

patient education program

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Diabetes - Pattern Management

Pattern management is used to help make good decisions about insulin changes. The fact is, there is no perfect insulin dose. The amount of insulin you need is always changing. This means you **will need** to make changes to insulin doses often. Following the steps below will help you do this in a safe way.

Steps:

1. Know your child's target range:

Age	Daytime	Bedtime/Overnight	Correction Target
Younger than 5 years	80-180	100-180	150
5 years and older	70-150	90-150	120

2. Test the blood sugar 9 times per day (to include midnight and 3 AM when needed) for 3-4 days and write the numbers in a logbook along with grams of carbohydrate eaten and number of units of insulin taken. If using a sensor, this information can still be recorded in a log book or you can add events using the receiver or app on your phone.
3. Look for patterns.
 - Look for a pattern of low or high blood sugars at a particular time of the day or night
 - Look at before meal and over-night blood sugars to adjust long-acting insulin
 - Look at 2-3 hour after meal blood sugars to adjust short-acting insulin
4. Decide which insulin needs changed and how much.
 - Give less insulin to fix low blood sugars; give more insulin to fix high blood sugars
 - A good change to start with is increasing or decreasing the dose by 10%. (*See chart*)

If the dose is:
Less than 10 units = change by ½ unit – 1 unit
10 to 14 units = change by 1 unit
15 to 24 units = change by 2 units
25 to 34 units = change by 3 units
35 to 44 units = change by 4 units

- If you are changing short-acting insulin, you must figure out what the new insulin to carb ratio will be by dividing the new dose of insulin by your typical carbohydrate intake at the meal.

Example:

Current insulin to carb ratio: 1 unit for every 15 grams. Typically eat 60 grams of carb = 4 units
Blood sugar is low after the meal so you take 1 unit less = 3 units
Divide 60, your typical carb intake, by the new dose of insulin (3 units) = 20
New insulin to carb ratio: 1 unit for every 20 grams

- Do not change two doses at once because it is harder to figure out which change worked. *More than one change is appropriate if there are low blood sugars.*

5. Keep testing the blood sugar 9 times per day to see if the change worked. Then, make another change if needed.
 - Give the change time to work. Wait 3-4 days for insulin changes made for high blood sugars.
 - If low blood sugars occur, you may lower the insulin each day until blood sugars are in the normal range. Do not wait the usual 3-4 days.

Insulin Changes for Active Days

Activity can make blood sugars unpredictable, causing high or low blood sugars depending on type of activity, intensity and amount of time. Instead of always having to treat low blood sugars, you can deal with these issues ahead of time by using the following tips:

- If you have low blood sugars when you are active after or between meals:
 - Decrease the dose of short-acting insulin by $\frac{1}{2}$ at the meal before the activity
- If you have low blood sugars overnight when you have been active during the day:
 - Decrease the evening dose of long-acting insulin by 20%
- If an activity causes high blood sugars that drop after the activity is done:
 - Give $\frac{1}{2}$ the correction at the meal following the activity

As with all insulin changes, you will need to keep testing blood sugars to see if these changes are working for you and adjust as necessary.

Remember:

- **ALWAYS FIX LOW BLOOD SUGARS FIRST!**
- Call the diabetes team for help if you do not feel comfortable.
- Call the diabetes team if blood sugars are worse after making a change in the insulin dose or if you make more than 3 changes in the dose between clinic visits.