Living with Diabetes
Diabetes Family Education: Part 1
Presented by: Nurse and Dietitian Educators

General housekeeping

• Bathrooms
• Interruptions
• Breaks
• Safety
• Food
Schedule for today

Morning

- Basics of diabetes
- Carbohydrates – what they are and how to count them
- Food plan – what to eat and when to eat
- Blood glucose – when and how to check
- Dosing tables – how to determine insulin dosing
- Insulin injections – when and how to give
What is diabetes?

- Disease in which the body cannot use glucose for energy due to a lack of insulin, resulting in high blood glucose levels
- Insulin is a hormone made by the pancreas

**Type 1 diabetes:**
body cannot make enough insulin

**Type 2 diabetes:**
body can make insulin but cannot use it efficiently

What is blood glucose?

- Glucose (sugar) appears in the blood when you eat or drink things with carbohydrates in them
- Our bodies use this glucose for energy!
What impacts blood glucose levels?

Factors that can make blood glucose go DOWN

- Insulin
- Exercise

Factors that can make blood glucose go UP

- Food & Drinks
- Illness
- Hormones (e.g., growth, stress)

How is glucose converted into energy?

Insulin is the key!

Food and drinks give us energy

- All food and drinks are broken down into 3 primary ingredients during digestion:
  - Carbohydrates (carbs)
  - Fats
  - Proteins

- **Carbohydrates** are the main and quickest source of energy for our bodies

- **Insulin** is needed to help use carbohydrates as fuel

Carbohydrates – what are they?
What are carbohydrates?

- Food groups that contain carbohydrates are:
  - Fruit
  - Milk
  - Starches
  - Legumes, dried pulses (peas, lentils), nuts and seeds
  - Starchy vegetables
  - Vegetables – or greens
  - Sweets / desserts / snack foods
  - Some sauces and condiments
  - Juices and sugar-containing drinks

Carb-containing foods

Fruits
Carb-containing foods

Vegetables

Carb-containing foods

Milk and yogurt
Carb-containing foods

Grains and cereals

Legumes, dried pulses, nuts and seeds
Don’t forget these!

Condiments, sauces, breaded foods, juice and sugar-containing drinks

Foods containing proteins and some fats

These foods have lower carbs
Foods containing mostly fats

These foods have little or no carbs

Carbohydrates – how to count them?
Counting carbohydrates

1. Does the food or drink have carbs?

2. How much are you having (portion)?

3. Look up the information using:
   • Labels
   • Lists
   • Apps
   • Websites

Carbohydrate references

Reference Book CalorieKing App Food Label

For more information, see "15g Carbohydrate Food List" (PE2599) handout in the Appendix of the Living With Diabetes Handbook
How to read a food label

- Weight of the food
- There are 18 servings in the package if you eat the whole thing
- Check the number right next to “Total Carbohydrates”
- We can discuss fiber and sugar alcohol once you learn most of your basic diabetes skills in clinic

For more information, see “Reading Food Labels” (PE1543) handout in the Appendix of the Living With Diabetes Handbook

How to record carb intake on daily log

Example:

Going Home Blood Glucose Food and Insulin Log

Name: Patty Pancreas  Dates: 5/4/20

<table>
<thead>
<tr>
<th>Time</th>
<th>Blood glucose</th>
<th>Food choices and carb count in grams</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00AM</td>
<td></td>
<td>Egg waffle (14g) Peanut butter (4g) Jelly (5g) Egg (0g)</td>
</tr>
</tbody>
</table>
What to Eat and When to Eat

Going home food plan – time to practice!

Example:

<table>
<thead>
<tr>
<th>Time</th>
<th>8:00AM</th>
<th>10:00AM</th>
<th>12:00PM</th>
<th>3:00PM</th>
<th>6:00PM</th>
<th>9:00PM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carb range</td>
<td>30-50 grams</td>
<td>less than 5 grams (no insulin)</td>
<td>30-70 grams</td>
<td>20-30 grams</td>
<td>40-60 grams</td>
<td>less than 5 grams (no insulin)</td>
</tr>
</tbody>
</table>

**Food combination and carb count**

- 1 waffle (14g) Peanut butter 1 tablespoon (6g) Eggs (0g)
  - Chocolate milk 2% 1 cup (98g)
  - Honey Nut Cheerios 1 cup (29g) Milk 2% 1 cup (12g)
  - 3 strawberries (3g) Cheese slice (8g)
  - Turkey meat (5g) String cheese (6g)
  - Cucumber slices 3 oz (5g)
  - Ranch dressing 1 tablespoon (8g)
  - Kraft Mac & Cheese 2 cups (34g) Carrots 1/2 cup (4g)
  - Ham and cheese 2 tablespoons (4g)
  - Bologna sandwich 2 pieces bread (6g) Meat, cheese, mayonnaise (8g)
  - Tostitos snack bag (18g) Apple slices (7g)
  - Granola bar (29g) Blueberries 1/2 cup (10g)
  - Medium banana (25g) Peanut butter 1 tablespoon (4g)
  - Rice 1 cup (48g) Stir fry vegetables 1 cup (7g) Chicken (9g)
  - or Pasta 1 cup (65g) Spaghetti sauce 1/2 cup (12g) Meat and cheese (16g)
  - or Cucumber slices 5 oz (15g) Ranch dressing 1 tablespoon (1g)
Break time!
Please return in 10 minutes

Blood Glucose – how to check?
How to **CHECK** a blood glucose level

**STEP 1:** collect all supplies

- Blood glucose meter (glucometer)
- Blood glucose strips
- Lancing device
- Lancets
Blood glucose meters (glucometers)

STEP 2: clean your hands

- 3 methods:
  - Soap and water
  - Alcohol prep pads
  - Non-fragrance hand gel

- Let hands dry before poking finger

- Important because food residue may give a false high reading
STEP 3: load lancing device

- Place lancet into lancing device (A)
- Remove safety cap on lancet (B)
- Set depth of poke (C)
- Engage lancing device (pull back) (D)

STEP 4: insert blood glucose strip into meter

Flashing blood drop icon will appear within a few seconds to indicate that the meter is ready
STEP 5: poke finger with lancing device

- Poke soft pad on the side of any finger
- You can “milk” the finger to help get a sufficient blood sample

STEP 6: apply blood sample to blood glucose strip
Blood glucose check – time to practice!

Tips and tricks

• Make sure hands are clean
• Change lancet every 24 hours
• Lancets go into sharps container
• Allow child to choose which finger they prefer
• Take turns switching which finger you poke
• Keep blood glucose strips at room temperature

For more information, see “Disposal of Sharps” (PE612) handout in the Appendix of the Living With Diabetes Handbook
How to record blood glucose on daily log

Example:

<table>
<thead>
<tr>
<th>Time</th>
<th>Blood glucose</th>
<th>Food choices and carb count in grams</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00AM</td>
<td>252</td>
<td>Egg waffle (14g) Peanut butter (4g) Jelly (5g) Egg (0g)</td>
</tr>
</tbody>
</table>

Blood Glucose Ranges
Blood glucose ranges

- **70** (under 6 years old)
- **180** (6-12 years old)
- **150** (13+ years old)

**Setting expectations for blood glucose levels going home**

- Will likely be above goal range for your child’s age – that’s okay!
- Gradual decline to within-range levels over the next several weeks
- We will review when to contact us regarding blood glucose levels by the end of today
Insulin dosing basics

- You need insulin when:
  - Eating or drinking things with carbs
  - Blood glucose is above range

- In the beginning you will use a dosing table to figure out how much insulin to give
How to determine insulin dose using a table

Example:

<table>
<thead>
<tr>
<th>Carbohydrates (g)</th>
<th>Insulin (units)</th>
<th>Blood Glucose (mg/dL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-9</td>
<td>0.5</td>
<td>less than 125</td>
</tr>
<tr>
<td>10-14</td>
<td>1</td>
<td>135-149</td>
</tr>
<tr>
<td>15-19</td>
<td>1.5</td>
<td>150-174</td>
</tr>
<tr>
<td>20-24</td>
<td>2</td>
<td>175-199</td>
</tr>
<tr>
<td>25-30</td>
<td>2.5</td>
<td>200-224</td>
</tr>
<tr>
<td>30-34</td>
<td>3</td>
<td>225-249</td>
</tr>
<tr>
<td>35-38</td>
<td>3.5</td>
<td>250-274</td>
</tr>
<tr>
<td>40-44</td>
<td>4</td>
<td>275-300</td>
</tr>
</tbody>
</table>

Step 1: Add up total grams of carbs your child is eating.
Step 2: Check your child's blood glucose level.
Step 3: Add these two columns together to get the total insulin dose.

Insulin dosing tables – time to practice!

Example:

<table>
<thead>
<tr>
<th>Carbohydrates (g)</th>
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<td>250-274</td>
</tr>
<tr>
<td>40-44</td>
<td>4</td>
<td>275-300</td>
</tr>
</tbody>
</table>

Step 1: Child is eating 32g of carbs.
Step 2: Blood glucose level is 220 mg/dL.
Step 3: You would give 5 units of insulin.
Insulin Injections – how to give?

How to prepare for an insulin pen injection

1. Wash hands

2. Clean rubber stopper on insulin pen with an alcohol swab

3. Attach pen needle

4. Prime pen needle with 2 units of insulin
   *you want to see some drops of insulin come out of the pen needle*
How to give an insulin pen injection

1. Turn dial on pen to correct insulin dose
2. Allow child to choose an injection site location
3. Insert needle into subcutaneous (soft) tissue at a 90-degree angle
4. Inject insulin and hold for 6 seconds

For more information, see "Insulin Injection Sites" (PE3336) handout in the Appendix of the Living With Diabetes Handbook

After giving an insulin pen injection

1. Cover pen needle with plastic safety cap
2. Squeeze and twist pen needle off
3. Dispose of pen needle in sharps container
**Tips and tricks**

- Use a new pen needle for every injection
- Rotate injection sites to prevent overuse of one area
- Depending on the injection site you may need to gently pinch the skin up to ensure you are injecting into the subcutaneous (soft) tissue

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**How to record insulin dose on daily log**

**Example:**

**Going Home Blood Glucose Food and Insulin Log**

<table>
<thead>
<tr>
<th>Time</th>
<th>8:00AM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood glucose</td>
<td>252</td>
</tr>
<tr>
<td>Food choices and carb count in grams</td>
<td>Egg waffle (14g) Peanut butter (4g) Jelly (5g) Egg (0g)</td>
</tr>
<tr>
<td>Rapid acting Insulin</td>
<td><strong>5</strong></td>
</tr>
</tbody>
</table>

**Name:** Patty Pancreas  
**Date:** 5/4/20
**Time to tie it all together for lunch!**

- Check your child’s blood glucose level
- Count the carbohydrates in your child’s lunch
- Give insulin per your child’s dosing table
- Wait 10-15 minutes to eat

*Lunch time!
Please return in 45 minutes*
Schedule for today

Afternoon
• Insulin administration (continued)
• Types of insulin
• Insulin storage and expiration
• Blood glucose action points (treatment of low and high blood glucose levels)
• How and when to contact us after going home
• Wrap-up (school form, supplies checklist, prescriptions)
The many ways to give insulin...

Pen Device  Syringe  Pump

For more information, see "How Do I Inject with an Insulin Syringe?" (PE3234) handout in the Appendix of the Living With Diabetes Handbook

Types of Insulin
Types of insulin

**Long-acting**
(Lantus/Basaglar/Levemir)
- Basal insulin
- Works between meals and through the night

**Rapid-acting**
(Humalog/Novolog)
- Bolus insulin
- Given for carbs and high blood glucose levels

Insulin actions

**Long-acting**
(Lantus/Basaglar/Levemir)
- No peak
- Typically lasts 24 hours
- Given once per day at the same time

**Rapid-acting**
(Humalog/Novolog)
- Starts working in 10-15 minutes
- Peaks in 60-90 minutes
- Lasts about 3 hours
How to record insulin doses on daily log

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<th>12:00PM</th>
<th>3:00PM</th>
<th>6:00PM</th>
<th>9:00PM</th>
<th>3:00AM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood glucose</td>
<td>252</td>
<td>180</td>
<td>135</td>
<td>210</td>
<td>320</td>
<td>195</td>
<td></td>
</tr>
<tr>
<td>Food choices and carb count in grams</td>
<td>Egg waffle (14g)</td>
<td>Peanut butter (4g)</td>
<td>Jelly (5g)</td>
<td>Mac n' Cheese (50g)</td>
<td>Carrots (8g)</td>
<td>Granola bar (20g)</td>
<td>Banana (25g)</td>
</tr>
<tr>
<td>Humalog Rapid acting Insulin</td>
<td>5</td>
<td>0</td>
<td>7</td>
<td>5</td>
<td>7.5</td>
<td>3</td>
<td>0.5</td>
</tr>
<tr>
<td>Lantus Long acting Insulin</td>
<td>18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Insulin Storage and Expiration
**Insulin storage**

- Store all **unopened** insulin in the **refrigerator**

- Insulin does NOT like extreme temperatures
  - Cannot get too hot **(greater than 86 degrees)**
  - Cannot freeze **(32 degrees or lower)**

- Keep away from heat and direct light

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**Insulin expiration**

- Insulin is good until the expiration date printed on the label

- **Once opened**, keep insulin at **room temperature** and throw away after **28 days**

Insulin that is unopened and unrefrigerated for more than 24-48 hours is considered opened; discard after 28 days
Hypoglycemia – low blood glucose

Hypoglycemia – TAKE ACTION

- Low blood glucose is less than 70 mg/dL

- Symptoms include:

- Treat quickly with rapid-acting carbs

For more information, see “Hypoglycemia – Novo Nordisk” handout in the Appendix of the Living With Diabetes Handbook
How to treat low blood glucose

Less than 70 mg/dL:

Step 1: **Eat or drink 15g of a fast-acting carb**
(example: 4-6 oz of juice, 3-4 glucose tablets)

Step 2: **Wait 15 minutes and recheck blood glucose**

Step 3: Repeat above steps if blood glucose is not above 70 mg/dL

Step 4: Once blood glucose is above 70 mg/dL, eat a 15g carb snack mixed with protein and fat
(example: cheese and crackers, granola bar)

Glucagon

- An emergency medication used for **SEVERE LOWS**
  - Child is unconsciousness and/or having a seizure
- Prepare medication and give injection into outer thigh muscle
- Turn child on their side and call 911
- Check expiration date regularly

Phone app with instructions
Medical Identification

• Medical ID is extremely important for the safety of your child

• Include the word “diabetes” on the Medical ID

• Several companies sell these:
  o American Medical ID
  o Lauren’s Hope
  o MedicAlert Foundation
  o RoadID
  o Walgreens

For more information, see “Medical Alert” (PE 2417) handout in the Appendix of the Living With Diabetes Handbook

Hyperglycemia – high blood glucose
Hyperglycemia

• Symptoms include:

• Contributing factors:
  o Not enough insulin
  o Illness
  o Hormones (i.e. growth, stress)

• Insulin lowers blood glucose levels

For more information, see "Hyperglycemia - Novo Nordisk" handout in the Appendix of the Living With Diabetes Handbook

Let’s Practice What You Learned Today!
Time to tie everything together again…

Please take out your:

- Child’s insulin dosing tables (day and night)
- Going Home Food Plan you created with the dietitian
- Going Home Blood Glucose, Food and Insulin log

Now let’s use this information to practice walking through a sample day at home

What do you do if…

Scenario #1:
You notice that your child is shaky and complaining of weak legs.

- Suspect hypoglycemia (low blood glucose)
- Check your child’s blood glucose level
- Treat with fasting-acting carbs if blood glucose is less than 70 mg/dL (4-6 oz juice or 3-4 glucose tablets)

Scenario #2:
Your child is hungry and wants a snack at a time that is not listed on the Going Home Food Plan you created with the dietitian.

- Your child can have a small snack that is less than 5g of carbs
- Try to include something with protein and/or fat to help your child feel full
- No insulin is given for this snack
- **Reminder**: do not dose rapid-acting Humalog/Novolog insulin closer than 3 hours apart
What do you do if...

Scenario #3:
You realize you only checked your child’s blood glucose 3 times yesterday.
- Today you can go back to checking a minimum of 5 times per day:
  1. Before breakfast
  2. Before lunch
  3. Before dinner
  4. Bedtime
  5. Overnight (between 1-3AM)

Scenario #4:
You check a blood glucose at bedtime and the number is 350 or 250 or 150 or 50.
- Look at the NIGHT TIME dosing table to calculate insulin dose (if needed)
- For low blood glucose less than 70 mg/dL, treat with 15g of rapid-acting carb. Blood glucose should be back up to a normal level before your child goes to sleep.
Diabetes at school

• Notify school that your child has been diagnosed with diabetes

• Establish a safety plan at school:
  o May include school nurse and/or PDA (parent designated adult)
  o School may require extra medications and supplies be kept at school
  o Copy of diabetes care plan for school

Supplies checklist

• Travel case to carry all supplies in:
  - Glucometer kit (meter, blood glucose strips, lancing device, lancets)
  - Insulin (pen needles, syringes, alcohol wipes)
  - Fast-acting carbs (juice, glucose tablets)
  - Glucagon
  - Ketone strips
  - Daily log and a pen

• Medical ID

• Tip: always pack extra snacks!
Prescriptions

• Pick up all of your prescriptions before going home:
  o Seattle Children’s Hospital Ocean 6 pharmacy
  o They will dispense one month of insulin, Glucagon and diabetes supplies

• Future prescriptions can be dispensed by your pharmacy of choice:

<table>
<thead>
<tr>
<th>Retail Pharmacies</th>
<th>Mail Order Pharmacies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Call your local pharmacy and ask them to transfer all of your prescriptions from Seattle Children’s to their pharmacy</td>
<td>Ask diabetes team to electronically send prescriptions to your preferred mail order pharmacy. Often dispense 3 month supply.</td>
</tr>
<tr>
<td>Examples: Walgreens, Rite Aid, Bartell Drugs</td>
<td>Examples: CVS Caremark, Express Scripts</td>
</tr>
<tr>
<td>Your insurance plan may have a preferred retail pharmacy for you to use</td>
<td>Contact your insurance company to see if you have mail order pharmacy benefits</td>
</tr>
</tbody>
</table>

Contacting your diabetes team

• Please contact us tomorrow before 11AM to review your child’s blood glucose log

• We would like to hear from you 2-3 times per week until your first diabetes team visit

• Part 2 of Living with Diabetes education should be scheduled within 1 week from today

<table>
<thead>
<tr>
<th>Non-Urgent</th>
<th>Urgent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phone: 206-987-2640</td>
<td>Phone: 206-987-2000</td>
</tr>
<tr>
<td>Email: <a href="mailto:endonurse@seattlechildrens.org">endonurse@seattlechildrens.org</a></td>
<td>Ask the operator to page the diabetes team</td>
</tr>
<tr>
<td>Hours: 7:00AM-4:30PM (Monday-Friday)</td>
<td>Hours: anytime (24/7)</td>
</tr>
<tr>
<td>• Blood glucose review</td>
<td>• Vomiting</td>
</tr>
<tr>
<td>• General questions</td>
<td>• Persistent lows less than 70 mg/dL</td>
</tr>
<tr>
<td>• Prescription refills</td>
<td>• Gave the wrong insulin or the wrong dose</td>
</tr>
</tbody>
</table>

For more information, see “When to Call Your Diabetes Team” (PE2989) handout in the back cover of the Living With Diabetes Handbook binder
Any Questions?

Seattle Children's
Hope. Care. Cure.