

# MONITORING

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Before having diabetes, your blood sugar stayed in a normal range no matter what you ate, drank or how active you were. For someone with diabetes, many things can cause blood sugar levels to go higher or lower than normal.

## Tracking Blood Sugar

- You can check your own blood sugar by using a **blood sugar meter** called a glucometer. This meter uses a small amount of blood to show how much sugar is in your blood at that time.
- You can check your own blood sugar by using a **continuous glucose monitor (CGM)**. This monitors the amount of sugar in the fluid underneath your skin.
- You can see how well your blood sugar is controlled by getting a lab test called **hemoglobin A1C**. This test measures the amount of sugar that attached to your red blood cells over the last 2-3 months. The more sugar that has attached to the cell, the higher your result.

## Self-Monitoring Blood Sugar

### What monitor do you use?

- It is important to check with your insurance company to see which device is covered.
- Work with your diabetes educator or provider's office to choose the best device for you.

### Options where to get your supplies:

- Pharmacy
- Medical supply service
- Directly from the monitor company

### When to check your blood sugar:

- Ask your provider about the best times to check your blood sugar.
- Check your blood sugar to see how it's affected by food, stress, activity or illness.
- Check your blood sugar when you feel symptoms of low or high blood sugar.
- If you take insulin, check your blood sugar before you give yourself an injection.

### What to do with your blood sugar results:

- Write down your blood sugar numbers in a log book.
- Take your meter and log book to appointments with your provider and diabetes educator.

### How to use your blood sugar meter:

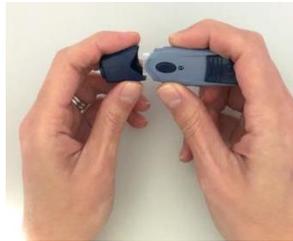
- Read the user guide for your meter and follow the directions to set it up.
- Wash your hands with soap and warm water before testing.

- Follow the steps below.

1. Gather your supplies: meter, lancing device, test strip, and lancet (needle).



2. Remove the cap from the lancing device and put in a lancet (needle).



3. Uncover the needle of the lancet by removing safety cover



4. Replace the lancing device cap.



5. Insert a test strip into the meter.



6. Place the lancing device on the side of any fingertip and push the button to poke your finger.



7. Gently squeeze your finger from palm to fingertip to get a drop of blood.



8. Touch drop of blood to the test strip. Your blood sugar result will appear on the meter in a few seconds.



*Your meter may be different. If you have questions, call the number on the back of the meter or talk to your provider, pharmacist or diabetes educator.*

## How to Dispose of Sharps

### Do:

- Place test strips in the regular trash.
- Place all sharps in a puncture proof container, such as an empty laundry detergent container.
- When the container is almost full, put the cap of the container on tightly.

When the container is 3/4 full, put the lid on, seal it with duct tape, and label  
DO NOT RECYCLE.



<http://safeneedledisposal.org/state-search/?state=MI>

**You need to check with your county's health department about where you can put the containers with used sharps.**

### Do Not:

- Place sharps in a recyclable plastic or glass container and send them to a recycling center.
- Let small children handle or play with sharps containers.
- Flush needles, syringes or lancets down the toilet.
- Discard needles or lancets in the trash.

## Blood Sugar Targets

The table below shows blood sugar targets from the American Diabetes Association (ADA). Your blood sugar targets may vary depending on many things like your age and chronic health conditions. Ask your provider about YOUR blood sugar targets.

### Adults less than 65 years old with Diabetes

Test Time	Target Range (ADA)
Fasting and before meals	80-130 mg/dL
2 hours after the start of meal	Less than 180 mg/dL
Bedtime	110-150 mg/dL
A1C	Less than 7%

### Adults Age 65+ Years with Diabetes

Health Status	Fasting or Before Meals	Bedtime
Healthy: few co-existing chronic illnesses	80-130 mg/dL	80-180 mg/dL
Complex: multiple co-existing chronic illnesses	90-150 mg/dL	100-180 mg/dL
Very Complex: long-term care or end-stage chronic illnesses	100-180 mg/dL	110-200 mg/dL

## Hemoglobin A1C

Hemoglobin A1C is a lab test that can be done at any time of day. The results of this test show a 2-3 month average of all blood sugar levels. This is given as a percentage. That percentage gives you an estimated average blood sugar. This test should be done:

- every 3 months if your diabetes is not well controlled, or
- at least twice a year if you are meeting your treatment goals

A1C Percentage (%)	Estimated Average Blood Sugar (mg/dL)
6.0	126
6.5	140
7.0	154
7.5	169
8.0	183
8.5	197
9.0	212
9.5	226
10.0	240
10.5	255
11.0	269
11.5	283
12.0	298

My A1C is \_\_\_\_\_%

My estimated average blood sugar is \_\_\_\_\_ (mg/dL)

as of \_\_\_\_\_ (date)

The American Diabetes Association recommends an **A1C of 7% or less** to reduce your risk of problems. Goals may change as you age. However, A1C goals can be different for different people. Ask your provider for YOUR A1C goal.

## Adults Age 65+ Years

Health Status	A1C Goal
Healthy: few co-existing chronic illnesses	Less than 7 to 7.5%
Complex: multiple co-existing chronic illnesses	Less than 8%
Very Complex: long-term care or end-stage chronic illnesses	Discuss with provider

## High Blood Sugar (Hyperglycemia)

Too much sugar in your blood can be a problem. Generally, a high blood sugar is a blood sugar number of 180 mg/dL or higher, depending on your target. A high blood sugar usually happens slowly.

### Signs and Symptoms

Very thirsty	Trouble breathing
Frequent urination	Blurry vision
Weak or tired	Headache
Muscle cramps	Grouchy
Nausea	Dizzy
Vomiting	Ketones in urine

## Possible Causes

- Too much food or drink with more carbs than usual
- Not being active
- Not enough medicine, like insulin or oral diabetes medicines
- Side effects from other medicines
- Stress, which produces hormones that raise blood sugar
- Illness, which causes your body to release hormones that raise blood sugar
- Not drinking enough water causing dehydration
- Menstrual cycle, which causes hormone level changes
- Short or long term pain, may cause your body to release hormones that raise blood sugar

## Treatment

- Drink 1 cup (8 oz.) of water every hour and recheck blood sugar in 4 hours
- Take your diabetes medicines as directed
- Eat foods lower in carbs
- Practice stress relief techniques
- Exercise (follow safe exercise rules)
- If high blood sugars continue over 3 or more days OR you have ketones in your urine:
  - **Call your provider** – You may need to change your plan of care or you may need to change your medicines

## Sick Day Guidelines

When sick, your blood sugar may be higher or lower than normal. Follow these guidelines to stay safe:

- If blood sugar is 300 mg/dL or higher, drink sugar-free fluids (water, sugar-free soft drinks, tea)
- If vomiting or unable to eat solid food, drink fluids with carbs (juice, sports drinks) equal to the amount of carbs you would normally eat
- Check your blood sugar every 2-4 hours
- Never skip your diabetes medicine (pills/insulin)
- Take your temperature
- Call your provider if you have:
  - vomiting or diarrhea
  - fever of 100.5°F or higher
  - your blood sugar stays too high or too low
- Call 911 if you have:
  - trouble breathing
  - a change in mental status
  - chest pain

## Diabetic Ketoacidosis (DKA)

Diabetic ketoacidosis or DKA is a dangerous condition that can occur when blood sugar levels are too high. It occurs more often in people with type 1 diabetes. When your blood sugar is high, your cells are not getting the sugar they need for energy. With diabetes, the cells can't always get the sugar from your blood into the cells. This causes your body to use fat for energy. When fat is used for energy, the body makes ketones. Having ketones is a warning sign that your blood sugar is too high or that you are getting sick. This needs to be treated right away.

### Early Symptoms of DKA:

Thirst  
Frequent urination  
Very tired  
Dry mouth  
Blurry vision

### Late Symptoms of DKA:

Stomach pain  
Weakness  
Nausea  
Vomiting  
Fruity smelling breath

## Preventing DKA

Take the following steps when your blood sugar is 240 mg/dL or higher or you are sick:

- Check your blood sugar level every 2-4 hours or as directed by your provider.
- Check for ketones.
- Drink sugar-free fluids such as water, sugar-free soft drinks, tea, and clear soup.
- Follow sick day guidelines if you cannot eat solid food.

## Checking for Ketones

Ketone strips may be prescribed by your provider. Be sure to follow the instructions for testing.

- To check urine for ketones:
  - Urinate on the strip.
  - Compare color change on strip to chart on container after waiting specified amount of time on testing instructions.

Let your provider know if:

- Ketones are present in your urine.
- You do not know how to adjust insulin for ketones
- You have diarrhea or vomiting lasting for more than 4 hours.
- Your blood sugar is higher than 240 mg/dL two or more times in a 24 hour period.

## Low Blood Sugar (Hypoglycemia)

Too little sugar in your blood can be a problem. A low blood sugar is a number of 70 mg/dL or less. A low blood sugar can happen very quickly.

### Signs and Symptoms

Shaking	Weak or Tired
Sweating	Headache
Hungry	Grouchy
Fast heartbeat	Anxious
Vision changes	Dizzy

## Possible Causes

- Not enough carbs at meals or snacks
- Skipping meals or snacks
- Being more active or getting more exercise than usual
- Too much insulin or oral diabetes medicine
- Side effects from other medicines
- Drinking alcohol, especially on an empty stomach

## Treatment

If you are having signs or symptoms of low blood sugar, check your blood sugar with your meter. If your blood sugar is less than 70 mg/dL, follow the *Rule of 15* to bring your blood sugar back up to a normal range.

### The Rule of 15

- Eat or drink 15 grams of quick-acting carbs, such as:
  - ½ cup (4 oz.) juice
  - ½ cup (4 oz.) regular soda
  - 3-4 glucose tablets
  - 1 cup (8 oz.) fat-free milk
  - 1 Tbsp. honey
- Wait 15 minutes.
- Recheck your blood sugar.
  - If your blood sugar is still less than 70 mg/dL, repeat the treatment.
- Once your blood sugar is above 70 mg/dL, either eat:
  - A balanced snack containing carbs, protein and fat.
  - Your next meal if it is time for a meal.

### Glucagon

If your blood sugar is so low that you cannot safely treat it using the *Rule of 15*, you may need glucagon. Glucagon is prescribed by your provider. Glucagon is a hormone made by the pancreas that raises blood sugar. Glucagon should only be given by another person who knows how to give it.

Glucagon is given when a person has low blood sugar AND one or more of the following:

- Not able to swallow.
- Quick-acting carbs have not been able to raise blood sugar
- Passed out
- Having a seizure

Glucagon is available by prescription in a single-dose kit. Follow the instructions to prepare the kit. These steps should be taken when giving glucagon:

- If using injection, mix glucagon per instructions and inject glucagon into a large muscle.
- If using nasal powder, open per instructions and release powder into one nostril.
- After glucagon is given, the person with diabetes should be rolled onto their side.
- Call 911.
- Check blood sugar 15 minutes after giving glucagon.
- Once awake and able to swallow, the person with diabetes should eat a snack.