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# DIABETES 101

## Arkansas Children's Division of Endocrinology and Diabetes

Reviewed and revised May 2019

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# ACLR DIABETES TEAM

- **PHYSICIANS:**
  - JON ODEN, MD SECTION CHIEF
  - PAUL FRINDIK, MD, CDE
  - Y. ANNIE WANG, MD
  - EMIR TAS, MD
  - SHIPRA BANSAL, MD
  - MICHELE HUTCHISON, MD
  - MANISH RAISINGANI, MD
- **ADVANCED PRACTICE NURSE:**
  - LINDLEY ABRAMS, MNSc, APRN, CPNP-PC, CDE
  - ANITA SANDERS, MNSc, APRN, CPNP-AC
- **SOCIAL WORK:**
  - JACOB GRUMMER, LCSW
  - JILL SORROWS, LCSW
- **CERTIFIED DIABETES EDUCATORS/DIABETES SPECIALTY NURSES:**
  - KAREN HEFNER, RN, CDE
  - JENNIFER SELLERS, RN, CDE
  - MORGAN BUTLER, MSN, RN, RNC-NIC
  - LISA STILL, BSN, RN, CDE
  - PEARLIE HOLMES, LPN (HANDLES ALL PAPERWORK AND PRESCRIPTIONS)
- **DIETITIANS:**
  - ROBIN GIPSON, MS, RD, LD
  - ERICA WATSON, MS, RD, LD
  - SUSAN GOOLSBY, MS, RD, LD
  - CONNIE DAVILA, MS, RD, LD
  - ALLISON AGUILAR, MS, RD, LD
- **FACEBOOK PAGE**
  - <https://www.facebook.com/groups/achdiabetesteam/> (THIS IS NOT ROUTINELY MONITORED AND IS ONLY TO DISTRIBUTE INFORMATION RELEVANT TO OUR PATIENTS. **DO NOT USE FOR QUESTIONS OR REPORTING BLOOD SUGARS!**)

# ACNW DIABETES TEAM

ARKANSAS CHILDREN'S NORTHWEST  
2601 GENE GEORGE BLVD  
SPRINGDALE, AR 72762

OUTPATIENT MAIN PHONE—479-725-6880  
ASK FOR BRITTANY BLANKENSHIP, LEAVE VM IF UNAVAILABLE  
Email: [diabetesnurse@archildrens.org](mailto:diabetesnurse@archildrens.org)  
Put “attn. Brittany” in subject line

OUTPATIENT SCHEDULING—479-725-6995

**IF EMERGENCY, USE CONTACT INFORMATION FOR ACLR ON NEXT PAGE**

## **ADVANCED PRACTICE NURSE:**

HEATHER CANTRELL, MNsc, APRN, CPNP-AC, BCADM, CDE

## **CERTIFIED DIABETES EDUCATOR/DIABETES SPECIALTY NURSE:**

BRITTANY BLANKENSHIP, BSN, RN, CPN

## **DIETITIANS:**

ADDIE FRICK

TRUDY OZMENT

## **SOCIAL WORK:**

JENN JEFFS



# ACLR DIABETES TEAM CONTACT INFORMATION

## Important Phone Numbers:

- **Diabetes Office**  
Phone: (501) 364-1430 OR 1-800-495-1048  
Fax: (501) 364-6299
- Online location for ACH Diabetes Education Videos and various printouts [www.archildrens.org](http://www.archildrens.org), select Programs and Services, Select D and find Diabetes Clinic.
- **After-Hours Nurse Emergency:** (501) 364-1100 **ASK FOR KIDS CARE**
- **Diabetes Nurse Email:** [DiabetesNurse@archildrens.org](mailto:DiabetesNurse@archildrens.org)
- **Online Blood Sugar Log Book:** [www.MyCareConnect.com](http://www.MyCareConnect.com)

Use these contacts to send blood sugar logs.

Please understand that prescription/paperwork requests require up to 2 business days for processing.

Please do not call after hours to report blood sugars or to request prescriptions.



# REPORTING BLOOD SUGARS TO THE DIABETES TEAM

- **WE NEED ALL NUMBERS FROM HOME AND SCHOOL TO BE SUBMITTED AT THE SAME TIME AND IN THE SAME WAY ie...EMAIL, FAX, BLUE LOOP...PLEASE DON'T HAVE THE SCHOOL NURSE FAX US THEIR NUMBERS SEPARATELY.**
- **Phone calls** to report blood sugars 501-364-1430 or 1-800-495-1048.
- **Fax** blood sugar to 501-364-6299. If possible use log sheets provided by the ACH Diabetes team. Make sure the patient's name and date of birth is on each page that is sent. Be sure to include the insulin dosages or pump settings. We need the Lantus dose, Novolog insulin to carb ratio (how much is given for carbohydrates) and the correction factor. Please make sure you provide a number for us to call you back.
- **Email** the ACH Diabetes team at [DiabetesNurse@archildrens.org](mailto:DiabetesNurse@archildrens.org). If ACNW pt, put Attn: Brittany in subject line. If possible use log sheets provided by the ACH Diabetes team. Make sure the patient's name is on each page sent. Be sure to include the insulin dosages or pump settings. We need the Lantus dose, Novolog insulin to carb ratio (how much is given for carbohydrates) and the correction factor. You should put the dosing information either in the body of your email or on one of the pages you send. If you take a picture or scan pages, **EACH PAGE MUST INCLUDE PATIENT NAME AND DATE OF BIRTH.**
- **On line log book-** [www.mycareconnect.com](http://www.mycareconnect.com).
- There are several iPhone and Android apps that you can use to log and email blood sugars. There are scanner apps that will take a photo and turn it into a scanned document. Please use these whenever taking photos of blood sugar logs. Check your app store.
- **Please note that records that don't have a name and insulin dosage information will not be reviewed. We need the most recent numbers. Logs that are over a week old at the time we receive them will not be reviewed.**



# SECTION OBJECTIVES

## DESCRIPTION OF DIABETES & THE DISEASE PROCESS

- At the end of this section you should be able to describe:
  - Differences between Type 1 & Type 2 diabetes.
  - The diabetes disease process.
  - Common onset and treatment options.

# WHAT IS DIABETES?

## TYPE 1 DIABETES:

- Caused by immune attack of cells that make insulin.
- Process may be 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.



# WHAT IS DIABETES?

## 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.

# SECTION OBJECTIVES

## INSULIN TYPES & ACTIONS

- At the end of this section you should be able to describe:
  - The insulin regimen that has been prescribed.
  - The different types of insulin your child is on and how they work.
  - Timing of insulin injections.
  - What to do if your long acting insulin is off schedule.

# 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

Insulin Can Vary in Three Different Ways:

1. How long they take to work (onset).
2. When they are working the hardest (peak).
3. How long they stay in your body (duration).

# INSULIN

- Most patients who are on multiple daily injections use this regimen:
  - **Lantus/Basaglar/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.

# INSULIN

- Lantus/Basaglar 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 TO TAKE YOUR LANTUS/BASAGLAR, DO AS FOLLOWS

- If less than 6 hours, give entire dose as directed.
- 6-14 hours give  $\frac{1}{2}$  the dose immediately,  $\frac{1}{2}$  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 (at 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

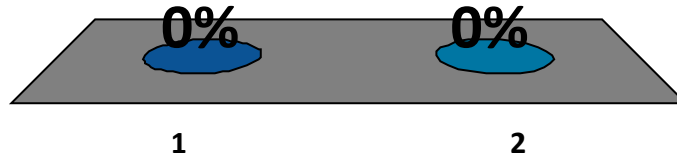
- Your rapid acting insulin is either Novolog, Humalog or Apidra. They work the same, just different brands.
- Dose varies based on number of carbs eaten and pre-meal blood sugar.
- This insulin is given immediately before meals for people over the age of 9.
- For people under 9, it can be given after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





TRUE OR FALSE: LANTUS AND NOVOLOG CAN BE GIVEN AT THE SAME TIME.

1. True
2. False



# SECTION OBJECTIVES

## POTENTIAL LONG TERM COMPLICATIONS OF DIABETES

- At the end of this section you should be able to describe:
  - Potential long term complications of diabetes.
  - Prevention strategies.
  - Resources for information.
  - Screening labs and goals.
  - Immunization recommendations

# LONG TERM COMPLICATIONS OF POOR DIABETES CONTROL

- Nephropathy
- Neuropathy
- Retinopathy
- Macrovascular disease
  - Coronary artery disease
  - Stroke

## LONG TERM COMPLICATIONS OF POOR DIABETES CONTROL

- Glucose control is key to preventing or delaying complications of diabetes.
- Any sustained lowering of blood glucose helps, even if the person has a history of poor control.

## LONG TERM COMPLICATIONS OF POOR DIABETES CONTROL

- Lowering blood glucose reduced risk of:
  - Eye disease (retinopathy) by 76%
  - Kidney disease (nephropathy) by 50%
  - Nerve disease (neuropathy) by 60%
  - Any cardiovascular disease event 42%
  - Nonfatal heart attack, stroke, or death from cardiovascular causes 57%

# KIDNEY DISEASE (NEPHROPATHY)

- Uncontrolled diabetes can damage the kidneys and cause them to fail.
- Failing kidneys lose their ability to filter out waste products, resulting in kidney disease.
- See more at:  
<http://www.diabetes.org/living-with-diabetes/complications/kidney-disease-nephropathy.html>

# NERVE DAMAGE (NEUROPATHY)

- Nerve Damage from Diabetes is called Diabetic Neuropathy.
- It is a common complication in patients with diabetes.
- You can prevent it or slow it's progression with good blood sugar control.
- See more at: <http://www.Diabetes.Org/living-with-diabetes/complications/neuropathy>

# DIABETES RELATED EYE DISEASE (RETINOPATHY)

- Caused by damage to blood vessels at the back of the eye.
- Early eye disease may have little to no symptoms.
- Early detection by yearly eye exams can prevent worsening of eye disease.
- More severe eye disease can result in blindness.
- Patients with long-standing diabetes and patients with poor control are at highest risk.
- See more at:

[www.Diabetes.Org/living-with-diabetes/complications/eye-complications](http://www.Diabetes.Org/living-with-diabetes/complications/eye-complications)





# ROUTINE MONITORING REDUCES THE RISK OF COMPLICATIONS

- Hemoglobin a1c-quarterly-goal < 7.5%.
- Blood pressure-quarterly-goal <130/80.
- Hdl cholesterol-yearly-goal males >40, females >50.
- Ldl cholesterol-yearly-goal <100.
- Triglycerides-yearly-goal <150.
- Microalbumin/creatinine ratio-yearly-goal <30.
- Screening for other autoimmune conditions (thyroid– yearly; celiac– once after diagnosis, follow-up 3-5 years).
- Should receive dilated eye exam yearly.
- Dental Exam and cleaning every 6 months.

# MACROVASCULAR COMPLICATIONS

- Cardiovascular Disease (CVD)
  - Type 1 patients have a tenfold greater risk of heart disease compared with non-diabetic patients if glucose levels are uncontrolled.

# MACROVASCULAR COMPLICATIONS

- Peripheral Arterial Disease (PAD)
  - Blood vessels in the legs are narrowed or blocked by fatty deposits, decreasing blood flow to the legs and feet.
  - PAD is a sign of widespread hardening of the arteries.
  - People with PAD are at higher risk of heart attack or stroke.
  - Poor circulation in the legs and feet also raises the risk of amputation.

# IMMUNIZATIONS

For patients with diabetes:

- All routine vaccinations for children and adults as recommended by age
- Annual vaccination against influenza for 6 months and older
- Vaccination against pneumococcal disease with 13-valent pneumococcal vaccine (PCV13) is recommended for children before age 2 years. People with diabetes ages 2 through 64 should also receive 23-valent pneumococcal polysaccharide vaccine (PPSV23). At age 65 or more, regardless of vaccination history, additional PPSV23 vaccination is necessary.
- Administer a 2 or 3 dose series of hepatitis B vaccine, depending on the vaccine, to unvaccinated adults with diabetes ages 18-59. Consider administering 3 dose series of hepatitis B vaccine to unvaccinated adults 65 or older.

# SECTION OBJECTIVES

## LOW BLOOD SUGAR MANAGEMENT

- At the end of this section you should be able to describe:
  - Signs and symptoms of low blood sugar.
  - Causes of low blood sugar.
  - Treatment of low blood sugar (Rule of 15s).
  - Prevention of low blood sugar.
  - Glucagon use.

# HYPOGLYCEMIA (LOW BLOOD SUGAR) <70 MG/DL

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

# CAUSES OF HYPOGLYCEMIA

- 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 phase.”
- 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 phase can last weeks, months, or even up to a year or more.



# HYPOGLYCEMIA TREATMENT

- <70
- RULE OF 15
  - Give 15 grams of fast acting carbs.
  - 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.

# HYPOGLYCEMIA TREATMENT

## 15 GRAMS FAST ACTING CARBS

- 4 oz. juice or regular soda
- 3-4 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

# HYPOGLYCEMIA TREATMENT

## WHAT NOT TO USE

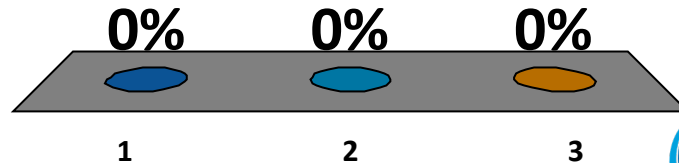
### DO NOT USE:

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

# ARE SNACKS REQUIRED?

1. Yes
2. No
3. Only if it is not a mealtime and I have treated a low, or my blood sugar is  $<100$  at bedtime.

**10**  
Countdown



# HYPOGLYCEMIA TREATMENT

## 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.

# HYPOGLYCEMIA PREVENTION

- Extra snacking on days there is more activity.
- Adjusting insulin.
- Monitoring more frequently during periods of increased activity.
- Always counting carbs and measuring.
- Ensuring too much insulin is not given.



# SECTION OBJECTIVES

## EXERCISE

- At the end of this section you should be able to describe:
  - Effects of exercise on blood sugar and diabetes.
  - How often to check blood sugar when exercising.
  - Ideal blood sugar when exercising.
  - Snacking and exercising.



# EXERCISE

- Exercise 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 or your blood sugar is >400, do not exercise until your ketones clear and your blood sugar is under better control.*

# GENERAL GUIDELINES FOR EXTRA SNACKS WITH EXERCISE

TYPE OF EXERCISE	BLOOD SUGAR	SNACK NEEDS
Low to moderate intensity—short duration of 30 minutes or less. (Ex: walking, bike ride, outside play)	Less than 100	15 gm carb with protein
	100 or above	An extra snack is not necessary
Moderate intensity-duration of around 1 hour. (Ex: tennis, swimming, jogging, dancing)	Less than 100	30 gm carb with protein, plus 15 gm carb for each hour
	100-180	15 gm carb with protein
	180-240	No extra snack



## SNACK EXAMPLES FOR ACTIVITY

- ½ Ham & Cheese Sandwich: 15 g carb, 4.5 g protein
- 6pk Peanut Butter Crackers: 24 g carb, 4.5 g protein
- 4pk Peanut Butter Crackers: 16 g carb, 3 g protein
- 1 pkg Ritz Bitz: 33 g carb, 4 g protein

# When your child is doing activities, what type of snacks should you pack?

1. Snacks with carbs
2. Snacks without carbs
3. None of the above
4. Both types

**10**

Countdown

0%

1

0%

2

0%

3

0%

4



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# SECTION OBJECTIVES

## HIGH BLOOD SUGAR, KETONES, SICK DAYS, DKA

- At the end of this section you should be able to describe:
  - Hyperglycemia (high blood sugar).
  - Causes of hyperglycemia.
  - Management and prevention of hyperglycemia.
  - Ketones; detection & treatment.
  - Sick day guidelines.
  - DKA.

# 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.



# HYPERGLYCEMIA (HIGH BLOOD SUGAR)

## 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:

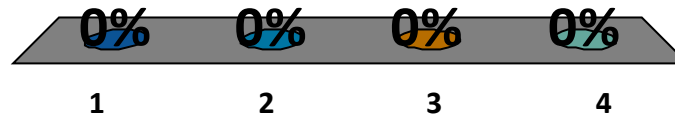
- Check urine for ketones every 2-3 hours when sick with any kind of illness, regardless of blood sugar.
- Anytime your child is nauseated or vomiting.
- Anytime blood sugar is over 240.
- Sweet or fruity smell to breath or around them.
- Hard time catching breath.

# HOW HIGH OF A BLOOD SUGAR IS TOO HIGH

1. 400
2. 478
3. Too high to read
4. 300 with ketones in the urine

**10**

Countdown



# SICK DAYS

## What You Need to Know:

- Do not skip Lantus/Levemir/Basaglar (even if not eating or vomiting).
- Check ketones if blood sugar is  $> 240$  or at time of illness, fever or **vomiting** (even once).
- Both fluids and insulin are needed to clear the ketones.
- If your child is sick looking and unable to drink, take him/her to the nearest emergency room.
- If sick with moderate to large ketones for  $> 6$  hours, go to the nearest emergency room

## OVER THE COUNTER MEDS

- Patients with diabetes can take the usual OTC meds (Tylenol, Ibuprofen, Benadryl, etc.) Most of the syrups contain a sweetener. A few have sugar free options. If child can take a pill, that would be a good option. If not, do what's needed to make them well.

# SICK DAY RULES WHEN USING INJECTIONS

<p>Large Urine Ketones -OR- Blood Ketones &gt;1.5</p>	<ol style="list-style-type: none"> <li>1. <b>Give insulin</b> until ketones are small (even overnight while asleep).             <ol style="list-style-type: none"> <li>A. &lt; 10 years old: every 3 hours 10 years or older: every 2 hours.</li> <li>B. Use blood sugar correction formula you normally use. <b>(Calculate Box B)</b>. Example: Blood sugar minus 150 divided by 50.</li> <li>C. <b>ADD EXTRA insulin</b> to the calculated total above (even if the number is zero). &lt; 10 years old: Add 2 units to the total. 10 years or older: Add 4 units to the total.</li> </ol> </li> <li>2. Drink fluids “age in ounces” every hour until ketones are negative.             <ol style="list-style-type: none"> <li>A. Blood sugar at any point:                 <ul style="list-style-type: none"> <li>&gt;180: Drink sugar free fluids like water, diet soda, or sugar free Kool-Aid.</li> <li>100-180: Drink ½ water and ½ sugary fluids.</li> <li>&lt; 100: Drink sugary fluids like juice, regular soda, or Gatorade.</li> </ul> </li> </ol> </li> <li>3. Check ketones in 2 hours.</li> </ol>
<p>Moderate Urine Ketones -OR- Blood Ketones 1-1.5</p>	<ol style="list-style-type: none"> <li>1. <b>Give insulin</b> until ketones are small (even overnight while asleep).             <ol style="list-style-type: none"> <li>A. &lt; 10 years old: every 3 hours 10 years or older: every 2 hours.</li> <li>B. Use blood sugar correction formula you normally use. <b>(Calculate Box B)</b>. (Example: Blood sugar minus 150 divided by 50).</li> </ol> </li> <li>2. Drink fluids “age in ounces” every hour until ketones are negative.             <ol style="list-style-type: none"> <li>A. Blood sugar at any point:                 <ul style="list-style-type: none"> <li>&gt;180: Drink sugar free fluids like water, diet soda, or sugar free Kool-Aid.</li> <li>100-180: Drink ½ water and ½ sugary fluids.</li> <li>&lt; 100: Drink sugary fluids like juice, regular soda, or Gatorade.</li> </ul> </li> </ol> </li> <li>3. Check ketones in 2 hours.</li> </ol>
<p>Small Urine Ketones -OR- Blood Ketones 0.6-0.9</p>	<ol style="list-style-type: none"> <li>1. <b>Drink sugar free fluids</b> “age in ounces” every hour until ketones are negative. (Example: If your child is 10 years old, he/she needs to drink 10 ounces every hour).</li> <li>2. Check ketones in 2 hours.</li> </ol>



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# SICK DAY RULES WHEN USING PUMP

*Large urine ketones -OR- blood ketones >1.5, change pump site immediately! Use fresh insulin.*	
Moderate or Large Ketones -OR- Blood Ketones 1.0 or >	<ol style="list-style-type: none"> <li>1. Give an insulin bolus to correct the blood sugar using the insulin pump.</li> <li>2. Set a temporary basal rate + 20% for 12 hours.</li> <li>3. Drink fluids "Age in ounces" every hour until ketones are gone.               <ol style="list-style-type: none"> <li>A. Blood sugar at any point:                   <ul style="list-style-type: none"> <li>&gt;180: Drink sugar free fluids like water, diet soda, or sugar free Kool-Aid.</li> <li>100-180: Drink ½ water and ½ sugary fluids.</li> <li>&lt; 100: Drink sugary fluids like juice, regular soda, or Gatorade.</li> </ul> </li> </ol> </li> <li>4. Check blood sugar in one hour:               <ol style="list-style-type: none"> <li>A. If blood sugar does not come down by 100:                   <ol style="list-style-type: none"> <li>i. Give another correction dose <b>using an insulin pen or by insulin syringe.</b> (Example: Blood sugar minus 150 divided by 50).</li> <li>ii. If you have not already changed the pump site using fresh insulin, do it now.</li> </ol> </li> </ol> </li> <li>5. Check ketones in 2 hours.</li> </ol>
Small Urine Ketones -OR- Blood Ketones 0.6-0.9	<ol style="list-style-type: none"> <li>1. Drink sugar free fluids "Age in ounces" every hour until ketones are gone. (Example: If your child is 10 years old, he/she needs to drink 10 ounces every hour).</li> <li>2. Check ketones in 2 hours.</li> </ol>
Use an insulin pen or insulin syringe if you suspect pump failure.	
Keep back-up insulin pens or insulin syringes on hand and know the doses to give. (Lantus/Levemir/Basaglar dose will be the 24 hour total of the basal rate).	

# 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



# SICK DAY KIT CHECKLIST

Going shopping for supplies is the last thing you want to do when your child is sick, so plan ahead by putting together a sick-day kit.

- List of important phone numbers: ACH diabetes team, after hours contact phone number and friends or relatives you can call on for help
- Copy of sick day guidelines. Watch the High Blood Sugars & Sick Days video at [www.archildrens.org](http://www.archildrens.org) by searching for diabetes clinic, then looking under Patient Resources: Diabetes Education Videos
- A copy of your child's insurance card
- List of all current medications and doses
- Pen and pad of paper to track ketone results, blood sugar levels, insulin dosing, carbohydrate counts, fluid intake, and vomiting
- Alarm clock or timer to help you monitor blood sugar levels and ketones regularly
- Sugar-free cough drops and sugar free liquid non-steroidal pain and fever relievers, such as acetaminophen or ibuprofen
- 8-ounce measuring cup to help make sure you're drinking enough liquids
- Antidiarrheal and anti-vomiting medicines
- Blood sugar monitoring supplies
- Ketone test strips that are not expired
- Sugar free fluids (water, Powerade ZERO)
- Glucose tablets or gel as well as sugary drinks (juice, sprite, Gatorade)
- Insulin
- Pen needles or syringes
- Insulin pump supplies (if you use a pump)
- Glucagon emergency kit
- Shelf-stable foods such as unopened jars of applesauce, canned soup, peanut butter, canned tuna, and powdered milk
- Shelf-stable liquids such as bottled water, boxed juice, and powdered gelatin, sports drinks, and sugar-free beverages



# DIABETES 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.

## SECTION OBJECTIVES

### CAMP, SUPPLIES, DRIVING, SMART GOALS

- At the end of this section you should be able to describe:
  - Diabetes Camp.
  - What supplies to carry and how to obtain them.
  - Diabetes and safe driving.
  - Setting behavioral goals.

# DIABETES CAMP

- Diabetes camp is a great place for kids with diabetes to enjoy a summer camp with other kids who face the same challenges.
- The American diabetes association sponsors camps all over the country. Check their website ([www.Diabetes.Org](http://www.Diabetes.Org)) for locations and registration requirements.
- Some insurance carriers cover camp fees. Check with your insurance company.

# SUPPLIES

## The Following Items Should Be With Your Child At All Times:

- Medical alert tag
- Insulin
- Pen needles
- Glucometer & test strips
- Lancets & lancet device
- Ketone strips
- Treatments for lows
- Glucagon kit

## SUPPLIES

If your local pharmacy can't or won't fill the appropriate testing supplies, contact a durable medical equipment company (DME). ***DME's ARE TYPICALLY BETTER SET UP TO WORK WITH INSURANCE COMPANIES AND MEDICAID.*** They are mail order, so will deliver to your home.

You can request a list from us or  
Google "diabetes supply companies"



## DIABETES AND SAFE DRIVING

- Not checking and treating blood sugar appropriately can be very dangerous, especially when you get behind the wheel.
- Make a kit that stays in your car with all needed supplies.
- As mentioned, carry Glucagon with you at all times and wear a Medic Alert bracelet.

## DIABETES AND SAFE DRIVING

- Check your blood sugar level every time you get behind the wheel. If your blood sugar is  $<100$  eat a snack before driving. If your blood sugar is  $<70$ , follow the Rule of 15's. Do not begin driving until blood sugar is over 100 and you feel alert.
- If you begin to feel low while driving (mood change, shaky, tremors, light headed), pull over and check immediately.
- If you feel like you are having a low and do not have a monitor to check, treat yourself for a low blood sugar with the Rule of 15s and call someone to alert them of the situation.



# DIABETES AND SAFE DRIVING

- When driving for long periods of time, check blood sugar at regular intervals (once an hour).
- Be sure friends that ride in your car know the symptoms of a low blood sugar, know how to help you treat yourself and know how to use Glucagon. Have them watch the Low Blood Sugar video at [www.archildrens.org](http://www.archildrens.org) by searching for diabetes.
- Remember to get an annual dilated eye exam once a year once you have had diabetes for 3 years if you are Type 1, and at diagnosis and yearly if you are Type 2.

## SETTING BEHAVIORAL GOALS

- Even when you are under good control, there may be room to improve activities that effect your diabetes.
- Setting a SMART goal is a way to outline behavior change and formulate a plan or goal that you and your family can work towards

# “SMART” BEHAVIORAL GOALS

- **S**pecific- state exactly what you want to change
- **M**easurable- state how often the action should be done
- **A**ttainable- set goals that you can reach
- **R**ealistic- be realistic about how you can obtain the goal
- **T**imely- state a time frame



## BEHAVIORAL GOALS EXAMPLES

- I will check my blood sugar as instructed and log/ report these numbers weekly.
- I will carry fast acting carbs and my glucagon kit with me at all times to treat hypoglycemia.
- I will be familiar with ketone testing and sick day rules to avoid hospital stays.

## BEHAVIORAL GOALS EXAMPLES

- I will wear a medic alert bracelet at all times so I can be identified as having diabetes in the event of an emergency.
- I will consistently count carbohydrates at each meal to given accurate insulin doses.
- I will limit my intake of concentrated sweets to 1 per day to avoid spikes in my blood sugar.

# SECTION OBJECTIVES

## SOCIAL WORK

- At the end of this section you should be able to:
  - Describe the role of the Social Work department.
  - Resources & techniques for coping with diabetes.

## EMOTIONAL ADJUSTMENT TO DIABETES

**Carrie Spradlin, LCSW**

ACH Endocrinology Social Worker



## SOCIAL WORK ROLE ON THE DIABETES TEAM

- Assessment of adjustment and coping with new and ongoing diagnosis issues, barriers to care, and identification and mobilization of resources.
- Support during hospitalization and in the outpatient setting.
- Advocacy: provide assistance with advocacy by acting as a liaison between the patient/family and the medical team, the school, and community organizations.



# COPING WITH THE NEW DIAGNOSIS

- Express your feelings
- Remember adjustment is highly individual
- Self care is important
- Be kind to yourself



# THE GRIEF PROCESS

**Grief** is a time of healing and restoring balance within the family dynamic following diagnosis.

## Typical Symptoms of Grief

Shock and disbelief	Anxiety
Anger	Sad mood
Guilt	Frustration
Pain	Feeling overwhelmed



# “THE NEW NORMAL-FACTORS THAT CONTRIBUTE TO POSITIVE OUTCOMES”

## “It’s a family affair”

- The family is the single most important avenue of support for a child with diabetes.
- Education of both immediate and extended family members is important as diabetes affects the entire family.
- Sharing the load can help minimize one taker becoming overwhelmed or burned out.
- Acceptance of the diabetes diagnosis by both the child and family members and constant reaffirmation that the child is “normal”.

## TIPS FOR EVERYDAY LIFE

- Make a list of diabetes care tasks.
- Remember to discuss diabetes care issues openly as a family.
- Remember your and your child's rights, and talk openly with your child's school of enrollment regarding care in the school setting.
- All caretakers should try to remain consistent with the child's care regimen.
- Always remember to highlight successes with diabetes care along the way.

# ARKANSAS CHILDREN'S DIABETES NUTRITION EDUCATION



## SECTION OBJECTIVES

- At the end of this section you should be able to incorporate nutrition into lifestyle by describing:
  - The impact of food on blood sugar
  - Free foods vs. carb containing foods
  - Appropriate snacking
  - Tips for eating on holidays and travel
  - Resources for counting carbs

# ALL ABOUT CARBOHYDRATES

Items that have Carbohydrates	Items that do not have Carbohydrates
Breads, crackers, cereal	Meat
Pasta, rice, grains	Eggs
Starchy vegetables (potatoes, corn, gourds )	Cheese
Beans, lentils, peas	
Milk, milk alternatives, yogurt	
Non-starchy vegetables	
Fruit/fruit juices	
Sweets (desserts, jelly, syrup)	
Dipping Sauces/Salad Dressings	

\*Amount of Carbs in various foods will vary.

For a detailed explanation of Normal Nutrition and Carb counting with Diabetes Management, refer to Chapters 11 and 12 of your **Pink Panther** book.

\*\*Note error on page 108- DO NOT subtract the g of Fiber from Total Carbohydrates



# 3 RULES

1. No sugary beverages

Includes:	Alternatives:
Regular Soda	Diet/Zero soda
Kool-Aid, Fruit Punch, Gatorade, G2/ PowerAde, Capri Sun, Sunny-D, Sweet tea	<b>WATER</b> , Crystal Lite, Mio Water Enhancer, PowerAde Zero, Capri Sun Roaring Waters <b>**Artificial sweeteners (pg 106)</b>
Juice	

2. Limit to one *serving* of dessert per day

3. No Skipping Meals

- Breakfast, Lunch, and Dinner EVERYDAY



# HOLIDAY EATING

- Feasts and parties
  - Eat a healthy snack early to avoid overeating at the party
  - Ask what food will be served, so you can plan accordingly
  - Bring a nutritious snack or dish for yourself and others
  - If you're at a buffet, fix your plate and move to another room away from the food, if possible.
  - Choose smaller portions
  - Choose low calorie drinks such as sparkling water, unsweetened tea or diet beverages.

## TRAVELING (ON THE ROAD)

- Pack a small cooler of foods that may be difficult to find on the road such as fresh fruit and veggies.
- Bring water and unsweetened beverages
- Pack dried fruits, nuts and seeds as snacks. Since these can be high in calories, measure out in small portions (1/4 cup) in advance.

## TRAVELING (BY AIR)

- Place all diabetes supplies in carry-on bags.
- Keep meds and snacks at your seat for easy access, don't store in overhead bins.
- <https://www.tsa.gov/blog/2014/04/01/tsa-travel-tips-travelers-diabetes-or-other-medical-conditions>

# HOW TO READ A NUTRITION LABEL

Step 1  
Look at serving size

Step 2  
Look at  
Servings/Container

Step 3  
Look at Total  
Carbohydrates  
"carbs"

<b>Nutrition Facts</b>	
Serving Size 2/3 cup (55g)	
Servings Per Container About 8	
Amount Per Serving	
<b>Calories</b> 230	Calories from Fat 40
% Daily Value*	
<b>Total Fat</b> 8g	<b>12%</b>
Saturated Fat 1g	<b>5%</b>
Trans Fat 0g	
<b>Cholesterol</b> 0mg	<b>0%</b>
<b>Sodium</b> 160mg	<b>7%</b>
<b>Total Carbohydrate</b> 37g	<b>12%</b>
Dietary Fiber 4g	<b>16%</b>
Sugars 1g	
Protein 3g	
Vitamin A	10%
Vitamin C	8%
Calcium	20%
Iron	45%
* Percent Daily Values are based on a 2,000 calorie diet. Your daily value 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

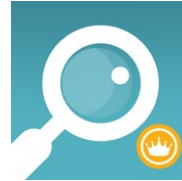
❖ For this example:

2/3 cup would = 37g carbs

The whole container = 296g  
carbs  
(37 x 8 = 296)

# HELPFUL APPS AND WEBSITES

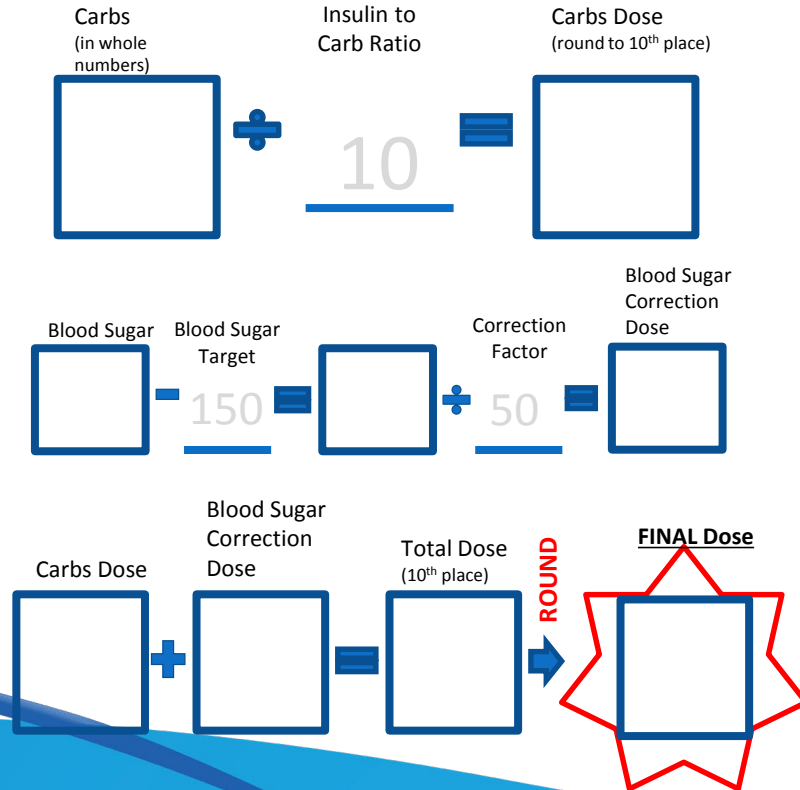
- Calorie King
  - Search engine only



- My Fitness PAL
  - Search engine
  - Recipe analyzer
  - Totals Carbs for each meal



# PUTTING THE COUNTING INTO ACTION



Insulin to Carb Ratios, Blood Sugar Targets and Correction Factors vary by patient. The numbers above are for example only.

# Free Snacks (<5g Carbs/Serving)

Limit to one serving between each meal (3/day)

- 1 cup cucumber slices
- 5 cherry tomatoes
- 6 celery sticks (may also have 1 Tablespoon peanut butter)
- 10 slices bell pepper
- 4 broccoli 'trees'
- 4 baby carrots
- Sugar-free Jello
- Sugar-free popsicle
- Pickle spear (may have up to 5)
- 1/8 cup nuts
- Small side salad with 2 Tablespoons regular ranch
- **ALL** meat, eggs and cheese



ALWAYS double check the  
Nutrition Label!  
Sugar Free DOES NOT  
always mean Carb Free!

# Snack Samples Based on Insulin to Carb Ratio

Limit to 1 serving between each meal (3/day)

## Snacks <8g carbs/serving

- 6 baby carrots with 2 tablespoons regular ranch dressing
- 6 broccoli 'trees' with 2 tablespoons regular ranch dressing
- 3 Ritz/Club crackers
- 1 cup popcorn
- ¼ cup guacamole with 10 bell pepper strips

## Snacks <10g carbs/serving

- ¼ cup nuts
- 5 mini rice cakes (non-sweetened)
- 4 Ritz/Club crackers
- ¼ cup sliced strawberries with 2 tablespoons Cool Whip





# Snack Samples Based on Insulin to Carb Ratio

Limit to 1 serving between each meal (3/day)

## Snacks <12g carbs/serving

- ½ cup apple slices with 1 tablespoon peanut butter
- 1 cup baby carrots with ¼ cup hummus
- ½ cup berries
- ½ cup diced cantaloupe
- 1 cup diced watermelon
- 1 clementine 'cutie'

## Snacks <15g carbs/serving

- 2 cups popcorn
- 12 grapes
- 1 individual pack (3.25oz) of *Sugar Free* pudding

## Snacks <20g carbs/serving

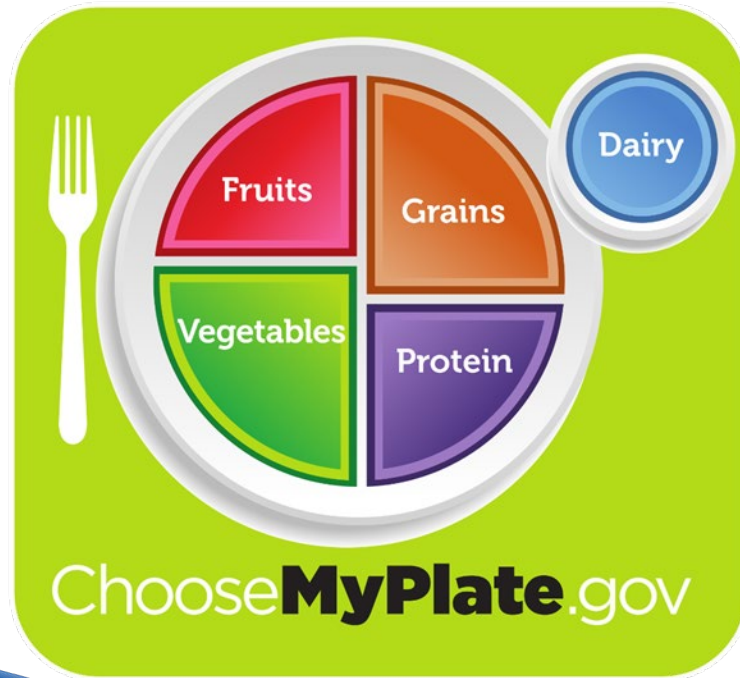
- ½ cup gold fish
- 1 container Yoplait *Light* yogurt (all flavors)
- ½ medium banana
- 1 peach

# FAST FOOD

You don't have to give up fast foods when you are carbohydrate counting. Nutrition information for fast food is easy to find.

- Ask for nutrition information at the counter of most fast food chains; they often have booklets that include carb content of the menu items.
- Check the fast food chain's website.
- There are books and smart phone apps available that provide nutrition information for many chain restaurants and commonly ordered fast food.

# KEEP YOUR DIET HEALTHY AND BALANCED!



## ONLINE RESOURCES FOR RECIPES

- [www.cdc.gov/diabetes/ndep/cdcinfo/ndep\\_pdf/tasty-recipes-508.pdf](http://www.cdc.gov/diabetes/ndep/cdcinfo/ndep_pdf/tasty-recipes-508.pdf)
- [www.foodnetwork.com/topics/diabetic.html](http://www.foodnetwork.com/topics/diabetic.html)
- [www.mayoclinic.org/healthyliving/recipes/diabetes-meal-plan-recipes/RCS-20077150](http://www.mayoclinic.org/healthyliving/recipes/diabetes-meal-plan-recipes/RCS-20077150)
- [www.diabetes.org/mfa-recipes/recipes/](http://www.diabetes.org/mfa-recipes/recipes/)

# BOOK RESOURCES FOR RECIPES

## Cookbooks for Diabetes

- ***The New Family Cookbook for People with Diabetes***  
by the American Dietetic Association and American Diabetes Association
- ***The Kids, Food and Diabetes Family Cookbook***  
by Gloria Loring
- ***Diabetes Meals on \$7 a Day or Less***  
by Patti B. Geil and Tami A. Ross
- ***200 Healthy Recipes in 30 Minutes or Less***  
by Robyn Webb
- ***The Joslin Diabetes Quick and Easy Cookbook: 200 Recipes for 1 to 4 People***  
by Bonnie Polin Frances Giedt
- ***The New Soul Food Cookbook for People with Diabetes***  
by Fabiola Gaines and Roniece Weaver
- ***Diabetic Cooking for Latino's (Cocinando para Latinos con Diabetes)***  
by Olga V. Fuste
- ***Cooking up Fun for Kids with Diabetes***  
by Patti B. Geil and Tami A. Ross
- ***Betty Crocker's Diabetes Cookbook: Everyday Meals, Easy as 1-2-3***  
by Betty Crocker Editors

## Carbohydrate Counters

- ***American Diabetes Association Complete Guide to Carb Counting***  
by Hope Warshaw and Karmeen Kulkarni
- ***The American Diabetes Association Guide to Healthy Restaurant Eating***  
by Hope Warshaw

