

Sick Day Management for People with Type 2 Diabetes Using Insulin

When you are sick, controlling your blood sugar (glucose) can be a challenge. Nausea, vomiting, illness and changes in eating will affect blood sugar levels. Be prepared and know how to manage your diabetes when you are sick.

Important Facts to Know!



Never omit your insulin.

- If you take diabetes pills or other medicines, ask your doctor or pharmacist what to do when you are sick. Some diabetes pills should not be taken due to the risk of low blood sugars and certain other medicines should not be taken if you are dehydrated due to vomiting or diarrhea.
- Illnesses such as infections or fever can cause your blood sugars to increase. This may even last for a few days after you are feeling better.

The stress of being sick can raise your blood sugar even if you are **not** able to eat or drink anything.

- Decreased appetite, vomiting and/or diarrhea may lower blood sugar levels but you will still need some insulin.
- Left untreated, illness and high blood sugars can quickly cause a serious and life threatening condition called hyperosmolar hyperglycemic state (HHS).
- You may need to see a doctor to diagnose your illness and help you with treatment.

Asking for Help

It can be difficult to manage your diabetes on your own when you are sick.

- Let a family member or friend know that you are sick and ask them to check in on you. Be sure someone knows how to test your blood sugar and give your insulin if you need help when you are unwell.
- HealthLine can provide professional health advice and direct you to the best place for care. Call HealthLine at 811 or your doctor/nurse practitioner if:
 - » you can't keep blood sugar above 4 mmol/L
 - » your blood sugar stays above 14 mmol/L for 24 hours after taking extra insulin
 - » you are vomiting all fluids or diarrhea continues for more than 24 hours
 - » you are getting sicker and have signs of HHS, e.g. increased thirst and urination, weakness, nausea, vomiting, tiredness, confusion, difficulty breathing or abdominal pain
 - » you or your support person are unable to check your blood sugars, inject insulin or provide carbohydrate and fluids.
- If needed, have someone take you to the hospital emergency room or call 911.

Be Prepared

Protect yourself and others

- Keep current with immunizations and flu shots
- Wash your hands properly and often
- Cough and sneeze into your arm or a tissue. Throw the tissue away then wash your hands
- Stay two meters or six feet away from a coughing or sick person
- Stay home and rest if you are sick with mild to moderate symptoms

Have a sick day plan and sick day kit ready

Talk to your doctor or diabetes educator to help you form a plan **before** you become sick (see attached sample of personal sick day plan).

Know when to start your sick day plan

Start your sick day plan when:

- you feel unwell
- your blood sugar is greater than 14 mmol/L for more than 6 hours

A sick day kit should include:

- This handout and “My Sick Day Plan”
- Insulin (rapid or short acting insulin) and insulin supplies
- Ketone testing strips (blood or urine)
- Blood glucose monitor/meter, lancets and strips
- Thermometer
- Hand sanitizer
- Sugar free and regular pop, such as ginger ale
- Soup, crackers, and other foods that are easy on your stomach
- Glucagon (ask your doctor for a prescription)
- Over the counter medicines (discuss with your pharmacist)
 - Acetaminophen (Tylenol®): for pain and fever
 - Ibuprofen (Advil®): for pain
 - Sugar free cough drops and syrup: for cough and sore throat
 - Dimenhydrinate (Gravol®): for nausea and vomiting
 - Loperamide (Imodium®): for diarrhea
 - Glucose or dextrose tablets (eg. Dex 4®): for low blood sugars

*** Remember to check your kit yearly for contents and expiry dates**

Acknowledgement

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To help you remember the important steps of looking after your diabetes just think of the word S-I-C-K:

S = Blood Sugar Testing

Check your blood Sugar every 2 to 4 hours when blood sugars are high (above 14 mmol/L) or more often if needed.

Target blood sugar levels can be 'relaxed' a little when you are sick. Depending on usual control, a target of 10 to 13 mmol/L would be ok for most adults and teens.

I = Insulin

Continue to take your Insulin. Often extra rapid acting or short acting insulin is needed especially if glucose levels are elevated or ketones are present. If you are having low blood sugars you may need to reduce your insulin dose(s).

Never omit your basal insulin. See "Sick Day Insulin Adjustment" on **page 4** to learn how to calculate extra rapid acting or short acting insulin doses.

C = Carb and Fluid

Try to keep Carb (carbohydrate) intake as normal as possible when you are sick. Your body needs carb for energy and to balance with your insulin. If you can only eat a small amount, focus on eating carb containing foods. You may need to eat small amounts of lighter foods or sip on carb containing fluids throughout the day to get the carb you need. Also **increase your fluid intake** to prevent dehydration.

See **page 6** for more information on eating and drinking while you are sick.

K = Ketone Testing

Ketones are a sign that you are burning lots of fat for energy and need more insulin. Most people with type 2 diabetes do not need to do **ketone testing**. If you use multiple daily insulin injections (MDI), you should test for ketones when you are sick. Ask your care provider for more information.

Record the blood sugar results, insulin used, food eaten and fluid intake (see attached sick day record). Have it handy if calling your health care professional for help.

Sick Day Insulin Adjustment

When you are sick, you **may need to increase your rapid or short acting insulin dose or even take an extra injection** to lower high blood sugars.

Important: The following section on insulin adjustment is a guideline only. Check with your health care team before using these guidelines.

What to do

1. When your blood sugar is higher than 14 mmol/L, you need extra rapid or short acting insulin.
2. Insulin adjustments are based on your total daily dose (TDD) of insulin. To get your TDD, add your usual unit doses of pre-meal and basal insulin.

For example, if you usually take 25 units short acting and 20 units long acting insulin at breakfast, 20 units short acting at supper and 30 units of long acting insulin at 10 pm, your TDD is $25 + 20 + 20 + 30 = 95$ units.

3. Your sick day adjustment will then be a percentage of your TDD. The adjustment could be 10%, 15% or 20% of your TDD, based on your blood sugar levels. See **Table A**.
4. You can calculate your extra insulin by doing the math yourself. For example, if your TDD is 95 units, 10% = 9.5 extra units (round to 9 units), 15% = 13.75 extra units (round to 14 units), 20% = 19.0 extra units.

OR

Use **Table B** on the following page to determine what your suggested sick day insulin adjustment is, based on your blood sugar levels.

Table A

Blood Glucose	Extra insulin (using rapid acting or short acting insulin ONLY)
14 to 16 mmol/L	10% of TDD
16.1 to 22 mmol/L	15% of TDD
22.1 or more	20% of TDD

Table B

Total Daily Dose (TDD) Units	Extra 10% rapid or short acting insulin	Extra 15% rapid or short acting insulin	Extra 20% rapid or short acting insulin
11 to 20	1 to 2 units	2 to 3 units	2 to 4 units
21 to 30	2 to 3 units	3 to 4 units	4 to 6 units
31 to 40	3 to 4 units	4 to 6 units	6 to 8 units
41 to 50	4 to 5 units	6 to 7 units	8 to 10 units
51 to 60	5 to 6 units	7 to 9 units	10 to 12 units
61 to 70	6 to 7 units	9 to 10 units	12 to 14 units
71 to 80	7 to 8 units	10 to 12 units	14 to 16 units
81 to 90	8 to 9 units	12 to 13 units	16 to 18 units
91 to 100	9 to 10 units	13 to 15 units	18 to 20 units
101 to 120	10 to 12 units	15 to 18 units	20 to 24 units

Important

The suggested extra rapid or short acting insulin can be taken either by:

1. Adding the suggested extra units to your usual dose at the usual time

or

2. Taking an extra insulin injection

**Rapid acting insulin
can be taken every
3 to 4 hours**

**Short acting insulin
can be taken every
4 to 6 hours**

*Remember to record all insulin injections, including any extra ones, in your log book.

Note

If your blood sugar is:

- 4 to 14 mmol/L: take your usual insulin doses and use your usual correction factors.
- less than 4 mmol/L: treat as hypoglycemia with fast acting carbohydrate; you may need to reduce your insulin doses slightly.

Sick Day Foods & Fluids

Drink plenty of fluids to stay hydrated.

Illness, vomiting, diarrhea, fever and high blood sugar can lead to dehydration. As the body tries to get rid of extra sugar, you may urinate more often. Dehydration can make you even sicker.

Choose from these sugar-free fluids:

- water or diet pop (caffeine free)
- broth or consommé
- sugar free Jello™
- sugar free Kool Aid™ or Crystal Light™

Limit: coffee, tea and colas;
the caffeine may cause dehydration

Make sure you eat foods or drink fluids with some carbohydrate (carb) regularly.

Follow your usual meal plan if possible or choose lighter foods to provide about the same amount of carb as your missed meal or snack.

Light carb food choices (15 grams of carb in each item):

- 1 slice of bread or toast
- 7 soda crackers or 4 Melba Toast
- $\frac{3}{4}$ cup hot cereal
- 1 cup of chicken noodle soup
- 1 medium sized fruit

If you are too sick to eat solid food, replace

uneaten food with carb containing fluids to provide about the same amount of carb as your missed meal or snack. It is not necessary to drink all the fluid at once: sip slowly and spread the carb containing fluids through the day. For example, if you usually have 40 grams of carb at breakfast and 15 grams of carb at morning snack, you need about 60 grams of carb through the morning: sip 1 portion of carb-containing fluids (15 grams of carb each) every hour throughout the morning.

Fluids with carb (15 grams of carb in each item):

- $\frac{1}{2}$ cup of regular Jello™
- $\frac{1}{2}$ cup ice cream or sherbet
- $\frac{3}{4}$ cup artificially sweetened yogurt
- $\frac{1}{4}$ cup regular pudding
- 1 popsicle stick
- $\frac{1}{2}$ cup juice
- $\frac{3}{4}$ cup regular soft drink
- 1 cup milk
- $\frac{1}{2}$ cup Glucerna™
- $\frac{1}{3}$ cup regular Boost or 1 bottle Boost Diabetic™
- 1 cup Gatorade™

My Sick Day Plan

- » Test **blood sugar** every _____ hours

My blood sugar should be between _____ and _____ mmol/L

- » Refer to your **insulin** adjustment guide
- » Refer to your sick day meal plan (re. **carbohydrate and fluids**)
- » Test for **ketones** every _____ hours
- » Take **temperature** every _____ hours
- » Take over the counter **medicines** as necessary. Discuss with your pharmacist. See your sick day kit for a list of possible medicines.
- » Limit **physical activity** when _____
- » Seek **immediate medical attention** if _____

Call **doctor** when blood sugar is _____ for _____ hours

Important Phone Numbers

- » HealthLine: 811
- » Family Member: _____
- » Friend: _____
- » Diabetes Educator: _____
- » Doctor: _____

Sick Day Record

Date					
Time					
Temperature					
Symptoms					
Blood Sugar					
Ketones (Type 1)					
Diabetes Meds					
Food/Fluids					
Other Medicines (Type & Dose)					
Other					