose My Plate method. Remember to count carbs for all items used in cooking or look up prepared dishes online for carb amounts.